Increasing uptake of HIV testing in the Caribbean

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Presenting on behalf of the WHO HHS HTS team:
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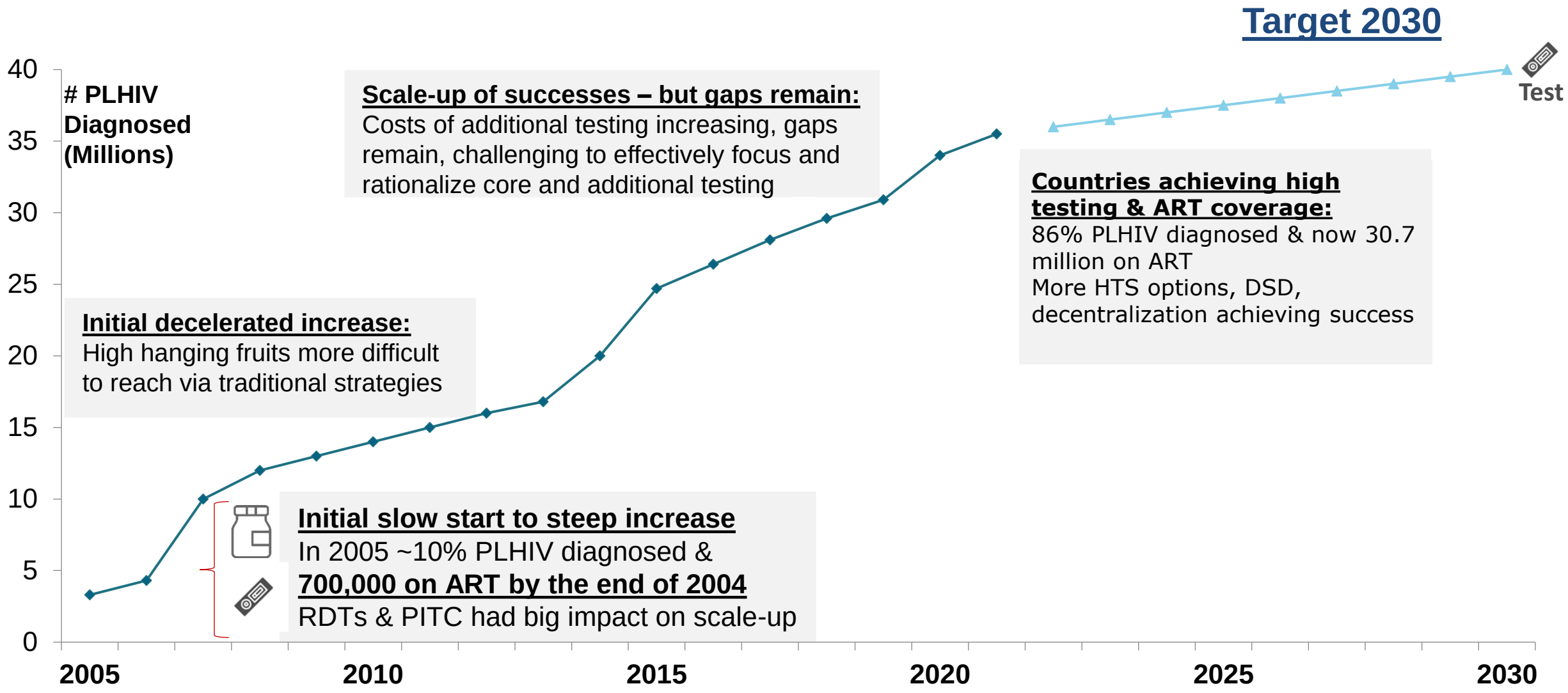
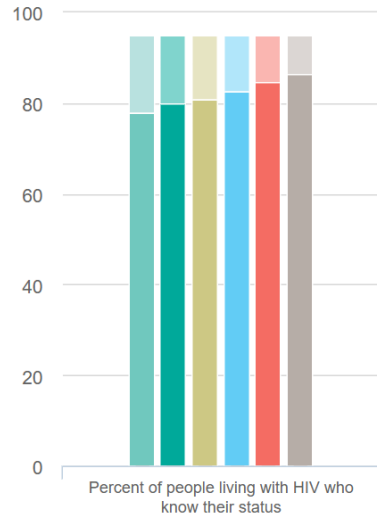
Progress toward global HIV testing targets



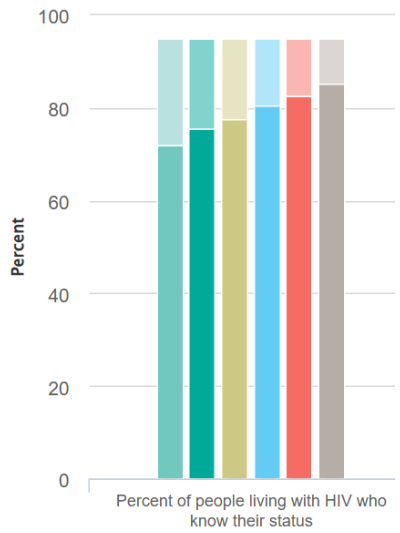
Source: WHO forecast 2020; UNAIDS 2022; WHO 2005; CHAI 2015; WHO, UNICEF, PEPFAR, GFTAM 2018 ; UNAIDs 2024

HTS needs to be prioritised to achieve 95-95-95 and HIV prevention goals

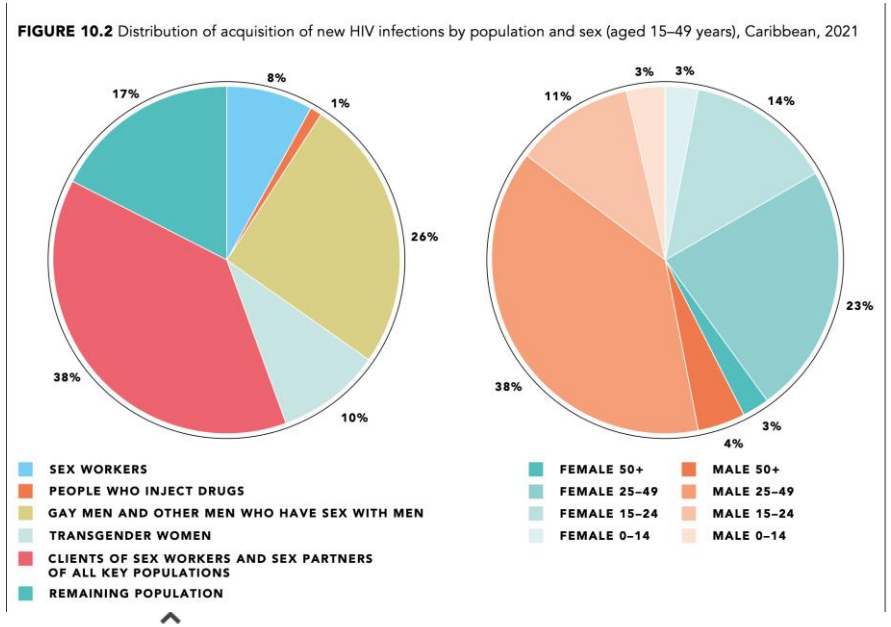
Globally: 14% of all PLHIV undiagnosed



Caribbean: 15% of all PLHIV undiagnosed

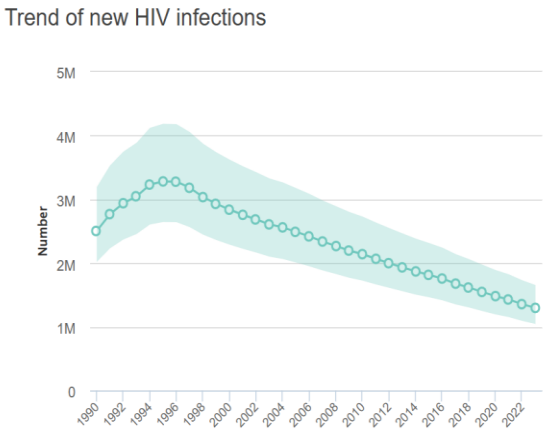


Who are HTS programmes missing?



