Differentiated service delivery for HIV:

A Decision Framework for HIV testing services

Mobilizing, (re)testing, (re)linking

2024 update

It's time to test differently.

www.differentiatedservicedelivery.org

Over the past four decades, major progress has been made in identifying people living with HIV and linking them to HIV treatment and care. Many countries are already reaching or close to reaching the first 95 target. They have made gains by adapting HIV testing services, providing services both at facility and community locations, and embracing task sharing. However, for some countries and some specific populations, access to testing and durable linkage to care remains a major challenge. How can we test the people living with HIV who still do not know their status? How can we test and link those people living with HIV who never started treatment? How can we test as a possible re-engagement pathway for people living with HIV who interrupted treatment? How can we provide testing to people most vulnerable to HIV acquisition? Can the principles of differentiated service delivery (DSD) help identify our gaps and adapt our services? Read on to see how we can start to test differently.

It is time to test differently. Coordinated support from donors, implementing agencies, communities and networks of people living with HIV is needed to take on this challenge to reach the testing goal of 95% of all people living with HIV knowing their status by 2025. The *Differentiated service delivery for HIV: A Decision Framework for HIV testing services (2024 update)* highlights how the principles of DSD can support a systematic approach to reaching the people living with HIV who still do not know their status, who have not linked or have disengaged from care, and who are most vulnerable to HIV acquisition. These principles should be applicable to a global audience.

This is an update to the decision framework for HIV testing services (HTS). It revises the 2018 version with:

a) Updates in global HTS policy

b) Lessons learnt from HTS during the COVID-19 pandemic

c) Strengthened considerations and adaptions when prioritizing testing for "prevention and treatment"

Other frameworks in the series have focused on antiretroviral therapy (ART) service delivery models for people established on treatment and specific populations, such as pregnant and breastfeeding women, children and key populations. We hope that this structured approach to the situational analysis and building HTS delivery models helps you reach the 95 targets.

Executive summary

How am I going to reach the people with HIV who still don't know their status or who have not linked to or have disengaged from care with the resources we have? I also have to prioritize the people most vulnerable to acquiring HIV. We have to reach our 95-95-95 treatment targets and our 95 prevention target.

Learn more about **Andrew**, a district HIV manager, on page 8

How am I meant to have an HIV test every year? The queues in the clinic are too long. I'm also not sure where I can get a regular supply of condoms, and I heard that some of my friends have started to take PrEP. Where should I go?

Learn more about **Namrata**, a female sex worker, on page 8

Global treatment targets have been set for 95% of people living with HIV to know their status, 95% of people who know their status to be on antiretroviral therapy (ART), and 95% of those on ART to achieve virological suppression by 2025 [1]. The largest gaps in reaching the first 95 are often in specific populations, including men and young people in Africa and key populations globally. While 86% of people living with HIV worldwide know their status [2], programme managers are being challenged to determine efficient and effective ways to reach those who are not yet diagnosed and link them to care.

A 95 HIV prevention target has also been set for 2025: 95% of people most vulnerable to HIV acquisition use appropriate, prioritized, person-centred and effective combination prevention.

To achieve this target, linking clients to the five prevention pillars is an essential component of any HIV testing services (HTS) delivery model. These pillars are:

(i) Combination prevention and harm reduction packages for key populations

(ii) Combination prevention in high-incidence settings for adolescent girls and young women

(iii) Combination prevention for adolescent boys and men in high-incidence settings, including voluntary medical male circumcision (VMMC) and access to testing and treatment

(iv) Comprehensive condom programming

(v) Wider access to ART-based prevention, including pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP) and treatment as prevention, also for elimination of vertical transmission [3].

The concerns of Andrew, a district HIV manager, and Namrata, a member of a key population, shown above, highlight some of the challenges being faced in many settings as we continue to scale up access to HTS.

Differentiated service delivery (DSD) is a person-centred approach. It simplifies and adapts HIV services across the cascade of HIV care to reflect the preferences and expectations of various groups of people living with HIV or those most vulnerable to HIV acquisition while reducing unnecessary burdens on the health system. DSD supports shifting resources to clients who are most in need. In the context of HIV testing, DSD is aimed at developing HTS strategies targeted at identifying those people living with HIV who do not yet know their status or have not linked to or disengaged from care. It also supports testing those most vulnerable to HIV acquisition and linking them to appropriate, prioritized and effective combination prevention options. The DSD approach will support programme managers to think through how to mobilize, (re)test and (re)link to care and prevention differently.

