Integrated Prevention of Mother-to-Child Transmission Recent Advances in HIV, HBV, and Syphilis Elimination.

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6th annual Algerian society congress

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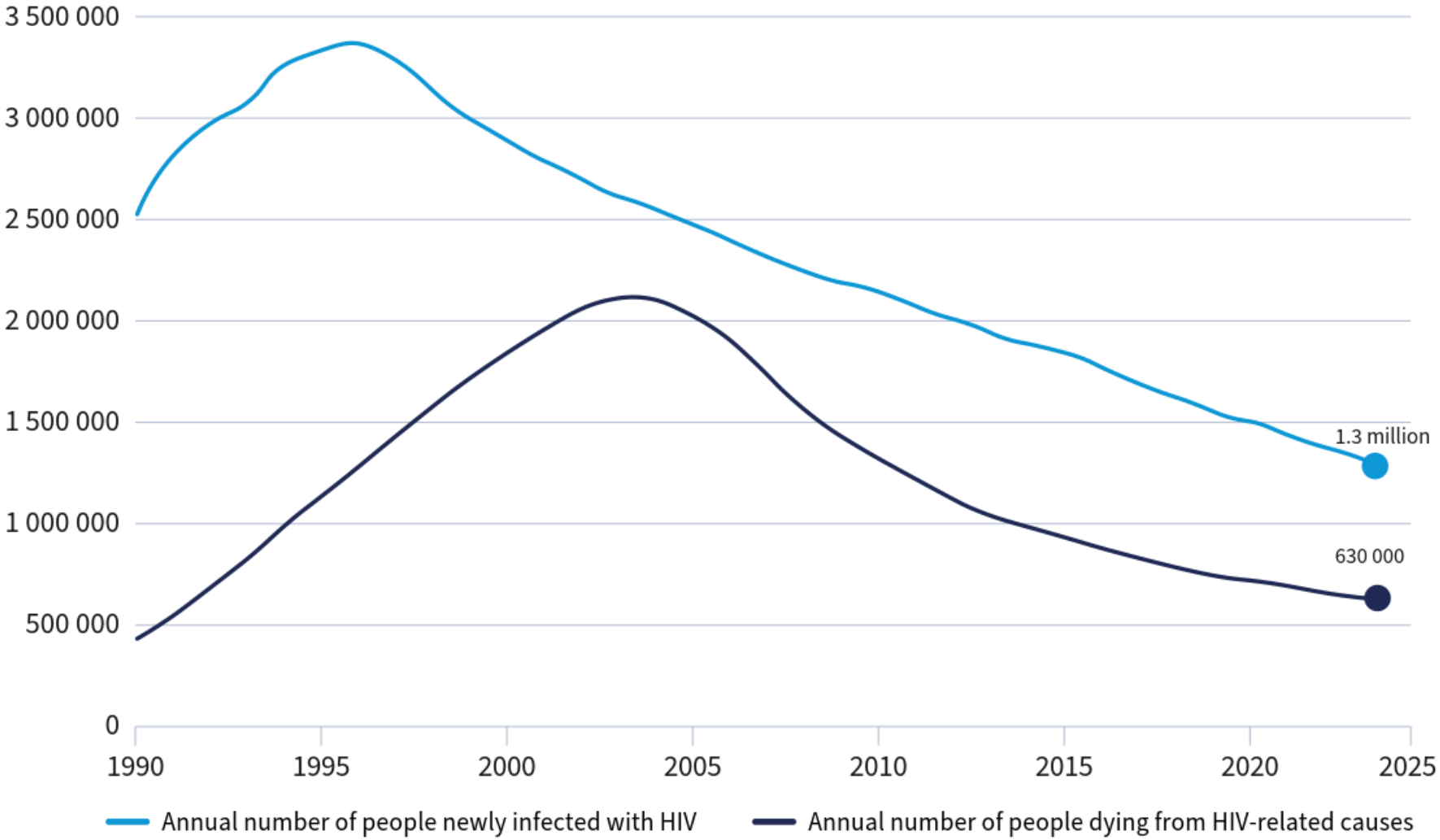
PMTCT: A Global Health Priority

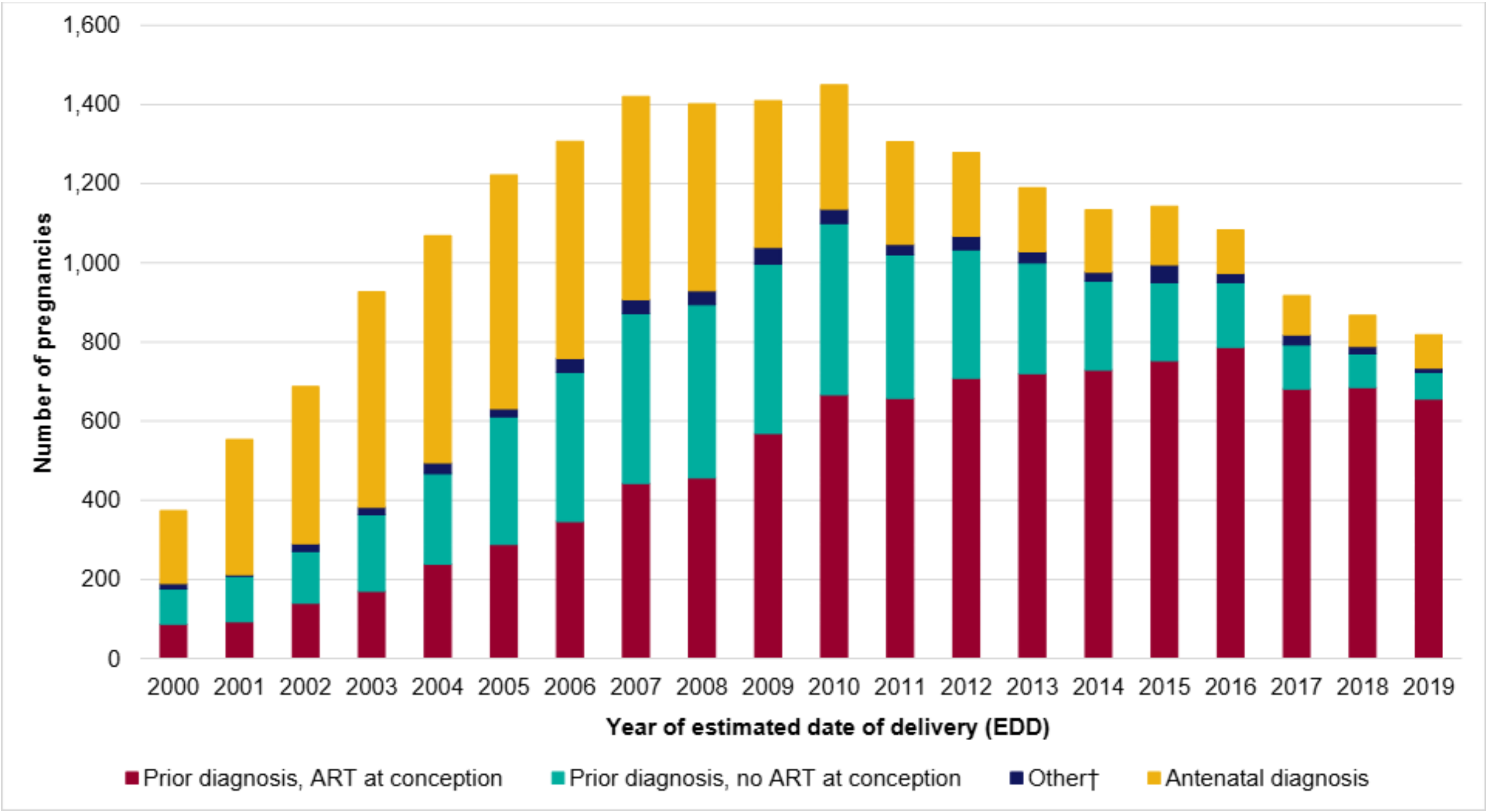
- Newborn infections cause preventable morbidity/mortality.
- Progress made but gaps remain in testing, treatment, and birth-dose vaccination.

