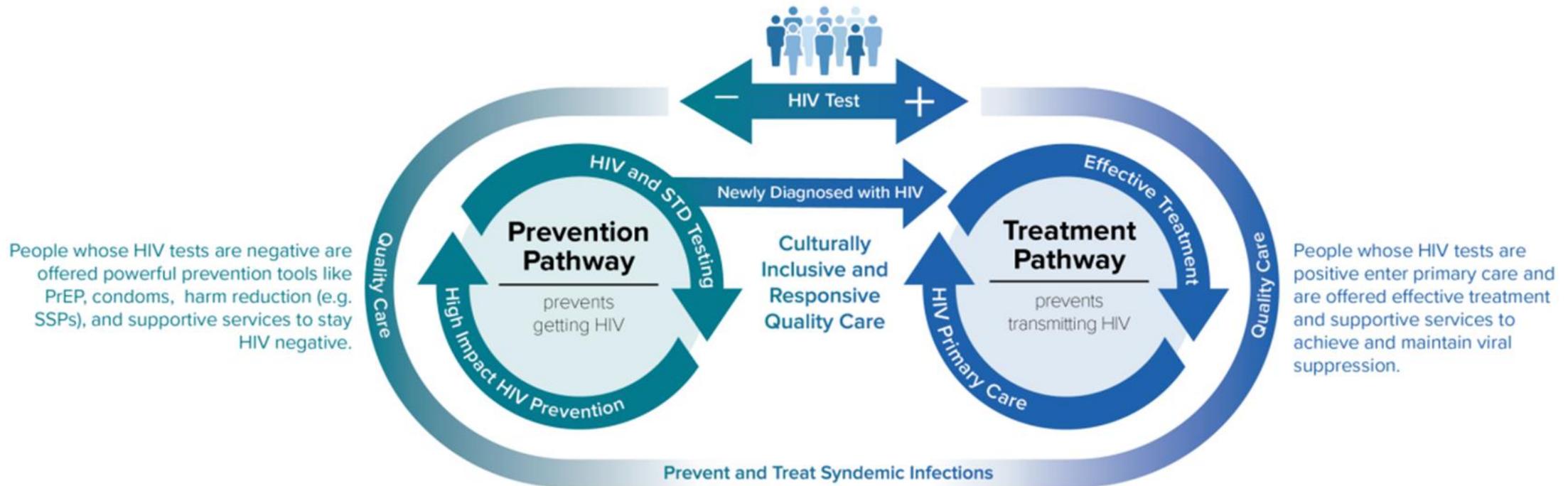

AI for HIV Impact: WHO Perspectives on Priorities and Challenges

Dr Cheryl Johnson

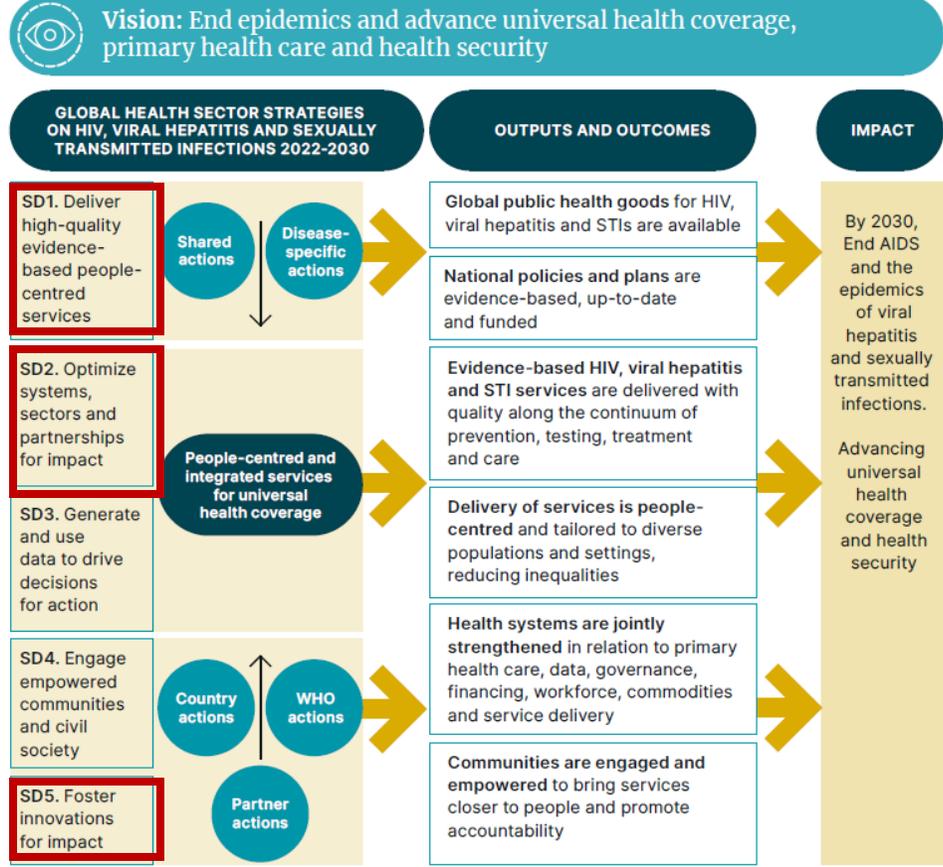
Global HIV, Tuberculosis, Hepatitis and STIs Department, WHO

