

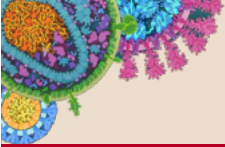


# The HIV/AIDS Pandemic: Where are we now?

**Chris Beyrer MD, MPH**

**Director, Duke Global Health Institute**

**Hock Distinguished Professor of Global Health**



## Disclosures

U.S. National Institutes of Health (NIAID, NIDA, NIMH)  
Hock Professorship, Duke University School of Medicine  
Co-I HPTN 103/PURPOSE 4, *supported in part by Gilead Sciences*

Member, PEPFAR Scientific Advisory Board

Member, WHO Scientific and Technical Advisory Committee on HIV/AIDS

Member, Advisory Board, Fogarty International Center, NIH



# A Few Words About Our Global HIV Community

- Diversity
- Equity
- Inclusion



## Inclusion

**“...for the LGBT youth out there who are struggling, who are made to feel inferior, let me say this: God loves you as you are. Never let anyone make you feel inferior for being who you are. When you live the life you were meant to live, in freedom and dignity, you put a smile on God's face.”**

*The Lancet, 2012*



# Outline

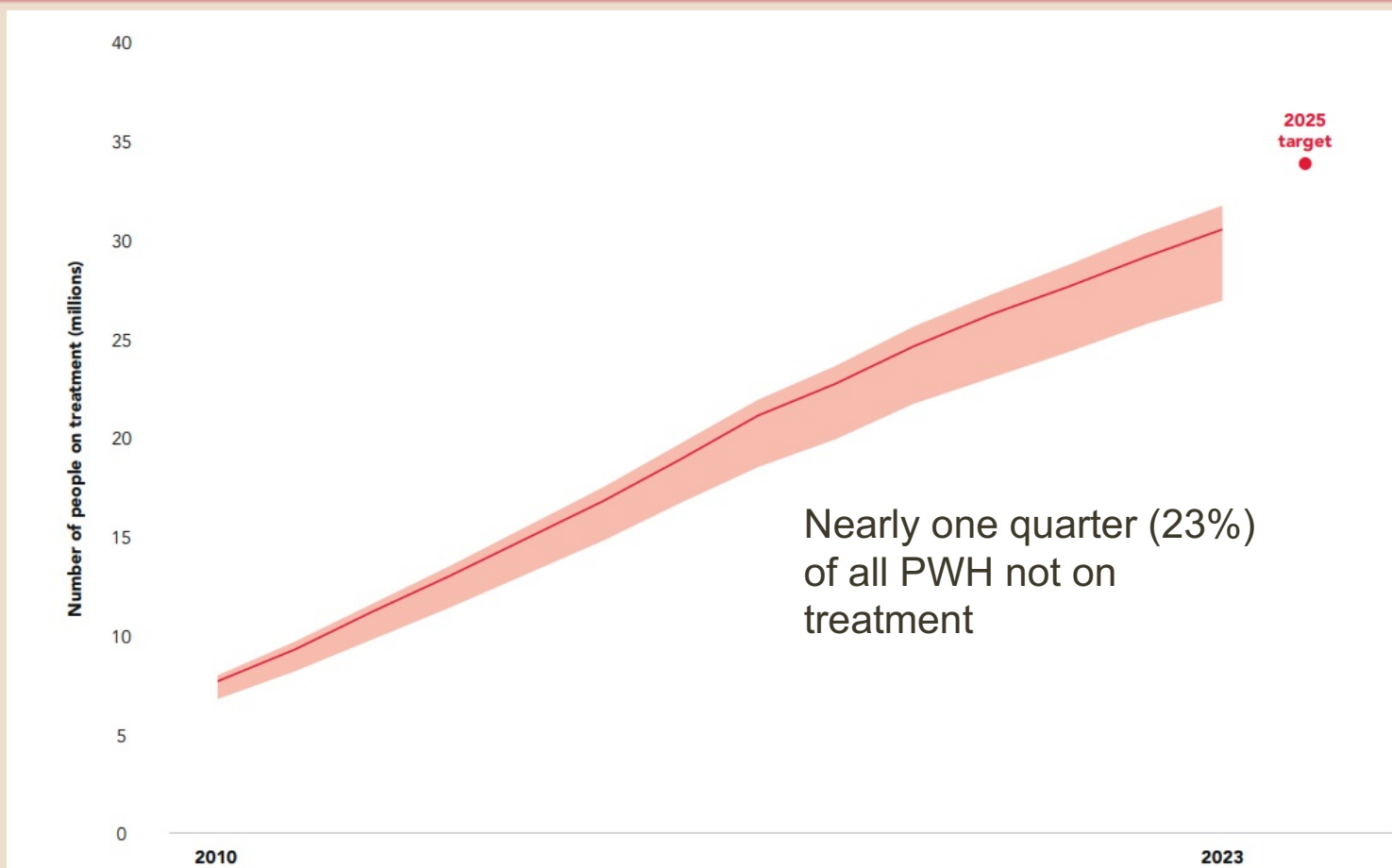
- I. The Pandemic in 2025
- II. Interrogating Incidence
- III. Challenges for Primary Prevention
- II. Changing US Policies and Priorities  
Modeling impacts
- IV. Moving Forward



