

# HPTN: Accomplishments and Way Forward

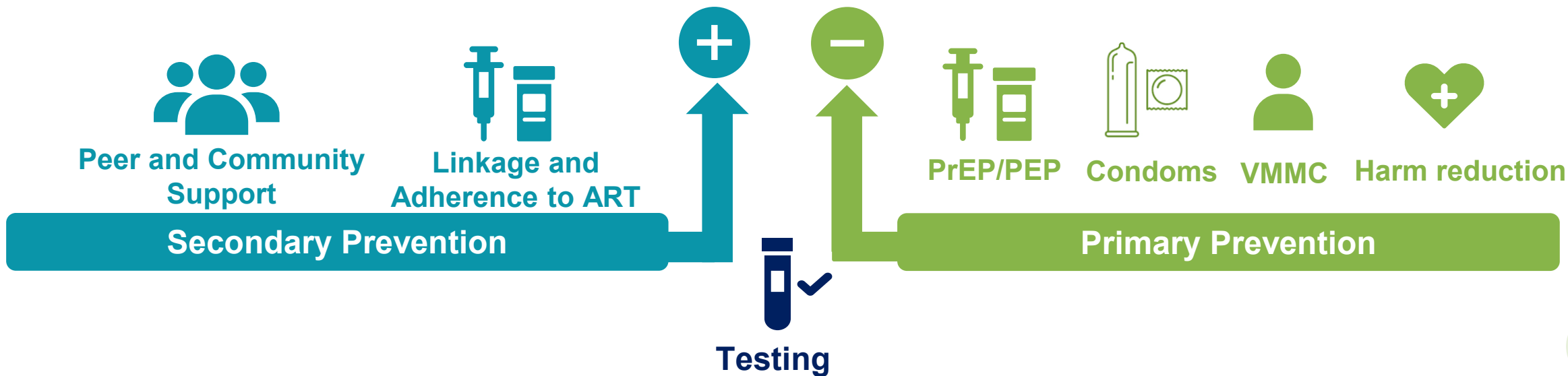
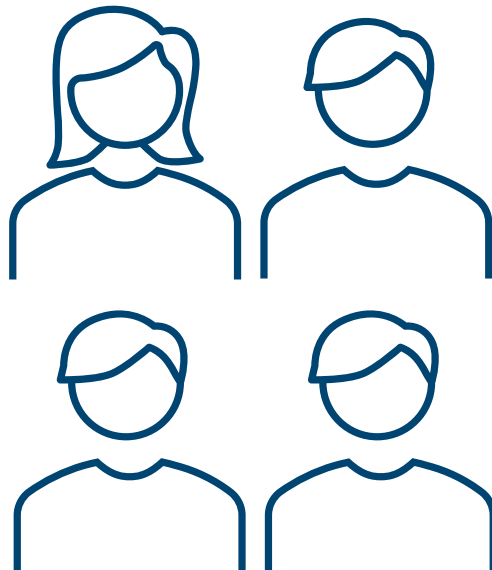
Wafaa El-Sadr, MD, MPH, MPA

Community Working Group  
June 15<sup>th</sup>, 2024



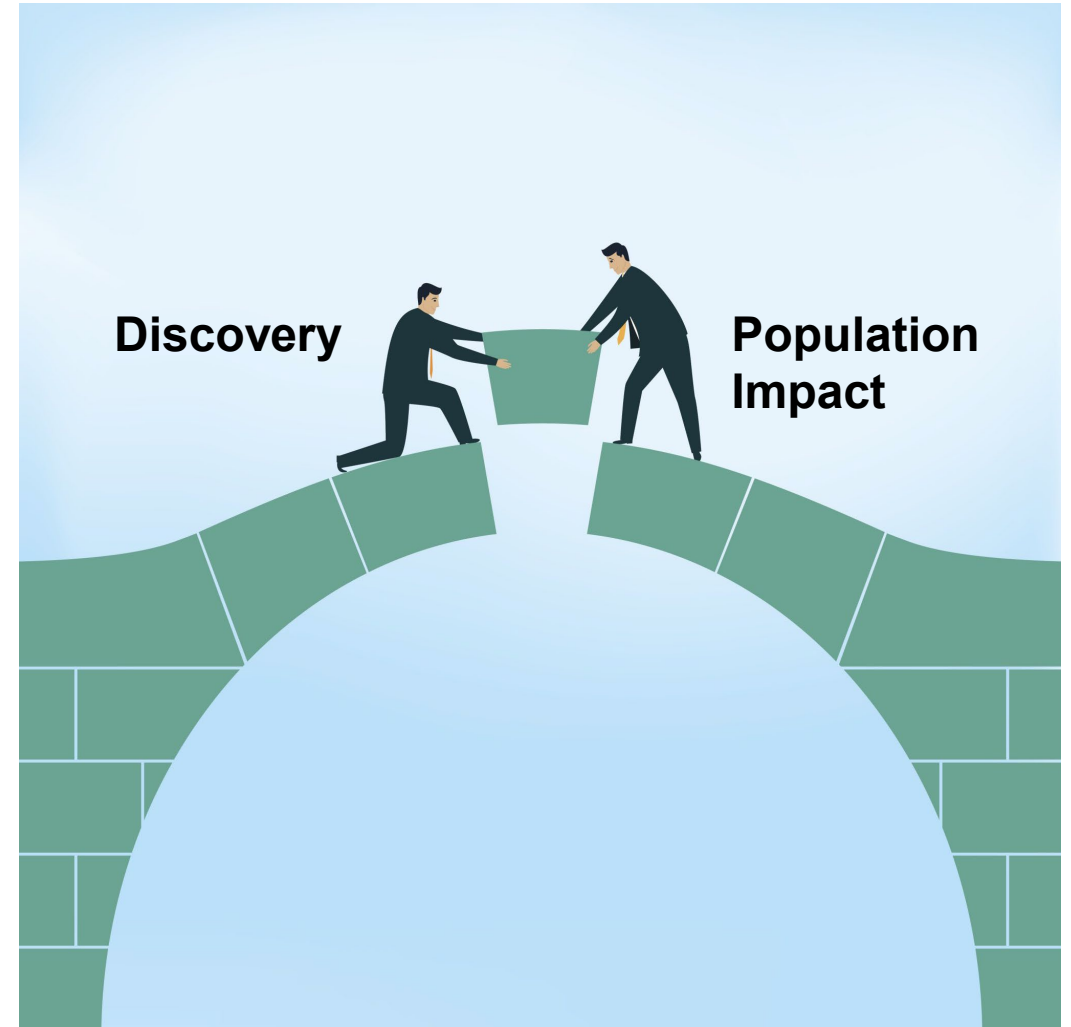
The HPTN aims to reduce the acquisition and transmission of HIV around the world

# Foundation of HIV Prevention



# HPTN Goals

- I. **Expand the toolbox** of biomedical prevention, both agents and modalities of use, prioritizing longer acting prevention
  
- II. **Develop integrated strategies** studies to overcome barriers to HIV prevention faced by specific populations