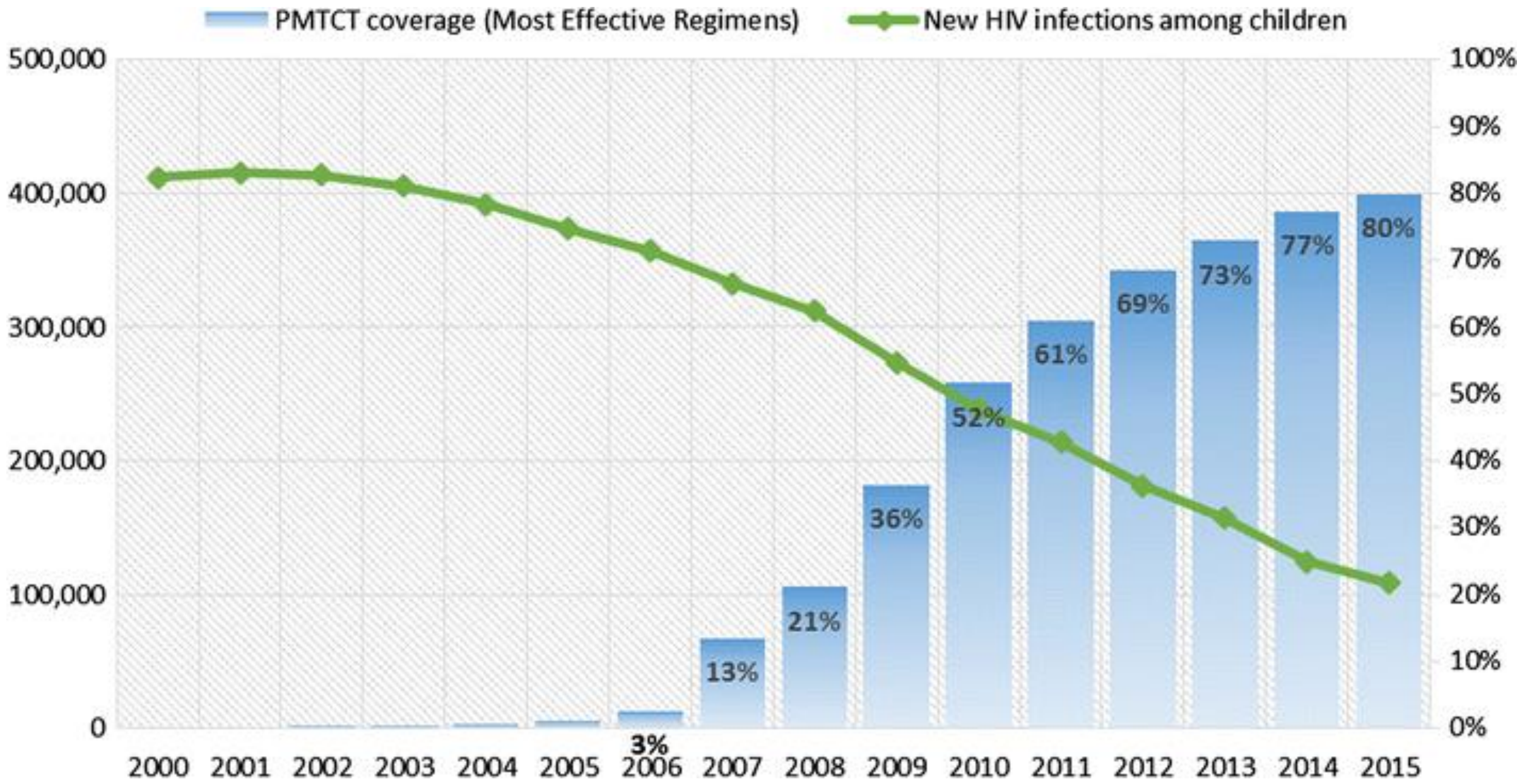
Global trends in people acquiring HIV and people dying from HIV-related causes, 1990–2024



Note: These estimates were made before the implementation of cuts to foreign aid.

Source: UNAIDS/WHO estimates, 2025.


1,600
1,400
1,200
1,000
800
600
400
200
0
Number of pregnancies
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year of estimated date of delivery (EDD)
Prior diagnosis, ART at conception
Prior diagnosis, no ART at conception
Other†
Antenatal diagnosis


PMTCT coverage (Most Effective Regimens)
New HIV infections among children
500,000
400,000
300,000
200,000
100,000
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
3%
13%
21%
36%
52%
61%
69%
73%
77%
80%
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

تدريبات منع انتقال العدوى من الأُم إلى الطفل لعام 2024 – 2025 :

511 متدرب من العناصر الطبية والطبية المساعدة من عدة مدن ليبية

182 متدرب

82 مراكز الرعاية الصحية الاولية

329 متدرب

41 المستشفيات والمراكز التخصصية

المركز الوطني لمكافحة الأمراض
NATIONAL CENTRE FOR DISEASE CONTROL - LIBYA

Triple Elimination Initiative (WHO)

- Integration of EMTCT of HIV, syphilis and hepatitis B into maternal & newborn care.

- Programmatic validation pathways and indicators.

Integrating the Elimination of Mother-to-Child Transmission (EMTCT)

- **WHO's Integrated, Person-Centered Framework**
- **Four-Pillar Approach**
  1. **Primary prevention**
  2. **Sexual & reproductive health (SRH) linkages**
  3. **Essential maternal EMTCT services**
  4. **Infant, child & partner services**
- **Programmatic Validation Pathways**
  - **Validation process:** Countries apply and undergo WHO assessment to confirm EMTCT achievement.
  - **Path to elimination:** A **three-level pathway** supports countries with high HIV, HBV, or syphilis burden.
  - **Maintaining validation:** Requires continuous prevention, service quality monitoring, and reporting.
- **Requirements for Multi-Level Achievement**
  - Strong national leadership and accountability
  - High-quality, routinely analyzed data
  - Cross-sector coordination across HIV, STI, MCH, immunization, and laboratory systems

Key Indicators for Progress & Validation

Antenatal services

- •ANC coverage
- •HIV, syphilis & HBsAg screening
- •ART coverage for HIV-positive pregnant women
- •Timely treatment of syphilis-positive pregnant women

Maternal & infant services

- •EMTCT service quality
- •Infant ARV prophylaxis
- •Timely HBV birth-dose vaccination
- •Full immunization coverage
- •Viral load monitoring

Partner & child services

- •Partner testing & treatment
- •Integrated MCH–HIV–STI–immunization service delivery

WHO’s global triple-elimination initiative

•Integrated, routine maternal services that screen and treat **HIV, syphilis, and hepatitis B (HBV)**

•**Timely HBV birth dose** for newborns and completion of infant HBV immunisation series

•**Maternal ART** and **infant prophylaxis** to prevent HIV transmission

•Use of **point-of-care or laboratory testing** during antenatal care

•**Partner testing** and linkage to appropriate care

•Strong **surveillance, monitoring, and registry systems** to track case rates and coverage indicators required for validation

PTE MTCT Indicators (HIV & Syphilis)

Tier	Process Indicators	Impact Indicators
GOLD	ANC ≥95% HIV/Syphilis testing ≥95% ART ≥95% Syphilis treatment ≥95%	HIV MTCT <2% (non-BF) or <5% (BF) New pediatric HIV ≤250/100k CS ≤250/100k
SILVER	ANC ≥90% HIV/Syphilis testing ≥90% ART ≥90% Syphilis treatment ≥90%	HIV MTCT <2% (non-BF) or <5% (BF) New pediatric HIV ≤500/100k CS ≤500/100k
BRONZE	ANC ≥90% HIV/Syphilis testing ≥90% ART ≥90% Syphilis treatment ≥90%	HIV MTCT <2% (non-BF) or <5% (BF) New pediatric HIV ≤750/100k CS ≤750/100k

The global impact targets for eliminating mother-to-child transmission (EMTCT)

Paediatric HIV

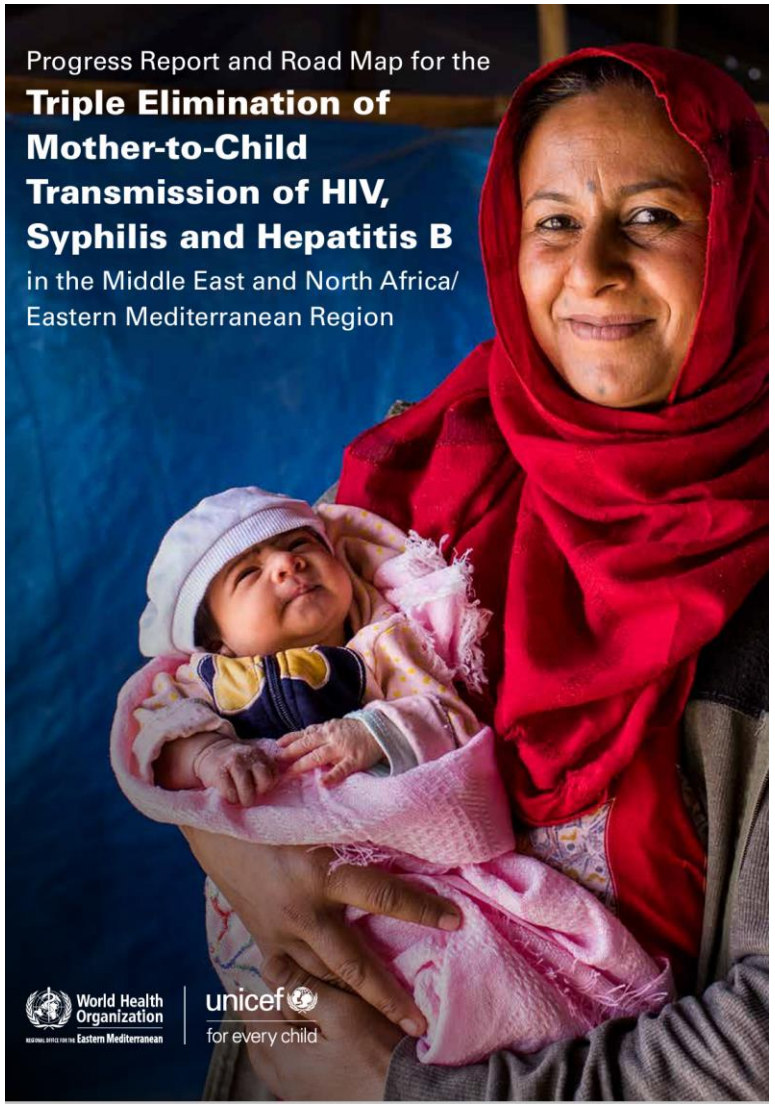
- Population case rate: ≤ 50 new paediatric HIV infections per 100,000 live births.
- HIV MTCT rate: <2% in non-breastfeeding populations, or <5% in breastfeeding populations.