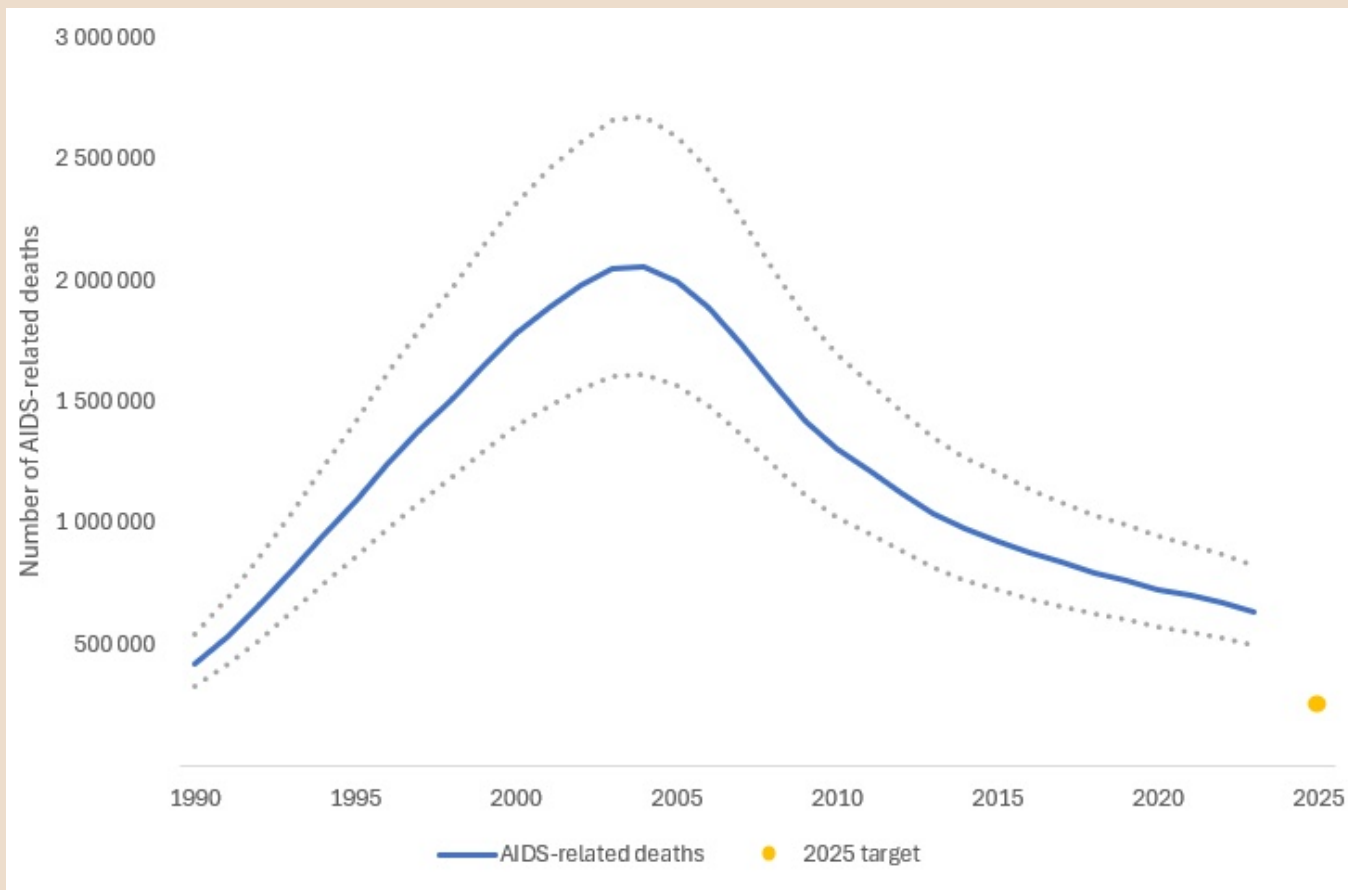
# **The State of the Pandemic**

## **2025 Targets We Didn't Meet**

# Access to HIV Treatment Must Continue

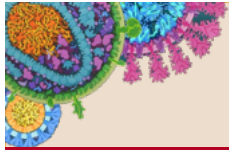


## Number of AIDS-related Deaths, Global, 1990–2023, and 2025 Target

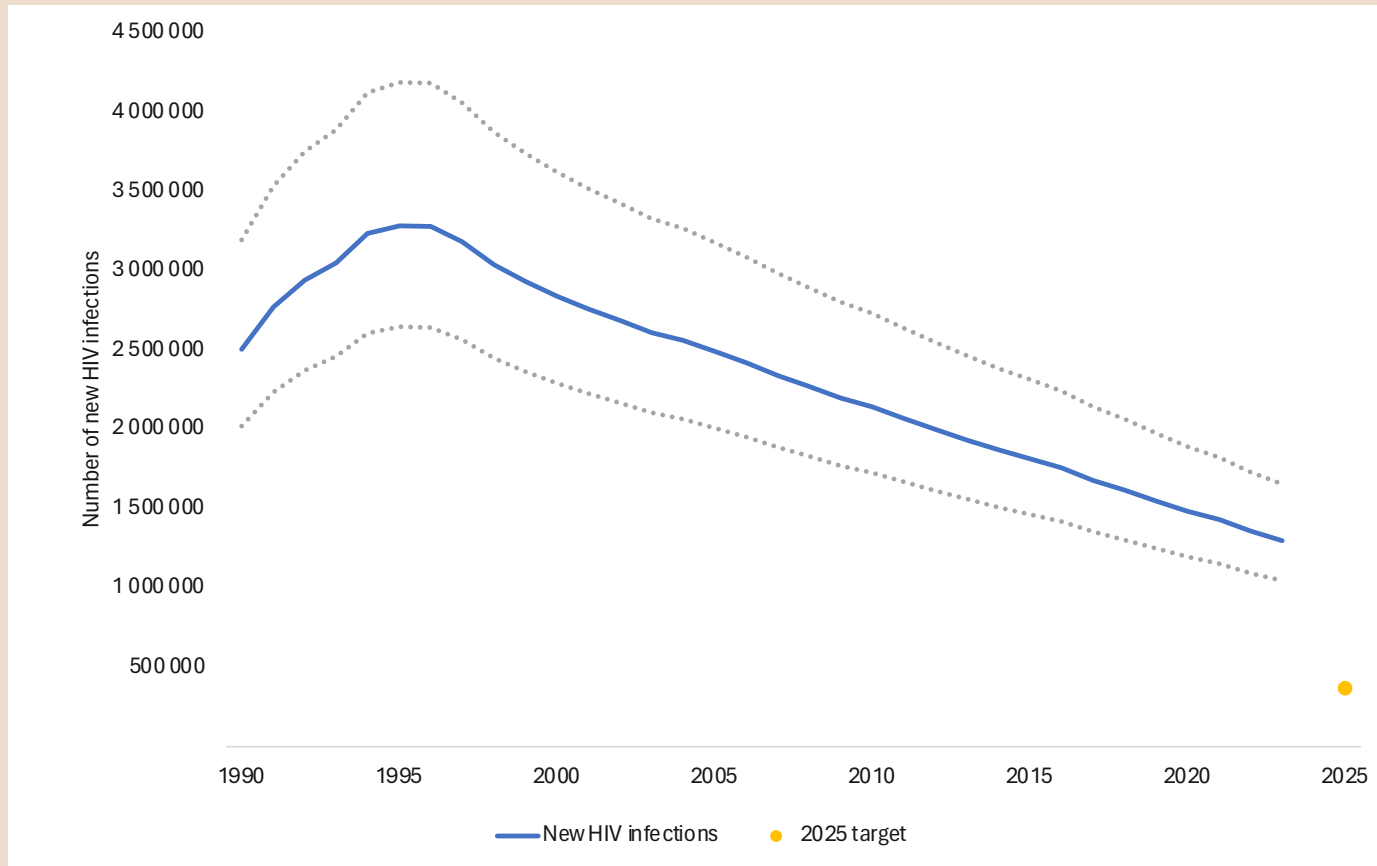


Source: UNAIDS 2024 epidemiological estimates





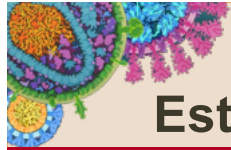
## Number of New HIV Infections, Global, 1990–2023, and 2025 Target



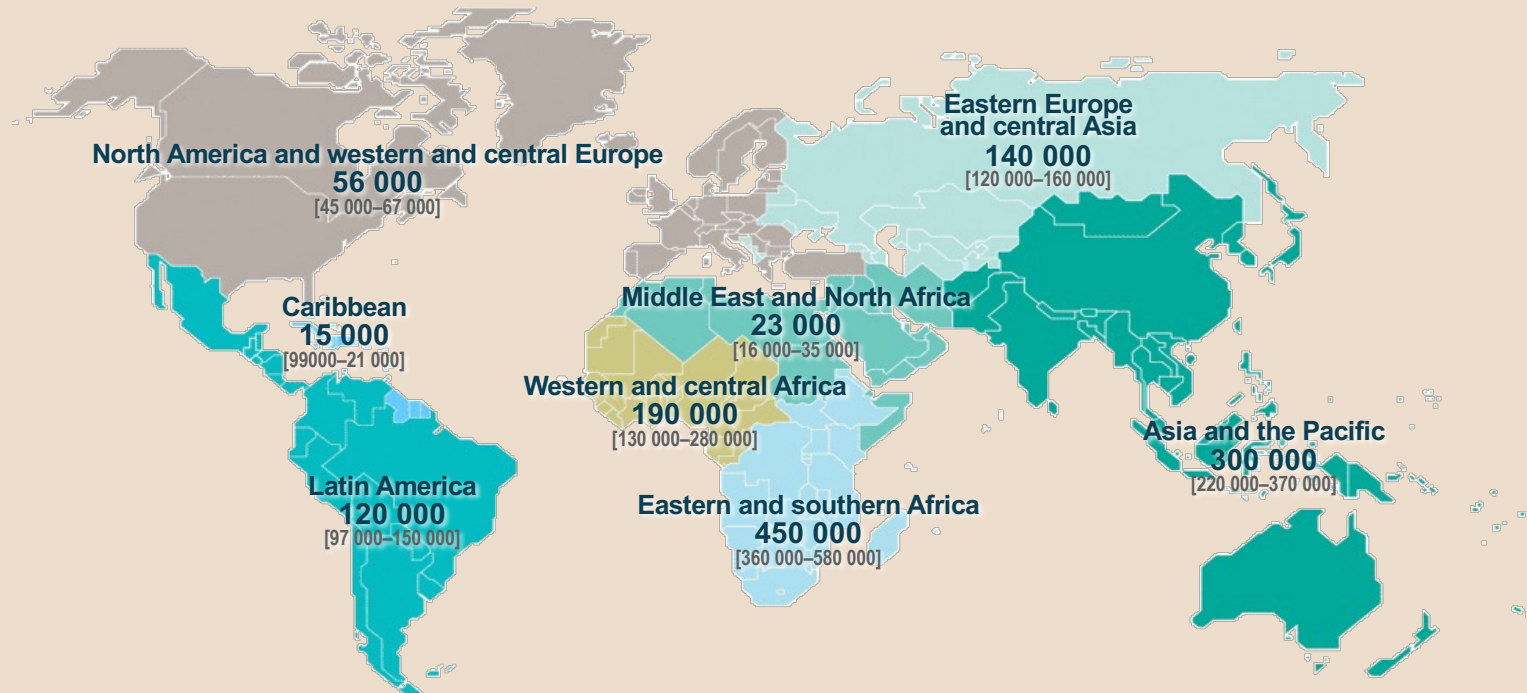
Source: UNAIDS 2024 epidemiological estimates



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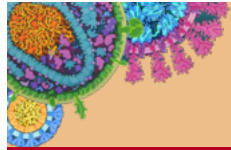


## Estimated Number of Adults and Children Newly Infected with HIV (2023)

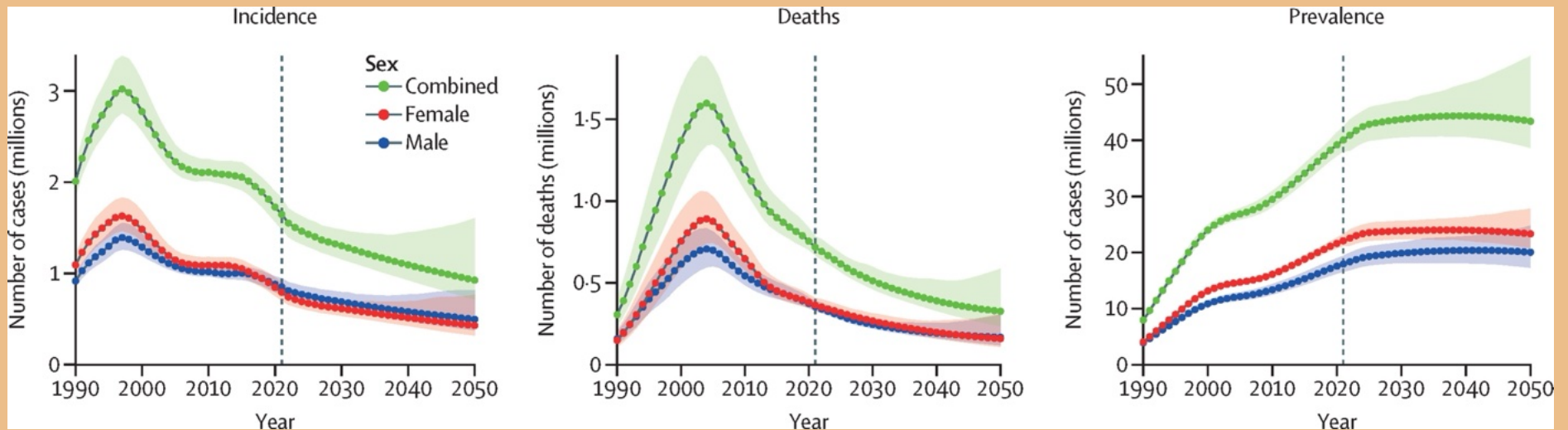


**Total: 1.3 million** [1.0 million–1.7 million\*]

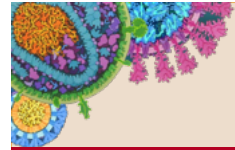
*\*Data from the Russian Federation are likely too low by 50-100%*



# Temporal Trends of HIV Incidence, Mortality, and Prevalence Counts for 1990–2050

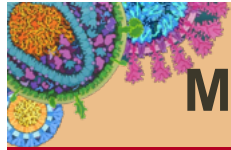


Global, regional, and national burden of HIV/AIDS, 1990–2021, and forecasts to 2050, for 204 countries and territories: the Global Burden of Disease Study 2021. Carter, Austin et al. *The Lancet HIV*, Volume 11, Issue 12, e807 - e822



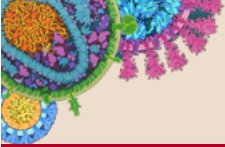
# Key Messages Epidemiology

- We did not meet the UNAIDS 2025 targets on HIV incidence or mortality—both are in decline, but too slowly
- HIV incidence remained too high to achieve pandemic control before Jan. 20<sup>th</sup>, 2025
- 3 regions (E. Europe & Central Asia; Latin America, Middle East and North Africa) are in epidemic expansion in 2025



## Measured incidence: Placebo Arms of HIV Prevention Trials





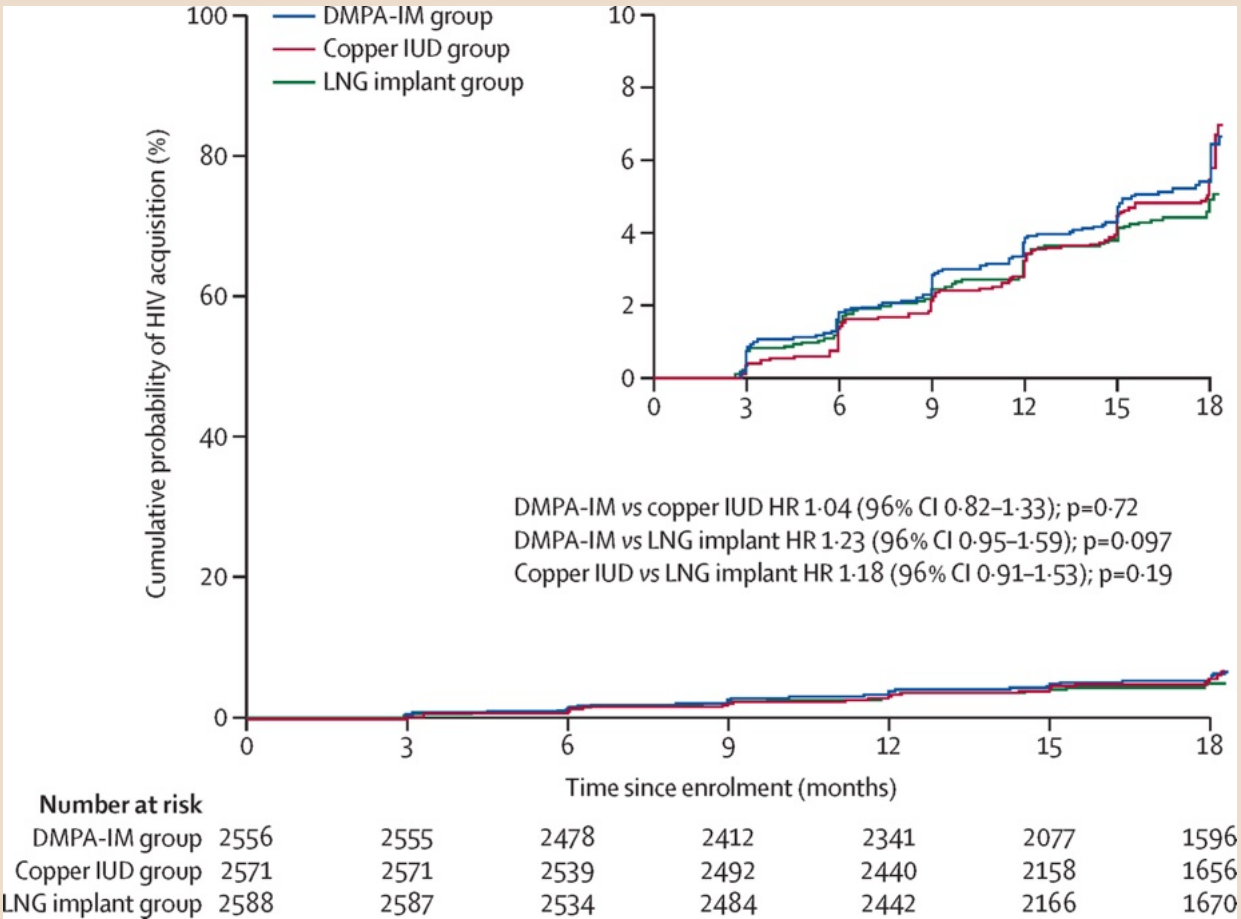
# ECHO Contraceptive Trial HIV Results

345 incident HIV infections in 7647 woman-years of follow-up.