Key populations (KP) and their partners/contacts
Partners of PLHIV / STI patients
LTFU clients needing re-engagement

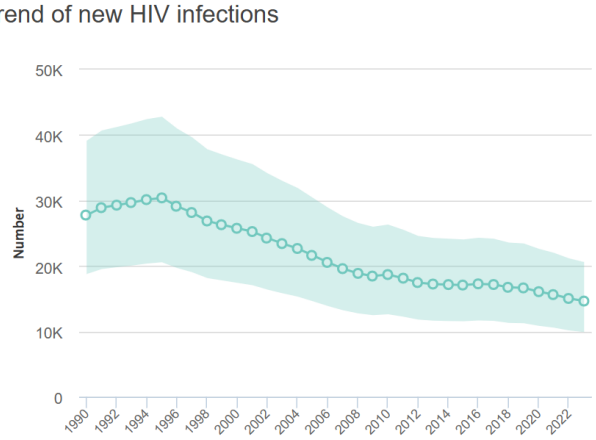
Globally – trend of new infections



Change in new HIV infections since 2010

-39 %

Caribbean – trend of new infection



Change in new HIV infections since 2010

-22 %

High barrier service delivery models for KP, Adolescents & PLHIV

IDS 2024; AIDSinfo | UNAIDS

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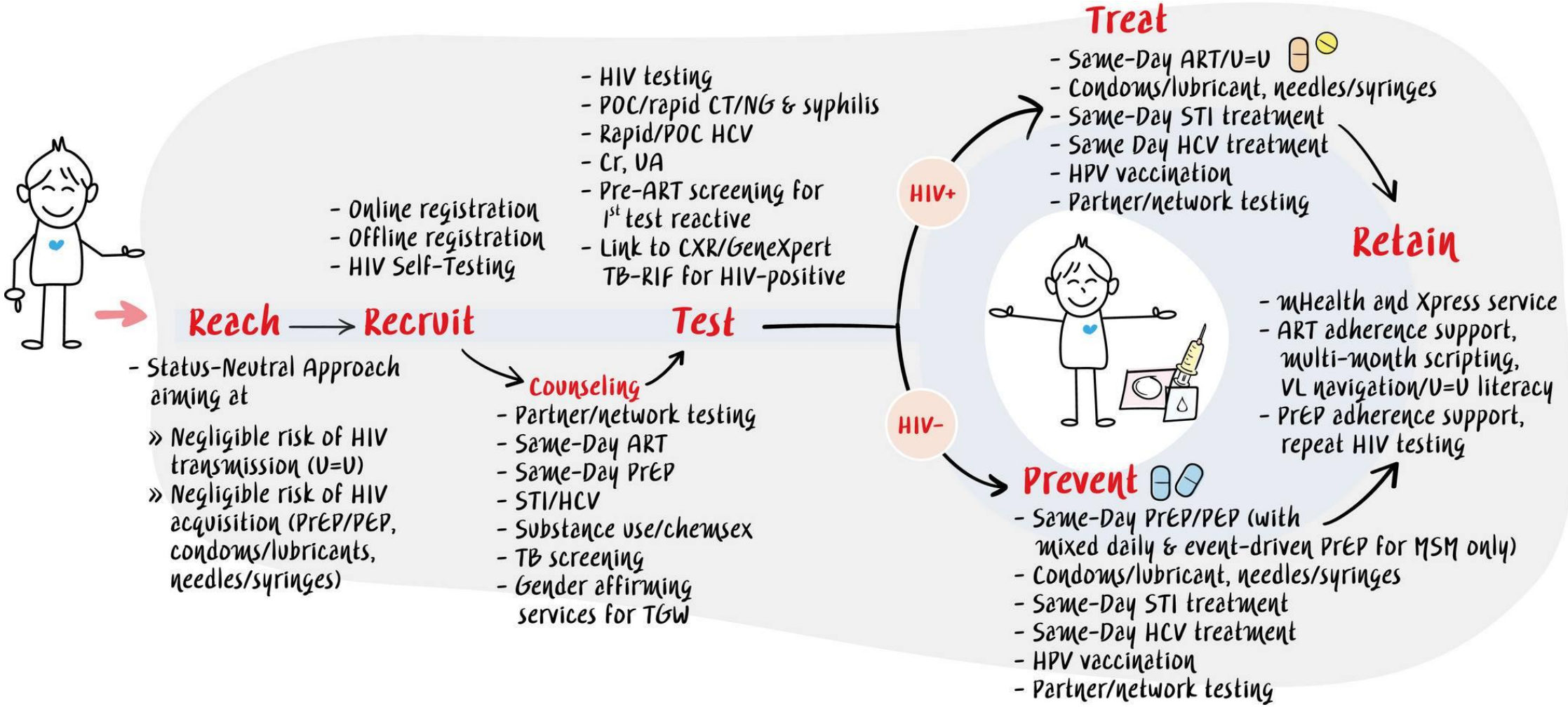
WHO recommends HIV testing as a gateway for prevention and treatment



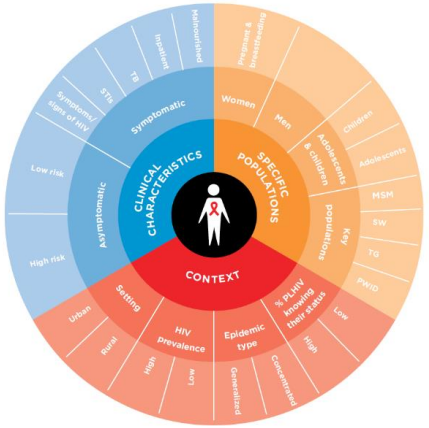
WHO recommends differentiated HIV testing services

HTS approaches need to consider three dimensions for implementation:

1. Mobilizing and creating demand for testing
2. Testing service delivery
3. Linkage to post-test services

	Mobilizing and creating demand	HTS implementation	Linkage to care
When	Continuous, intermittent or focused	Time of day and frequency	Time period for linking and frequency of monitoring
Where	Location of mobilization activities	Health facility, other facility, community	Location of linkage activities
Who	Who does the mobilizing? Who is the focus for messages and mobilization?	Who does the HIV testing? Who is the focus for testing?	Who supports linkage to prevention or ART initiation?
What	What package of services and demand creation interventions?	What HTS approach?	What linkage intervention?

Approaches are then adapted based on the context, population and epidemic



WHO 2019, https://www.who.int/publications/i/item/978-92-4-155058-1

Priority HTS guidance for the Caribbean

Recommendations for success - creating the right HTS environment

Critical HTS enabler recommendations:

- **All HTS following 5Cs:**
  - Consent
  - Confidentiality
  - Counselling (pre-test information and post-test messages)
    - **U=U needs to be included along w/ latest information**
  - Correct results
  - Connection (linkage)
- Protect and enforce privacy
- Prevent discrimination
- Promote tolerance
- **Quality rapid HIV testing prioritization (same day results & linkage)**
- **Lay provider testing & task sharing**

IAS Why U=U, lay provider testing and rapid testing?

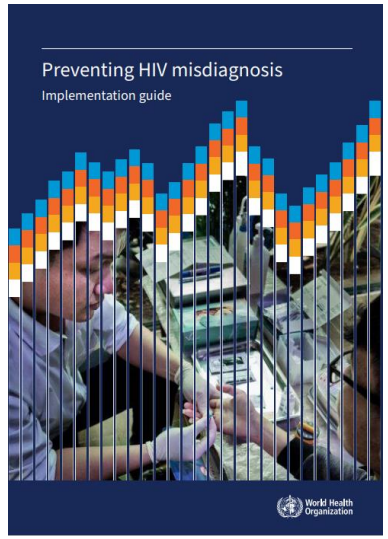
- **U=U messages increase uptake of HTS (Wagner 2023)**
  - 1 study uptake increased by 60% (Derksen 2015)
- **Better uptake & prefered by clients (especially KP) = more people know their status**
  - Lay provider vs HCW: 57% vs 27% (95% CI: 27–32,p< .001)
  - In all studies individuals preferred RDTs over lab-based methods (EIA & WB)
- **Low cost & affordablity**
  - Using lay providers is less costly and more feasible across HTS sites
  - Using RDTs less costly overall & shown to be cost-saving compared with laboratory methods
- **Accurate diagnosis**
  - Lay provider HTS equivalent accuracy to HCWs RDTs equivalent to laboratory methods (EIA/WB)
  - No need for NAT for adult (>18 months) & not recommended
  - Fewer indeterminate/inconclusive results = easier messaging & more people able to start ART and PrEP faster which is key
  - Labs still have important work to provide support & supervision for HTS – shifting to RDTs and lay providers doesn't now takeaway but adds to their work
- **Same day start**
  - RDTs have much faster turnaround time than lab-based testing
  - RDTs enable decentralization of confirmation testing which is key
  - People get to start PrEP & ART same day

Source: Wagner 2023; Derksen 2015; Kennedy 2017; WHO 2019

#1 Enabling environment for HTS

Quality of testing and prevention of misdiagnosis

1. Priority to transition to 3-test strategy
   - WHO recommends **that an HIV-positive diagnosis be made based on three consecutive HIV-reactive results**. This is increasingly important as treatment-adjusted HIV prevalence and national HTS positivity continue to decline over time. The use of 3 tests, in the right order, can increase the PPV.