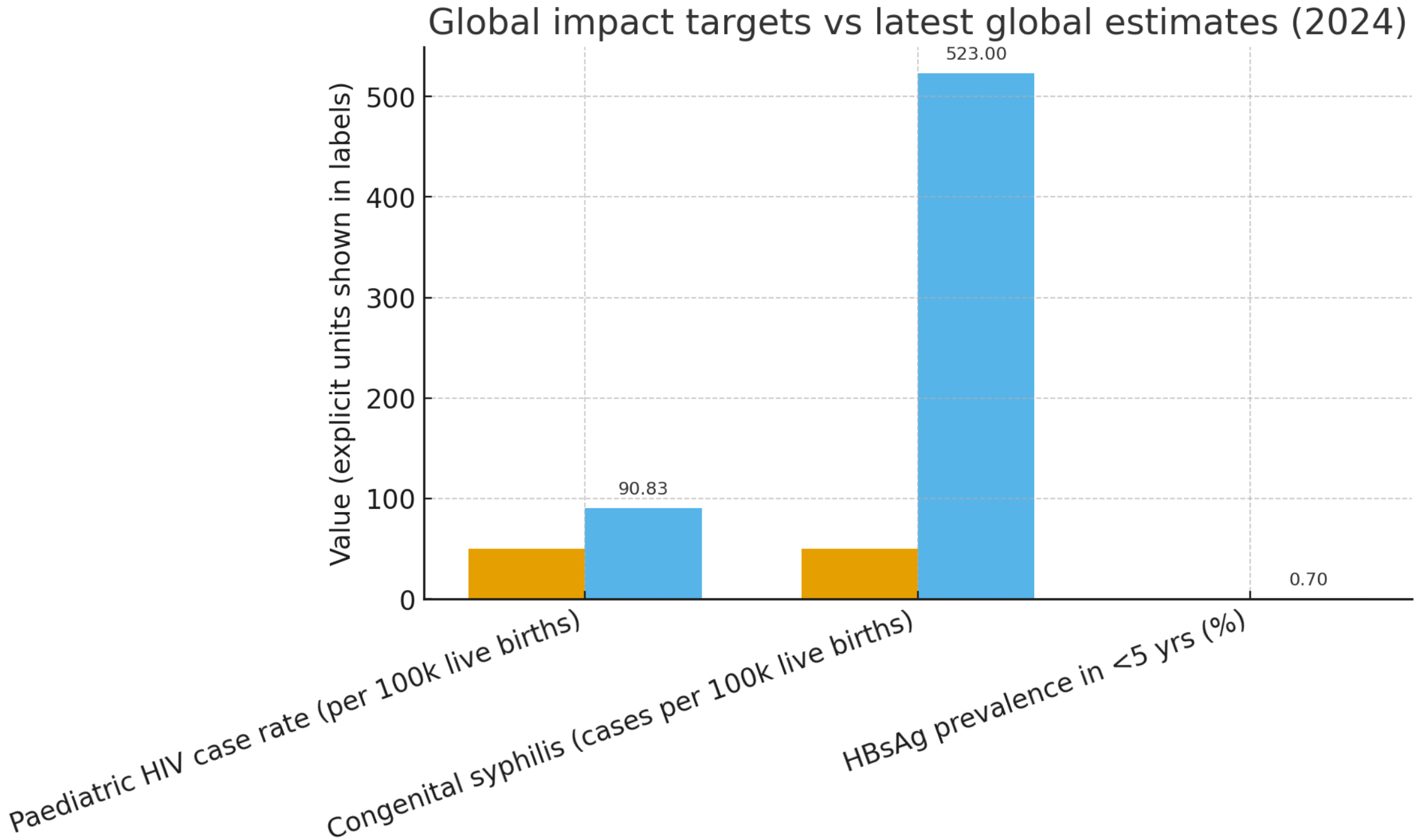
Congenital syphilis

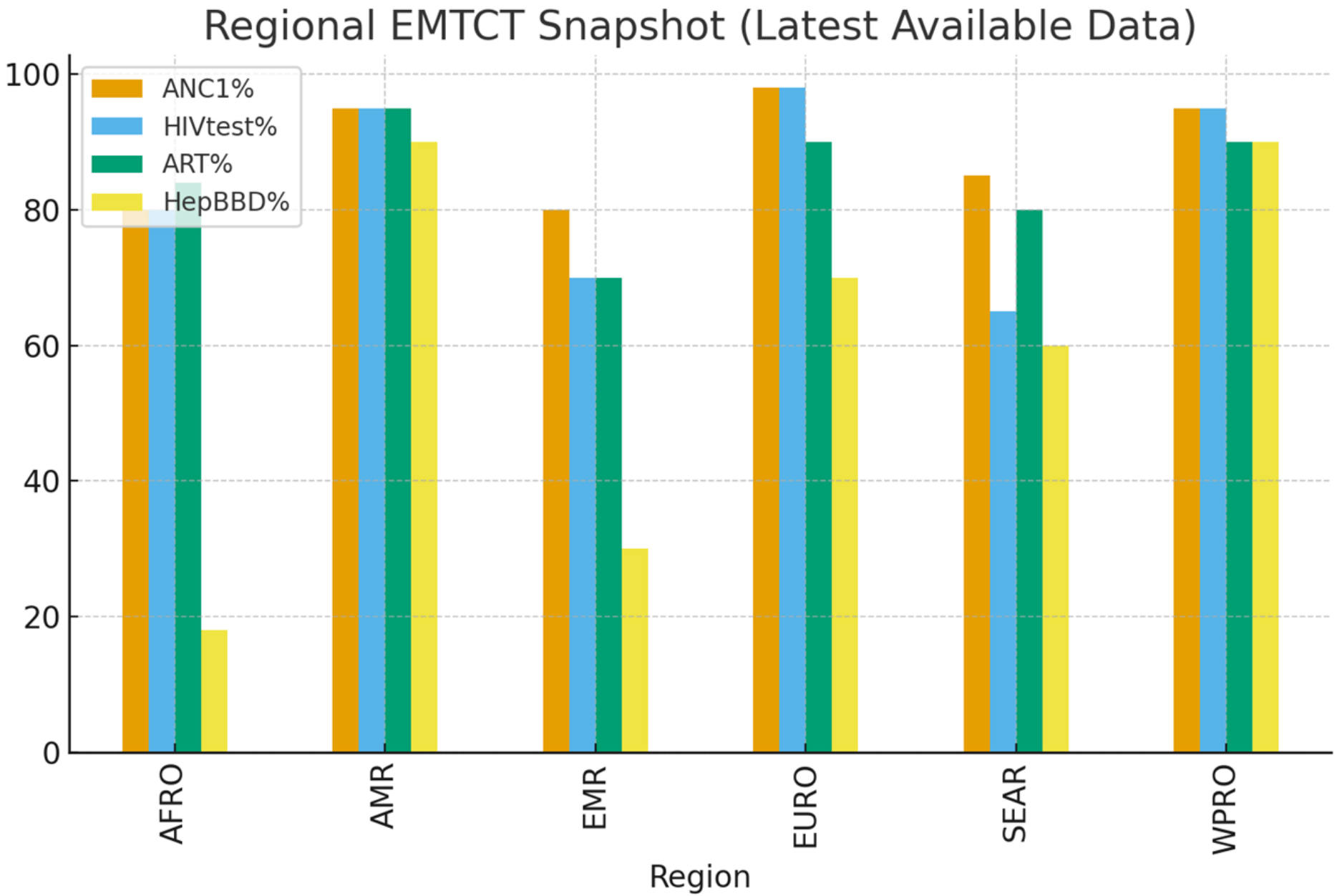
- Cases per 100,000 live births: ≤ 50 cases.

Hepatitis B (HBV)