Incidence =

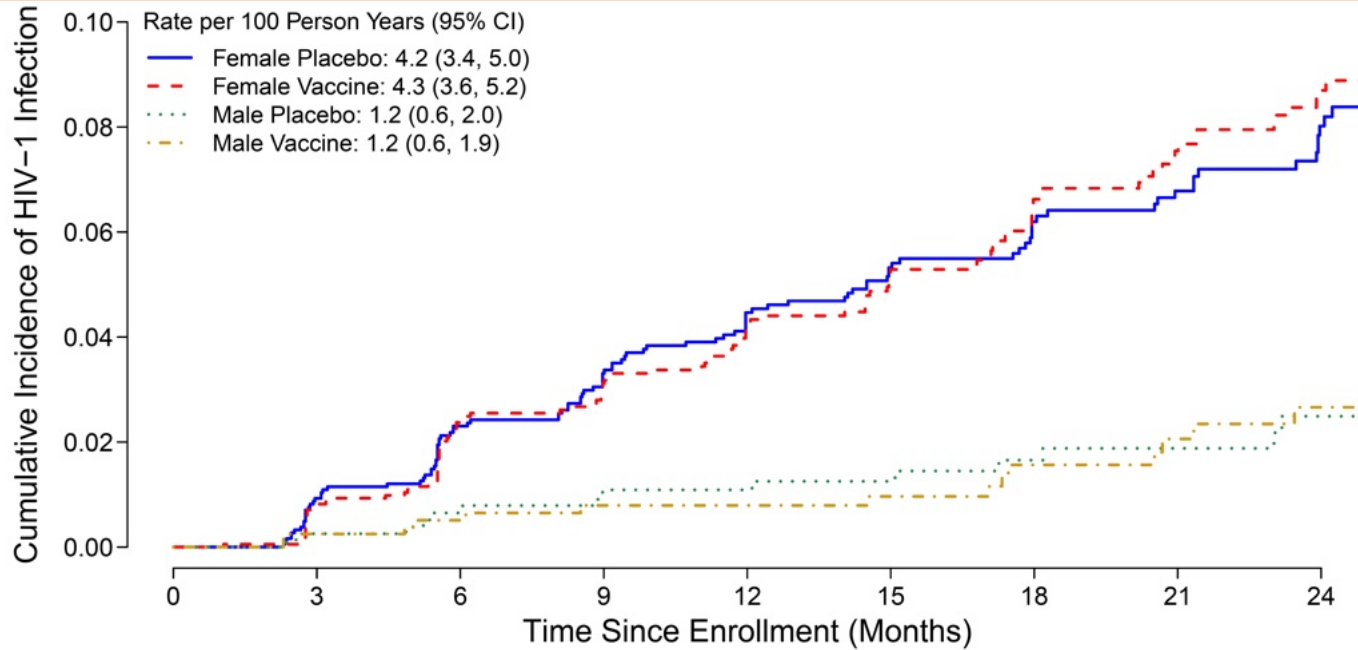
**4.51 per 100 woman-years (95%CI 4.05-5.01).**

Palanee-Phillips T, et al. PLoS One. 2022.





# HVTN 702 cumulative HIV-1 incidence, Months 0-24 by Sex at Birth: (5,407 South Africans)



**No. at Risk**

Female Placebo	1886	1797	1616	1482	1313	1089	879	692	516
Female Vaccine	1886	1802	1637	1504	1339	1099	902	694	497
Male Placebo	803	776	711	646	607	507	441	346	248
Male Vaccine	808	784	714	656	606	522	447	351	257

**Cumulative Events**

Female Placebo	0	17	41	57	74	85	94	99	107
Female Vaccine	0	14	42	54	71	84	98	106	114
Male Placebo	0	2	5	8	8	9	11	12	14
Male Vaccine	0	2	4	6	6	7	10	12	14





## The Lancet HIV

Volume 11, Issue 7, July 2024, Pages e489-e494

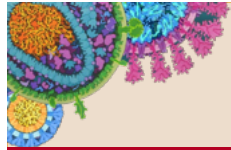


Viewpoint

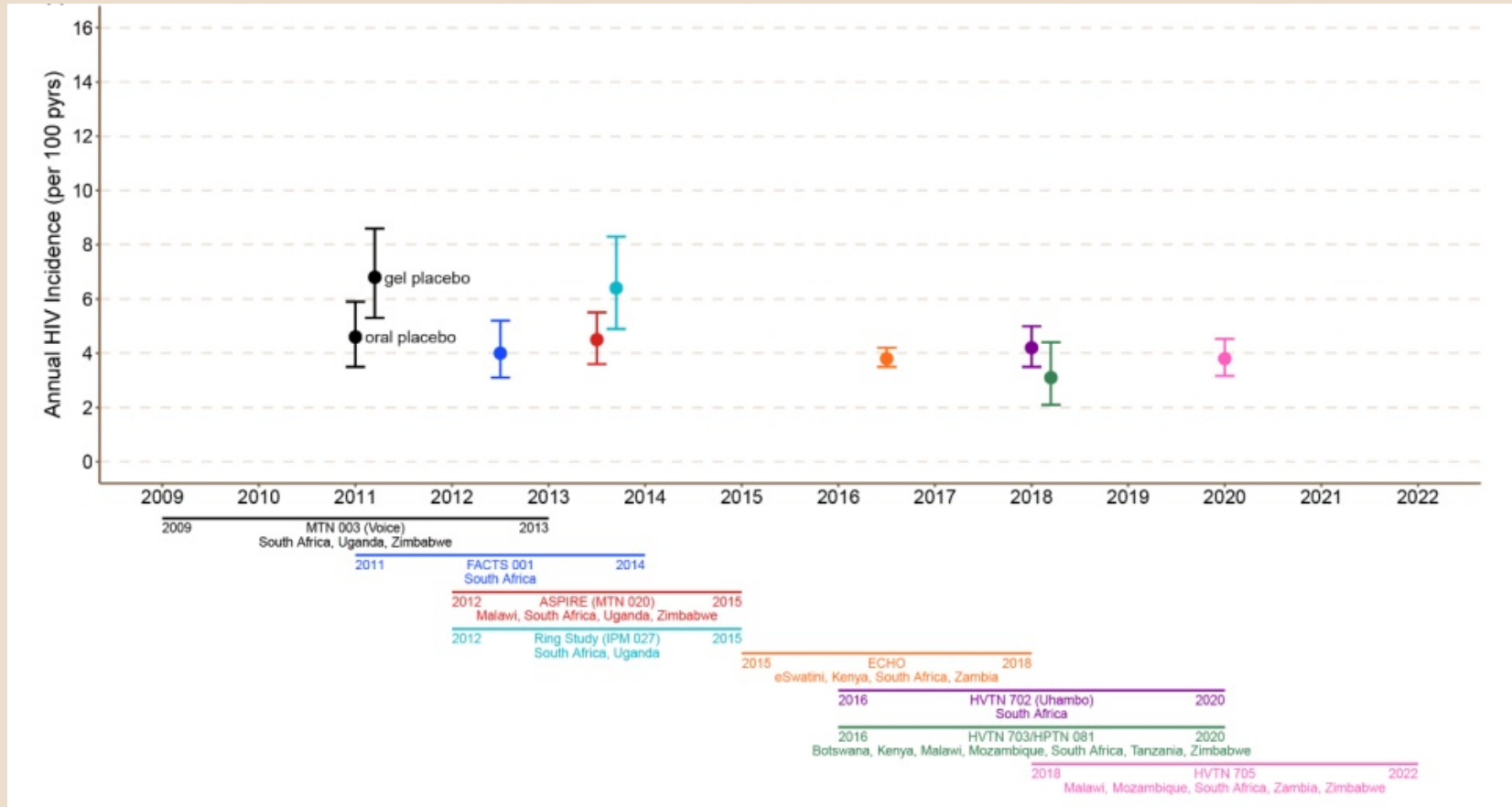
# Is HIV epidemic control by 2030 realistic?

Prof Chris Beyrer MD <sup>a b</sup>  , Prof Georgia D Tomaras PhD <sup>b c</sup>, Huub C Gelderblom MD <sup>d</sup>,  
Prof Glenda E Gray MBBCH <sup>h</sup>, Prof Holly E Janes PhD <sup>d</sup>, Prof Linda-Gail Bekker MD <sup>e</sup>,  
Gregorio Millett MPH <sup>f</sup>, Prof Giuseppe Pantaleo MD <sup>g</sup>, Prof Susan Buchbinder MD <sup>i</sup>,  
Prof Lawrence Corey MD <sup>d</sup>





# HIV-1 Incidence Estimates Among Female Placebo Recipients in Recent HIV Prevention Efficacy Trials in sub-Saharan Africa