# HPTN Key Achievements

# Foundation of HIV Prevention

## Prevention of HIV acquisition

PrEP/PEP 

Condoms 

VMMC 

Harm reduction 



Testing



## Prevention of HIV transmission



Antiretroviral therapy



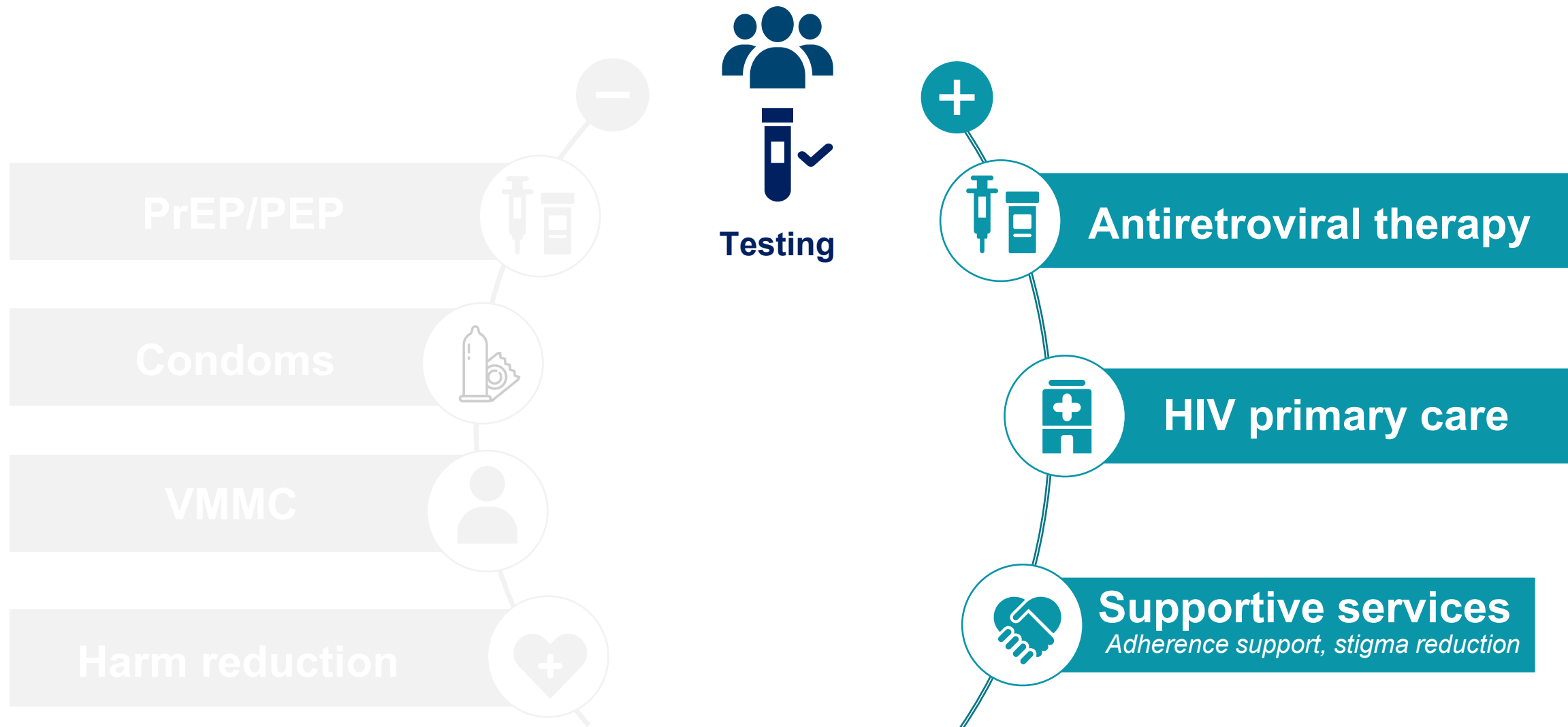
HIV primary care



Supportive services

*Adherence support, stigma reduction*

# Secondary Prevention

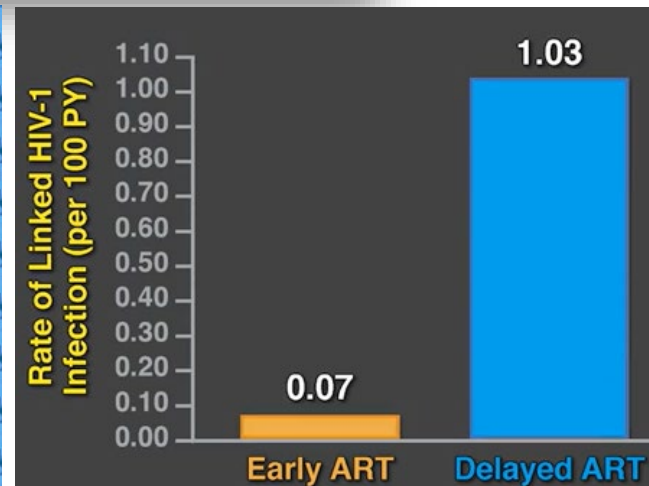
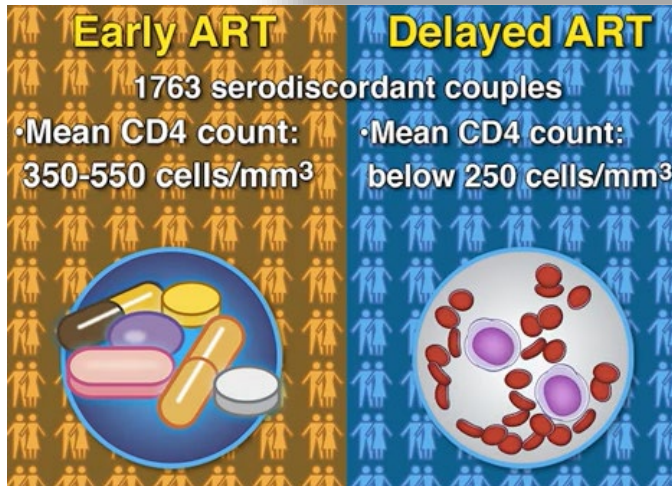


# Secondary Prevention

## HPTN 052

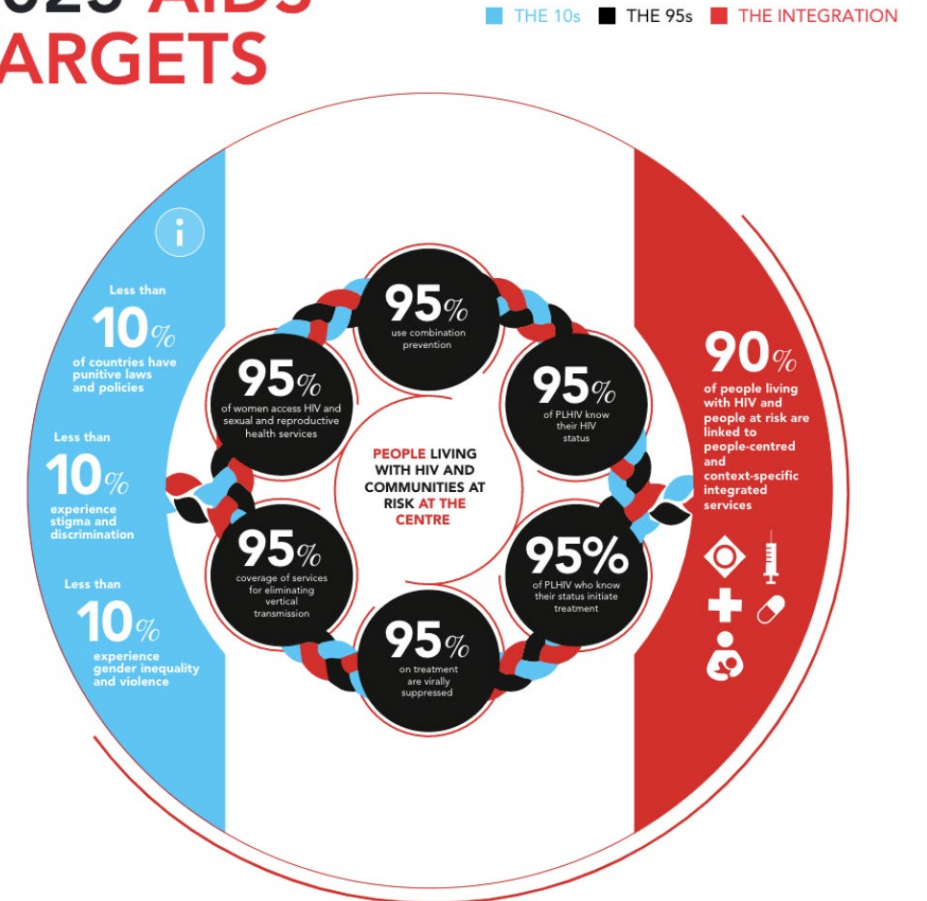


Cohen et al.,  
NEJM (2016)



**Zero genetically linked transmissions** were observed while the HIV-positive partner was virally suppressed

## 2025 AIDS TARGETS



[aidstargets2025.unaids.org](http://aidstargets2025.unaids.org)