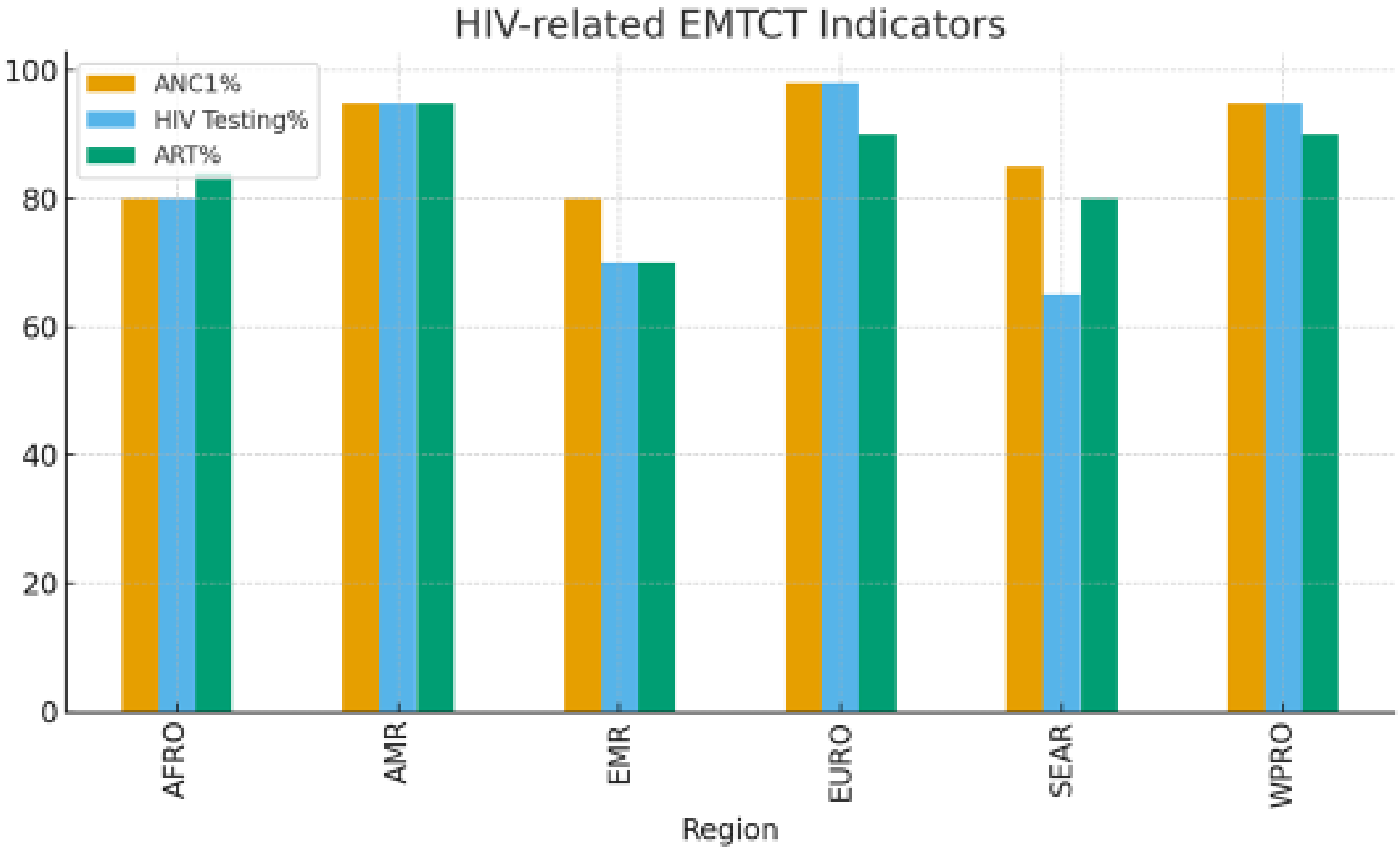
- HBsAg prevalence in children under 5 (birth cohort): ≤ 0.1%.

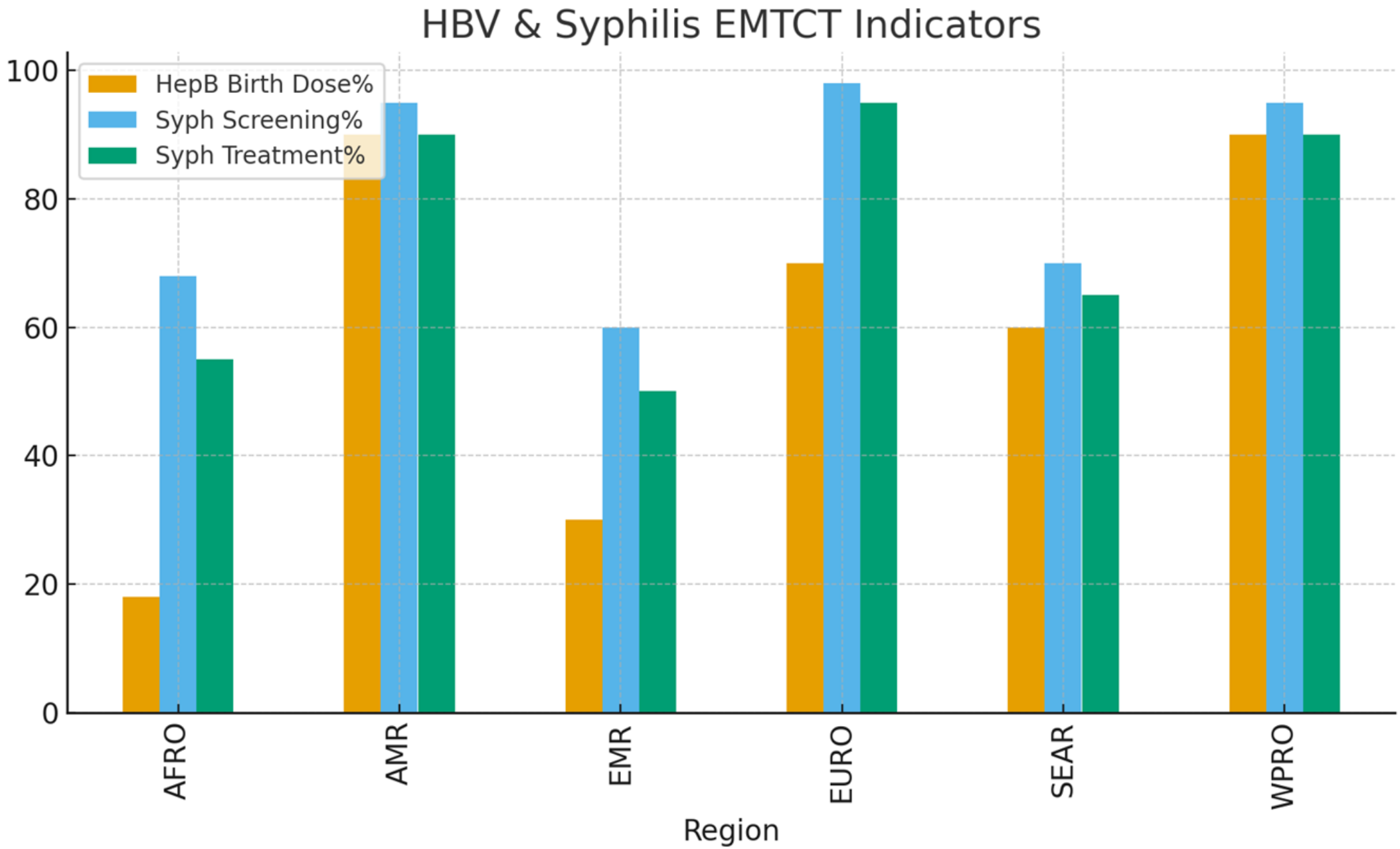



Global impact targets vs latest global estimates (2024)
Value (explicit units shown in labels)
0
100
200
300
400
500
90.83
523.00
0.70
Paediatric HIV case rate (per 100k live births)
Congenital syphilis (cases per 100k live births)
HBsAg prevalence in <5 yrs (%)


Regional EMTCT Snapshot (Latest Available Data)
ANC1%
HIVtest%
ART%
HepBBD%
100
80
60
40
20
0
AFRO
AMR
EMR
EURO
SEAR
WPRO
Region