- **Testing quality is critical: Avoid misdiagnoses**
  - Using the **serial 3 test strategy in all epidemic settings**
  - Re-testing before ART initiation
  - Instituting strong quality management systems

2. **Retesting is recommended for the following people**
   - With HIV-inconclusive status, after 14 days
   - Prior to ART initiation
   - For monitoring in HIV prevention programmes – PrEP, PEP, ANC, VMMC,

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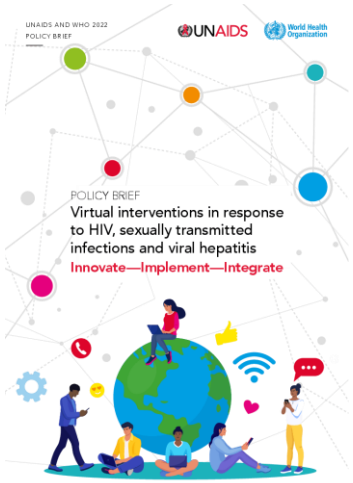
Priority HTS guidance for the Caribbean

Recommendations for reaching priority populations with limited resources



UNAIDS/WHO 2022

How to deliver

Virtual interventions & peers

- Critical way to deliver demand creation, HIV testing services, post-test counselling and linkage support (e.g. videos, websites, social media)
- Expands reach, including to those missed by existing services (especially those not engaged in health system)
- Can be cost-efficient

What to deliver

Strategic mix of HTS approaches

- Facility-based (e.g. ANC, TB, STI clinics, indicator conditions)
- Community-based (e.g. KP outreach)
- **Partner services** (i.e. provider-assisted referral & social network approaches)
- **HIV self-testing** (e.g. across facilities, communities, online, private sector)

Network-based testing services

WHO recommends network-based testing (NBT) services

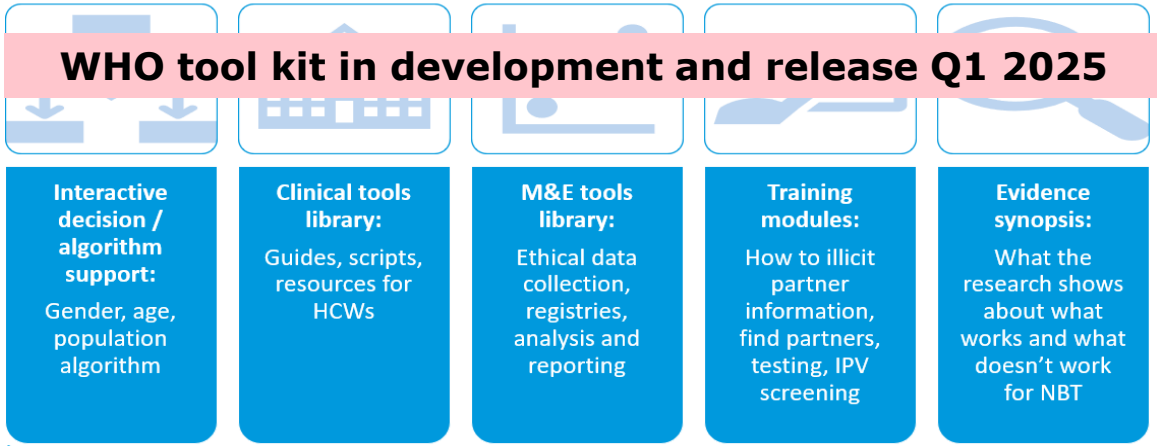
- NBT includes partner services, family/household testing services and social network testing services.
- Partners services extended to STIs and Hep-C

Social network testing is recommended for ALL PEOPLE with risks

- Offering HIVST within SNT may increase acceptability, feasibility, and uptake.

Always offer provider-assisted partner services for PLHIV

Continues to be the most effective strategy



Source: Choong 2023, WHO 2024

	What can optimize SN testing approaches?
Self-tests	Can increase uptake and linkage, but can be costly. Consider resources & integration opportunities
Type of testing promoters	Important to engage community in selection appropriate for each setting
Rounds of recruitment	If resources available multiple rounds can be effective. Fewer rounds are less costly overall, but more waves important to lower cost per diagnosis if well-targeted.
Incentives	Without incentives, uptake, positivity and 1st time tester are still high. No need for incentives
Training	Prioritize simple one-time training, as is just as effective and more practical.
Integration	Important to provide as part of a larger package of voluntary partner services / index testing

SELF-TESTING

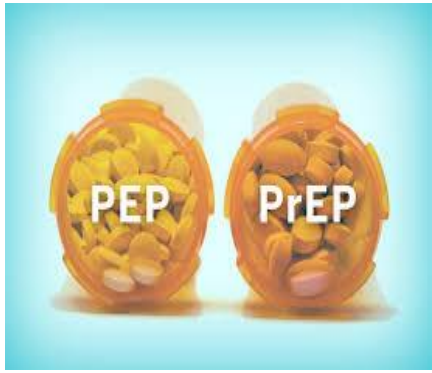
IAS

- **Self-testing recommended across conditions and diseases**

- **No difference in blood vs oral self-tests**
  - Both accurate and acceptable - no difference in uptake

- **HIVST recommended in health facilities**
  - Complimenting existing provider-administered HIV testing
  - Replacing risk-based screening tools

- **HIVST recommended for PEP and PrEP (oral & DVR)**
  - Covers PrEP initiation, re-initiation and continuation
  - No need for further testing to confirm negative results
  - Ongoing research for long-acting injectable PrEP is needed



- **Syphilis ST, including dual HIV/syphilis ST, recommended**
  - More multiplex ST likely in the future, Critical opportunity for integration

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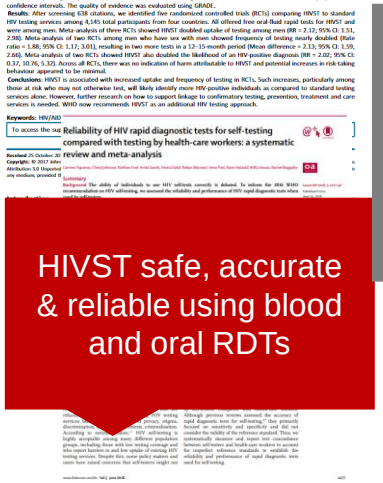
Evidence supporting HIV self-testing

HIVST increased uptake and frequency of testing, positivity, no harm

HIVST safe, accurate & reliable using blood and oral RDTs


Reliability of HIV rapid diagnostic tests for self-testing compared with testing by health-care workers: a systematic review and meta-analysis

5 RCTs – KP & GP
25 studies on accuracy

ACCEPTED MANUSCRIPT

A systematic review and network meta-analyses to assess the effectiveness of HIV self-testing distribution strategies

Ingrid Eshun-Wilson ✉, Muhammad S Jamil, Witzel T. Charles, Dave V Glidden, Johnson Cheryl, Trouneau Noelle, Nathan Ford, Kathleen McGee, Kemp Chris, Baral Stefan, Sheree Schwartz, Geng H Elvin

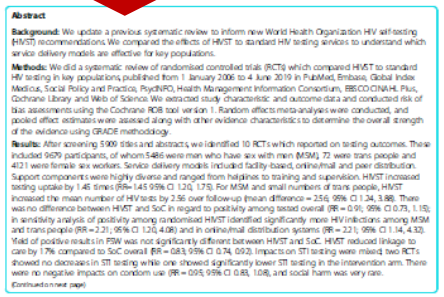
Clinical Infectious Diseases, ciab029, https://doi.org/10.1093/cid/ciab029
Published: 20 January 2021 **Article history**

Facility-based HIVST distribution performed well in all settings. For SSA, partner distribution had substantial impact. In Americas and Asia, web-based & mail worked particularly well. Acceptable, feasible, no harm.

distribution strategies increased testing uptake compared to standard testing: in sub-Saharan Africa, partner HIVST distribution ranked highest (78% probability); in North America, Asia and the Pacific regions, web-based distribution ranked highest (93% probability), and facility based distribution ranked second in all settings. Across HIVST distribution strategies HIV positivity and linkage was similar to standard testing.

33 studies (RCTs and cohorts)

Among KP, HIVST >2x HTS uptake, frequency and positivity, no harm


Abstract

Background: We update a previous systematic review to inform new World Health Organization HIV self-testing (HIVST) recommendations. We compared the effects of HIVST to standard HIV testing services to understand which service delivery models are effective for key populations.