# From HPTN 052 to Global Action: 95:95:95

86%

**Adults living with HIV knew their HIV status**

89%

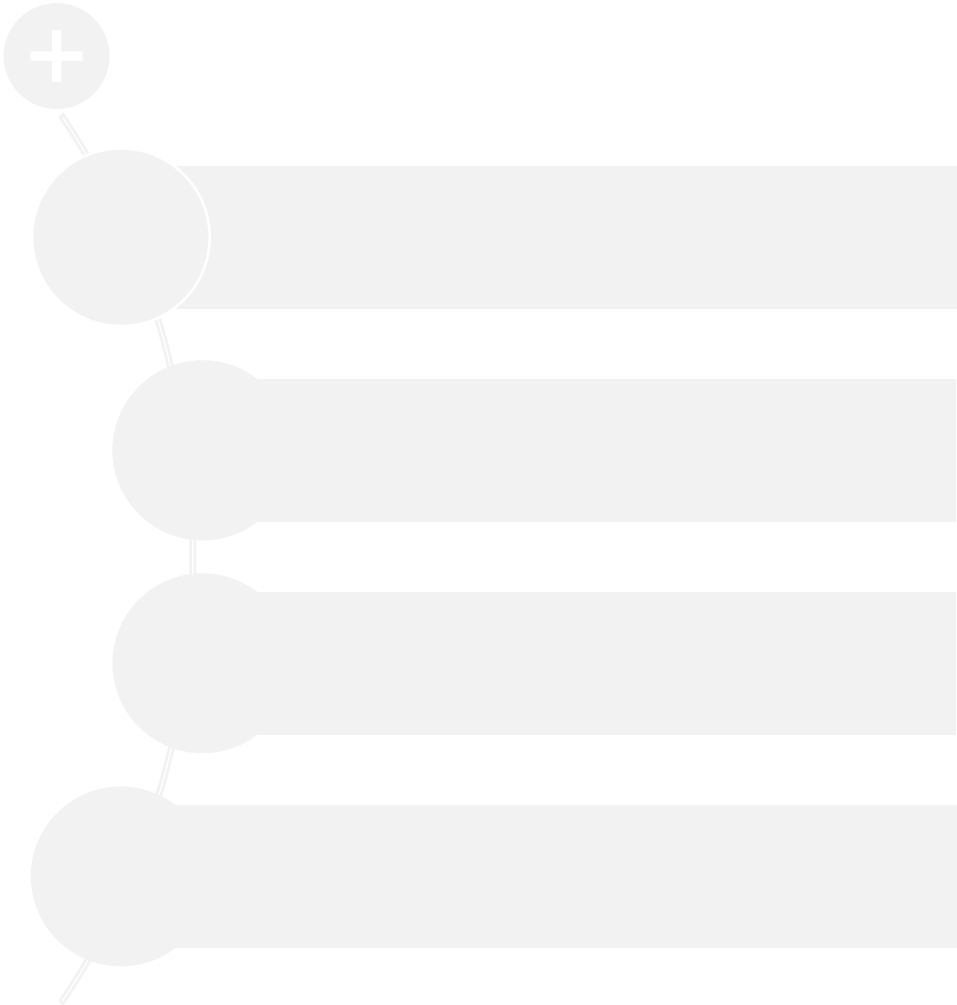
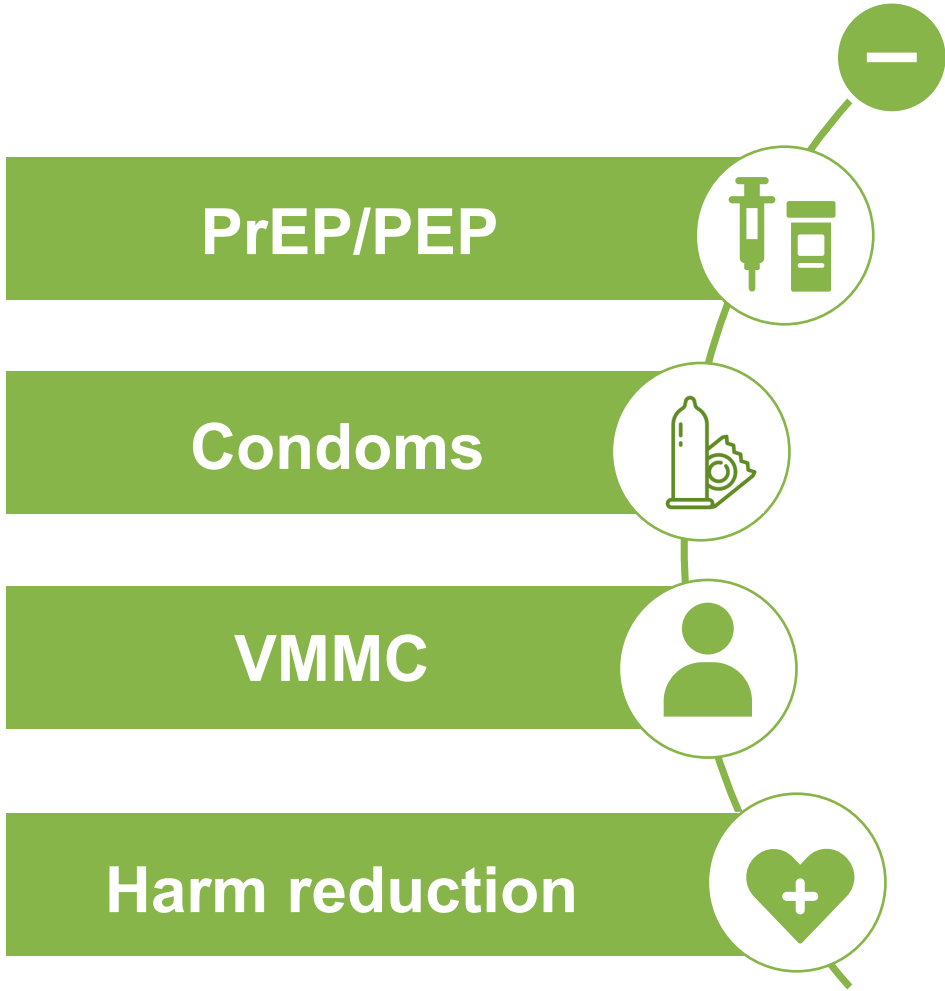
**Adults who were aware of their HIV status were on ART**

93%

**Adults who were on ART had viral load suppression (VLS)**

- Globally 71% of people living with HIV have VLS ( $0.86 \times 0.89 \times 0.93 = 71\%$ )
- Botswana, Eswatini & Zimbabwe achieved 95-95-95 targets (2022)
- Another 16 countries (8 in Sub Saharan Africa) are close to achieving targets

# Primary Prevention



# From HPTN 083 and 084 to Long-Acting PrEP

- CAB LA demonstrated sustained and reliable prevention of HIV among MSM, transgender women and cis-gender women
- FDA, EMA, and several countries have approved CAB-LA for HIV prevention based on HPTN studies
- WHO and CDC issued guidelines in 2022 for the use of CAB-LA for prevention
- **HPTN 083 and 084 NOW set the stage for development of other long-acting agents for HIV prevention**



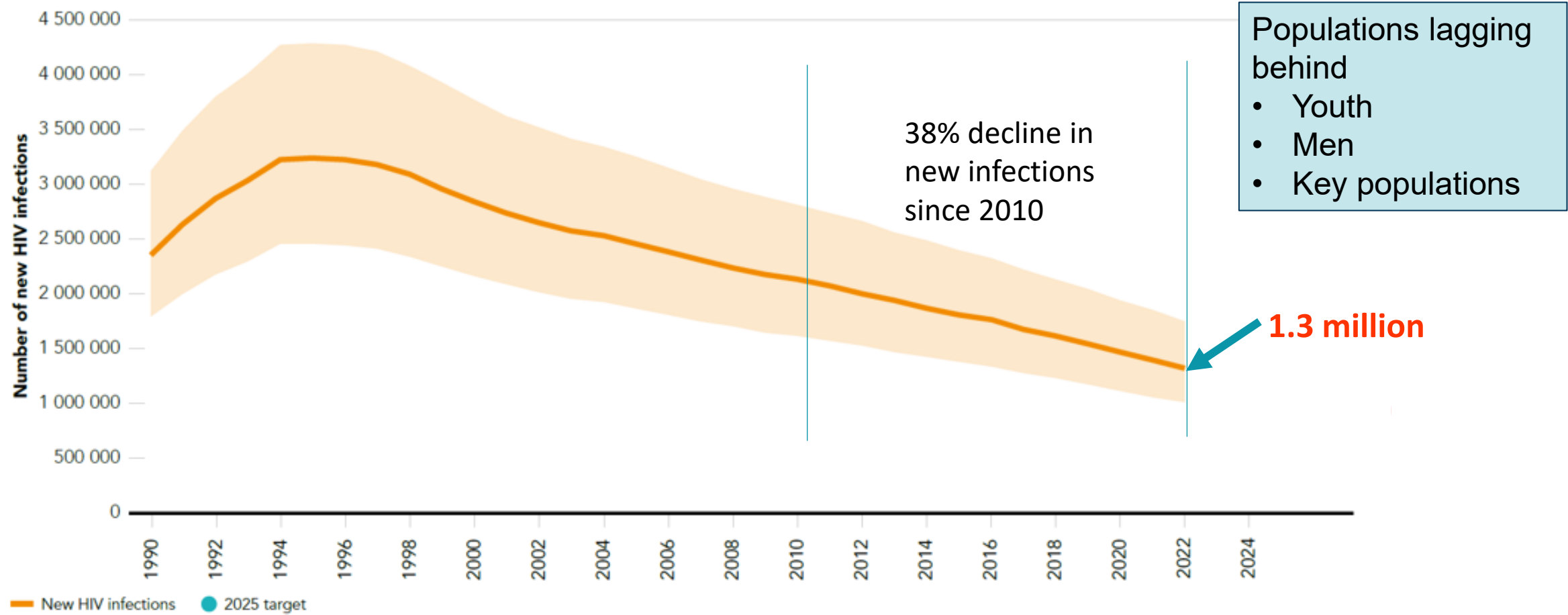
N Engl J Med 2021; 385:595-608  
Lancet 2022; 399: 1779 -1789