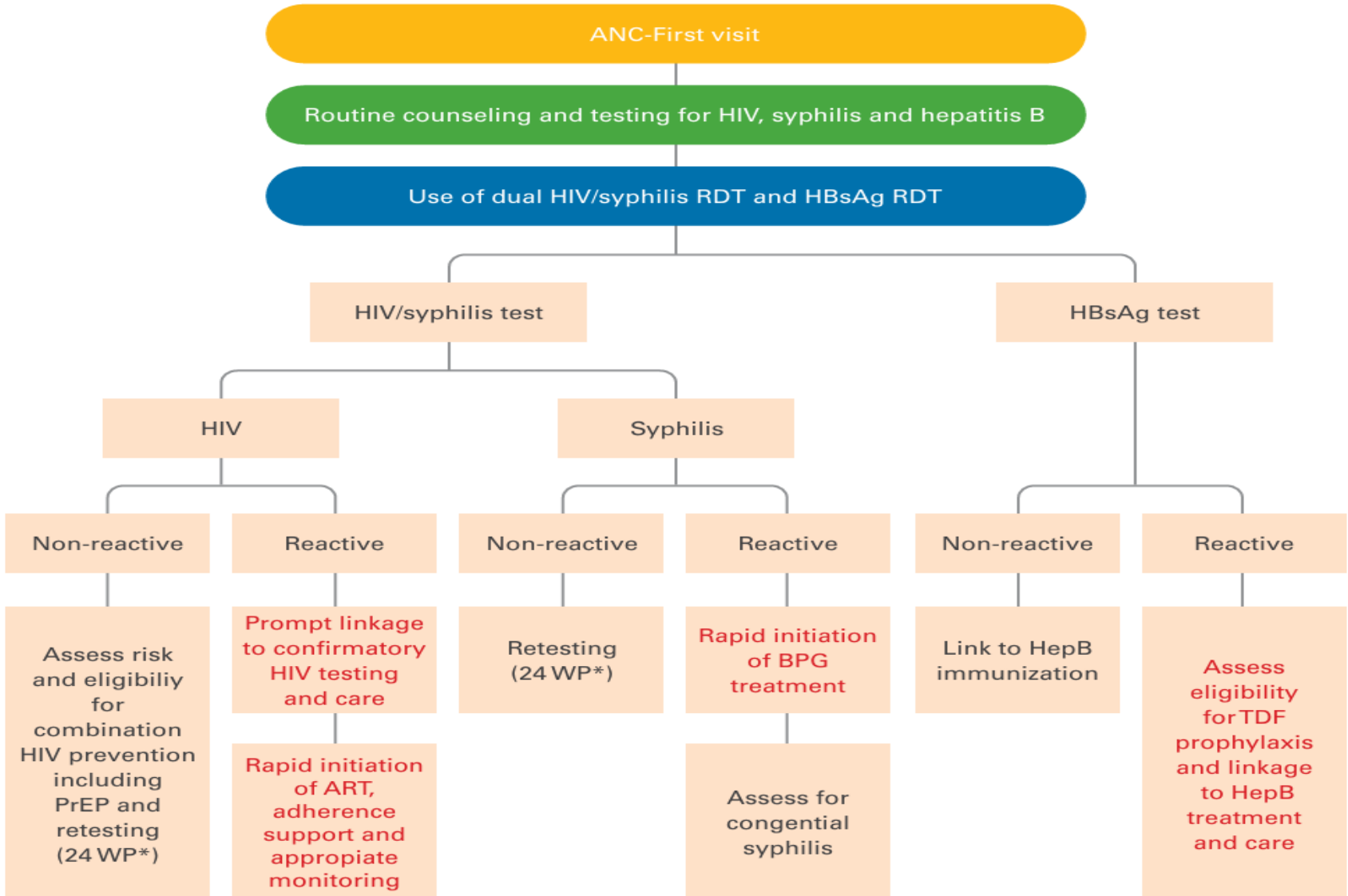
HIV EMTCT Indicators




HBV & Syphilis EMTCT Indicators
HepB Birth Dose%
Syph Screening%
Syph Treatment%
100
80
60
40
20
0
AFRO
AMR
EMR
EURO
SEAR
WPRO
Region

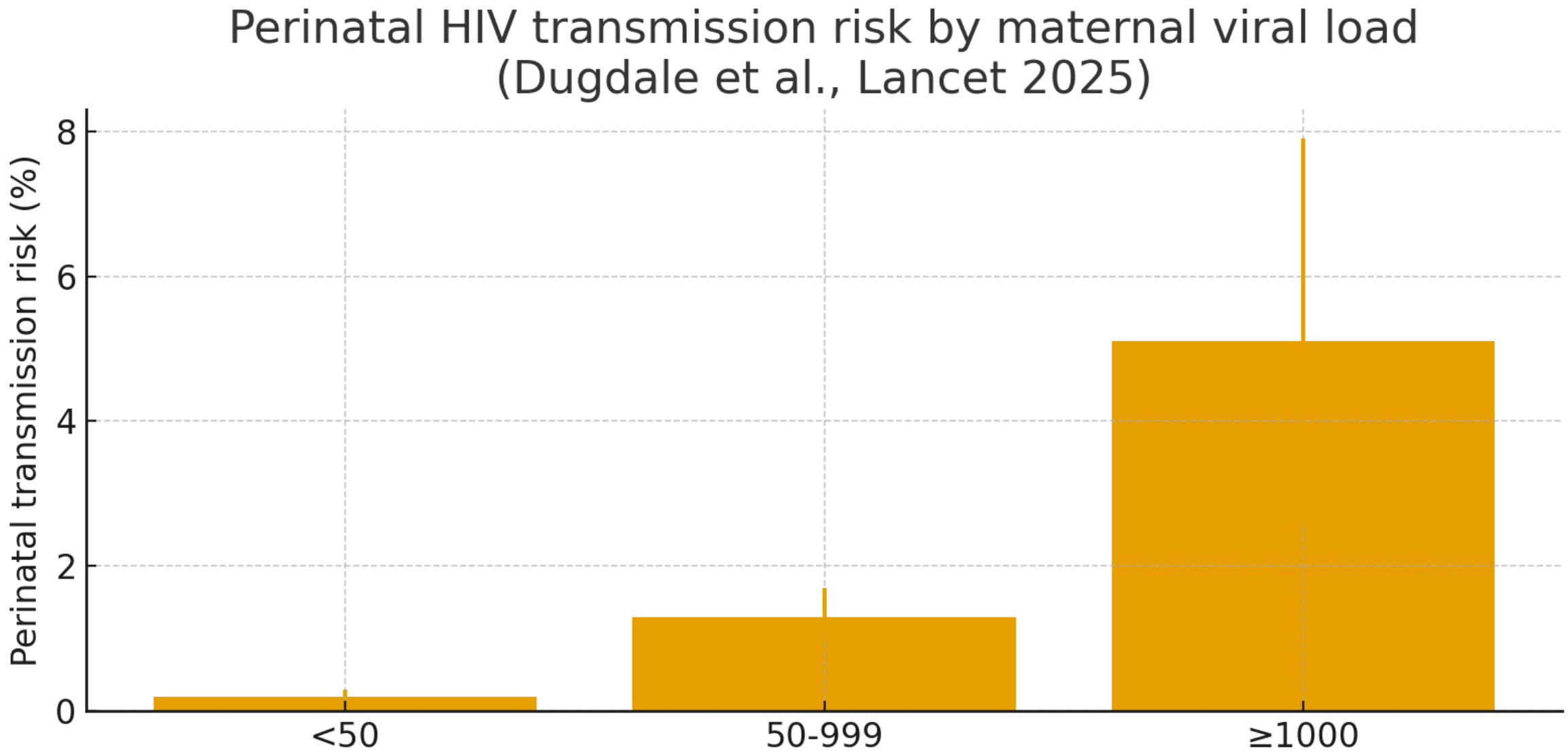
The cascade of EMTCT testing and treatment interventions is shown in **Figure 1**.

FIGURE 1: TESTING, TREATMENT, AND PREVENTION SERVICES[18]



HIV — Key principles for PMTCT

- Test early and repeatedly in pregnancy (1st visit + third trimester if high risk).
- Immediate initiation of ART for all pregnant/breastfeeding women with HIV.
- Viral suppression near delivery is the strongest predictor of MTCT risk.


Perinatal HIV transmission risk by maternal viral load
(Dugdale et al., Lancet 2025)
Perinatal transmission risk (%)
0
2
4
6
8
<50
50-999
≥1000

HIV — Recent literature updates (2023–2025)

- Evidence supports early ART initiation and maintaining viral suppression reduces MTCT to <1% in breastfeeding settings.

- New prevention tools (long-acting PrEP and long-acting agents) show promise for women of reproductive age.

THE LANCET

ARTICLES · Volume 406, Issue 10501, P349-357, July 26, 2025 · *Open Access* Download Full Issue

Estimating the effect of maternal viral load on perinatal and postnatal HIV transmission: a systematic review and meta-analysis

Caitlin M Dugdale, MD [a,b,c] · Ogochukwu Ufio, BS [a] · John Giardina, PhD [a] · Fatma Shebl, PhD [a] · Elif Coskun, MPH [a] · Eden Pletner, BS [a] · et al. Show more

Interpretation Perinatal transmission with a mHVL of <50 copies per mL is ≤0·2% overall. Zero transmissions were observed among women receiving ART before pregnancy with a mHVL of <50 copies per mL near birth, supporting U=U in pregnancy and birth. Postnatal transmission was very low—but not zero—among women with a recent mHVL of <50 copies per mL. Current data, largely from studies lacking frequent mHVL monitoring or modern first-line ART regimens, are insufficient to assess U=U during breastfeeding.

OB/GYN

Updated Guidelines on Breastfeeding in HIV-Positive Mothers

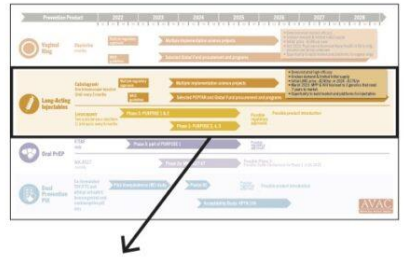

Audrey Arthur, PA-S; Amber Casado, MPA, PA-C | March 7, 2025

HIV-positive mothers with undetectable viral load can now safely breastfeed their infants, according to recently updated recommendations.[1] Previously, HIV-positive women were not encouraged to breastfeed, limiting their choices on how to care for and feed their infants. This change aligns with new evidence-based literature and promotes equity in health care by offering HIV-positive mothers the same breastfeeding opportunities as those without the virus.

- Individuals who choose to breastfeed should be counseled on and supported in adherence to ART, viral suppression, and engagement in postpartum care for themselves and their babies.

An Overview of Lenacapavir for PrEP Trials

- ★ Possible efficacy data
- ✓ Possible earliest regulatory submissions
- ✓ Possible earliest regulatory approval and market entry with product from Gilead
- ? Possible earliest generic manufacturer(s)



Trial	Population	Location	Size	2022	2023	2024	2025	2026	2027	2028	2029
PURPOSE 1 Phase 3 Injectable lenacapavir or oral TAF	Cisgender adolescent girls and young women	South Africa and Uganda	**5,010**	Fully enrolled; initial results expected late 2024			★ ✓ ✓				?
PURPOSE 2 Phase 3 Injectable lenacapavir	Cisgender men who have sex with men, Transgender women, Transgender men, Gender non-binary	US, South Africa, Peru, Brazil, Mexico, Argentina, and Thailand	**3,000**	Fully enrolled; initial results expected late 2024 or early 2025			★				
PURPOSE 3 **HPTN 102** Phase 2 Injectable lenacapavir	Cisgender women	US	**250**			Currently recruiting; estimated study completed date early 2028					
PURPOSE 4 **HPTN 103** Phase 2 Injectable lenacapavir	People who inject drugs	US	**250**			Currently recruiting; estimated study completed date mid-2027					
PURPOSE 5 Phase 2 Injectable lenacapavir	Cisgender men and women; transgender men and women, gender non-binary	France and UK	**262**			Enrollment expected to begin in the second half of 2024					

AVAC Advocacy. Access. Equity. www.avac.org
May 2024

Study: Long-acting PrEP offers HIV protection for new moms

Back to the "HIV and Co-Infections News" list

BMC Health Serv Res. 2025 Aug 20;25(1):1109. doi: 10.1186/s12913-025-13286-4.