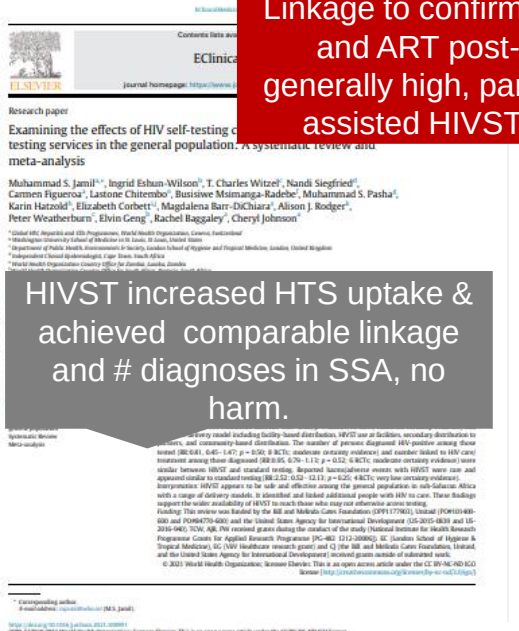
Methods: We did a systematic review of randomised controlled trials (RCTs) which compared HIVST to standard HIV testing in key populations published from 1 January 2006 to 4 June 2019 in PubMed, Embase, Global Index Medicus, Social Policy and Practice, PsycINFO, Health Management Information Consortium, EBSCO CINAHL Plus, Cochrane Library and Web of Science. We extracted study characteristic and outcome data and conducted risk of bias assessments using the Cochrane ROB tool version 1. Random effects meta-analysis were conducted, and pooled effect estimates were assessed along with other evidence characteristics to determine the overall strength of the evidence using GRADE methodology.

Results: After screening 5909 titles and abstracts, we identified 10 RCTs which reported on testing outcomes. These included 9679 participants, of whom 5486 were men who have sex with men (MSM), 72 were trans people and 4121 were female sex workers. Service delivery models included facility-based, online/mail and peer distribution. Support components were highly diverse and ranged from hotlines to training and supervision. HIVST increased testing uptake by 1.48 times (RR=1.45 95% CI 1.20, 1.75). For MSM and small numbers of trans people, HIVST increased the mean number of HIV tests by 2.56 over follow-up (mean difference = 2.56, 95% CI 1.24, 3.88). There was no difference between HIVST and SoC in regard to positivity among tested overall (RR = 0.91; 95% CI 0.73, 1.15); in sensitivity analysis of positivity among randomised HIVST identified significantly more HIV infections among MSM and trans people (RR = 2.21; 95% CI 1.20, 4.08) and in online/mail distribution systems (RR = 2.21; 95% CI 1.14, 4.32). Yield of positive results in PBW was not significantly different between HIVST and SoC. HIVST reduced linkage to care by 1.7% compared to SoC overall (RR = 0.83; 95% CI 0.74, 0.92). Impacts on STI testing were mixed; two RCTs showed no decreases in STI testing while one showed significantly lower STI testing in the intervention arm. There were no negative impacts on condom use (RR = 0.93; 95% CI 0.83, 1.04), and social harm was very rare.

11 RCTs – Key Populations

HIVST increased HTS uptake & achieved comparable linkage and # diagnoses in SSA, no harm.

Linkage to confirmatory testing and ART post-HIVST is generally high, particularly with assisted HIVST and SNA


Examining the effects of HIV self-testing ... testing services in the general population: A systematic review and meta-analysis

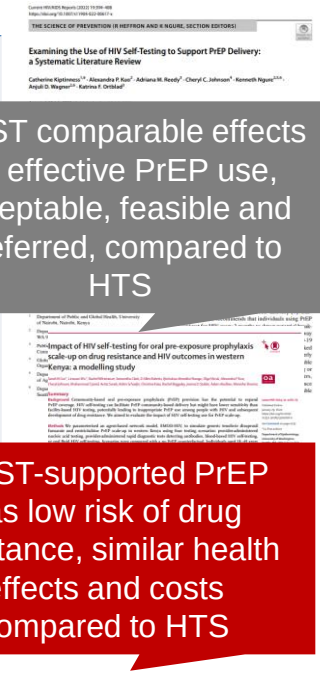

Linkage to Care and Prevention after HIV ... Systematic Review and Meta-Analysis

14 RCTs – General Population

174 studies on linkage

HIVST comparable effects on effective PrEP use, acceptable, feasible and preferred, compared to HTS

HIVST-supported PrEP has low risk of drug resistance, similar health effects and costs compared to HTS


Examining the Use of HIV Self-Testing to Support PrEP Delivery: a Systematic Literature Review

Impact of HIV self-testing for oral pre-exposure prophylaxis scale-up on drug resistance and HIV outcomes in western Kenya: a modelling study

3 RCT & 5 V&P Modelling analysis

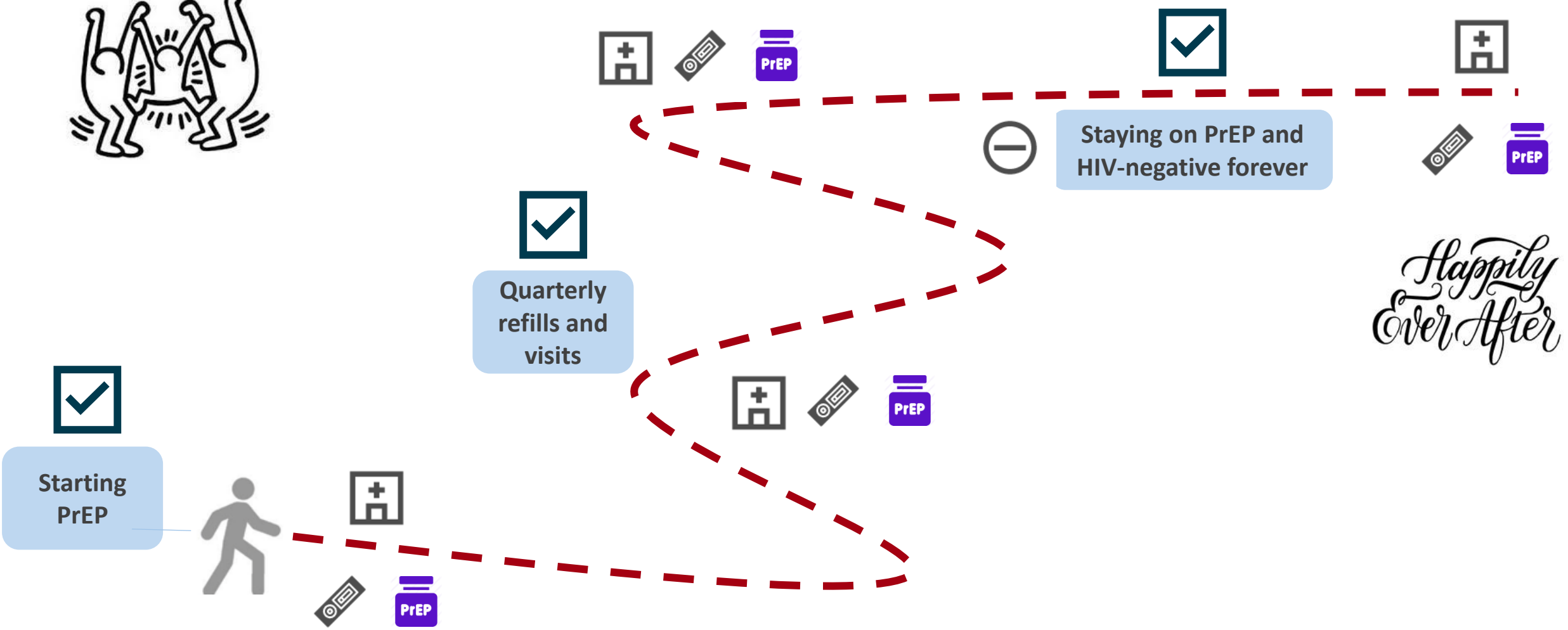
Additional indirect evidence across ST approaches shows high acceptability, accuracy, feasibility etc