# Where are the Gaps



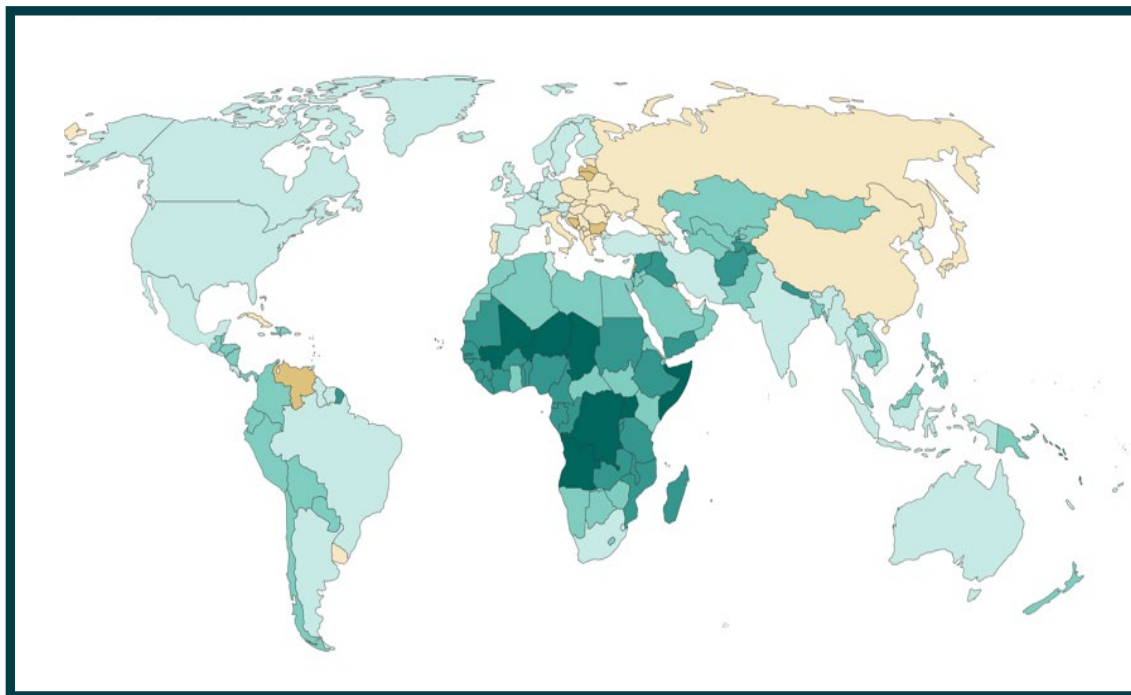
# More Than 1.3 Million New HIV Infections/Year



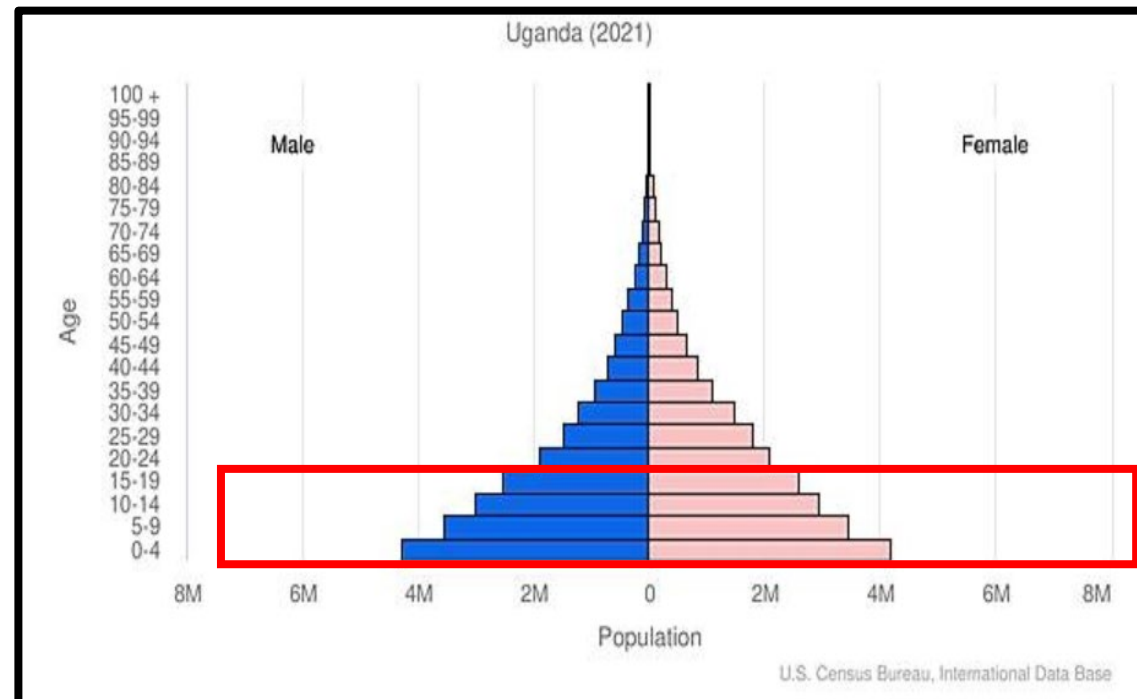
Source: UNAIDS epidemiological estimates, 2023 (<https://aidsinfo.unaids.org/>).