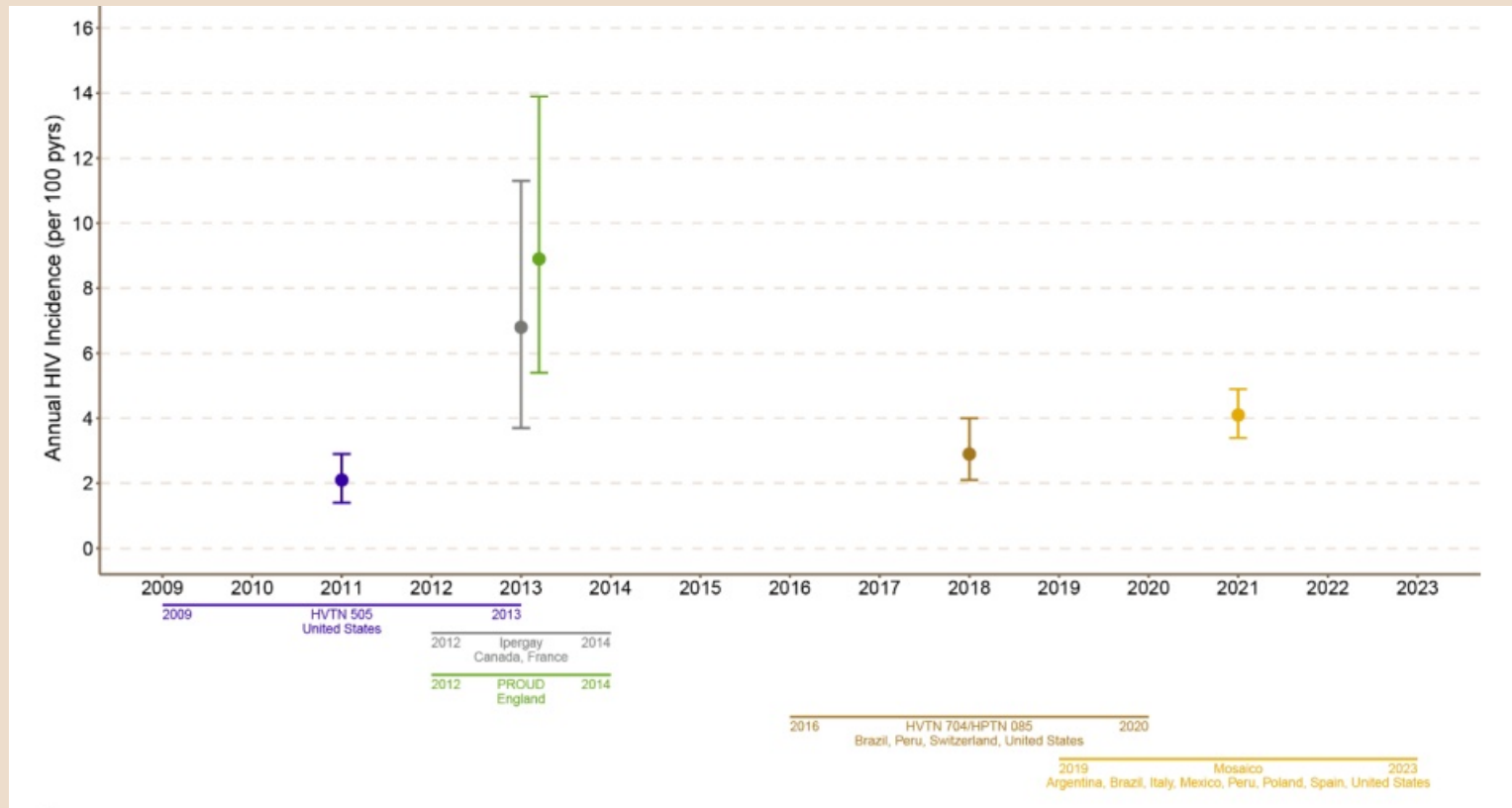


Beyrer C, Tomaras GD, Gelderblom HC, Gray GE, Janes HE, Bekker LG, Millett G, Pantaleo G, Buchbinder S, Corey L. Is HIV epidemic control by 2030 realistic? Lancet HIV. 2024 Jul;11(7).



CROI 2025

# HIV-1 Incidence Estimates among MSM/Transgender Persons Placebo Arms



Beyrer C, Tomaras GD, Gelderblom HC, Gray GE, Janes HE, Bekker LG, Millett G, Pantaleo G, Buchbinder S, Corey L. Is HIV epidemic control by 2030 realistic? *Lancet HIV*. 2024 Jul;11(7)

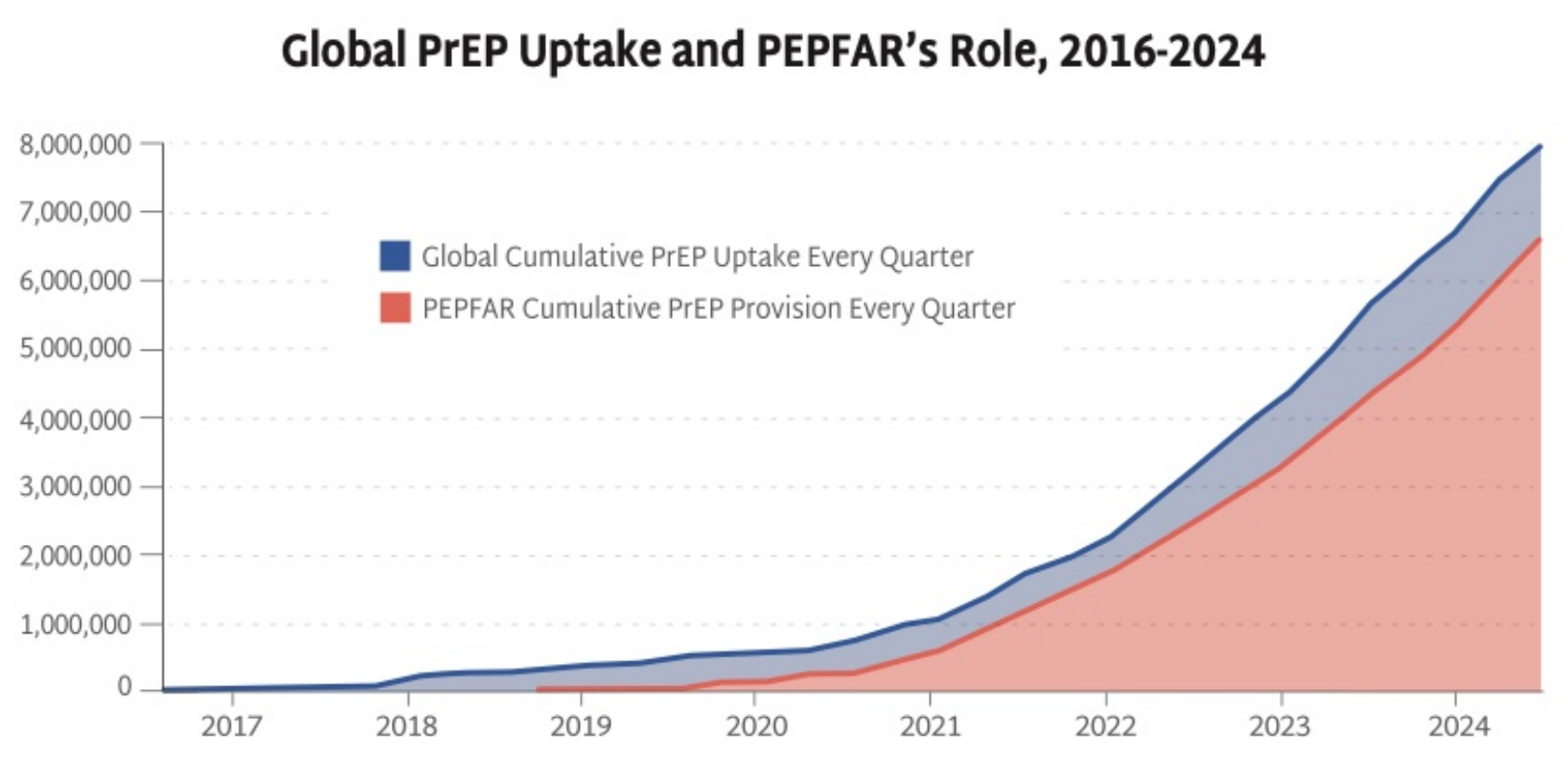


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# Challenges of Primary Prevention