World Health Organization

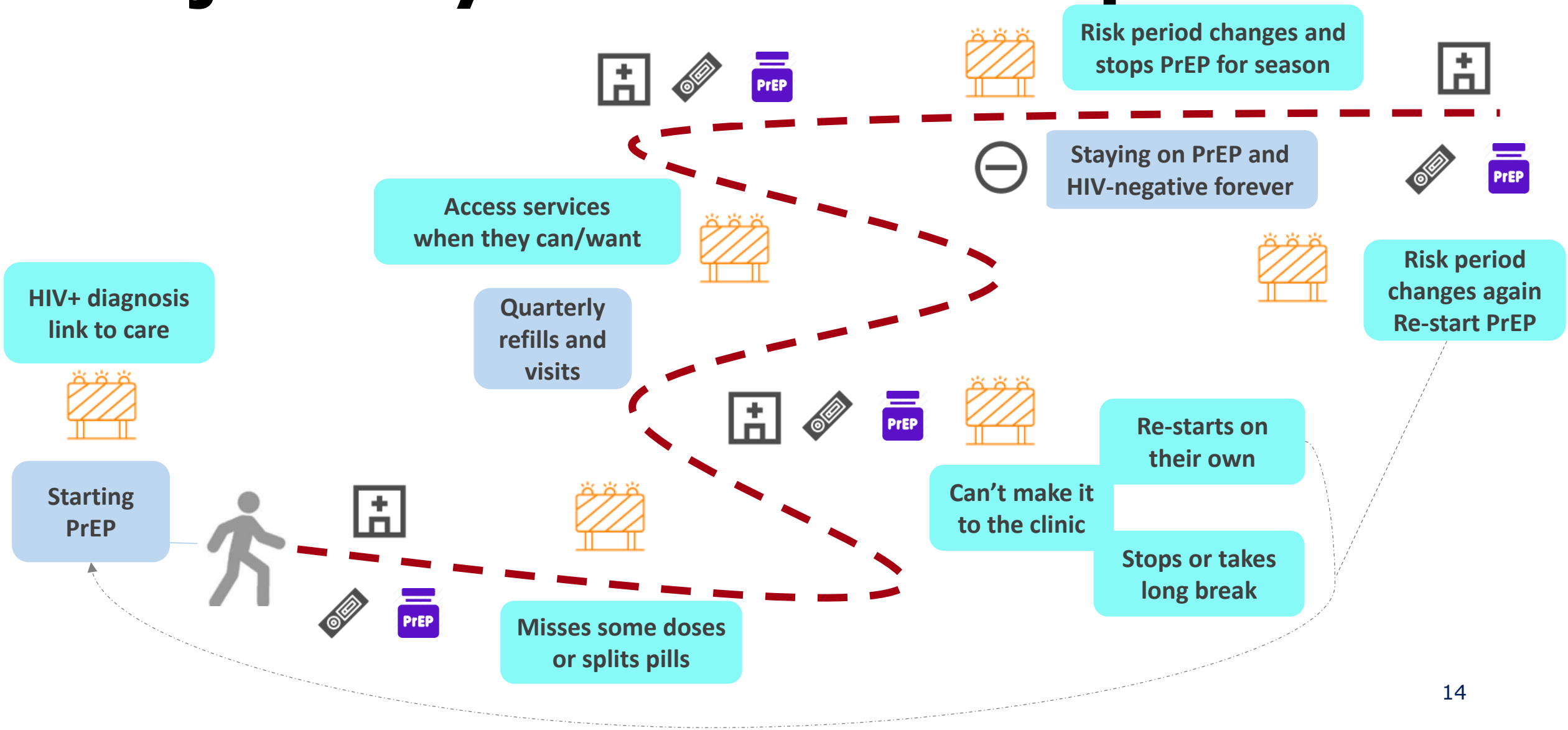
Johnson 2017 JIAS: https://pubmed.ncbi.nlm.nih.gov/28530049/
Figueroa 2018 Lancet HIV: https://pubmed.ncbi.nlm.nih.gov/29703707/
Witzel 2020 BMC Med: https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-020-01835-z#Sec18
Eshun-Wilson 2021 CID: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab029/6104544

Jamil 2021 Eclin Med https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00271-6/fulltext
Zhang 2024 Pre-print: https://tinyurl.com/4vtyd6dm
Kiptinness 2022 Curr HIV/AIDS Rep: https://pubmed.ncbi.nlm.nih.gov/35904695/
Cox 2024 Lancet HIV: https://pubmed.ncbi.nlm.nih.gov/38301668/

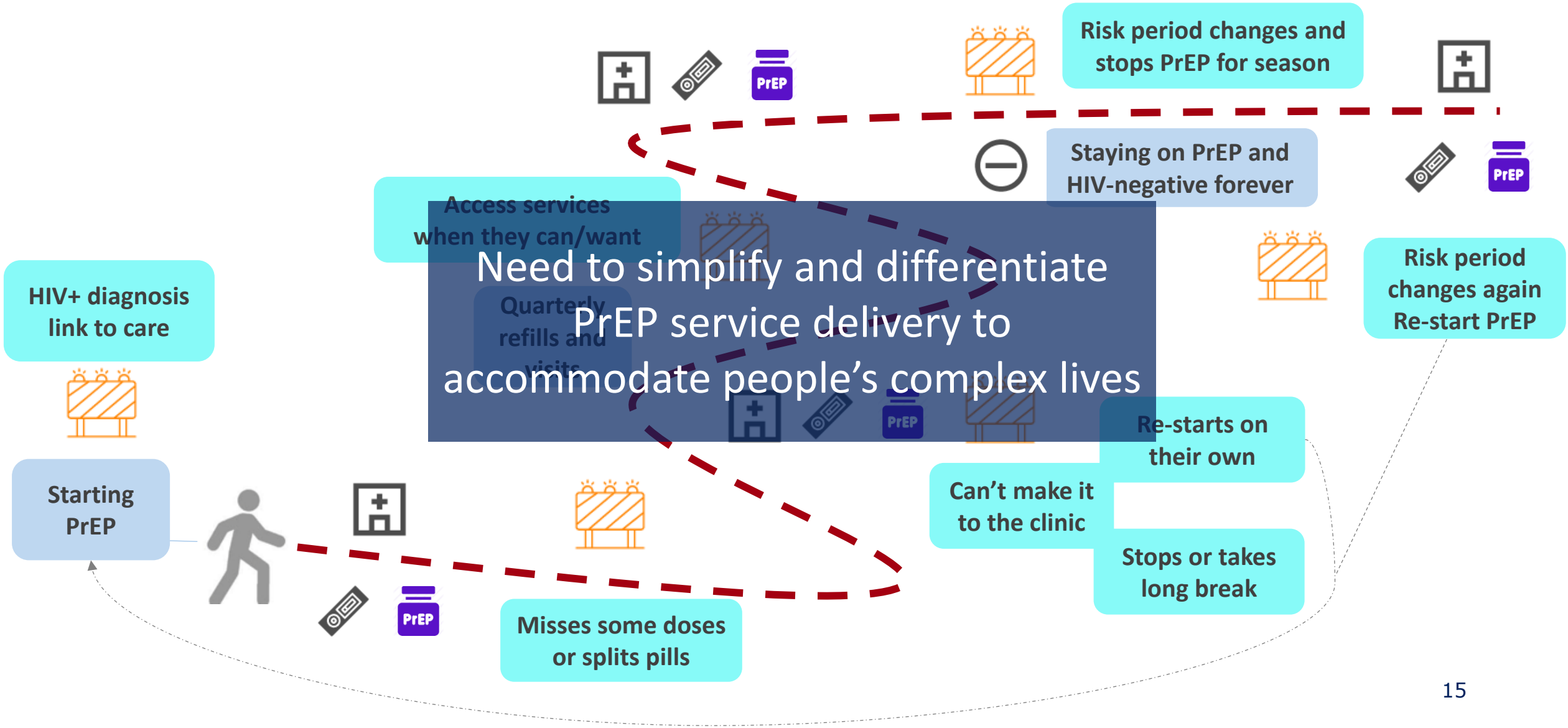
How we sometimes think about a person's PrEP Journey