# The Coming Youth Bulge

### Population Growth Rate, 2021

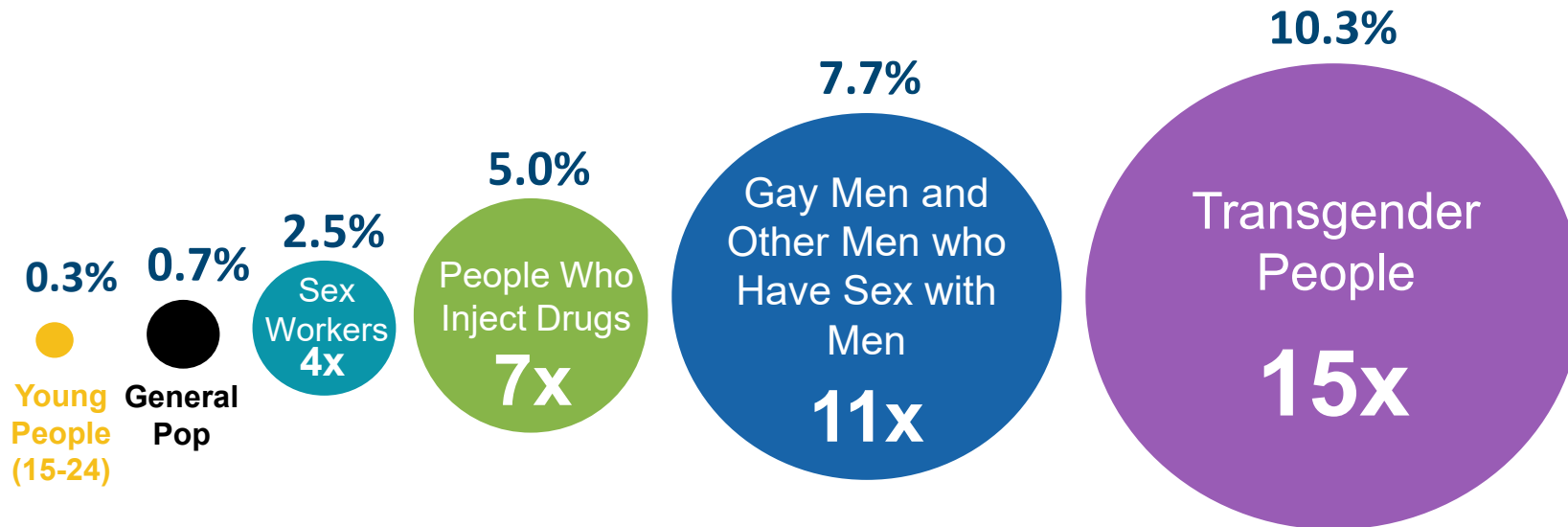


### Uganda fertility rate (2021) 4.6 children per women



# Key and Priority Populations are Bearing the Brunt of New Infections

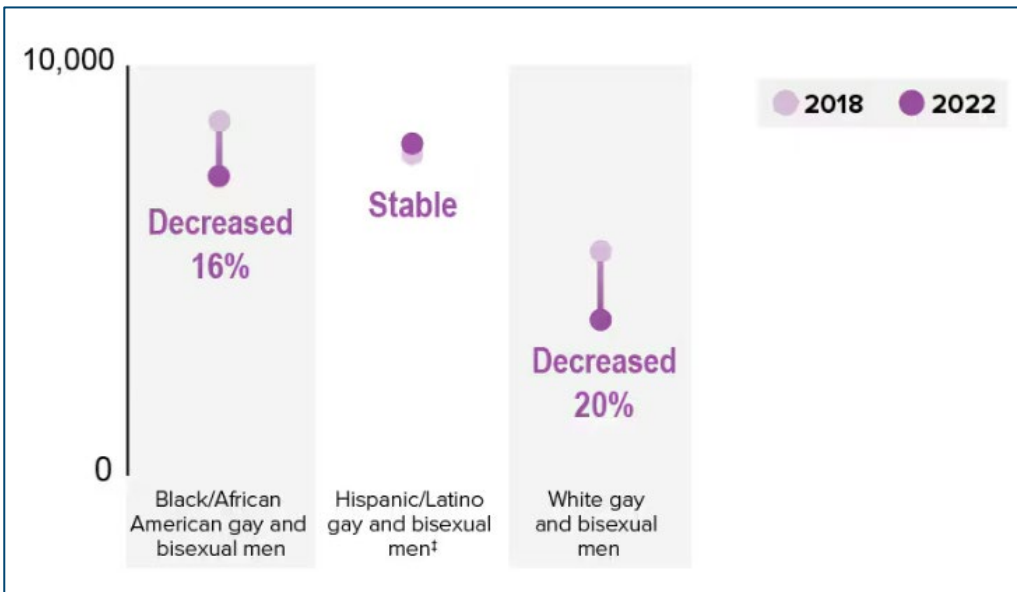
HIV prevalence: comparison of key populations to the general population



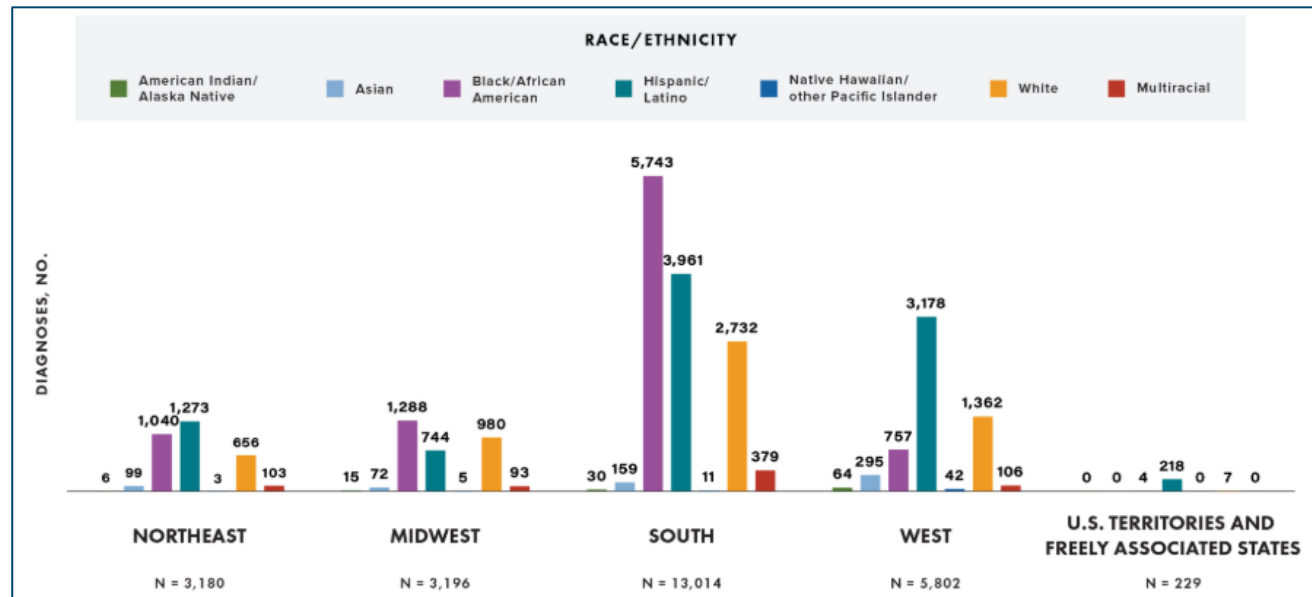
Key populations and their partners accounted for 55% of all new HIV infections in 2022

# Gaps in US HIV Response

## Estimated HIV infections among gay and bisexual men by race and ethnicity - 2022



## HIV diagnoses among MSM – 2022

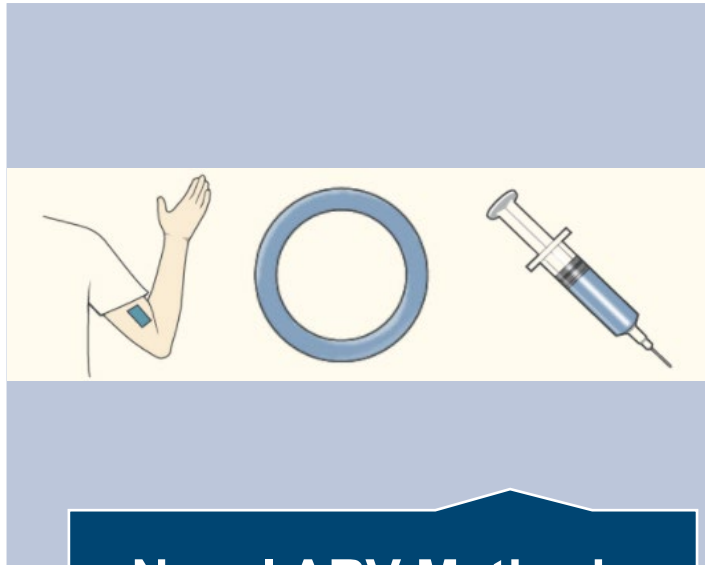




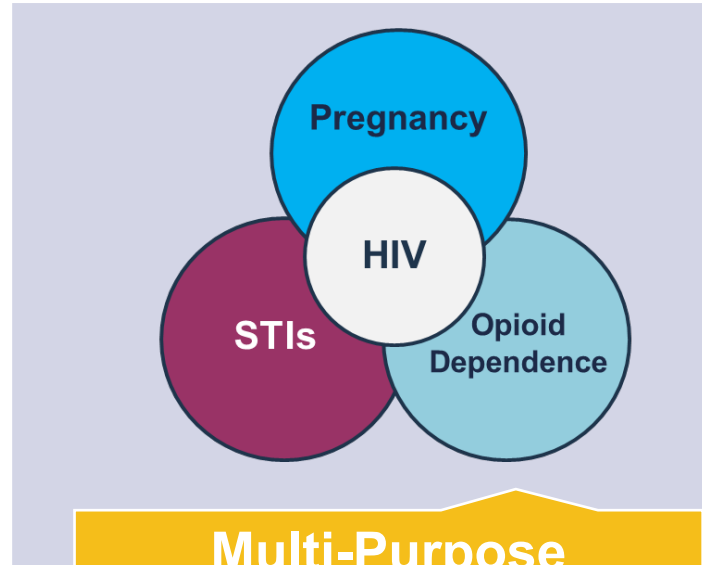


# Way Forward

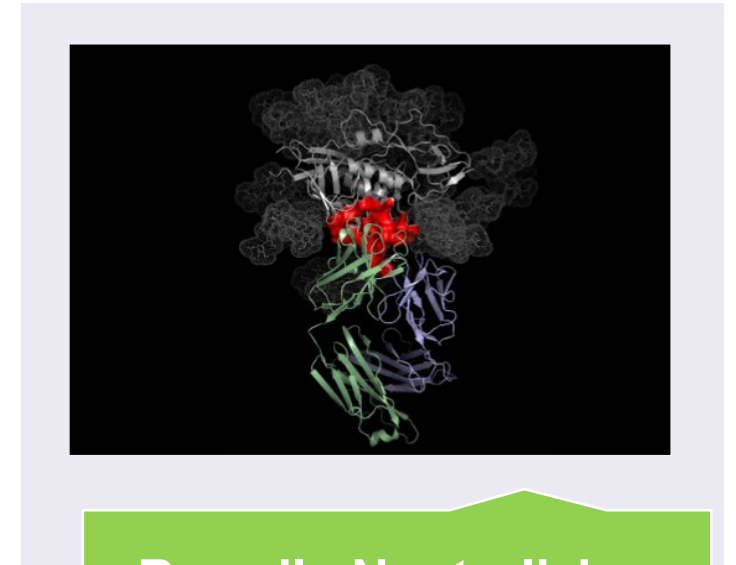
# I. Discovery New Prevention Tools and Methods