Postpartum women's prospective acceptability of long-acting HIV prevention approaches in Kenya: a qualitative study

Tessa Concepcion [1], John Kinuthia [2], Felix Abuna [2], Eunita Akim [2], Helen Aketch [2], Laurén Gómez [3], Grace John-Stewart [4 3 5 6], Bih Moki Suh [4], Emmaculate M Nzove [2], Nancy Ngumbau [2], Jerusha N Mogaka [7], Sarah Obatsa [2], Ben O Odhiambo [2], Caroline Omom [2], Marin Strong [7], Anjuli D Wagner [4], Salphine Watoyi [2], Jillian Pintye [4 8]

Affiliations + expand

PMID: 40835934 PMCID: PMC12366025 DOI: 10.1186/s12913-025-13286-4

Abstract

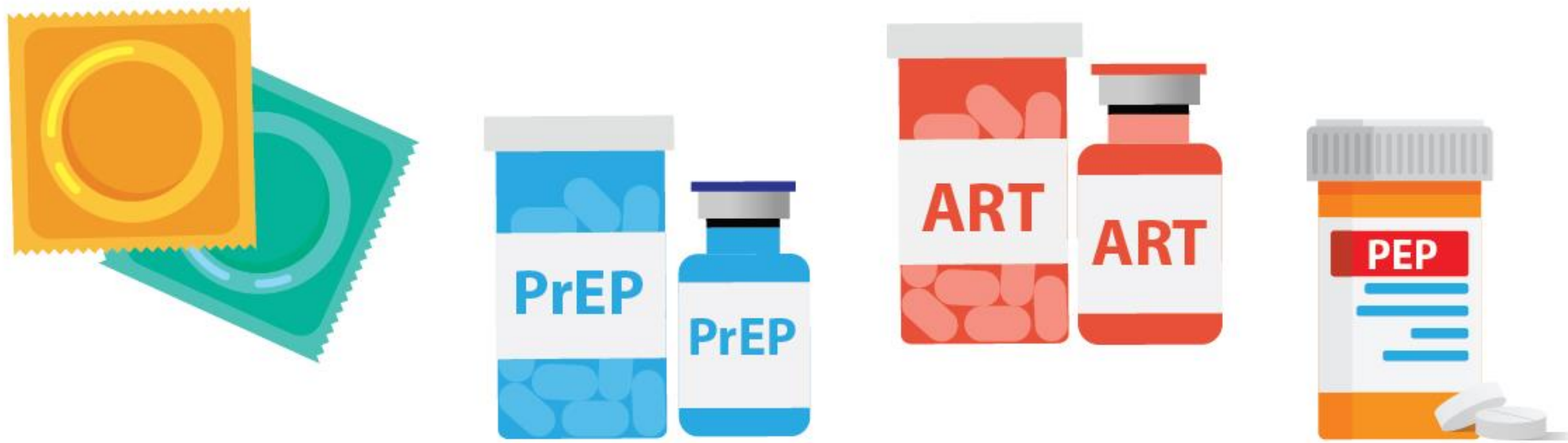
Background: New long-acting pre-exposure prophylaxis (LA-PrEP) options offer an alternative to daily oral PrEP, which poses difficulties for adherence, especially during pregnancy and postpartum. Yet, limited data exist on LA-PrEP acceptability among pregnant and postpartum women. We aimed to evaluate its acceptability and identify strategies to enhance it.

Methods: We conducted an exploratory qualitative study with postpartum women in five public health facilities in Kisumu and Siaya Counties, Kenya. We conducted 70 in-depth interviews (IDIs) with postpartum women between August 2023 and March 2024. IDIs were conducted with women expressing high, low, and mixed LA-PrEP interest throughout pregnancy and postpartum. Inductive and deductive content analysis was used, and themes of acceptability were explored using the Theoretical Framework of Acceptability (TFA).

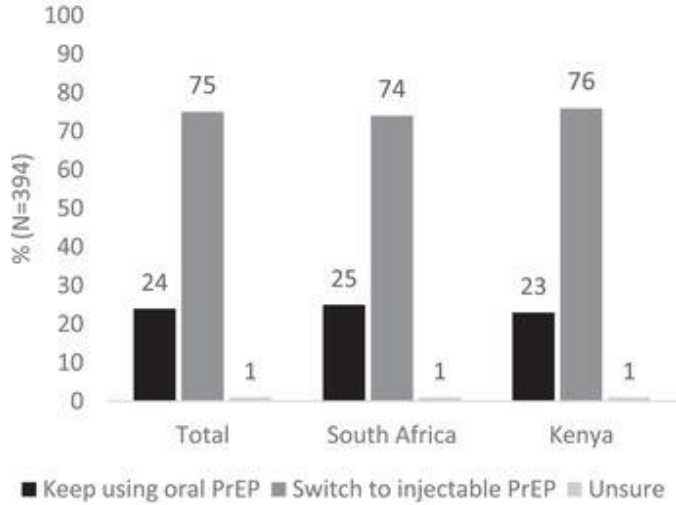
Results: Most participants viewed LA-PrEP, especially every two-month injectables, as highly acceptable due to reduced pill burden, side effects, and dosing frequency. Concerns were raised regarding injectable PrEP safety for the baby during pregnancy and suitability of using the vaginal ring during birth. Participants emphasized the importance of education on the safety of these methods during pregnancy and breastfeeding, and strategies for improving adherence, such as mobile text message reminders. Overall, women preferred LA-PrEP options over daily oral PrEP for convenience, effectiveness, and privacy, with healthcare provider education seen as crucial.

Conclusion: We found high acceptability of LA-PrEP options among postpartum women with experience taking PrEP during pregnancy. The findings reveal diverse preferences and key factors influencing acceptability, including safety, discretion, and convenience.

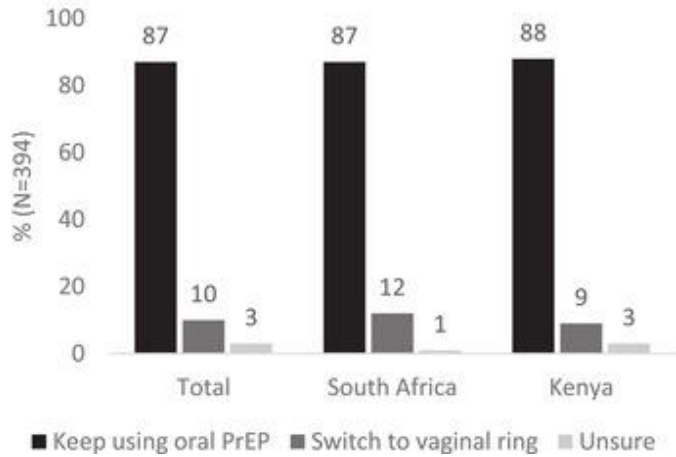
More tools than ever are **available** to **prevent HIV**.



If **injectable PrEP** were approved as safe for pregnant or breastfeeding women to use, would you prefer to keep using oral PrEP or switch to the injection?



If the **vaginal ring** were approved as safe for pregnant or breastfeeding women to use, would you prefer to keep using oral PrEP or switch to the vaginal ring?



HIV — Antiretroviral choices in pregnancy

- Dolutegravir-based regimens recommended as first-line (efficacy, tolerability).
- TDF/FTC backbone commonly used; safety in pregnancy well supported.
- Importance of adherence support and resistance monitoring.