In reality: People's lives and PrEP journeys are more complicated

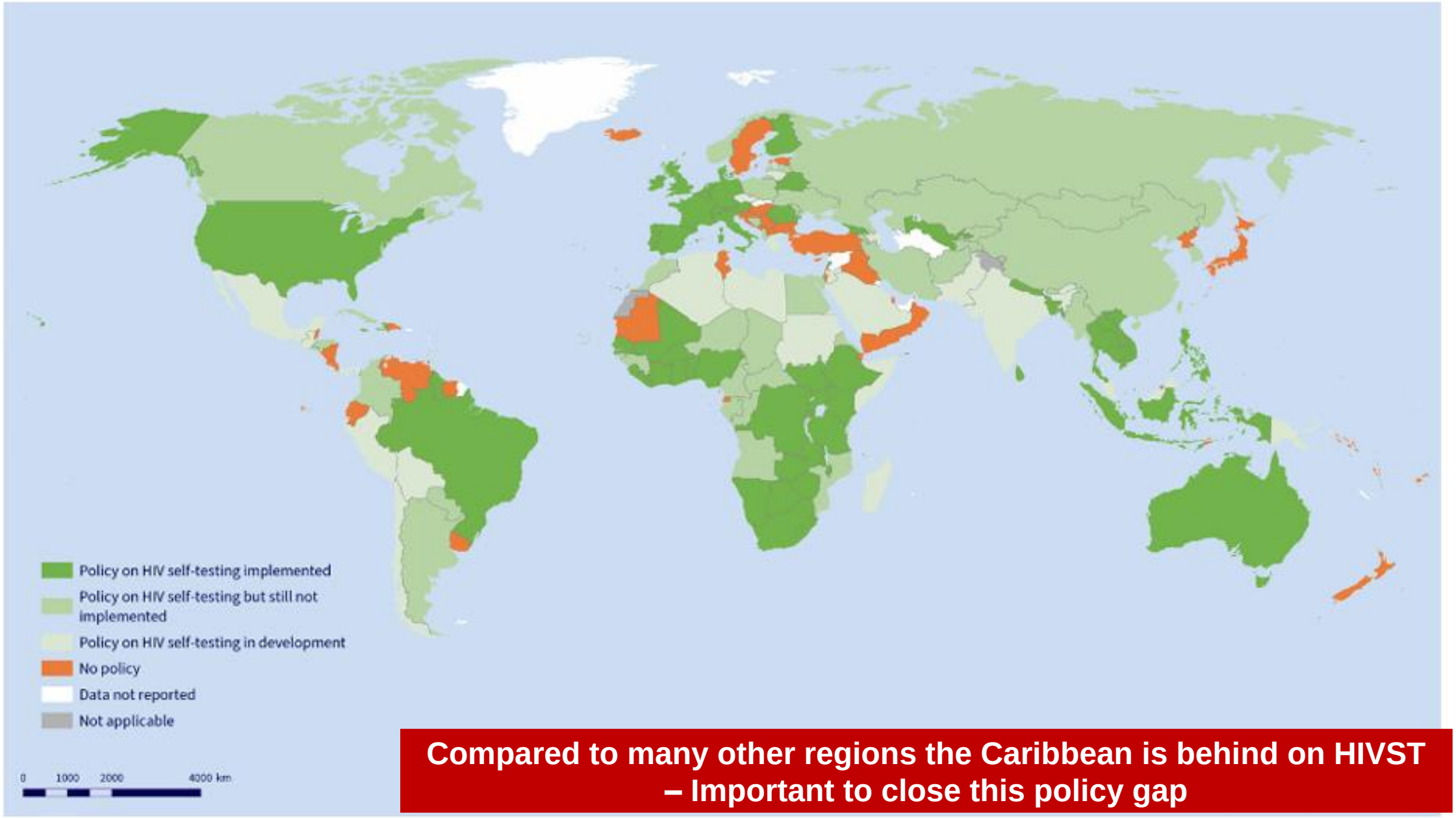


In reality: People's lives and PrEP journeys are more complicated



Need to simplify and differentiate PrEP service delivery to accommodate people's complex lives

National policy on HIV self-testing and implementation status, as of July 2023



Compared to many other regions the Caribbean is behind on HIVST – Important to close this policy gap

Sources: Global AIDS Monitoring (UNAIDS/WHO/UNICEF) and WHO Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes, 2023

Conclusions

- **Enabling environment for HTS is a priority**
  - Lay providers, RDTs, ST
  - Updated messages delivered
  - Critical to have quality HTS that is accessible and enables access to ART & PrEP
  - Complex HTS algorithms and strategies need to be phased out
- **Accelerate adoption of innovation strategies for HTS**
  - Caribbean is too far behind
  - HIVST & PrEP priority for scale-up
  - Virtual services opportunities
- **Many strategic HTS approaches**
  - **It's not 1-size fits all** but about a strategic mix of patient-centered approaches for mobilization, testing service delivery and linkage
  - KP led services & ongoing monitoring and engagement with communities is essential

Acknowledgements

Cheryl Johnson, Busi M, Maggie Barr-DiChiara, Céline Lastrucci, Anne Bekelynck, Aliza Monroe, Purvi Shah, Belen Dinku, Alaleh Abadpour
All other partners for permission to use slides

For more information on HIV testing services

WHO HIV Testing Services Dashboard	WHO HIV Testing Services Info App	WHO HTS GL

Questions?

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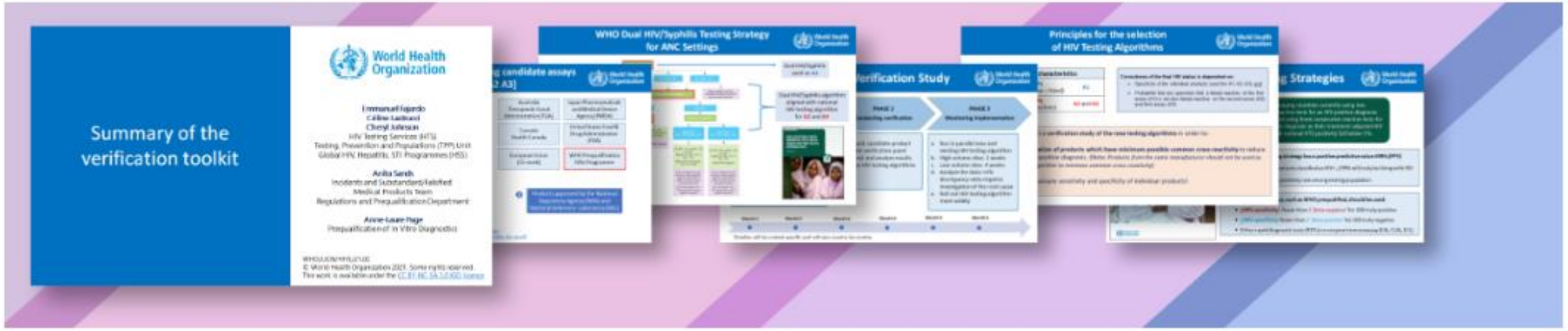
HIV testing algorithm verification toolkit



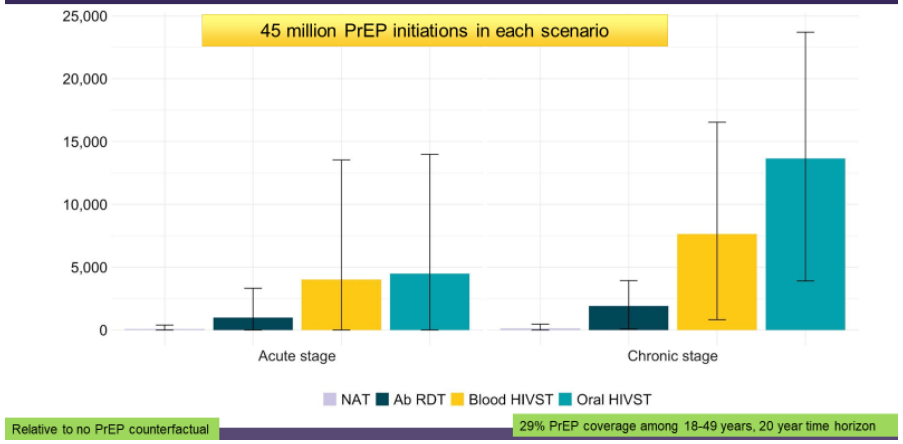
https://www.who.int/tools/optimizing-hiv-testing-algorithms-toolkit

- **Generic study protocol:** to assist developing local protocol to seek ethics approval
- **Test selection tool:** to assist with the selection of WHO prequalified HIV products
- **Checklist of lab consumables and reagents:** of tests and consumables to be purchased
- **Study database:** to support data analysis
- **Budget template:** to assist developing a budget of core activites
- **Gantt chart:** to assist with the planning of the verification study with timelines

Does HIVST for PrEP have negative outcomes?

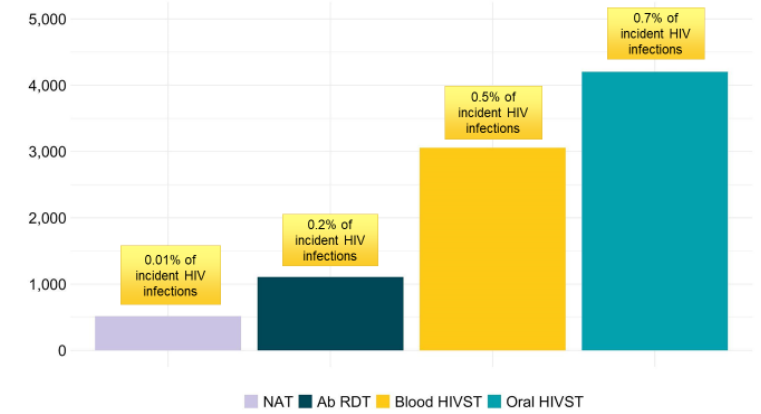
Mathematical modelling results looking at HIVST supported PrEP scale-up in 1 country

1 **Persons with HIV inappropriately initiated on PrEP by scenario**



HIVST does not significantly increase number of people inappropriately initiated on PrEP

2 **Number of individuals with NRTI Resistance over 20 years by scenario**



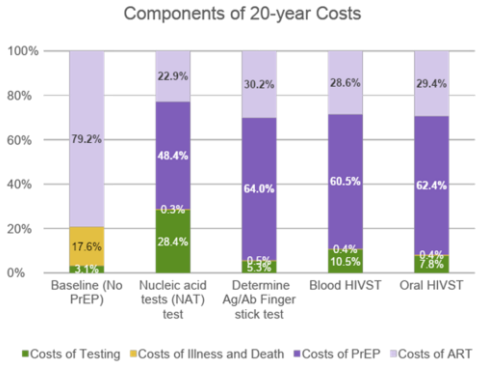
HIVST does not lead to significant increase in NRTI resistance