2 March 2026

Status Neutral HIV Prevention and Care



WHO HIV strategy for achieving global goals



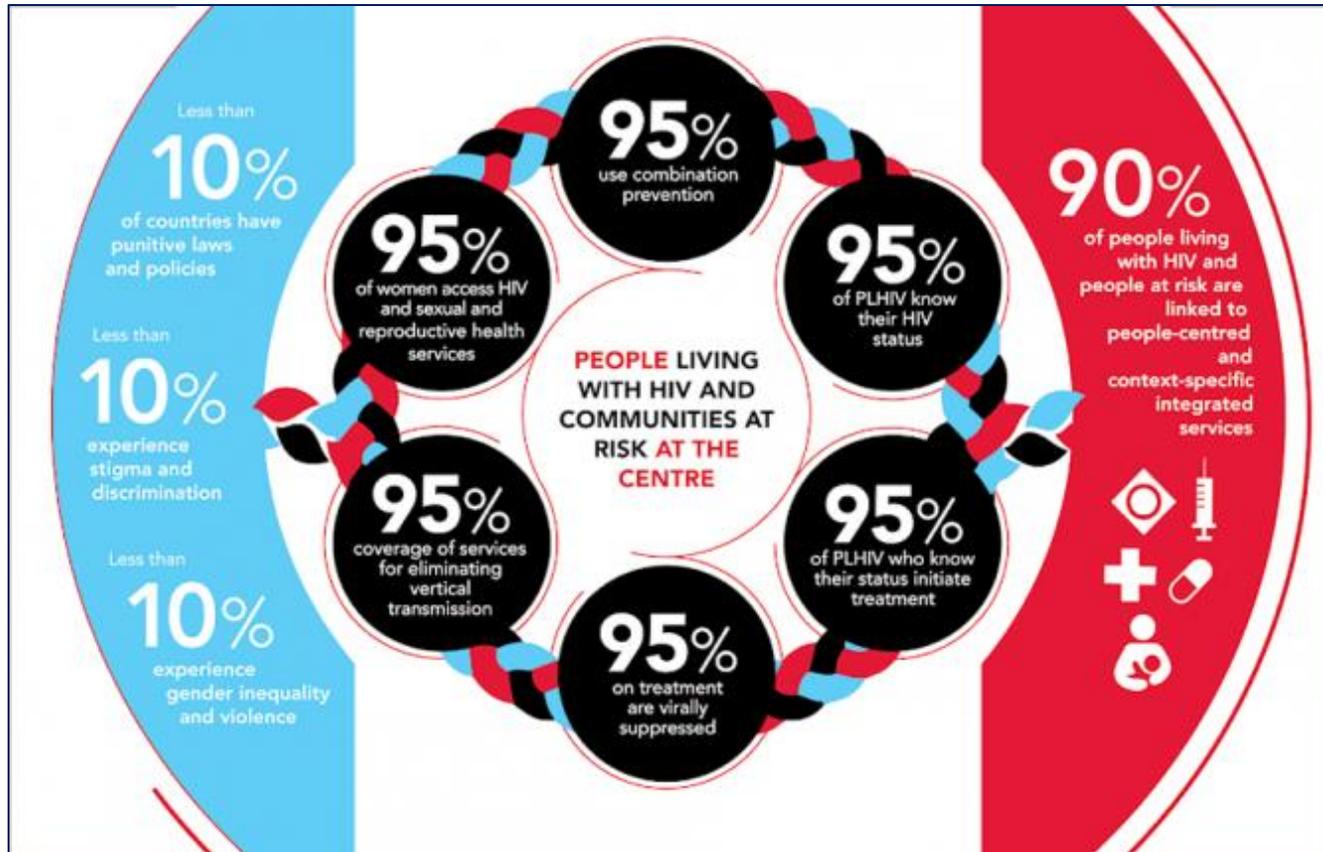
The 2022-2030 Global Health Sector Strategies build on the progress achieved during the previous Global health Sector Strategies period from 2016-2021, supported by Member States and partners commitment, community and civil society engagement, and WHO's normative leadership and country support.

Disease area	Impact indicator	Baseline 2020 ^b	2025 target	2030 target
Shared	Reduced incidence <ul style="list-style-type: none"> Number of new HIV and viral hepatitis cases per year Number of new cases of syphilis, gonorrhoea, chlamydia and trichomoniasis^c among people 15-49 years old per year 	4.5 million 374 million	<1.5 million < 300 million	<500 000 <150 million ^d
	Healthy lives – reduced mortality and cancers <ul style="list-style-type: none"> Number of people dying from HIV, viral hepatitis and sexually transmitted infections^e per year Number of new cases of cancer from HIV, viral hepatitis and sexually transmitted infections per year 	2.3 million 1.2 million	<1.7 million <900 000	<1 million <700 000
HIV	Number of people newly infected with HIV per year	1.5 million	370 000	335 000
	Number of people newly infected with HIV per 1000 uninfected population per year	0.19	0.05	0.025
	Number of children 0-14 years old newly infected with HIV per year	150 000	20 000	15 000
	Number of people dying from HIV-related causes per year	680 000	250 000	<240 000
	Number of people living with HIV dying from TB, hepatitis B and hepatitis C	210 000	110 000	55 000

Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections 2022-2030



Simplified global HIV response targets



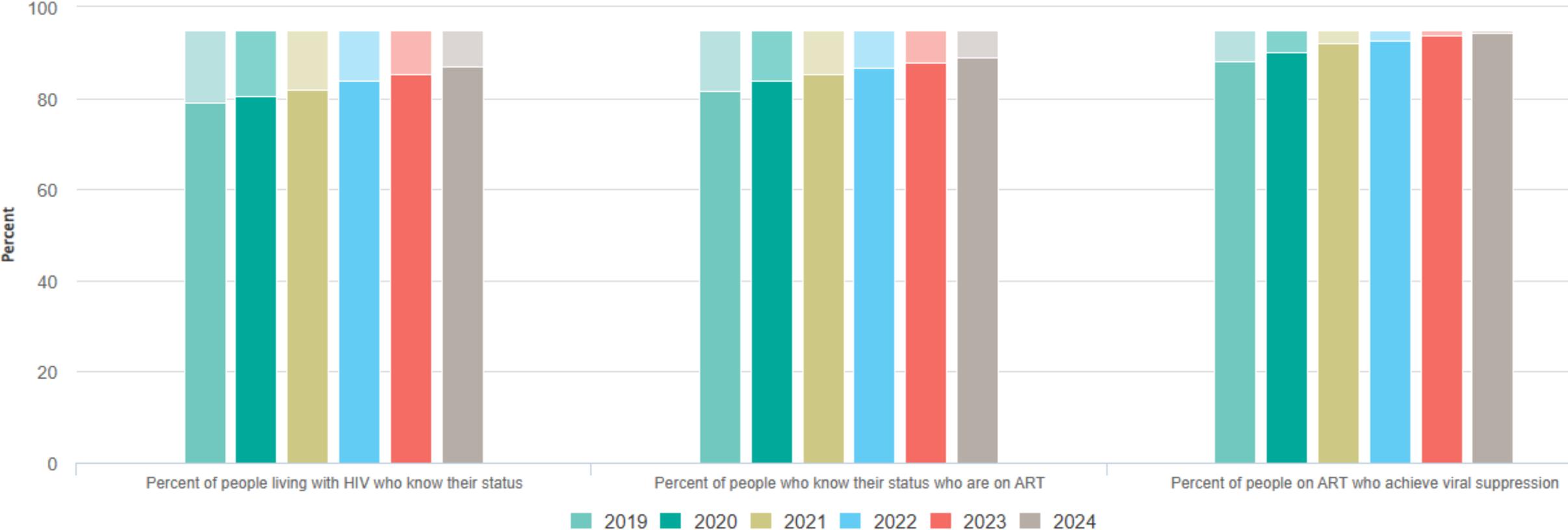
Achieve and maintain low HIV incidence by:

- 95% people with HIV (PLHIV) diagnosed
- 95% of PLHIV who know their status treated
- 95% of PLHIV on treatment virally suppressed
- Additional enabling targets and prevention targets to reduce new infections (< 335,000)

Global progress toward 95-95-95 over time

Additional 1.3 million new HIV infections annually

- Estimated ~5.3 million PLHIV undiagnosed and 9.2 million PLHIV not on ART



Source: UNAIDS special analysis, 2025

- Source UNAIDS 2025

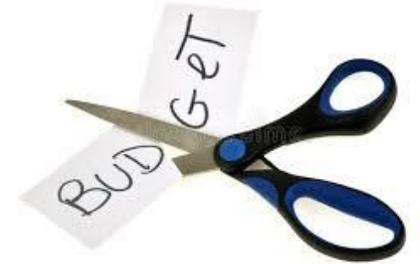
Reduced funding expected to result in more HIV infections and more HIV-related deaths

PEPFAR funding discontinued

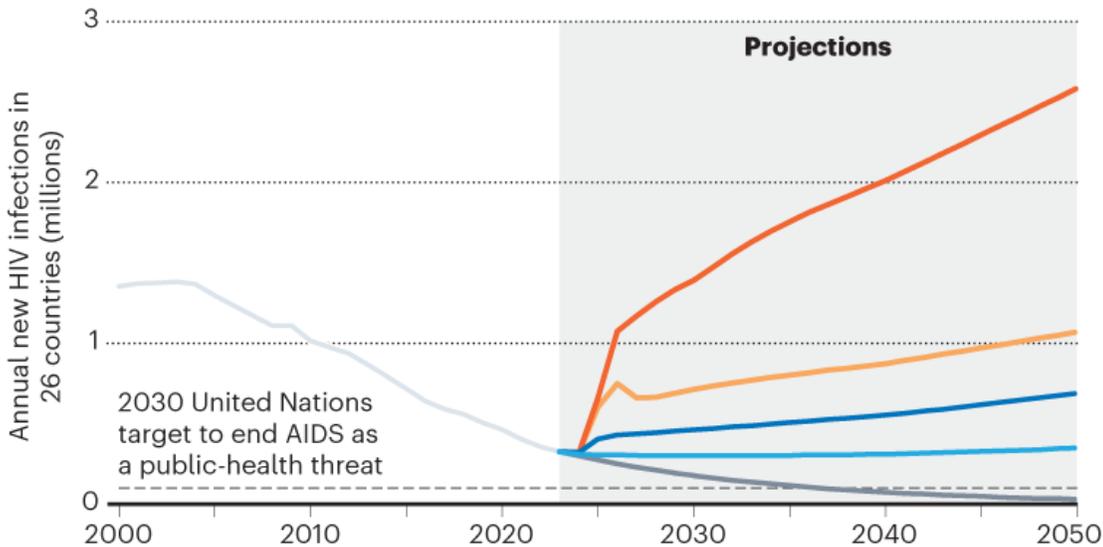
- Without mitigation
- Mitigated by new funding

Funding cuts of 24%*

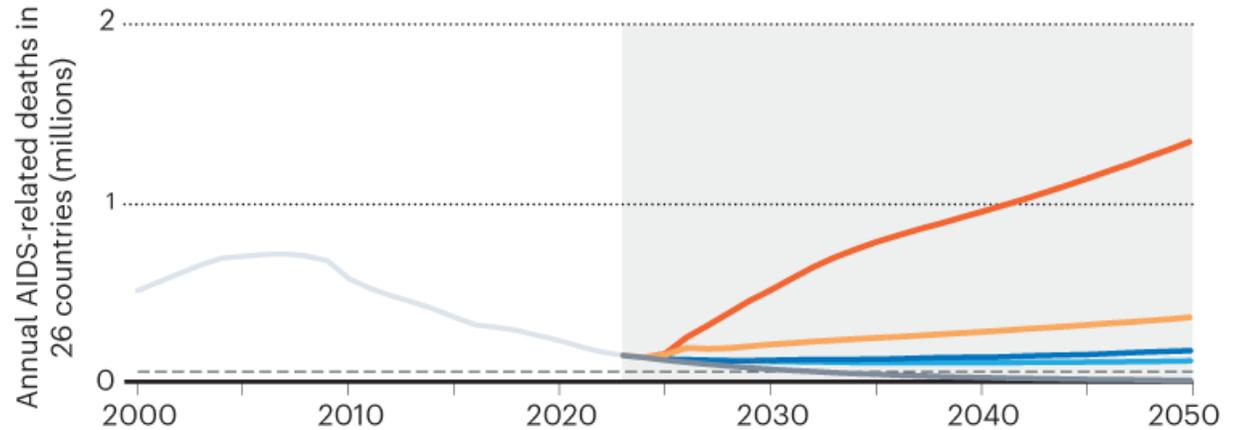
- Prevention funding reallocated to treatment
- Most shortfalls absorbed by other sources
- Historical
- Current trend