APR report (1506 DTG exposures and 13,185 3TC exposures) [61]

As of July 2023, no increased risk of birth defects with DTG or 3TC exposures compared with background rates

DOLOMITE-EPPICC European real-world study (833 DTG exposures) [54]

No increased risk of birth defects with DTG-based ART (4.3%, N=780) above population-expected rates[a]; there were no NTDs

Studies with DTG/ABC/3TC exposures

ARIA pregnancy sub-study (N=4[b]): safety outcomes consistent with product label [55]

UK case review: DTG received as part of DTG/ABC/3TC (N=15) was well tolerated with no discontinuations or birth defects [56]

US cohort study 2008-2020 (1532 DTG exposures) [57]

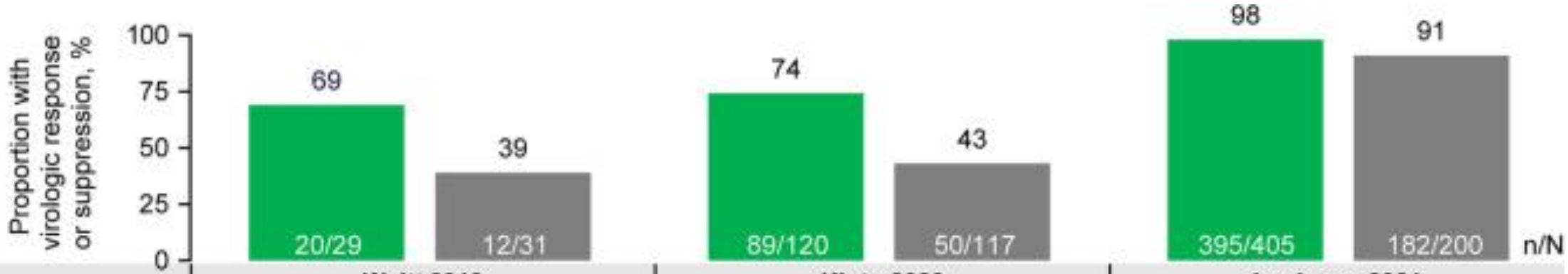
No increased risk of NTDs with periconceptional or early pregnancy DTG exposure

Meta-analysis of 5 clinical trials[c] (657 DTG exposures) [58]

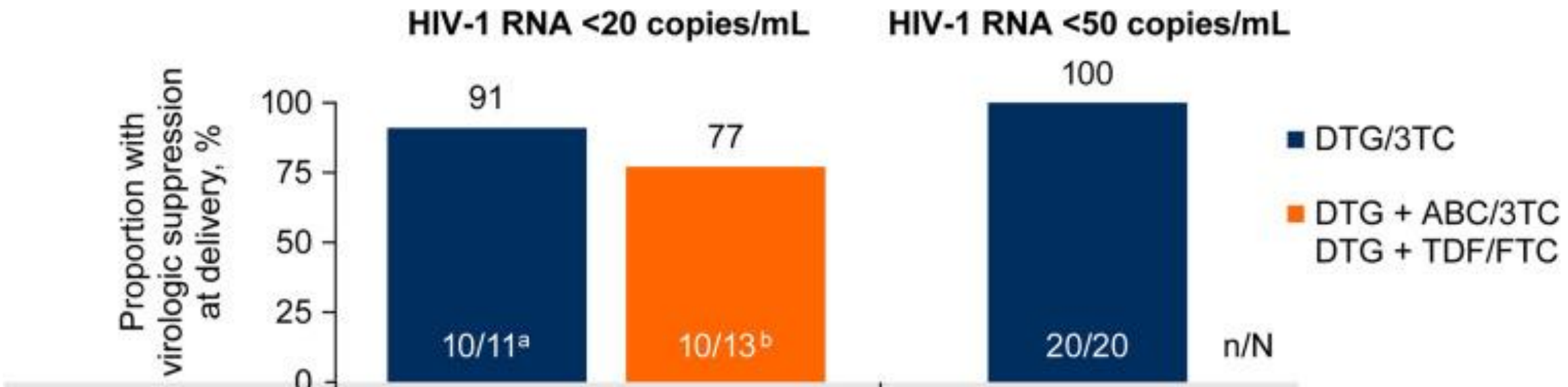
No significant differences in the overall risk of neonatal deaths or stillbirths with DTG- vs EFV-based ART; no cases of NTDs

Tsepamo (Botswana) and Eswatini surveillance studies (>14,000 DTG exposures) [63, 64]

No increased risk of NTDs from pregnancies exposed to DTG-based ART at conception vs EFV-based ART and vs people without HIV-1



Study	Waitt 2019 (DolPHIN-1)		Kintu 2020 (DolPHIN-2)		Lockman 2021 (IMPAACT 2010 [VESTED])	
Study design	Open-label, randomized, phase 2/3 trial		Open-label, randomized, phase 4 trial		Open-label, randomized, phase 3 trial	
Regimen(s)	DTG + TDF/FTC or TDF/3TC	EFV + TDF/FTC or TDF/3TC	DTG + TDF/FTC or TDF/3TC	EFV + TDF/FTC or TDF/3TC	DTG + TAF/FTC or TDF/FTC	EFV/TDF/FTC
Population	Naive to ART		Naive to ART		Naive to ART[a]	
Gestational age at study entry	>28 to <36 weeks		≥28 weeks		14 to 28 weeks	
Study definition of virologic response or suppression	HIV-1 RNA <50 copies/mL (missing = failure)		HIV-1 RNA <50 copies/mL		HIV-1 RNA <200 copies/mL	
Time of assessment of virologic response or suppression	2 weeks postpartum		Delivery		Delivery	
Vertical transmission events, % (n/N)	NR	NR	2 (3/123)	0 (0/119)	2[b]	0[b]



Study	Pagnucco 2022		Brites 2023
Study design	Real-world retrospective cohort study		Open-label, single-arm, proof-of-concept study
Population	Naive to ART and prior ART experience[c]		Naive to ART[d]
Vertical transmission events, n	0	0	0

HBV — Key interventions to prevent MTCT

	Recommended Action	Key Updates & Context
Universal Screening	Test all pregnant women for HBsAg at their first antenatal visit .	A "**triple panel**" (HBsAg, anti-HBs, anti-HBc) is now recommended for adults in some guidelines .
Antiviral Prophylaxis	Provide antiviral treatment (e.g., TDF) in the third trimester to pregnant women with high viral load (e.g., HBV DNA ≥200,000 IU/mL) .	Eligibility has been **expanded**; it is a key strategy to block transmission in high-risk mothers .
Infant Vaccination & Protection	Ensure all newborns receive: • **HepB-BD**: A birth dose within 24 hours. • **Completion** of the vaccine series .	**Hepatitis B Immunoglobulin (HBIG)** is also given within 24 hours to infants born to HBsAg-positive mothers .
Post-Vaccination Testing	Conduct **Post-Vaccination Serological Testing (PVST)** for infants born to infected mothers, 1-2 months after the final vaccine dose .	Confirms the success of the PMTCT strategy and identifies the few infants for whom it failed

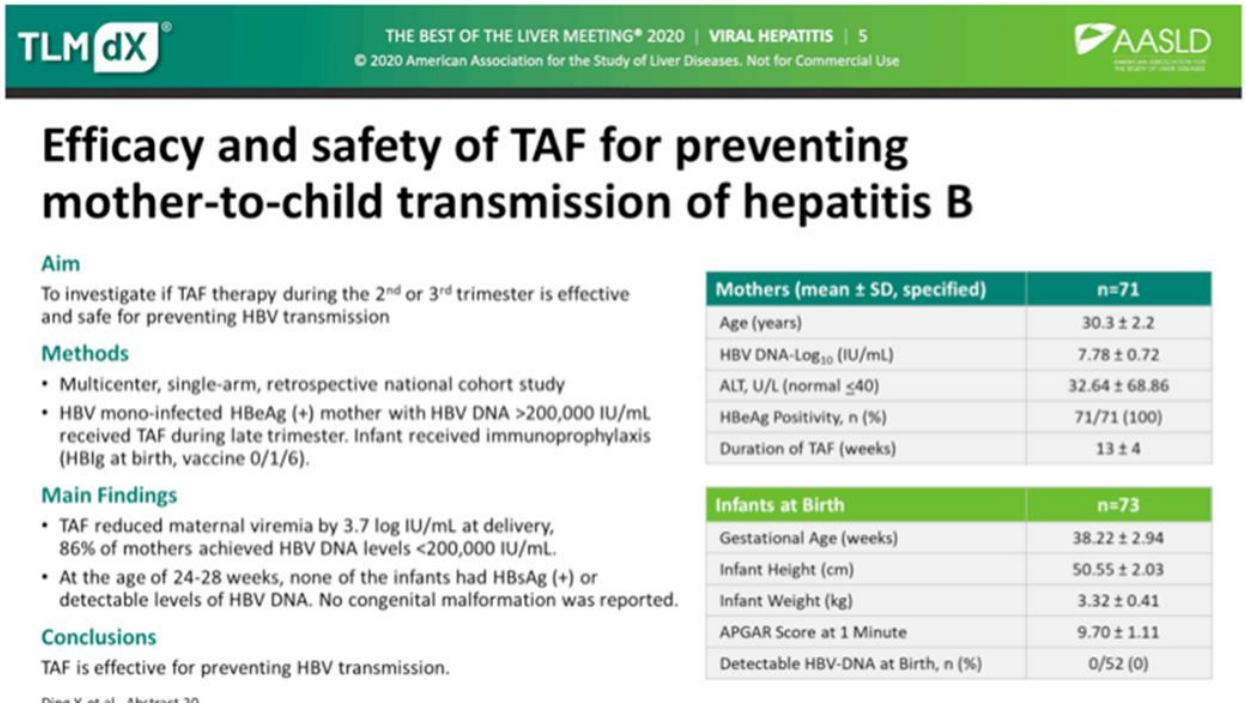
HBV — Recent evidence & guidance (2020–2025)

- Trials and guideline reviews reinforce TDF safety and effectiveness to reduce perinatal HBV transmission.

- Where HBV DNA testing unavailable, HBeAg can be used as a proxy in many settings.

Cohort Studies on TAF in Pregnancy

- Cohort 1: Multicenter Prospective Study
  - • Population: Pregnant women with HBV DNA >200,000 IU/mL
  - • Intervention: TAF vs TDF started at 24–35 weeks
  - • Infant prophylaxis: HBV vaccine ± HBIG
  - • Outcomes:
    - – 0% HBsAg positivity at 7 months in TAF group
    - – Good maternal tolerance; nausea ~19%
    - – No birth defects; normal infant growth



Cohort Studies on TAF in Pregnancy

- Cohort 2: Early/Mid-Pregnancy Exposure Study
  - • 98 women initiating TAF earlier in pregnancy
  - • All achieved HBV DNA <200,000 IU/mL by delivery
  - • 0% MTCT; no congenital abnormalities
- Postpartum Study (332 women)
  - • ALT flares common: 25.6% had ALT >2× ULN
  - • 12.8% required extended antiviral therapy

> Front Med (Lausanne). 2022 Jan 17:8:796901. doi: 10.3389/fmed.2021.796901. eCollection 2021.