**Novel ARV Methods and Delivery Systems**



**Multi-Purpose Prevention Technologies (MPTs)**



**Broadly Neutralizing Antibodies (bNabs)**

# Ultra Long-acting PrEP – Lenacapavir

- Lenacapavir is a first-in-class selective HIV capsid inhibitor, with subcutaneous injections **every 6 months**
- Two pivotal efficacy studies in **cisgender women in SSA** and **MSM/TGW** underway now by Gilead
- HPTN, in collaboration with Gilead, is pursuing two studies in special populations:
  - **HPTN 102/Purpose 3:** Lenacapavir phase 2 PK, safety, acceptability in cis-gender women in the US
  - **HPTN 103/Purpose 4:** Lenacapavir phase 2 PK, safety, acceptability of lenacapavir in people who inject drugs (PWID) in the US

# Offering Choice: On-Demand PrEP for Men



## ON-DEMAND PrEP

**On-demand oral PrEP (2-1-1 F/TDF) is recommended by WHO and CDC for cisgender men who have sex with men**

Can we develop an event-driven and behaviorally congruent product?



**HPTN 106 will evaluate the extended safety, acceptability, and pharmacology of a TFV rectal douche versus on-demand oral F/TDF in a randomized crossover study**

- 150 cisgender men and transgender women who have experience using rectal douches

# Other Products on the Horizon

## Matrix/USAID Program and others

TAF/EVG inserts

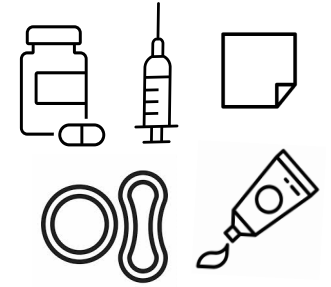
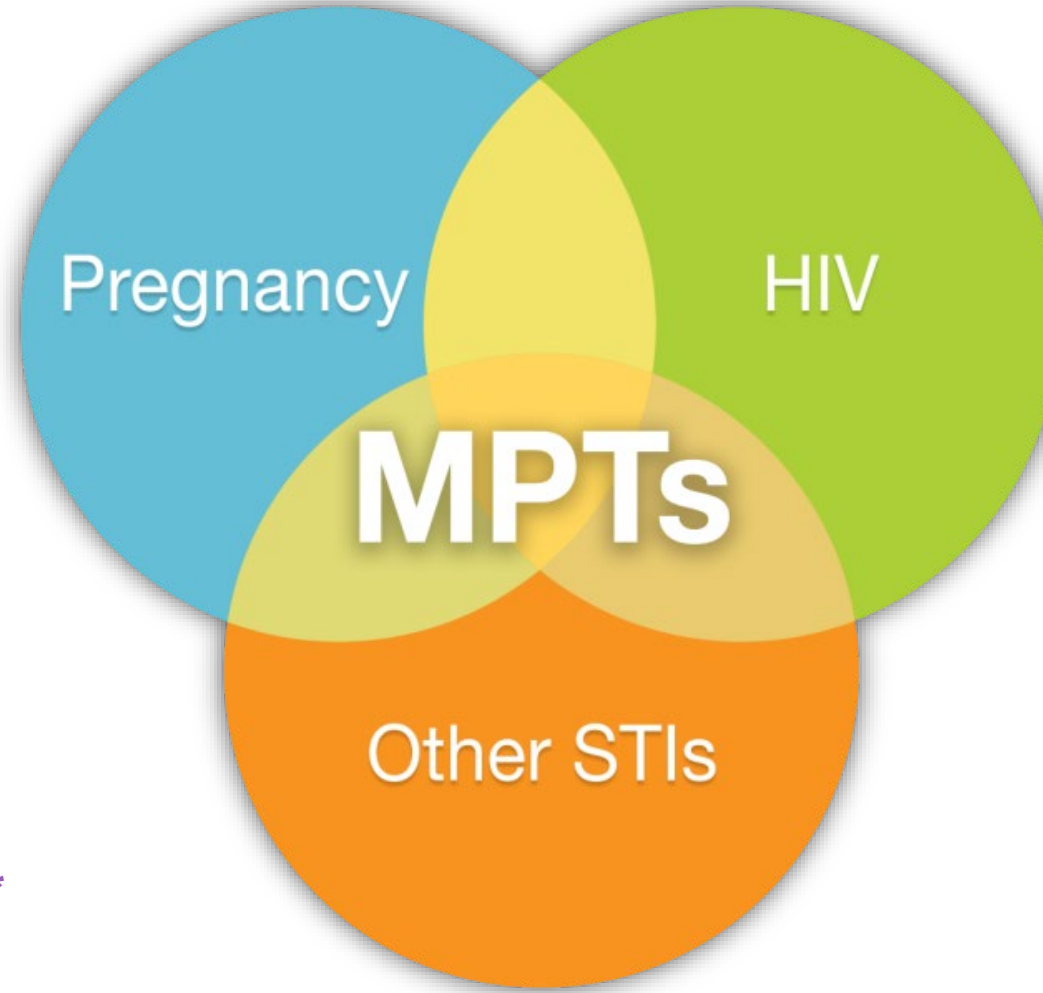


Bioresorbable CAB injectable depot:  
in pre-clinical stage (20 weeks)



# MPTs: Meeting Population Needs

**Multipurpose prevention technologies (MPTs):** products designed to simultaneously address more than one sexual and reproductive health concerns



- ✓ **Easy to use**
- ✓ **User-initiated**
- ✓ **Discreet**
- ✓ **Effective**

*HIV + Other STIs (10)\**

*Pregnancy + Other STIs (3)\**

*HIV + Pregnancy (11)\**

*HIV + Other STIs + Pregnancy (4)\**

*\*(# of products in development)*

# MPT for PrEP and Prevention of Pregnancy

**HPTN 104:** Adherence of one dual prevention pill (co-formulated F/TDF+ ethynyl estradiol/levonorgestrel) compared with a two-pill regimen



## Alternate agents in development

- F/TAF-MPT dual prevention pill (DPP)
- Injectable CAB-LA-levonorgestrel (Conrad)
  - 3- & 6-month duration

# Antibody-Mediated Prevention

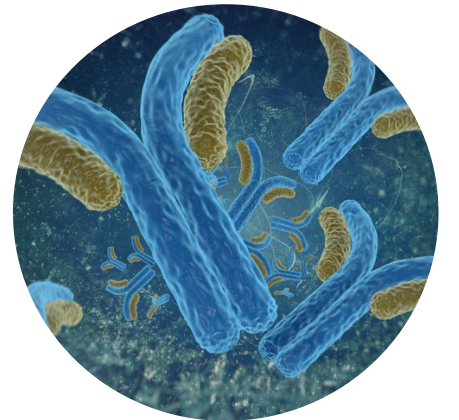
- Collaboration between HPTN and HVTN
- Two randomized (AMP) trials of neutralizing antibodies using VRC01 have been completed (NEJM, 2021)

## Lessons learned:

VRC01 neutralized highly sensitive viruses

**A single bnAb is not sufficient, two or more are needed**

Phase 1 bnAb combination trials have been completed





# II. Integrated Strategies for Population Impact



# Beyond the Magic Bullet: What Will It Take to End the AIDS Epidemic?

Wafaa M. El-Sadr, MD, MPH, MPA

individual benefit but also prevents transmission to others further energized efforts to expand global access to antiretroviral therapy.<sup>1,5</sup>

Prevention research then turned to the next big question, whether antiretroviral drugs would also work for primary prevention (i.e., to prevent HIV acquisition by HIV-negative persons). A pivotal study, the IPrEX (Iniciativa Profilaxis Pre-Exposición, “preexposure prophylaxis initiative”) study, conducted among men and transgender women who