3

PrEP initiations (millions)	Break-through infections (1,000s)	Acute initiated on PrEP (1,000s)	Chronic initiated on PrEP (1,000s)
Nucleic acid tests (NAT)			
45.55 (42.97 - 47.97)	16.50 (9.12 - 23.60)	0.09 (0 - 0.39)	0.14 (0 - 0.47)
Ab RDT			
45.52 (42.99 - 48.03)	16.57 (10.04 - 23.53)	0.99 (0 - 3.33)	1.91 (0.77 - 3.94)
Blood HIVST			
45.54 (42.99 - 48.09)	16.71 (10.12 - 23.69)	4.03 (0 - 13.54)	7.65 (0.82 - 16.54)
Oral HIVST			
45.53 (43.08 - 48.08)	16.65 (9.15 - 23.85)	4.49 (0 - 13.98)	13.65 (3.91 - 23.71)

Does not significantly increase number of PLHIV missed

4



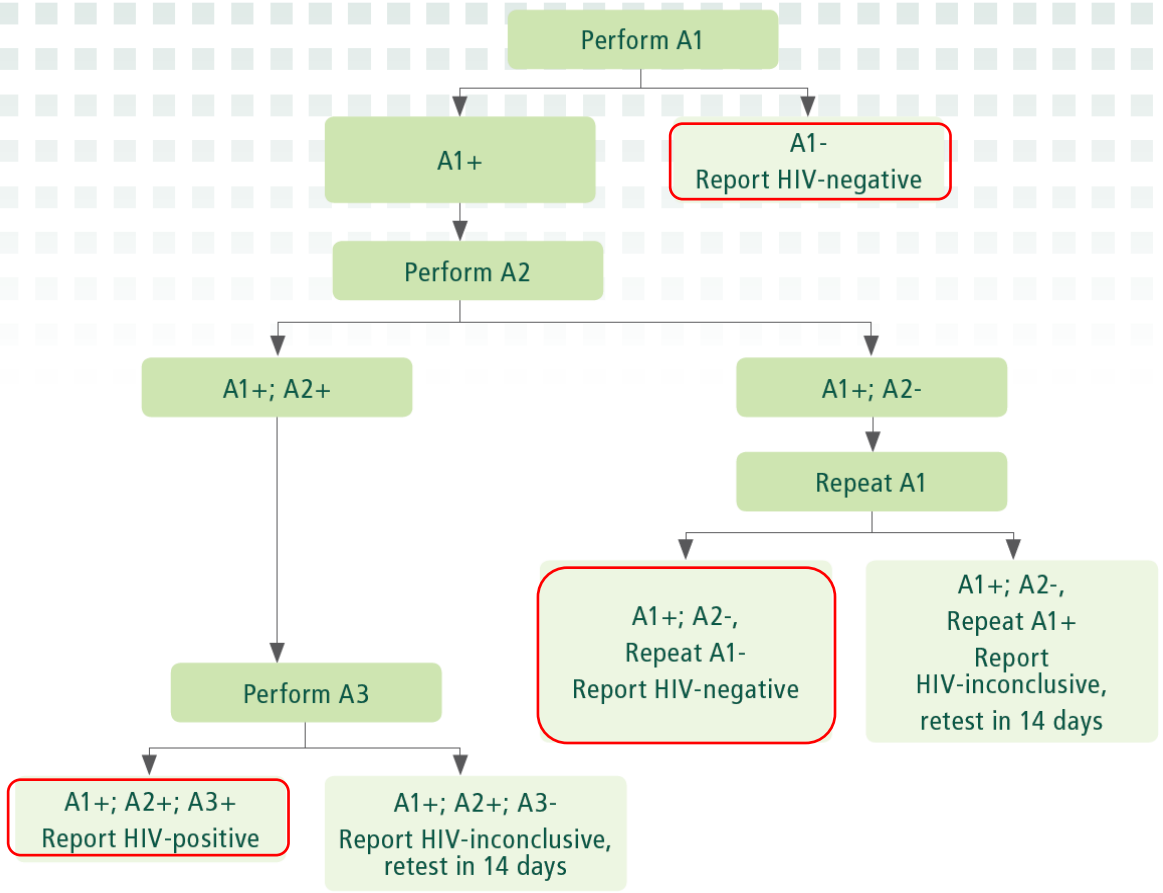
While PrEP costs increase due to more people taking and staying on PrEP, HIVST does not significantly increase costs

Source: Sharma et al CROI 2023

#1 Enabling environment for HTS

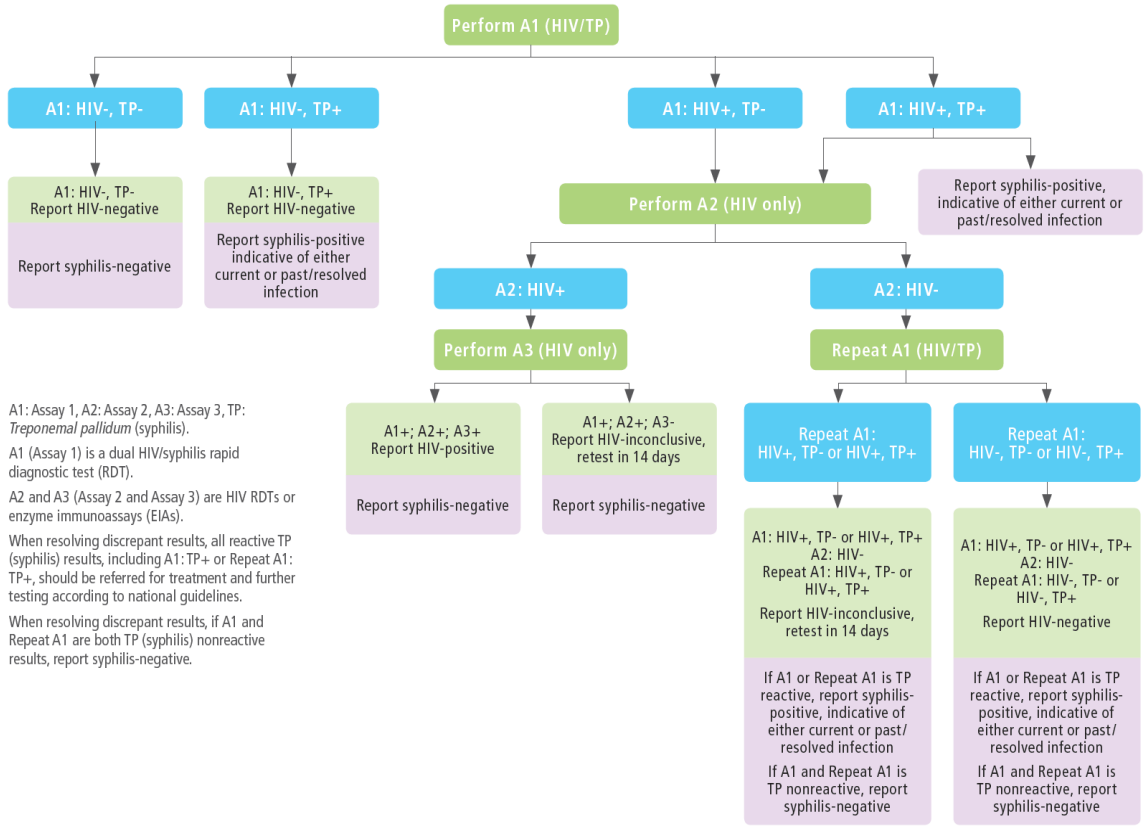
WHO recommended HIV testing strategy

All other populations: all HIV assays



A1: Assay 1 (first test); A2: Assay 2 (second test); A3: Assay 3 (third test).

ANC/KP settings: dual HIV-Syphilis rapid test



A1: Assay 1, A2: Assay 2, A3: Assay 3, TP: *Treponemal pallidum* (syphilis).

A1 (Assay 1) is a dual HIV/syphilis rapid diagnostic test (RDT).

A2 and A3 (Assay 2 and Assay 3) are HIV RDTs or enzyme immunoassays (EIAs).

When resolving discrepant results, all reactive TP (syphilis) results, including A1: TP+ or Repeat A1: TP+, should be referred for treatment and further testing according to national guidelines.

When resolving discrepant results, if A1 and Repeat A1 are both TP (syphilis) nonreactive results, report syphilis-negative.