Safety and Efficacy of Tenofovir Alafenamide Fumarate in Early–Middle Pregnancy for Mothers With Chronic Hepatitis B

Ruochan Chen [1 2], Ju Zou [1 2], Liyuan Long [1 2], Haiyue Huang [3], Min Zhang [1 2], Xuegong Fan [1 2], Yan Huang [1 2 4]

Affiliations + expand

PMID: 35111780 PMCID: PMC8801781 DOI: 10.3389/fmed.2021.796901

Abstract

Background: Tenofovir alafenamide fumarate has been used in late pregnancy; however, no data exist regarding its safety and effectiveness in early and middle pregnancy for mothers with hepatitis B virus infection.

Aims: To design a prospective study to investigate the efficacy and safety of TAF in pregnant women with chronic HBV infection during early-middle pregnancy.

Methods: Pregnant women with active chronic hepatitis B who received tenofovir alafenamide fumarate during early and middle pregnancy were enrolled and followed up until 6 months postpartum. Infants received immunoprophylaxis. The primary endpoint was the safety of mothers and infants. The secondary endpoints were maternal hepatitis B virus DNA reduction at delivery and mother-to-child transmission rate.

Results: Among 98 mothers enrolled, 31 initiated tenofovir alafenamide fumarate in early pregnancy, and 57 in middle pregnancy. The mean (± standard deviation) age was 29.00 (±3.81) years. At delivery, 100% (98/98) of the mothers achieved hepatitis B virus DNA levels <200,000 IU/L. Ninety-eight infants were born, and none had congenital defects or malformations. All infants received hepatitis B virus immunoprophylaxis. The mother-to-child transmission rate was 0%. Growth parameters including body weight, height, and head circumference were comparable to the national standards for physical development. No severe adverse effects were reported in either mothers or infants. No severe liver function damage occurred in any of the mothers.

Conclusions: Initiating tenofovir alafenamide fumarate in early and middle pregnancy appears safe for both mothers and infants, and it is effective for controlling maternal disease as well as interrupting mother-to-child transmission.

TAF in Pregnancy for HBV PMTCT – Summary

- Zero MTCT in available cohorts with maternal TAF + infant prophylaxis
- Effective viral suppression (HBV DNA <200,000 IU/mL by delivery)
- Good maternal safety; nausea most common adverse effect
- No congenital defects; normal infant growth
- Lower fetal exposure than TDF (undetectable in cord blood/breast milk)
- Postpartum ALT flares require monitoring
- Advantages: improved renal/bone safety, minimal fetal exposure
- Limitations: data smaller than TDF; need broader/global evidence

Vertical Transmission Risk According to Syphilis Stage

PRIMARY

Chancre lesion

- Appearing 10-90 days after exposure
- Common sites: anus, vulva, oral mucosa
- Disappearing in 2-8 weeks in immunocompetent but can last longer in immunocompromised

SECONDARY

Non-itchy rash: pink to brown macules commonly located on the palms and soles

Mucous patches

Early neurosyphilis: cranial nerve deficits, aseptic meningitis

Anterior or posterior uveitis

Genito-inguinal rashes

Acute hepatitis

Nephrotic syndrome

EARLY LATENT

No symptoms

Serology +

History confirms exposure or symptoms within the last year.

LATE LATENT

No symptoms

Serology +

Do not meet criteria of early latent

TERTIARY

Neurosyphilis:

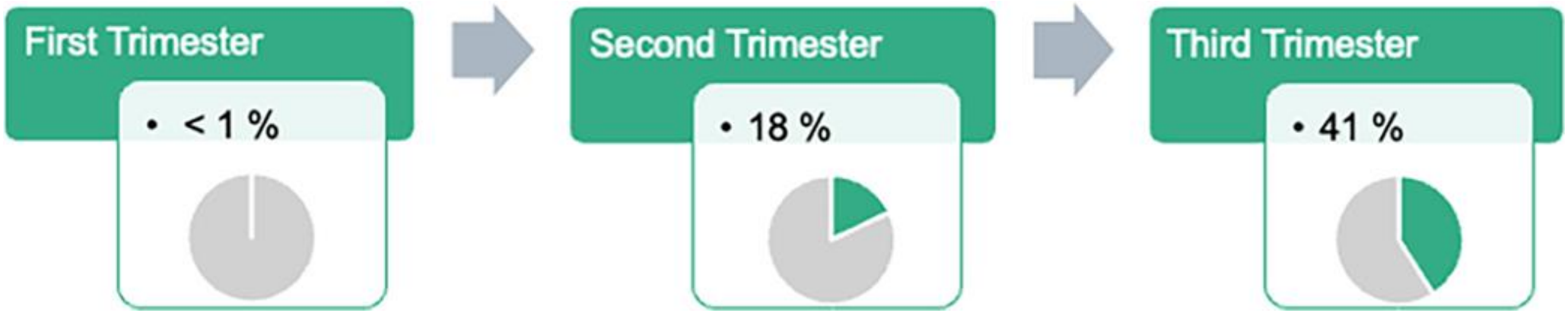
- *Tabes dorsalis*: syndrome of pain and sensory deficits similar to those in B12 deficiency
- Gait impairment
- Dementia

Gumma: Ulcerating granulomas on skin, bone, and internal organs

Aortic aneurysm

Coronary arteritis

Vertical Transmission Risk According to Treatment Timing in Pregnancy



Syphilis — Prevention essentials

- **What's New / Reinforced**
- There's a **renewed urgency**: congenital syphilis is increasing, so timely antenatal screening (even repeat) is more critical than ever.
- **Penicillin remains the gold standard**, and WHO / CDC both stress starting and completing treatment with correct timing.
- **Partner treatment** is increasingly emphasized to avoid reinfection.
- **Supply chain for penicillin** is a public health priority, especially in resource-limited settings.

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Syphilis in pregnancy: A practical guide for prenatal care providers

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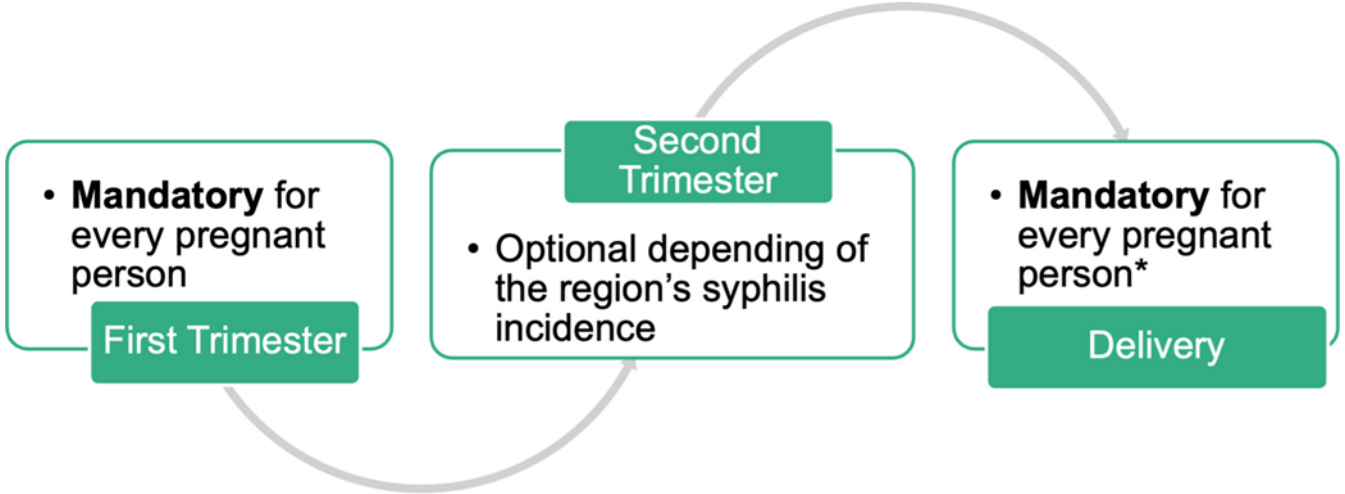

Implementation challenges & solutions

- Laboratory access (HBV DNA, VL) and supply chain constraints.
- Retention in care across pregnancy and postpartum period.
- Stigma, funding fluctuations, and workforce shortages.

Case Study: Integrated PMTCT Program (Example)

- Setting: Regional hospital — aim: increase birth-dose coverage from 40% to 90% in 2 years.

- Key interventions: staff training, birth-dose vaccine in delivery ward, data dashboard, community outreach.

Future directions & research gaps

- Need for safe long-acting prevention options for women of reproductive age.
- Better point-of-care HBV DNA or affordable alternatives.
- Implementation research on sustaining EMTCT gains amid funding changes.

Summary & Recommendations

- Triple elimination is achievable with integrated ANC services and evidence-based interventions.

- Prioritize early testing, maternal treatment, birth-dose vaccination, and infant follow-up.

Thanks for attention