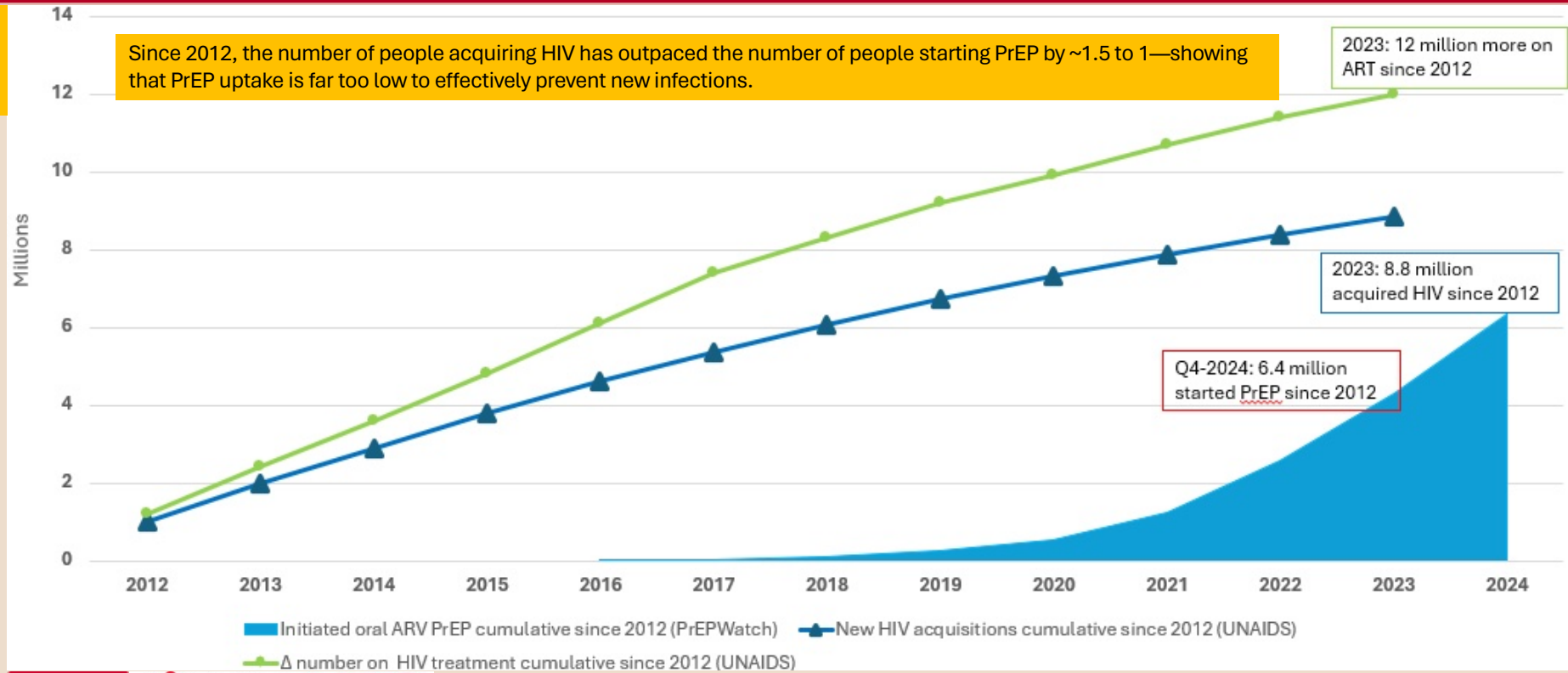
# Cumulative PrEP Initiations to 2024





# HIV, ART & PrEP 2012-2024 – Eastern and Southern Africa

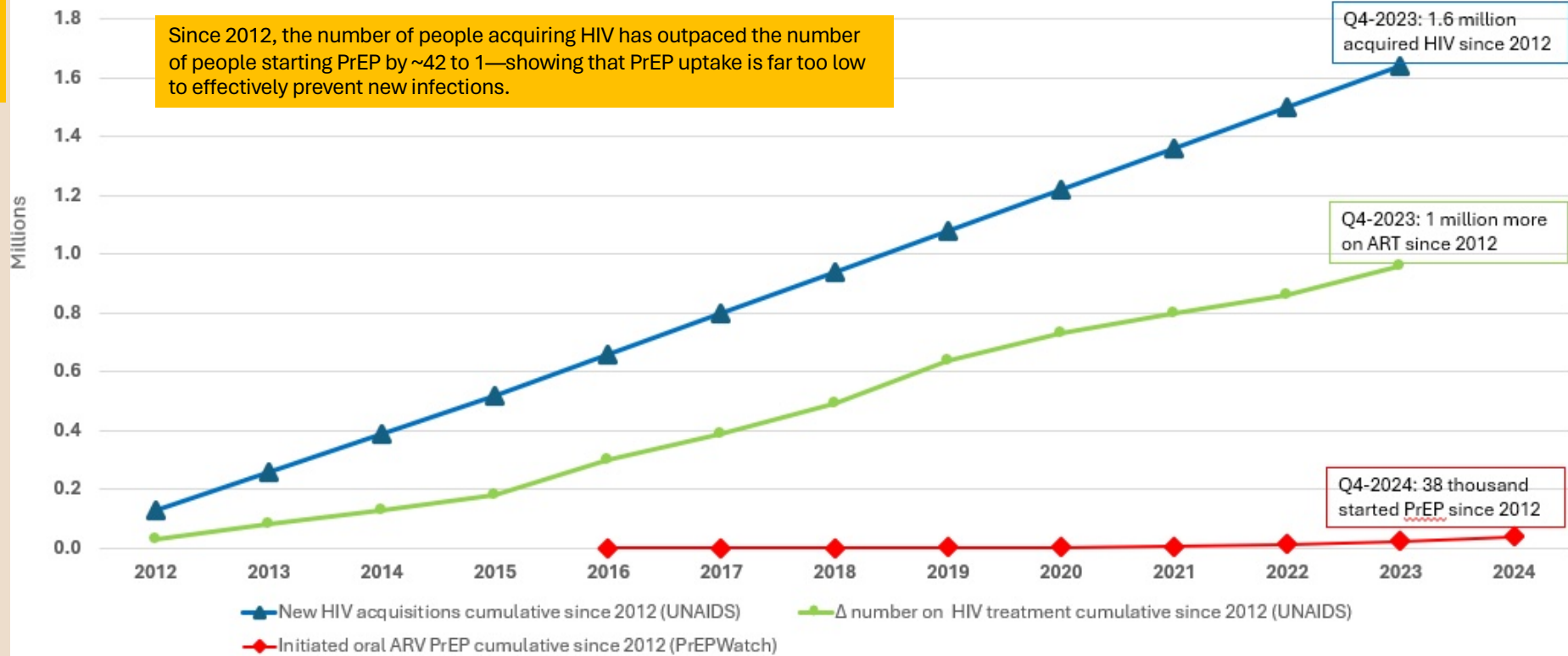
HIV : PrEP  
~1.5:1



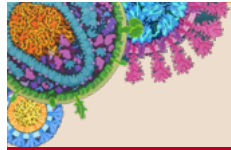


# HIV, ART & PrEP 2012-2024 – Eastern Europe & Central Asia

HIV : PrEP  
42:1

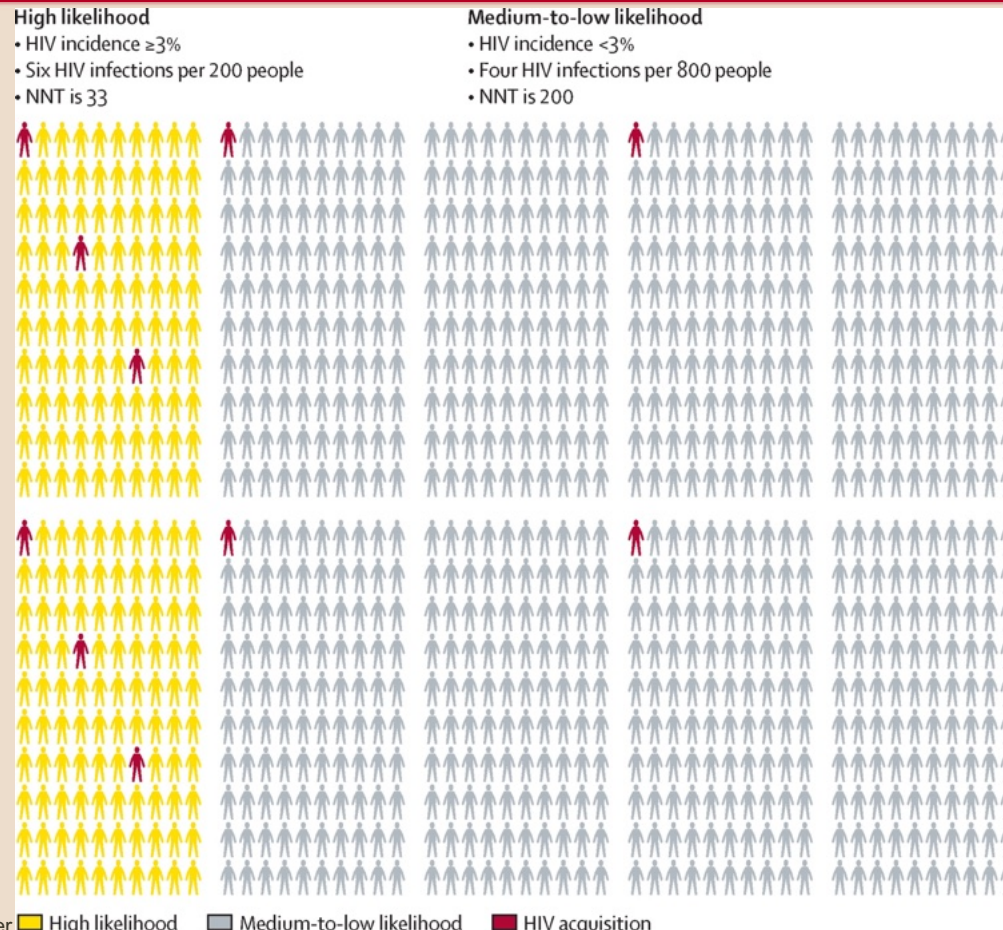


Sources: AVAC PrEPWatch <https://www.prepwatch.org/resources/global-prep-tracker/>, UNAIDS <https://www.unaids.org/en/resources/fact-sheet> and



# Likelihood of HIV Acquisition and Number Needed to Treat (NNT) with Oral PrEP

As incidence declines  
NNT increases



Beyrer C, Tomaras GD, Gelderblom HC, Gray GE, Janes HE, Bekker LG, Millett G, Pantaleo G, Buchbinder S, Corey L. Is HIV epidemic control by 2030 realistic? *Lancet HIV*. 2024 Jul;11(7)

# Policy Tradeoffs between PrEP Reach and Efficiency: 118 Million Women 15-49, 15 countries

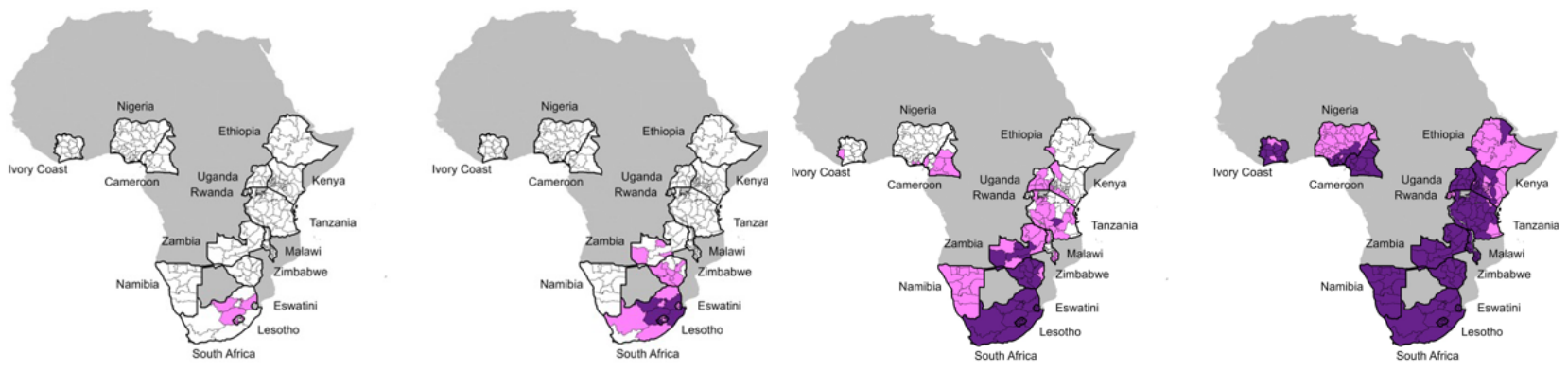
Cases averted	20,000	130,000	260,000	369,000
N (%)	(5%)	(33%)	(67%)	(95%)

Reach:	0.8 million	7.9 million	25.1 million	78.6 million
N (%) on PrEP	(1%)	(7%)	(21%)	(66%)

NNT:	39	61	96	213
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N on PrEP to avert 1 case