Infections



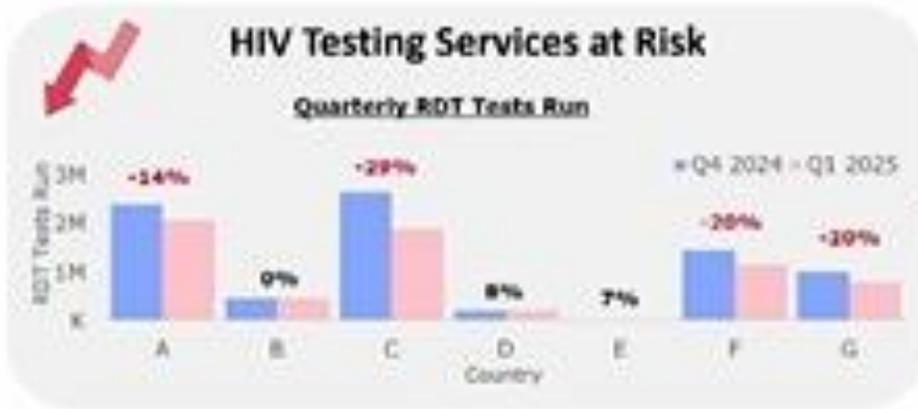
Deaths



*The United States provides 90% of international funding to tackle HIV/AIDS, with 4 countries accounting for another 5%; *Proposed cuts to international funding, not including cuts to PEPFAR.

©nature

Reduced HIV testing and monitoring in many LMICs risks delayed diagnosis, limited care access, and stalled epidemic control



Viral Load Monitoring

In some countries, major disruptions to viral load testing and resulting turnaround times are undermining efforts to ensure viral suppression

- ### Key Impact Factors
- Reduced human resources
 - Suspension of community testing and key populations-focused facilities
 - Commodity stockouts

13 - 17 July • Kigali, Rwanda

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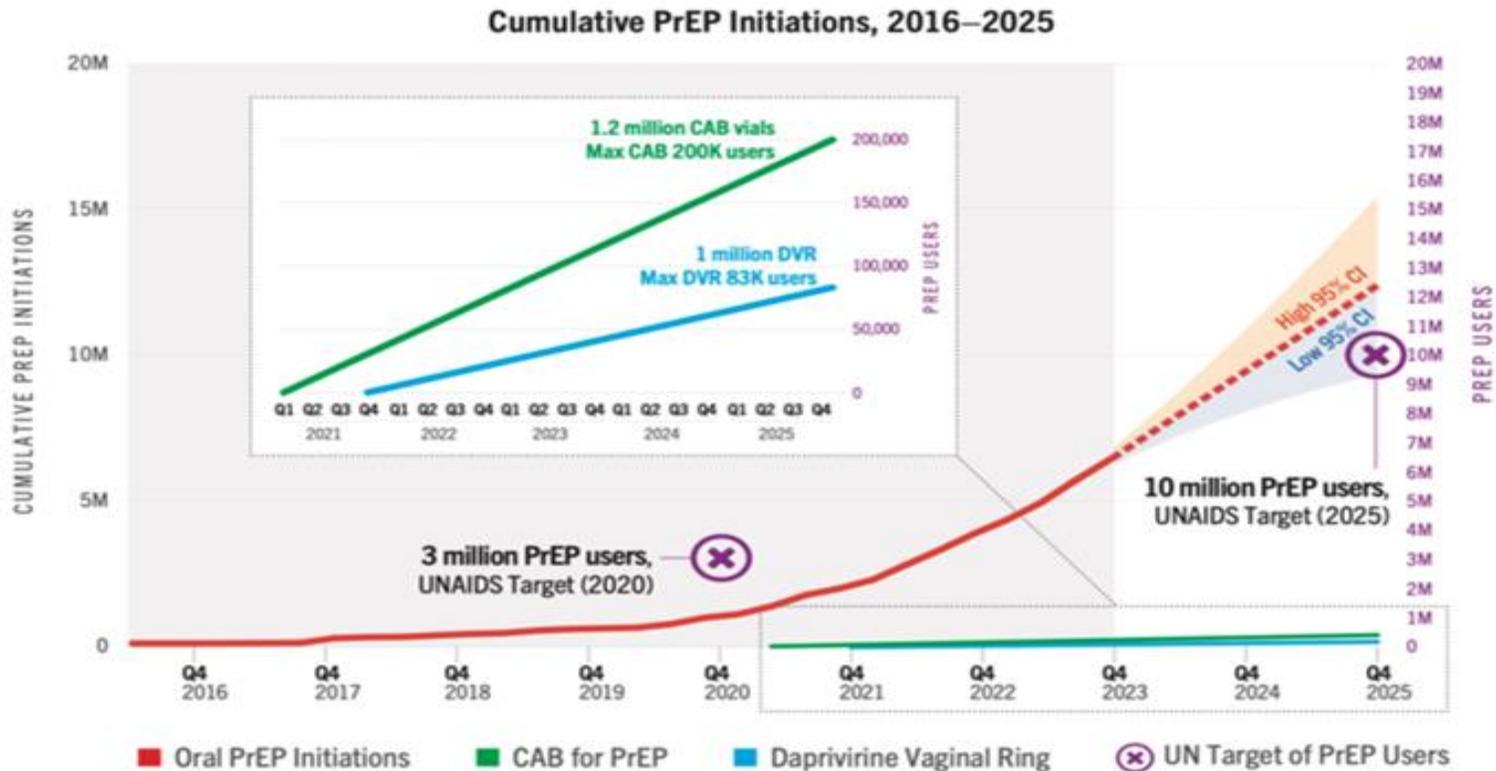
Carolyn Amole

Prior to budget cuts reductions in testing were shown to be linked with reduced diagnosis and late diagnosis

Up to 30% reduction in HIV testing in some countries reported



PrEP uptake remains low for nearly a decade



Prior to budget cuts, as many as 3.5 million people used PrEP at least once in 2023

- Far short of global PrEP targets which need to be achieved to substantially reduce new HIV infections*

Have we failed?