I vividly recall that spring day four 2019, more than 1.7 million new HIV

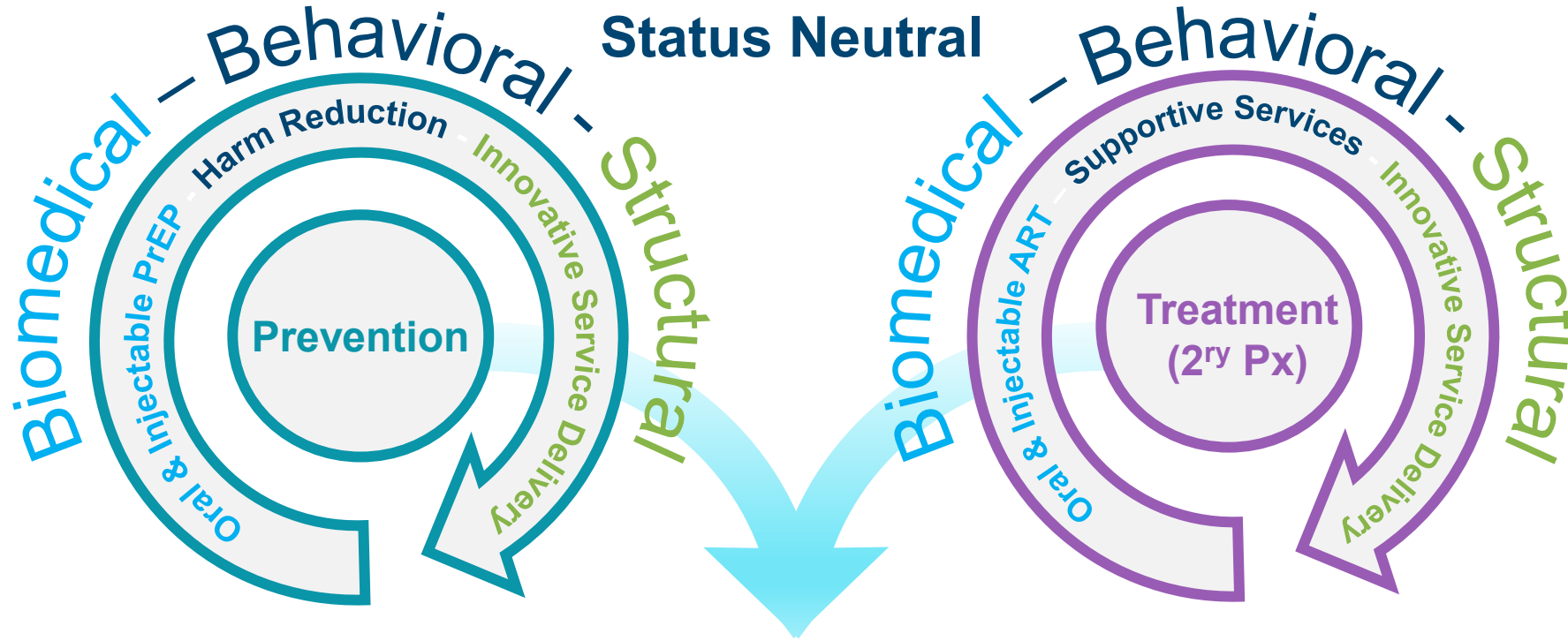
El-Sadr, AJPH, 2021

**BIOMEDICAL INTERVENTIONS**



**BEHAVIORAL & STRUCTURAL INTERVENTIONS**

# Taking Efficacy to Effectiveness



Integrated Strategy Study with Population-Specific Interventions

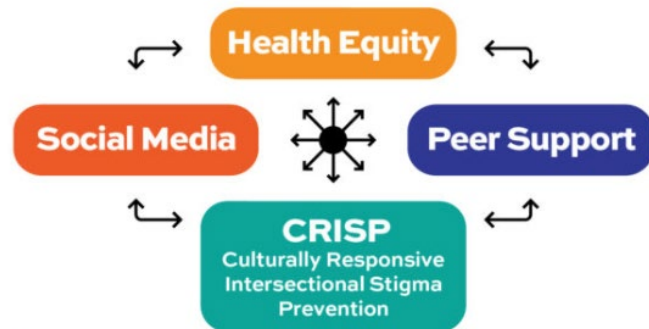
Reduce HIV Incidence

**PUBLIC HEALTH IMPACT**

# Reaching Diverse Populations

## Black MSM

- HIV **status-neutral** interventions at the **community, organizational, and interpersonal level** (HPTN 096)



## Transgender Women

- Co-located HIV prevention and **gender-affirming interventions** (HPTN 091)



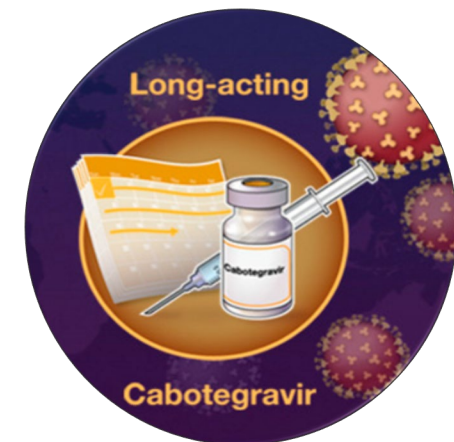
## People Who Inject Drugs

- “One stop model” for **HIV/STI and MOUD** interventions (HPTN 094)

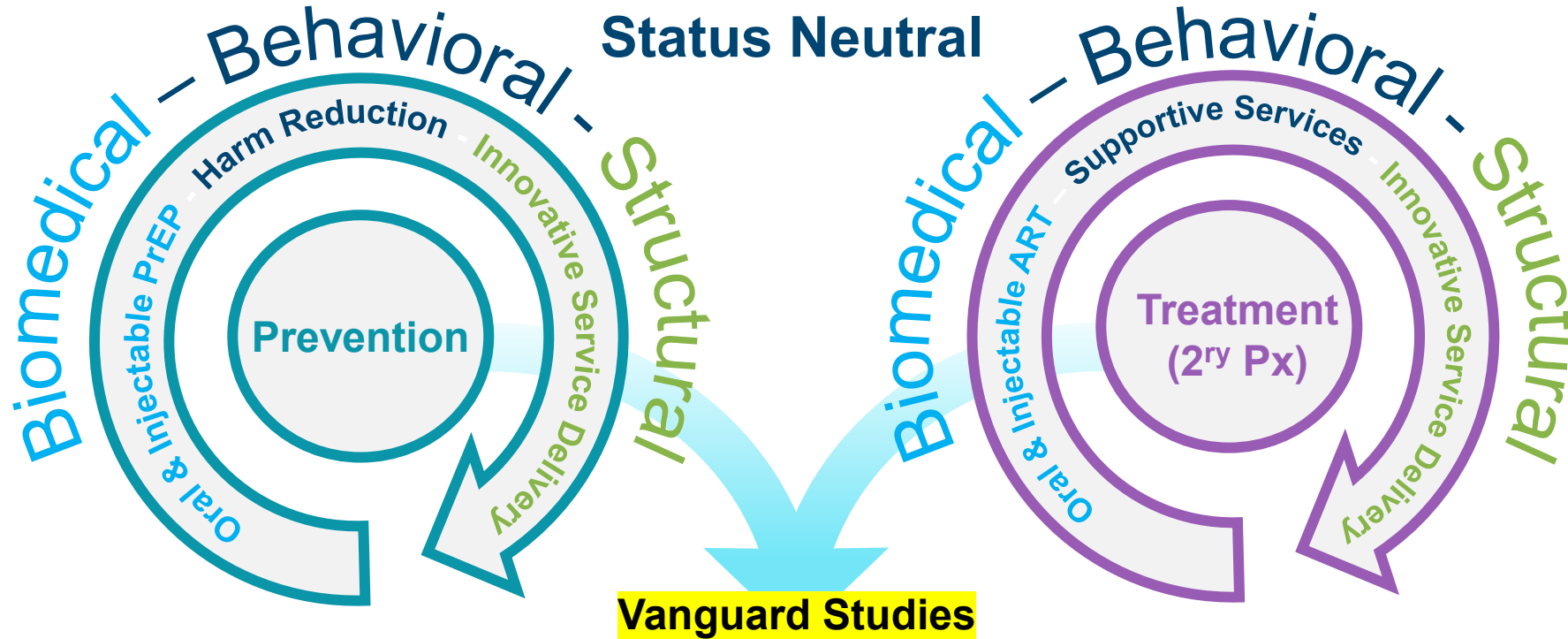


# Way Forward for CAB LA

- Open label studies are evaluating continued safety and protection, PK, resistance, including adolescent sub-studies
- **New studies are needed to examine effectiveness of CAB-LA among adolescents, young people and PWIDs**