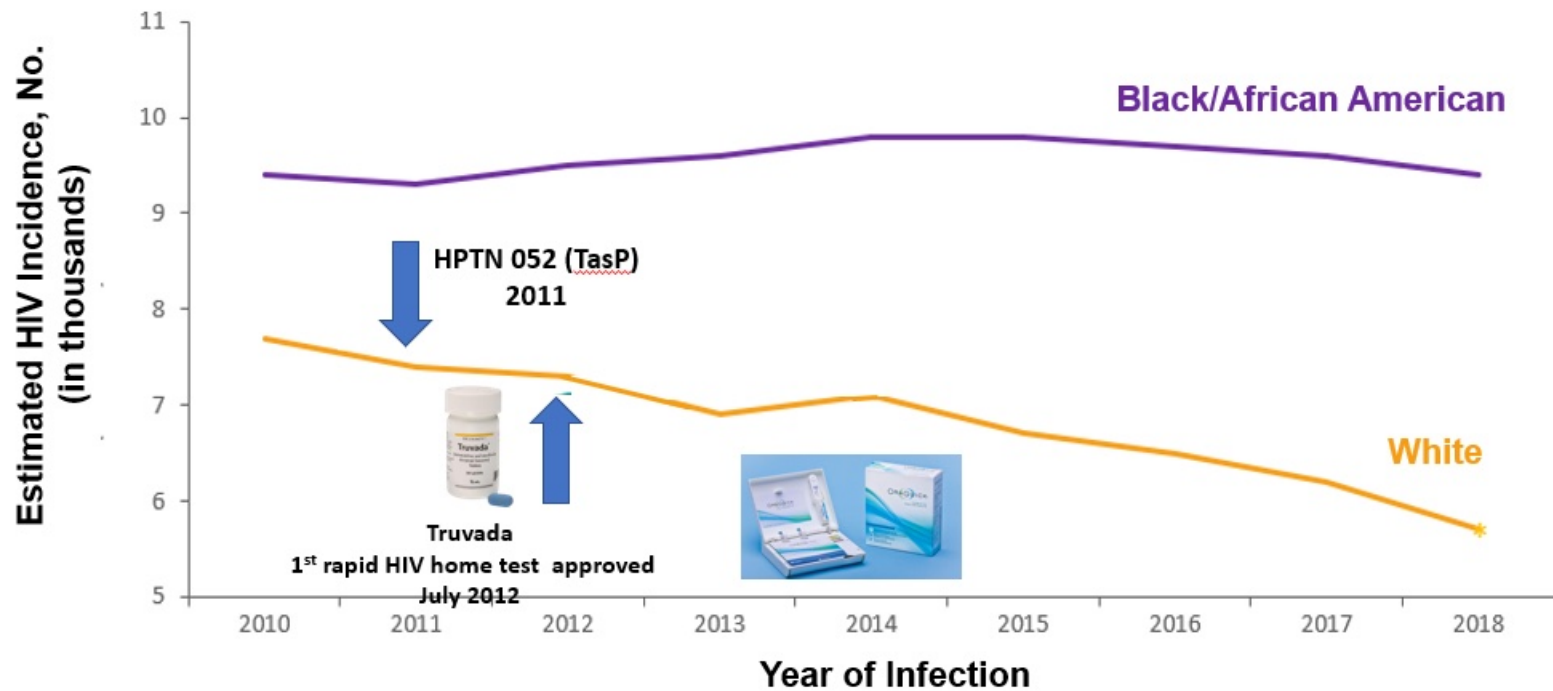
Women at highest risk



No women
  Women with partners outside the home
  All women



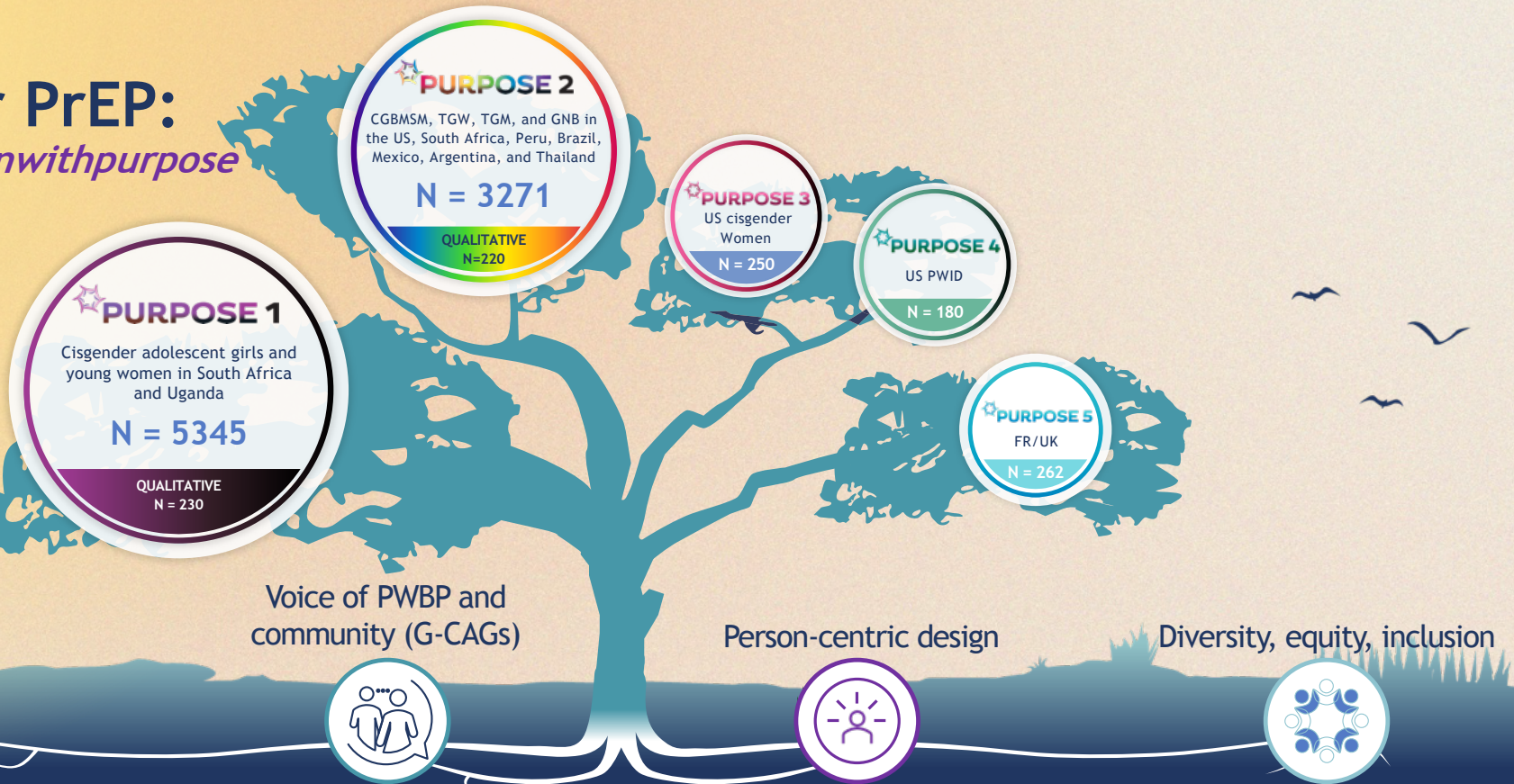
# HIV Incidence Among Black MSM Has Remained Stubbornly High Despite Prevention Advances: HPTN 096



Estimated HIV Incidence among MSM Aged  $\geq 13$  Years by Race (United States, 2010-2018)

# LEN for PrEP:

*#preventionwithpurpose*



Proof of concept that capsid inhibitors prevent SHIV in non-human primates;  
Robust pharmacokinetic and safety database in persons with and without HIV;

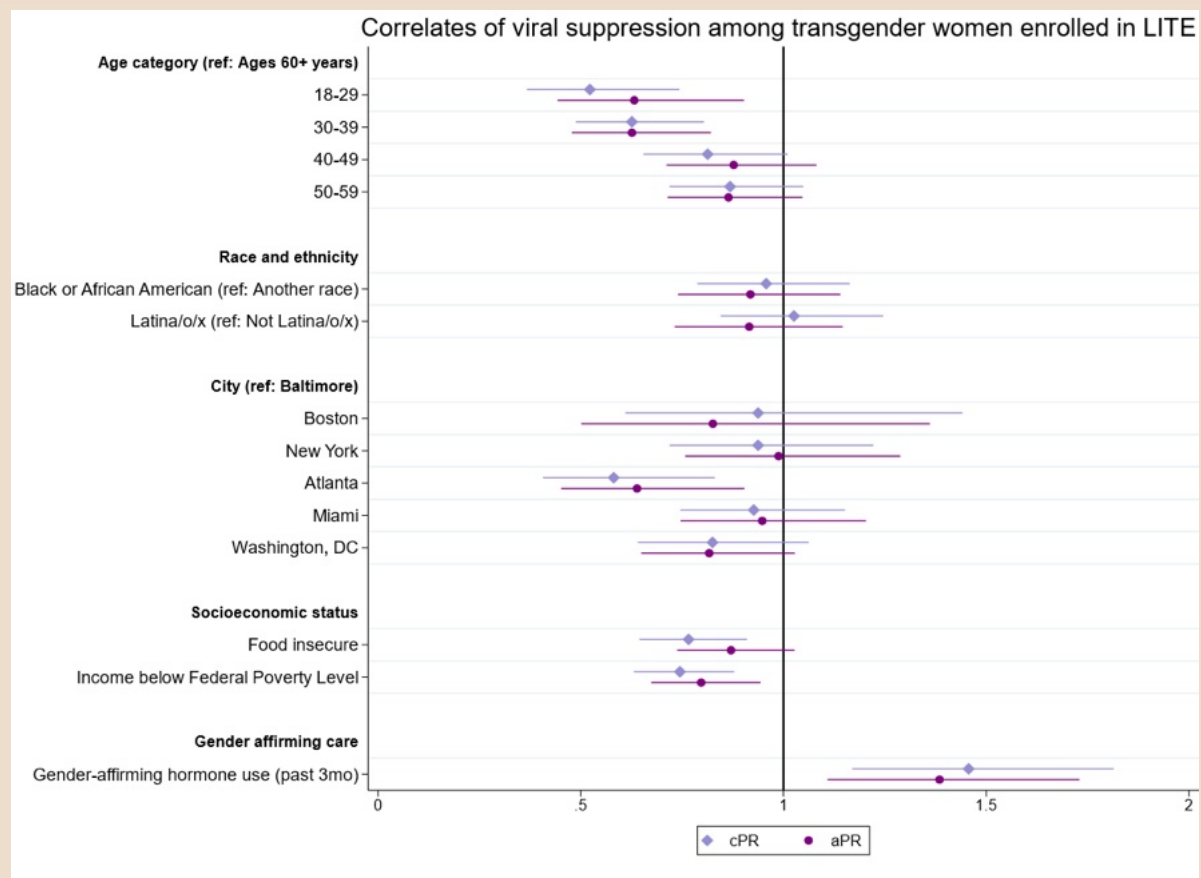
**Capella** LEN for HIV Tx in MDR HIV

PURPOSE 1 NCT identifier: NCT04994509; PURPOSE 2: NCT04925752; PURPOSE 3: NCT06101329; PURPOSE 4: NCT06101342. PURPOSE studies available at: <https://www.purposestudies.com> (accessed October 4, 2024).  
Access statements: <https://www.gilead.com/company/company-statements/2024/updated-statement-on-access-planning-in-high-incidence-resource-limited-countries-for-lenacapavir-for-hiv-prevention> (accessed October 4, 2024);  
<https://www.gilead.com/news/news-details/2024/gilead-signs-royalty-free-voluntary-licensing-agreements-with-six-generic-manufacturers-to-increase-access-to-lenacapavir-for-hiv-prevention-in-high-incidence-resource-limited-countries> (accessed October 4, 2024).  
CGBMSM, cisgender gay and bisexual men who have sex with men; FR, France; G-CAG, Global Community Advisory Group; GNB, gender nonbinary individuals; LEN, lenacapavir; MDR, multi-drug resistant; NCT, National Clinical Trial; PrEP, pre-exposure prophylaxis; PWBP, people who may benefit from PrEP; PWID, people who inject drugs; SHIV, simian-human immunodeficiency virus; TGM, transgender men; TGW, transgender women; Tx, treatment; UK, United Kingdom; US, United States.



# Correlates of Viral Suppression (n=280 Transgender Women) The LITE Cohort

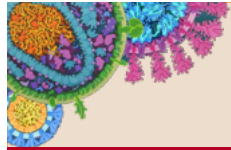
Sample Characteristics				
	Total (N=230)	Unsuppressed (n=75)	Suppressed (n=155)	p-value
<b>Age group</b>				<b>&lt;0.001</b>
18-29	17.4%	28.0%	12.3%	
30-39	28.3%	37.3%	23.9%	
40-49	20.0%	16.0%	21.9%	
50-59	24.8%	16.0%	29.0%	
60-69	9.6%	2.7%	12.9%	
<b>Black or African American</b>				<b>0.67</b>
Yes	72.5%	74.3%	71.6%	
<b>Latina/Hispanic</b>				<b>0.8</b>
Yes	28.5%	27.4%	29.0%	
<b>City</b>				<b>0.017</b>
Baltimore	17.6%	11.1%	20.6%	
Boston	3.5%	2.8%	3.9%	
New York	12.3%	9.7%	13.5%	
Atlanta	18.9%	31.9%	12.9%	
Miami	25.6%	20.8%	27.7%	
Washington, DC	22.0%	23.6%	21.3%	
<b>Food insecure</b>				<b>0.004</b>
Yes	60.7%	74.3%	54.2%	
<b>Income below Federal Poverty Level</b>				<b>0.003</b>
Yes	74.5%	87.7%	68.5%	
<b>Gender-affirming hormones (past 3mo)</b>				<b>&lt;0.001</b>
Yes	63.4%	44.9%	71.6%	





## Key Messages Prevention

- Significant increases in primary prevention programs, will be required to achieve epidemic control—
- But aside from PMTCT...**PEPFAR prevention is on pause**
- Advances in primary prevention, including LA injectables, could markedly reduce HIV incidence but only if taken to scale for both high incidence density populations (MSM, SW, TGW, AWYG in high burden settings) AND lower incidence ones
- >40 million people need to be on PrEP to reach epidemic control



## Changing US Policies and Priorities

“It is chaos.”

--PEPFAR supported African Investigator

Callaway E.  
*Nature Comms*  
Feb. 13th, 2025



“The way things are going, I feel like I have worked so much for nothing.”

--Perinatally infected adult outreach worker.