Note: The global target for 2025 is 10.6 million person-years of use (assuming a mean of 6-months of use, this would be 21.6 million users)

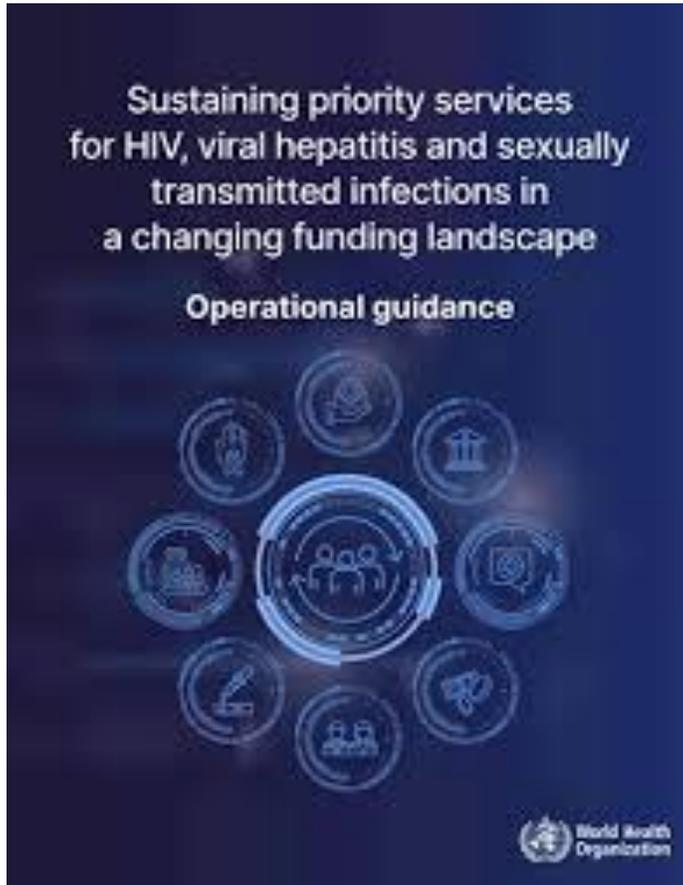
CAB-LA: cabotegravir long-acting, DVR: dapivirine vaginal ring

Source: AVAC 2024, UNAIDS 2024, WHO/Global AIDS Monitoring Reporting 2024



**Necessity
is the
Mother of
Invention**

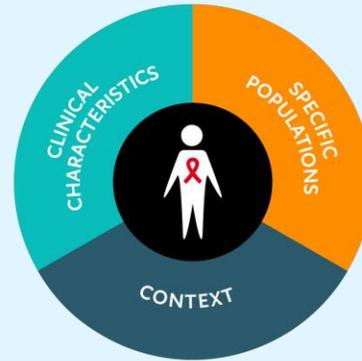
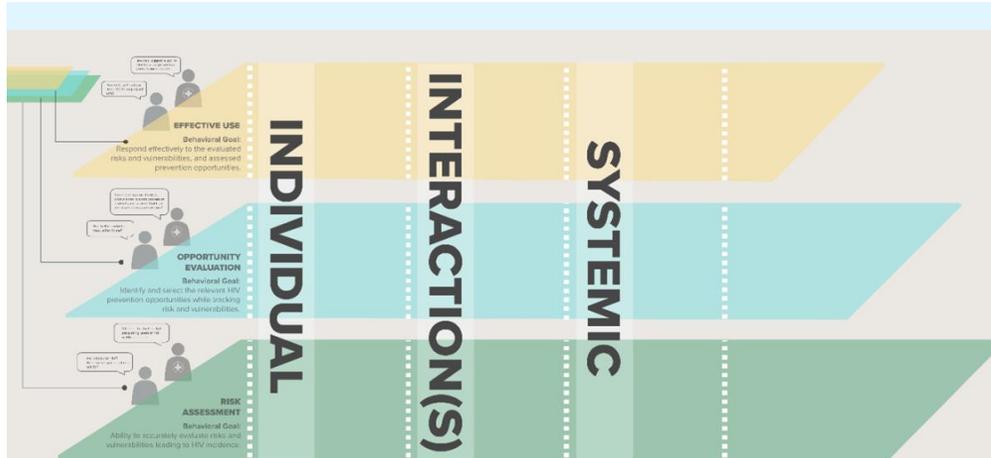
How are public health agencies meeting the moment?



- **Prioritizing HIV services to improve impact and efficiency is increasingly critical**
- Analyses show the greatest impact will be on focusing on maintaining HIV testing and treatment
 - Targeting HIV prevention effectively remains relevant and challenging
- Overall streamlining, integration and simplification needed—*but where and how to begin?*
 - Move away from vertical specialty care to integrated general services – more standardization
 - Lower cost, flexible, interchangeable commodities
 - Reduce staffing and bespoke clinics
 - Reduce clinic visits and optimize health worker time
 - Increased self-care and digital health
 - Aim to reduce back-sliding where possible

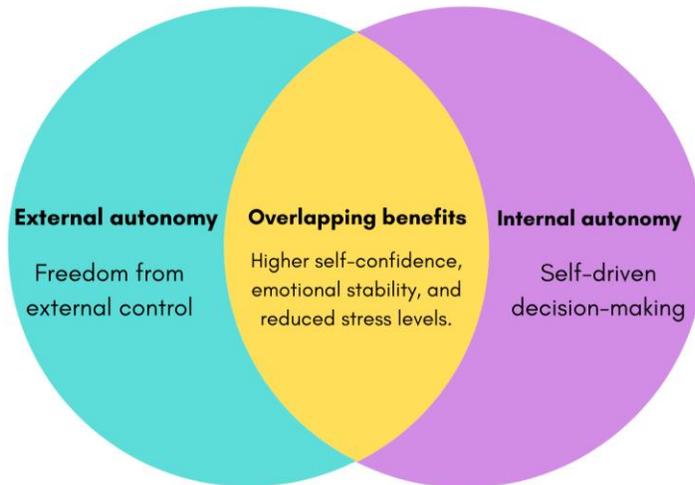
Why digital and self-care for HIV/STI prevention ?