World Health Organization

Switching to ST & RDT-based strategies brings new opportunities – including integration with dual HIV/syphilis testing which is also critical for Caribbean

IAS

Summary of new and updated recommendations

Self-testing

NEW: HIV self-testing may be offered as an additional option for testing at facilities *(conditional recommendation, low-certainty evidence).*

NEW: HIV self-testing may be used to deliver pre-exposure prophylaxis, including for initiation, re-initiation and continuation *(conditional recommendation, low-certainty evidence).*

NEW: Syphilis self-testing is suggested as an additional approach to syphilis testing services *(conditional recommendation, low-certainty evidence).*

Network-based testing services

NEW: STI partner services should be offered to people with STIs as part of a range of options based on their needs and preferences and within a comprehensive package of voluntary STI testing, care and prevention *(strong recommendation, low-certainty evidence).*

UPDATED: Social network testing services may be offered as an additional HIV testing approach as part of a comprehensive package of care and prevention *(conditional recommendation, low-certainty evidence).*

HIV testing strategies

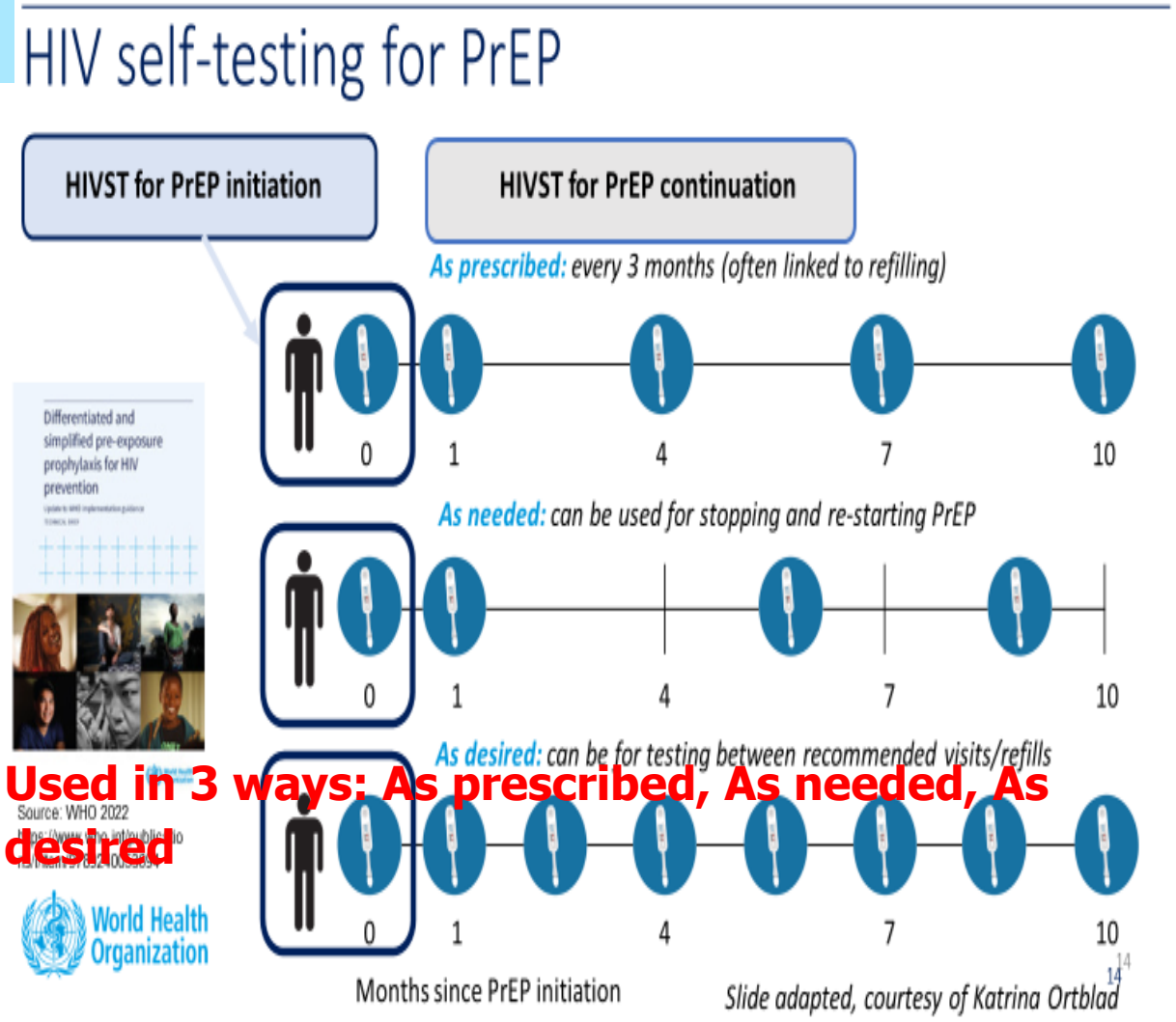
NEW: HIV recency testing is not recommended as part of routine HIV testing services *(conditional recommendation, low-certainty evidence).*

World Health Organization

HIV self-testing for PrEP and PEP

HIV self-testing may be used to deliver pre-exposure prophylaxis, including for initiation, re-initiation and continuation *(conditional*

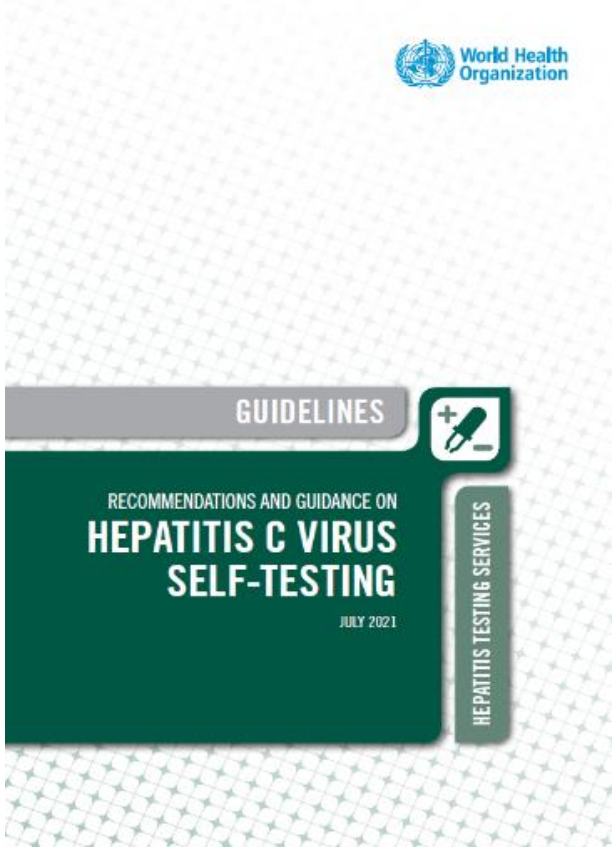
- HIVST can be used for initiation, continuation and re-initiation of PrEP
- Could simplify PrEP delivery by reducing the need for frequent clinic visits
- Should be driven by client needs and preferences
- HIVST in PrEP helps streamline HTS requirements for oral PrEP (daily and on-demand) and the dapivirine ring (DVR)
- No need for further testing to confirm negative results
- HIVST to be considered for post-exposure prophylaxis (PEP)
- Ongoing research on the role of HIVST in the use of long-acting injectable PrEP (CAB-LA)



Used in 3 ways: As prescribed, As needed, As desired

WHO recommendation on HCV self-testing

Hepatitis C virus (HCV) self-testing should be offered as an additional approach to HCV testing services
(strong recommendation, moderate-certainty evidence)



Remarks

- HCV self-testing needs to be followed by **linkage to appropriate post-test services**, including confirmation of viraemic infection, treatment, care and referral services, according to national standards.

- It is desirable to **adapt HCV self-testing service delivery and support options** to the national and local context, which includes community preferences.

- **Communities, including networks of key and vulnerable populations and peer-led organizations, need to be meaningfully and effectively engaged** in developing, adapting, implementing, and monitoring HCV self-testing programmes.

Source: WHO 2021

World Health Organization

Syphilis Self-testing

WHO suggests offering syphilis self-testing as an additional syphilis testing approach *(conditional recommendation, low certainty in evidence of effects)*

- Offer within broader programme and package of services - access and linkage to confirmatory testing (where available) and immediate treatment initiation
- **Quality-assured products**
- **Epidemiology and context**: where to deliver self-testing to specific populations and in certain geographies.
- **Clear messages : confirmatory testing and treatment**

- 5 studies reported on dual HIV/syphilis self-tests
- 2 reported on single syphilis self-tests
- None on T/NT RDT

- Greater testing uptake (p=0.03)
- No significative difference in test reactivity
- No significative difference in linkage to confirmatory testing

- No evidence of increased social harm or adverse event.

- High acceptability among MSM, TGW and FSW & providers in China, Zimbabwe and the US

- Lower cost per person tested than existing facility-based testing (China and Zimbabwe)

World Health Organization