## Before PEPFAR...

*In high-burden HIV countries in Africa...*

- Average life expectancy was declining by **10-30 years**
- GDP was declining by **2.6% annually**
- **29 million** people infected with HIV had no access to treatment



## ...Since PEPFAR

*...20+ years and \$110 billion invested*

- **25 million** lives saved – helped to close the gap in life expectancy for PEPFAR-supported countries
- **20.5 million** people on treatment
- **5.5M** babies born HIV-free
- **GDP / capita is 2.1% higher**



Global Health Security  
and Diplomacy  
U.S. DEPARTMENT OF STATE

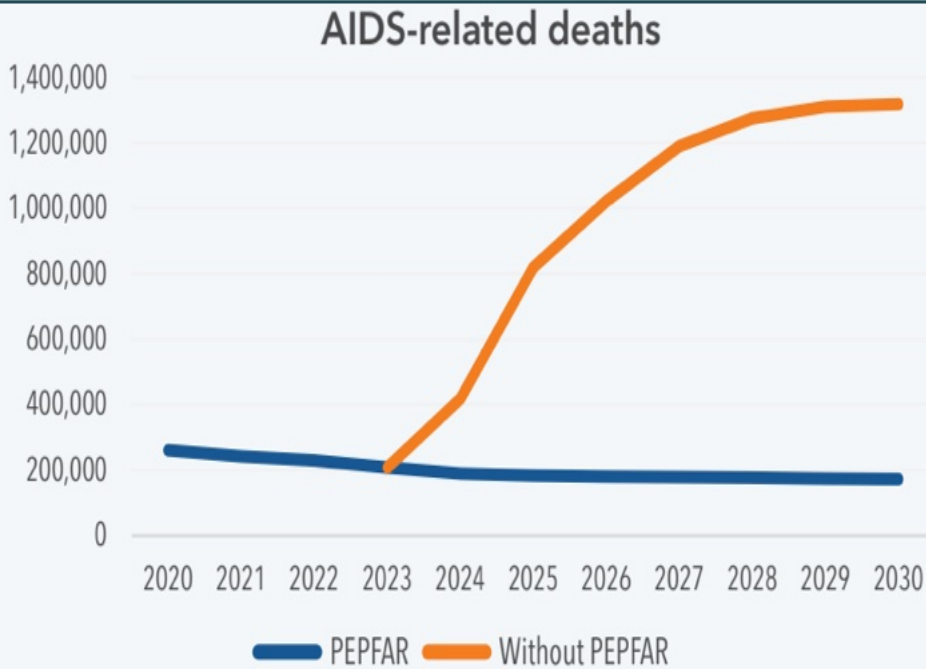


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# Expected Impact of PEPFAR: 2024-2030

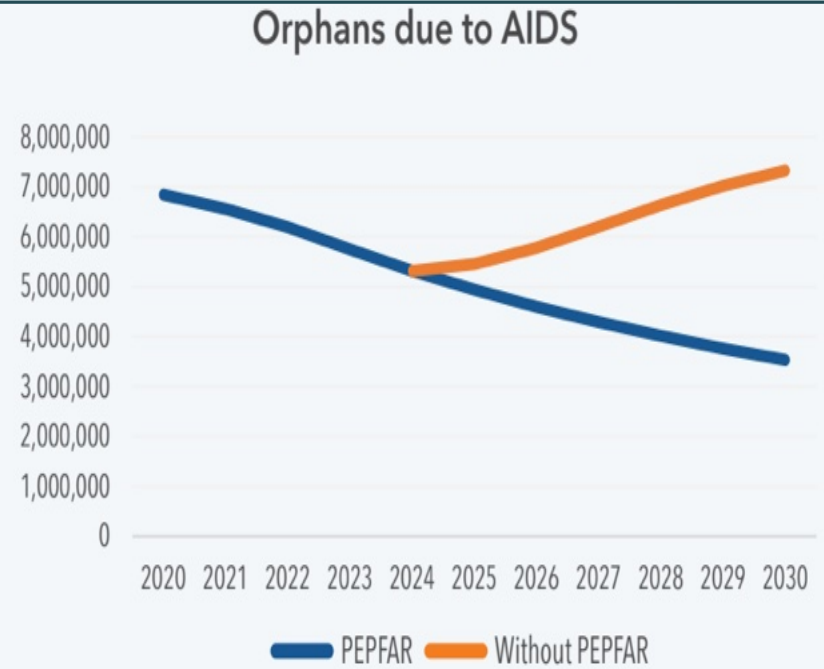
5.2 million AIDS-related deaths averted in 12 PEPFAR-supported high disease burden countries from 2024-2030

400 % increase in AIDS related deaths from 2023 if PEPFAR goes away



4 million fewer AIDS orphans in 12 PEPFAR-supported high disease burden countries from 2024-2030

Doubling AIDS orphans from 2023 if PEPFAR goes away





# Projected Human Toll: 100,000 Lives Lost in One Year

Tram KH et al. *Journal of the International AIDS Society* 2025, **28**:e26431  
<http://onlinelibrary.wiley.com/doi/10.1002/jia2.26431/full> | <https://doi.org/10.1002/jia2.26431>



## VIEWPOINT

### By executive order: The likely deadly consequences associated with a 90-day pause in PEPFAR funding

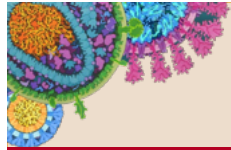
Khai Hoan Tram<sup>1,§</sup> , Jirair Ratevosian<sup>2</sup> and Chris Beyrer<sup>2</sup>

§Corresponding author: Khai Hoan Tram, Department of Medicine, University of Washington, 1959 NE Pacific Street, Box 358061, Seattle, WA 98195, USA.  
([ktram@uw.edu](mailto:ktram@uw.edu))

**Received** 9 February 2025; **Accepted** 20 February 2025

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# Global Health Security and Diplomacy

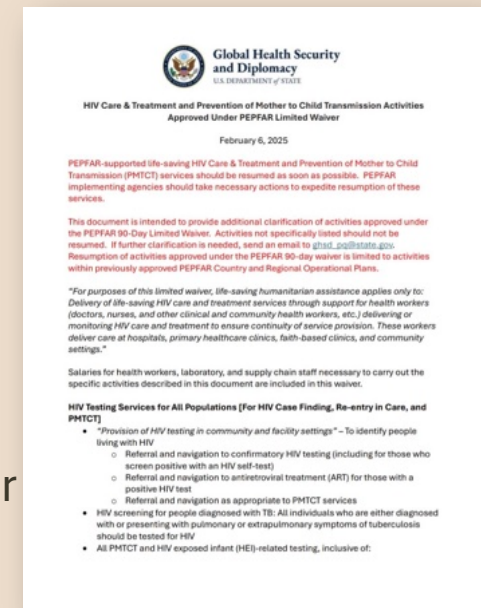
## US Department of State Feb. 6, 2025 Waiver for PEPFAR

PEPFAR-supported life-saving HIV Care & Treatment and Prevention of Mother to Child Transmission (PMTCT) services should be resumed as soon as possible...

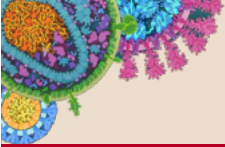
### HIV Pre-exposure Prophylaxis (PrEP)

Pre-exposure prophylaxis (PrEP) should be offered only to pregnant and breastfeeding women (PBFW; see section above) during this pause of U.S. Foreign Assistance. PBFW may receive either oral or long-acting PrEP.

- Note: People other than PBFW who may be at high risk of HIV infection or were previously initiated on a PrEP option can not be offered PEPFAR-funded PrEP during this pause of U.S. Foreign Assistance or until further notice.



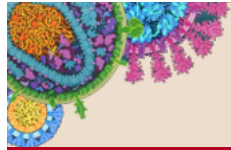
CROI 2025



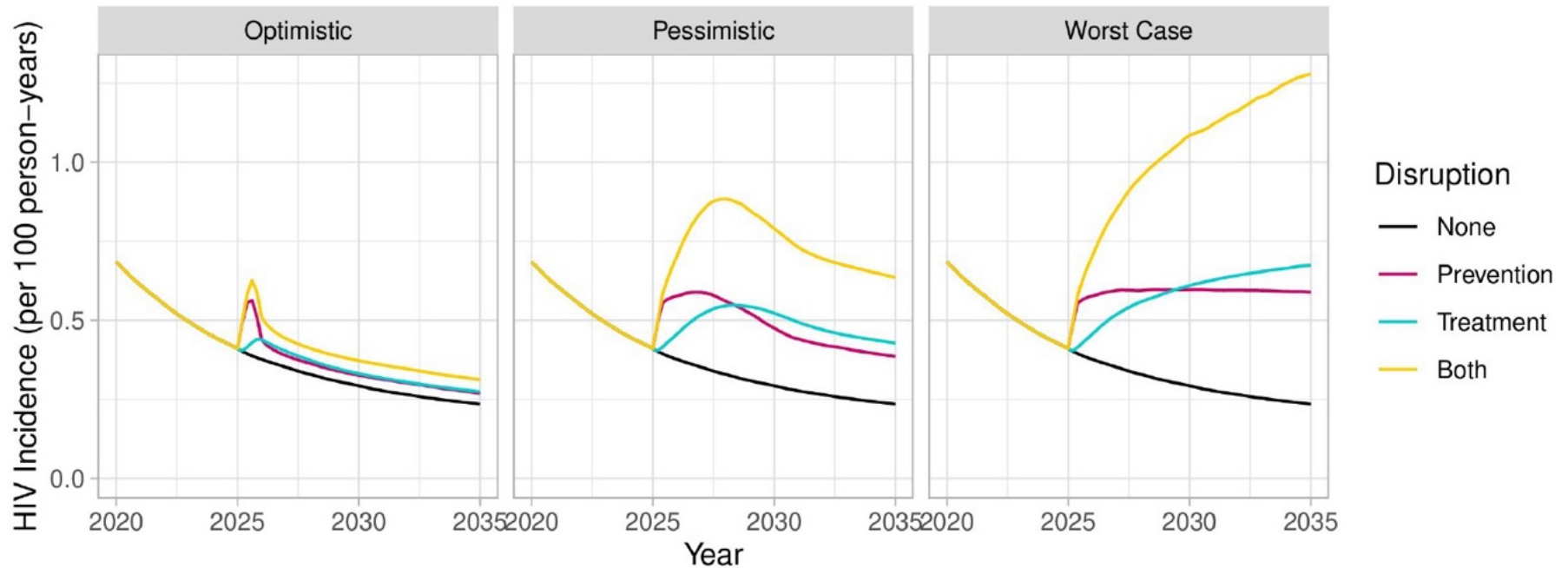
## Disaggregates

The KP [Key Population] disaggregates are removed from the indicators covered under the indicator.

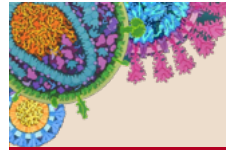
They are also removed from the MER [Monitoring and Evaluation Reporting] guidance, data entry streams, and from the data model.