Better choice...better reach...better care...better value



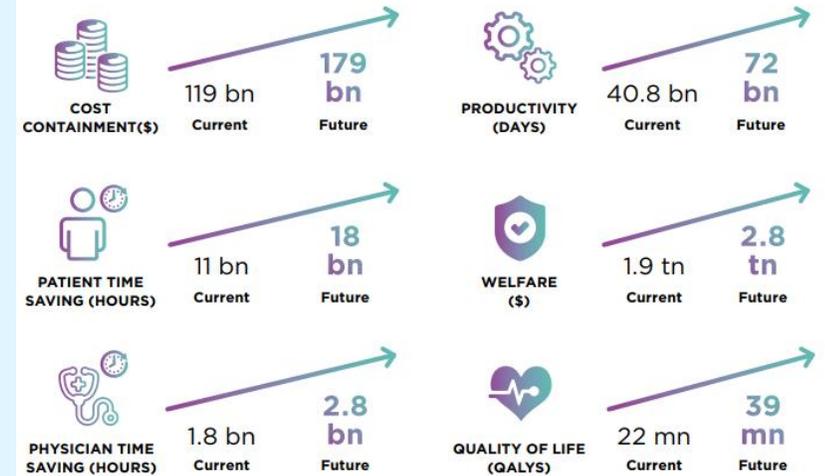
More accessible and acceptable
 Can enhance targeting and demand
 Can increase uptake and effective use

Puts people first to help optimize service delivery



RESULTS

YEARLY SAVINGS THROUGH SELF-CARE



Self care saves \$\$
 Fills health system gaps
 Reduces client opportunity costs

Self-care delivery for HIV is dynamic

Delivery options are on a continuum

Delivery options at different levels

Self-managed options → Peer or Community-supported options → Provider-driven options



Daily choices

Sexual health choices, condoms, knowledge & awareness, adherence

Shared

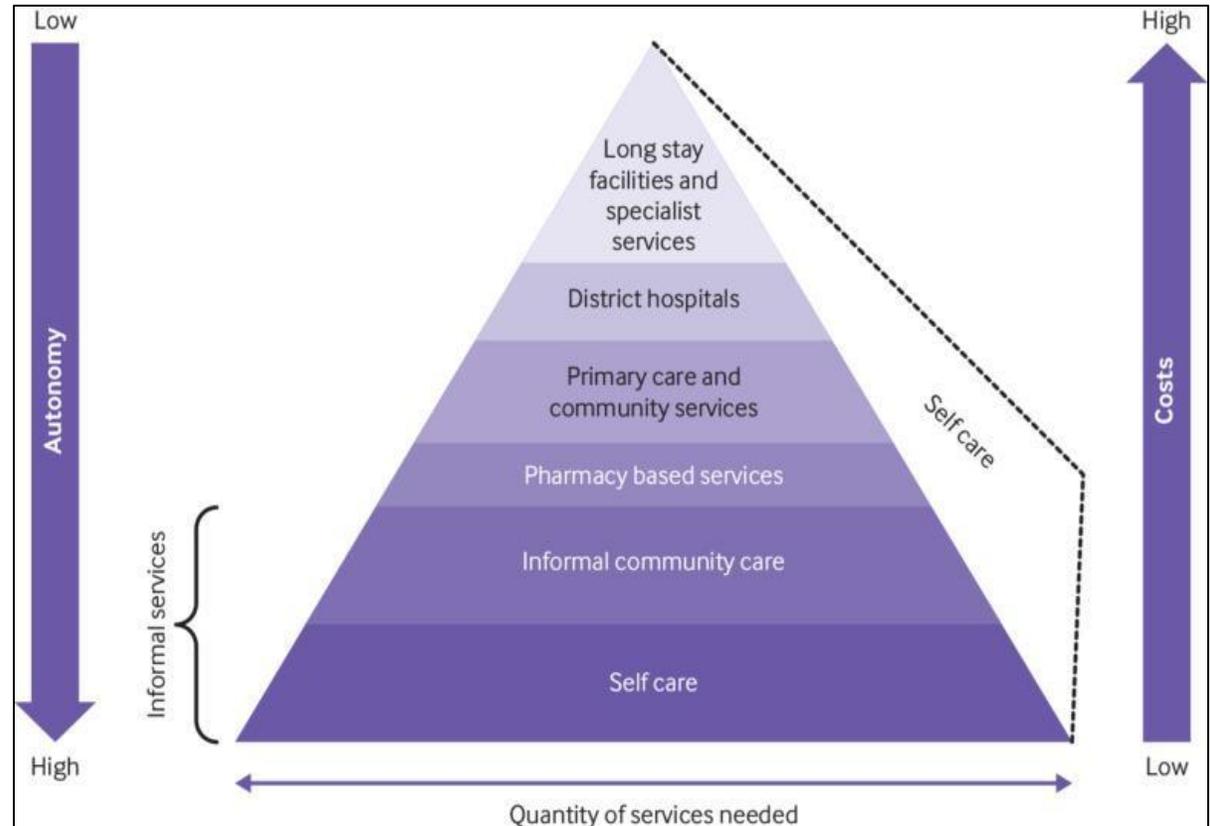
Self-collection, NSP/OMT, PEP, PrEP, ART initiation + refill support, linkage and referral options, effective use support

Self-Directed

Self-testing, digital tools, self-screening/sampling, awareness

Clinical & Specialized

Some STI/NCD management, VMMC, complex care for acute events, complications, co-infections/drug drug interaction



Source: Remme 2019, <https://www.bmj.com/content/365/bmj.l1228>; Adapted from diagram from Self-care forum, <https://www.medscape.co.uk/viewarticle/self-care-should-be-central-future-healthcare-2022a100155u>

Example of pharmacy-based HIV self-care could be game changing

Sustaining Progress in HIV in Africa Through Enabling of Self-Care: Model-Predicted Effects of Local Free Provision of HIV Self-Tests and Antiretroviral Drugs

24 Pages · Posted: 28 May 2025

Andrew N. Phillips
University College London - Institute for Global Health

Kenly Sikwese
African Community Advisory Board
[More...](#)

Abstract

Background: The acute funding crisis for HIV services in ECSWA (East, Central, Southern and West Africa) means that innovative strategies are needed. We modelled the introduction of a policy of community self-test/ARV access, including the provision of free HIV self-tests (replacing all clinic-based testing) along with PrEP (pre-exposure prophylaxis) and TLD (tenofovir-lamivudine-dolutegravir) for PEP and HIV treatment in pharmacies/communities to enable self-care, compared with continuation of current approaches.