# Taking Efficacy to Effectiveness

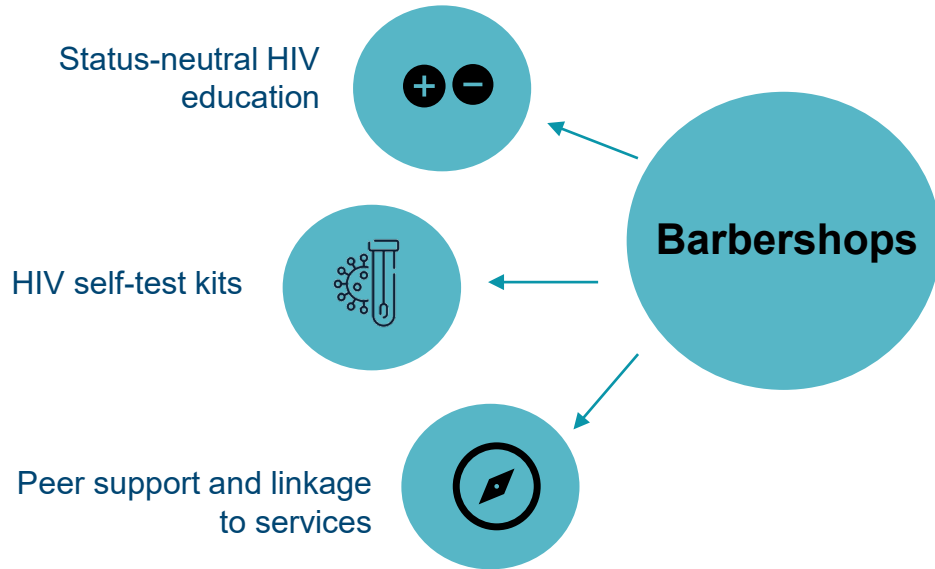


Integrated Strategy Study with Population-Specific Interventions

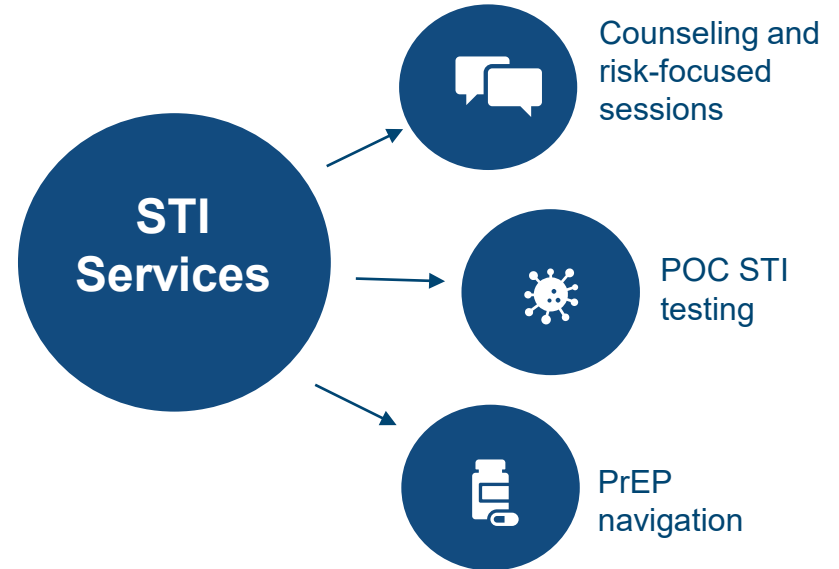
Reduce HIV Incidence

**PUBLIC HEALTH IMPACT**

# Reaching Heterosexual Men



(HPTN 111)

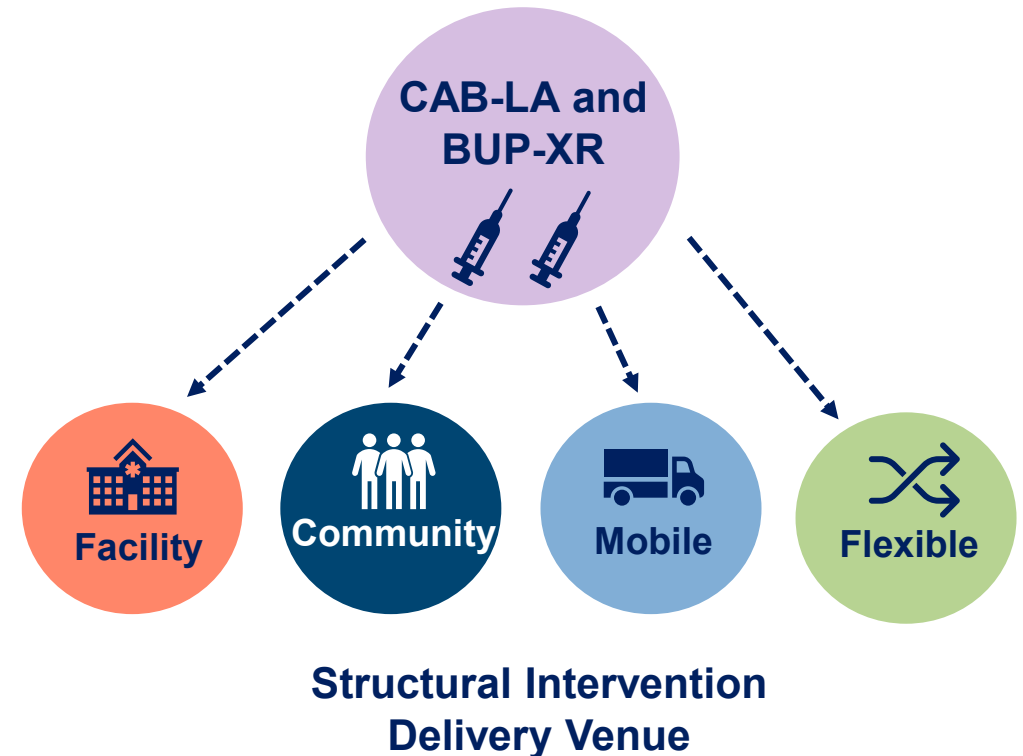


(HPTN 112)



# Reaching PWID/PWUD

- **Some of the highest HIV incidence globally is among PWID**
  - Eastern Europe and South/S.E. Asia have incidence >10 per 100 p-y
- **Polysubstance use (stimulants/opioids) results in overlapping sexual/drug use networks**
- **Long-acting agents (PrEP and MOUD) offer new opportunities for integrated prevention strategy studies**

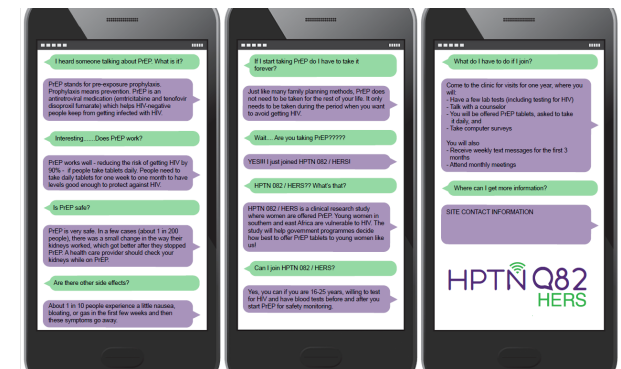
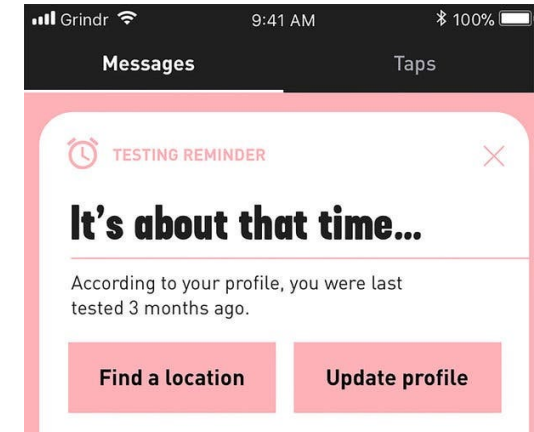




# Using Technology and Social Media

- Implementation of Interventions
- Measurement and evaluation of use, reach, and impact

- Artificial Intelligence
  - Take advantage of machine learning
  - Speed access and analysis of large data sets
  - Enable nimble decision-making during study implementation
- Technological tools
  - Diagnostic tools and transmission of results
  - mHealth
  - Apps
  - Social media



# Summary

- 1 HPTN has made critically important advances in HIV prevention
- 2 HPTN is committed to the discovery of new methods for HIV prevention, as well as pursuing how best to use these methods to impact the HIV epidemic
- 3 HPTN's integrated strategy approach is the path forward to addressing gaps in HIV prevention among specific populations
- 4 Use of technology and social media can transform the way research is designed and implemented moving forward



**Thank you**