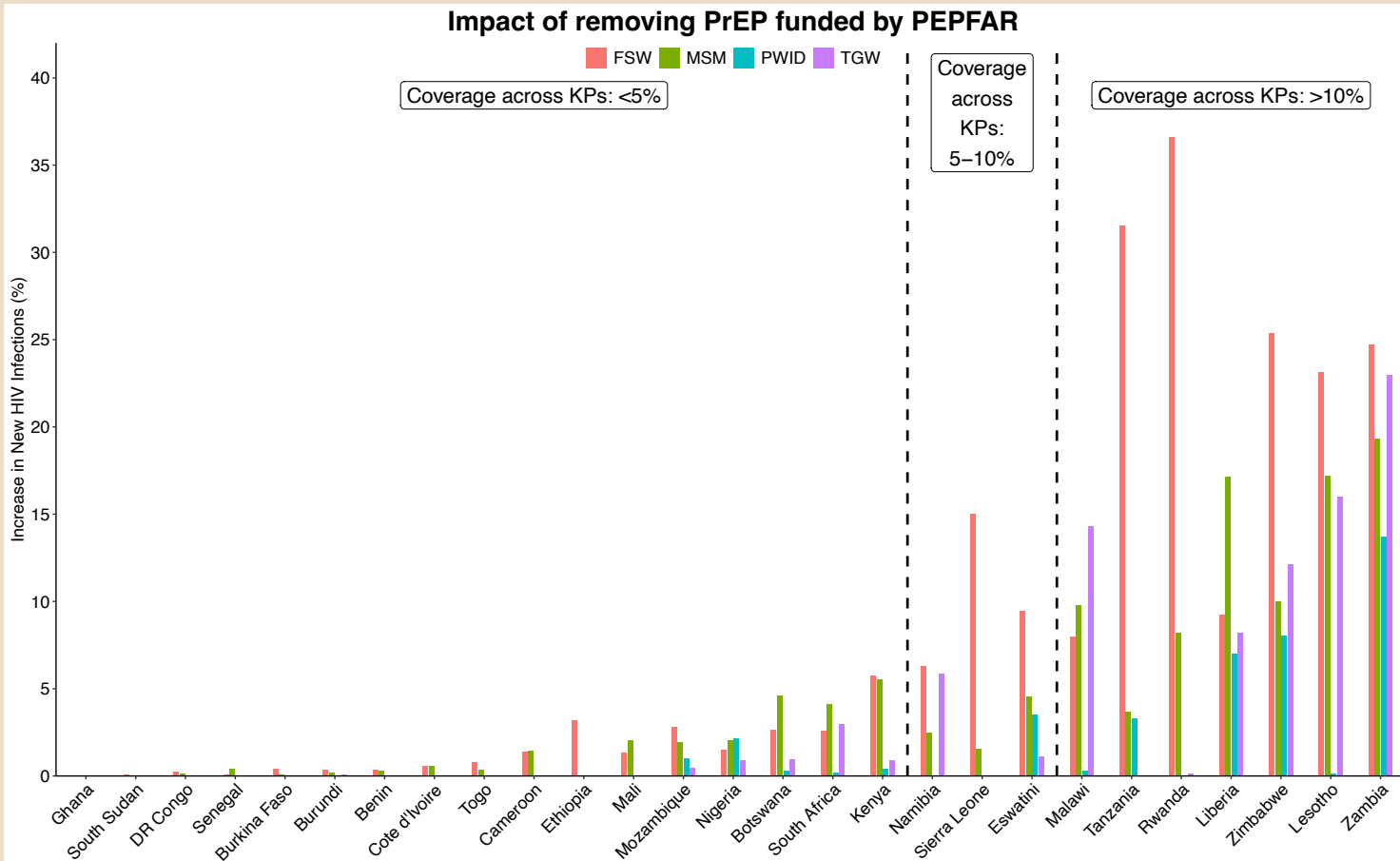
## Pausing Prevention for FSW has a large projected Impact on HIV Incidence 2025 – 2035



\* median of 1000 model fits, Eswatini



# Relative Increase in New HIV Infections due to Removing PEPFAR Funded PrEP for KPs in SSA



Impact of removing PrEP depends on coverage

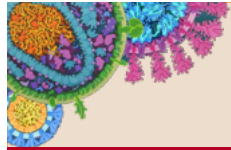
In countries with higher coverages of PrEP funded by PEPFAR, there could be an increase of over:

30% of new infections among FSW

~20% among MSM and TGW

~15% among PWID





HUMAN  
RIGHTS  
WATCH

## US: Lifesaving Programs Remain Suspended Despite Waivers

Millions at Risk as Vital Programs Shut Down

February 10, 2025 2:00PM EST

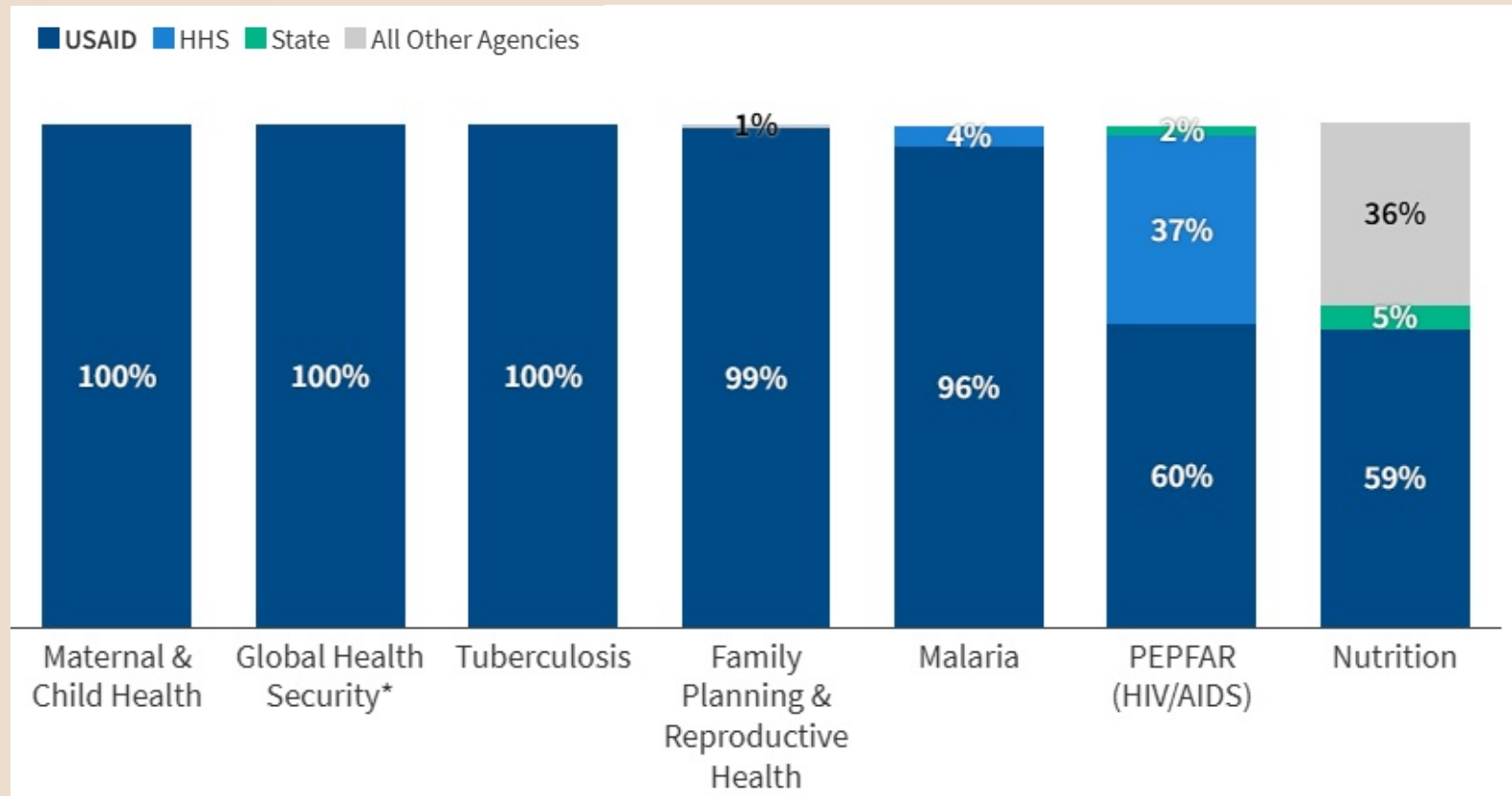


US Secretary of State Marco Rubio speaks after being sworn in by Vice President JD Vance near the White House in Washington, DC, January 21, 2025. © 2025 AP Photo/Evan Vucci



CROI 2025

# USAID Obligated/Implemented Most U.S. Bilateral Funding Across Global Health Sectors





## RFK Jr. Targets Transgender Protections in One of First Moves at HHS 02/20/25

“This administration is bringing back common sense and restoring biological truth to the federal government...The prior administration’s policy of trying to engineer gender ideology into every aspect of public life is over.”

Robert F. Kennedy Jr.  
Secy DHHS



“It’s deeply concerning that ... HHS is instead focusing its time and taxpayer dollars on anti-science, anti-health PR campaigns...This approach is not only ignorant; it’s deliberately harmful.”

Matthew Rose  
Human Rights Campaign

# AVAC v. US Department of State; GHC v. Trump

## How It Started



New lawsuit challenges US foreign aid funding freeze

Judge orders Trump administration to restore funds for foreign aid programs

## Then...

USAID contracts and grants still being terminated despite court order

*Judge Gives Trump Administration Deadline to Release Foreign Aid*

## Constitutional Crisis...

Nearly 10,000 awards cut from USAID, State Department

Chief Justice Allows U.S. to Continue Freeze on Foreign Aid Payments

U.S.A.I.D. Memos Detail Human Costs of Cuts to Foreign Aid

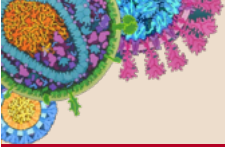
“Lift the Freeze”: HIV/AIDS Advocates Win Supreme Court Victory in Fight over Trump Foreign Aid Cuts

Trump administration ordered to pay select USAID partners by **Monday**

Full timeline & links to documents at <https://avac.org/avac-vs-dept-of-state/>

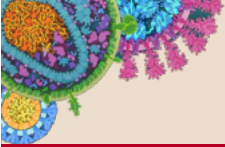






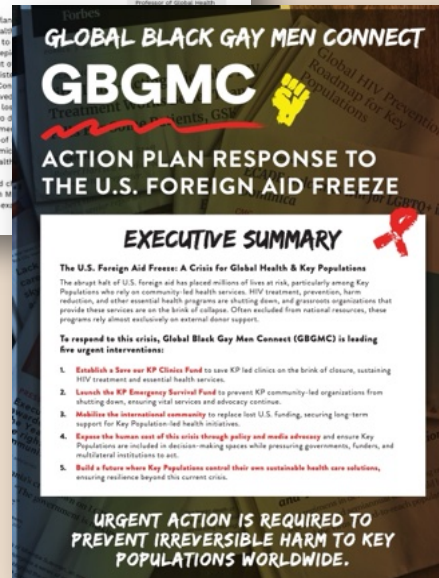
## Key Messages Current Policies

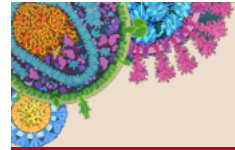
- The abrupt pause of PEPFAR, USAID, PMI, has led to widespread service disruptions, and increased HIV incidence, morbidity and mortality
- The limited PEPFAR waiver led to some return of access, but 2/3 of PEPFAR is/was implemented through USAID
- PEPFAR Authorization expires on March 25, 2025--in 15 days. We need a full reauthorization
- Most affected will be those living in countries with the weakest health services and already marginalized communities
- A new coalition will likely be needed to close new gaps: governments, the private sector, foundations, and communities will be called on to do more



# So...

- Restore PEPFAR and its prevention program
- Support KP clinics and community partners
- Support 8th Global Fund Replenishment
- Uphold Human Rights





Mr. Bush announced his trip to Africa in conjunction with World AIDS Day in November [2008], quoting from Deuteronomy:

“I have set before you life and death ...  
Therefore, choose life.”



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