Methods: We used an established individual-based model (HIV Synthesis) to simulate HIV epidemics in 1000 setting-scenarios representing diversity in setting characteristics and uncertainty in parameter values. Informed by studies of barriers to accessing clinics, community self-test/ARV access with community education is assumed to lead to an increase in testing (from median 4.9% (90% range 2.4% - 10.6%) of adults testing per 3 months to 12.6% (6.8% - 21.1%)) and modest increases in PrEP/PEP use (+0.5% of adults (+0.0% - +2.2%)) and in retention on ART for people with diagnosed HIV (+1.5% - +2.2%).

Findings: The assumed effects of the policy on PrEP/PEP use, HIV d result in a median 19% (3% - 35%) lower number of HIV deaths, an incidence over 10 years. Overall, the policy is predicted to cut prog to be cost-effective at a cost effectiveness threshold of \$300 per DAL

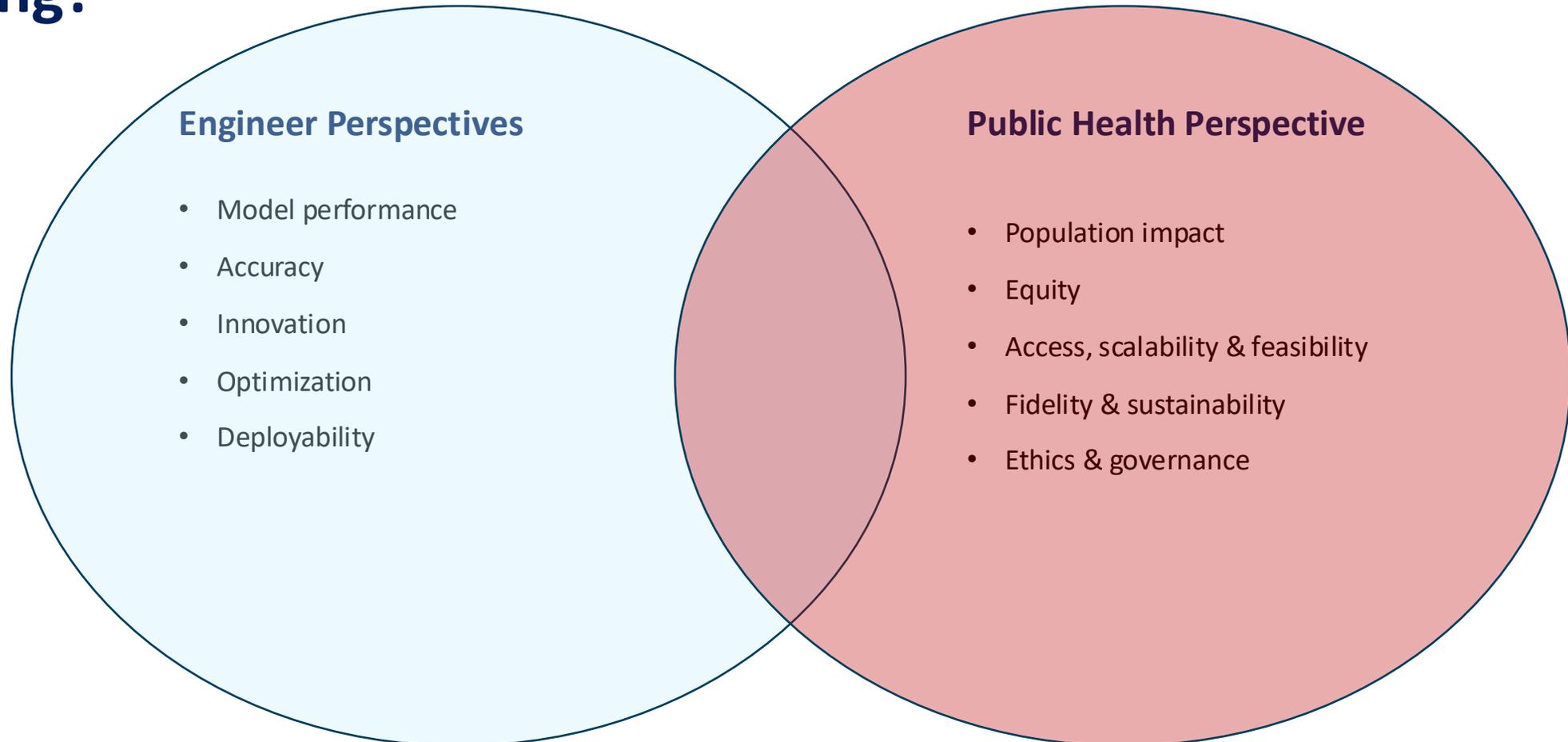
Interpretation: Introduction of community self-test/ARV access to p for prevention and treatment is very likely to be cost-effective in mo incidence declines to be sustained at reduced cost. Policy-makers ar health worker organisations leaders who wish to consider such a po their own country settings.



Open access pharmacy-based HIV self-care and self-testing reaches those missed by existing services

- Modelling suggests, in Africa, broader pharmacy-based HIV self-care across Tx, Dx, Px (including self-testing) could cut programme costs by 7% and avert DALYS and to be cost-effective at a cost effectiveness threshold of \$300 per DALY
- Computer vision and AI use in pharmacies shown to be highly accurate
 - Paves way for future ways to replace and redistribute provider time

Let's take a step back...What is informing our concepts and thinking?



**What problem are we actually trying to solve for?
Prediction? Coverage? Equity? Cost? Efficiency?**

Opportunities: HIV testing

~5.3 million people with HIV who need diagnosis

- More maybe need re-engagement in care and may come through testing sites
- We have imperfect data for tracking new diagnoses and retesting rates
 - New infections in sub-Saharan Africa still driven by those with established infection (>1 year)
 - Global populations with greatest gaps: midlife-older men, key populations and partners, adolescent girls and young women in high HIV burden setting, partners of people with HIV, STI patients.
- Strategic mix of testing approaches – but resources increasingly limited
 - Increasingly limited HRH for testing (e.g. limited total tests per day despite need)
 - Opportunities with outreach models and prioritizing time/resources (e.g. social networks) - better triaging & integrated dx and pathways
- Digital tools and machine learning shows targeting and nudging tools can work
 - Risk scores and predictions continue to be too variable to decide who not to test (we want high risk and untreated PLHIV)
 - More success with optimizing testing frequency, taking on education and counselling (chatbots)
 - Computer vision may have value (QMS/PMS, pharmacy delivery, digital reporting self-test results, AI powered M&E (i.e. scanform), multi-disease testing read outs)



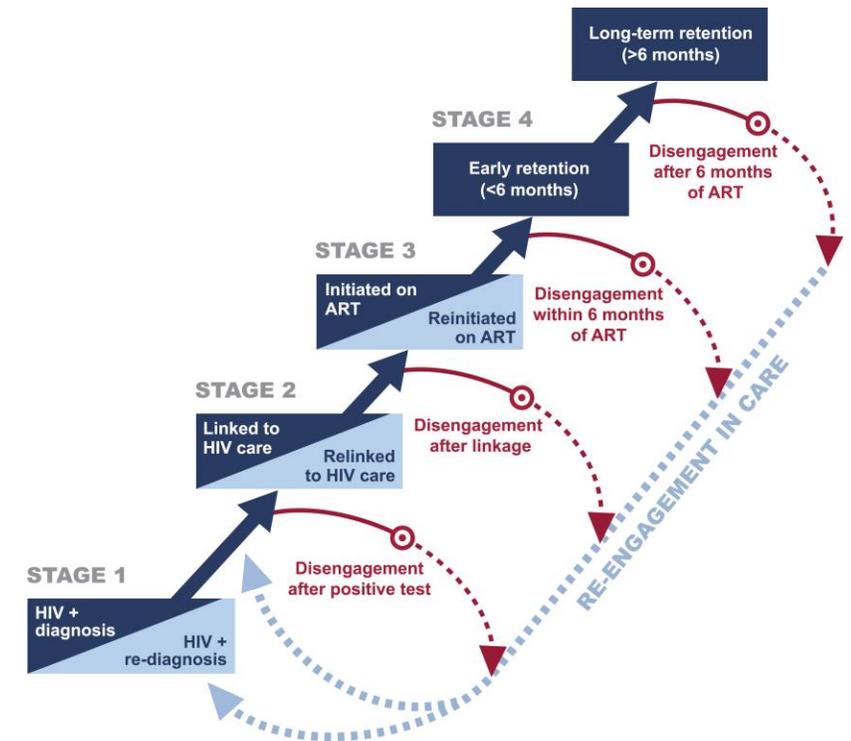
Opportunities: HIV treatment

40.8 million people with HIV in need of treatment

- Retention and engagement in HIV treatment is a key public health challenge
 - Solving this challenge will have greatest impact on HIV response
- Cycling in and out of care is a recurring problem that continues to grow
- We have imperfect data for tracking & predicting drop-out or treatment failure
- New digital adherence tools (DAT)
 - Smart pill boxes, chatbots
- Improved co-infection management & screening
 - Quality of care management and audits
- Reduced frequency facility visits and self-care possibilities growing
 - DSD – 6-12 month dispensing
 - Emerging evidence to reduce VL monitoring & change timing
 - More self-screening for NCDs & Mental health
 - Self-collection & micro-needles (e.g. Tasso)
 - Information & education (digital companions, clinical decision assistants)
- Emerging long-acting therapies that could be prioritized (\$\$\$)
 - Need to reduce rigidity

Potential AI applications

Prediction & Propensity
Efficiency
Equity



Opportunities: HIV prevention

1.3 million new HIV infections annually

- HIV prevention has mix of high cost and low-cost tools – but diverse target population
 - LEN \$40 per person vs Condom < \$0.05 per person
- Scale is challenging because of highly segmented population needs and different levels of effectiveness (e.g. what is choice and for whom?)
- Two-fold challenge
 - Understanding and knowing who is at risk (and changes in seasons and patterns of risk across settings and populations)
 - Understanding and knowing how to get prevention to those with risk (barriers to services, desirability, stigma) Cycling in and out of care is a recurring problem that continues to grow
- New digital adherence tools (DAT) could be relevant (chatbots, booking/referral systems)
- Tools to target the more expensive options for more layered approaches
 - Critical need to address emerging long-acting PEP/PrEP allocation + reduce rigidity
 - Novel targeting strategies that are still scaleable and affordable (high risk KP, repeat PrEP/PP users that may have dropped off and could be re-engaged with simpler delivery)
- Broader simplification of biomedical prevention and self-care is needed
 - Integration, lab-based testing, counselling could be task-shifted (align efforts to reduce specialty care, use pharmacies etc)

Opportunities: health systems with HIV focus

Why are we building chatbots when commodity stockouts remain common?

Increasing desire to prioritize health systems and cross-cutting issues:

- Supply chain forecasting and procurement
- Workforce allocation
- Resource optimization
- Integrated disease approaches

Private sector application particularly on supply and procurement sometimes missed in public health focused discussions because under-reported or unpublished

Challenges: addressing gaps

- **Evidence and experience**
 - Public health looking for RCTs and comparative data – robust implementation
 - Often limited data with pilots, simulations and unvalidated (or under-validated tools)
 - Datasets we have aren't always what we need for AI use case
 - Public health data will never be perfect and how can we control or address the bias and issues and still find utility
- **Governance gaps & regulatory uncertainty**
 - Key issue in HIV where criminalized populations are a priority
- **Community and provider trust deficits and questions on ethics**
 - Consent, replacement, quality concerns
- **Investment and sustainability**
 - Variable digital and AI infrastructure for reliability and scale-up
 - Recurring training priorities and localization and quality management needs
 - Low tech still a priority and there are trade-offs
 - Market competition and suppliers
 - Healthy market and access



Future directions

- HIV treatment service delivery is a priority area and would have greatest impact if new solutions and innovations directed toward challenges like retention in care
- HIV testing may be a low hanging fruit and opportunity – but optimization needed particularly with reaching right people and assisting novel diagnostics to enable higher impact Tx and Px
- HIV prevention is challenging and the use case is about trying to find a future way to deliver impact that is hidden by latest analyses and result (provide a direction to under-funded area)
- Health systems approaches are often overlooked – self-care, procurement, supply chain or general applications that can be cross-cutting could yield huge efficiencies
- Challenges to scale-up of AI remain but focused projects that can produce results and demonstrate real world impact are needed
 - Time to demonstrate use cases and move beyond theoretical
 - WHO guidance is being scoped and this is a priority area so mapping priorities and evidence to equip scale-up is critical