This framework is designed to apply the principles of DSD, presented in the previous frameworks [4,5] to guide HIV programme managers at national and district levels, implementing partners, technical assistance providers and other key stakeholders in analysing and adapting their HTS delivery models. The aim is to provide a systematic approach to building a strategic mix of HTS strategies, including deciding which HTS delivery models they may need to prioritize, continue or discontinue.

This *Differentiated service delivery for HIV: A Decision Framework for HIV testing services (2024 update)* is a practical resource supported by an online

compendium of tools and best practices, available at www.differentiatedservicedelivery.org, to guide HIV programme managers on how to consider HIV testing and linkage services differently. The aim is for HTS to be adapted to the needs of the community by considering the core components of testing through a person-centred lens.

Outline of the framework

Part 1 provides an overview of DSD with a focus on how differentiated HTS fits into DSD. Part 2 outlines the three core components of any HTS delivery model: mobilizing, testing and linking to treatment or prevention services.

Part 3 presents a seven-step plan to guide programme managers in their design of a strategic mix of differentiated HTS delivery models, appropriately prioritizing individuals for differentiated HTS, whether for treatment or "prevention and treatment". Refer to Box 1 for how this framework defines differentiated HTS for treatment from differentiated HTS for "prevention and treatment".

Part 4 focuses on the three key elements of a client: specific population(s), clinical characteristics and the client's context. These elements are crucial considerations when determining for whom HTS will be differentiated for treatment or for prevention and treatment. Part 4 explores evidence-based models that align with the defined client's needs and preferences.

Part 5 delves into the development of an optimized and effective HTS programme, offering insights into improving or adapting existing HTS delivery models, or building new ones using the service delivery building blocks.

Part 6 concentrates on designing and evaluating a strategic mix of differentiated HTS delivery models, with considerations for prioritizing, continuing or discontinuing an HTS delivery model.

The framework incorporates case studies and real-world examples to demonstrate how the elements and building blocks have been effectively used in designing differentiated HTS.

Defining differentiated HTS for treatment from differentiated HTS for "prevention and treatment"

This framework aims to provide guidance on when and how to broaden HTS beyond case finding for treatment to also identify people most vulnerable to HIV acquisition for appropriate, prioritized and effective prevention options. The framework uses specific terminology.

Differentiated HTS for treatment prioritizes identifying people living with HIV (either previously undiagnosed, not linked or disengaged) and linking them to HIV treatment services. This approach has been referred to as "testing for case finding".

Differentiated HTS for prevention and treatment prioritizes identifying people most vulnerable to HIV acquisition to provide prevention services literacy and offer testing for proactive linkage to appropriate, prioritized and effective prevention services or, when necessary, to treatment services. This approach was previously known as a "status-neutral" approach to HTS.

Common challenges: why it's time to test differently

CLIENT PERSPECTIVE **HEALTHCARE WORKER (HCW) PERSPECTIVE**

I'd like to have an HIV test, but I don't want to lose my place in the queue to see the nurse. I don't think I'll bother today.

How can I test all these clients in my outpatient department (OPD) for HIV? The queue is so long and I don't have time to provide rapid testing. At best, I can test eight people today.

My husband is never going to come for a test at the clinic. He is working all day and it takes us two hours to get to our clinic. What about my previous partner? Shouldn't he also have a test?

How can I test the children and husband of this woman living with HIV? They still have not come to the clinic and they live far away. Should I contact her previous partner?

I had an HIV test a few weeks ago and it was positive, but I really don't want to test my child.

I am quite worried as this child has some signs of HIV, but I don't think her mum wants me to test her. What should I do?

People I know are taking PrEP. Should I be taking it too? I don't want to go to the clinic. I feel uncomfortable there.

How can I identify and offer PrEP to members of key populations if they don't come to the clinic?

Abbreviations

ANC	Antenatal care
ART	Antiretroviral therapy
BP	Blood pressure
CBO	Community-based organization
CHW	Community health worker
DBS	Dried blood spot
DHS	Demographic and health survey
DIC	Drop-in centre
DSD	Differentiated service delivery
EID	Early infant development
EPI	Expanded Programme on Immunization
FP	Family planning
HCV	Hepatitis C virus
HTS	HIV testing services
IPD	Inpatient department
MNCH	Maternal, newborn and child health
MoH	Ministry of health
NCD	Non-communicable disease
NGO	Non-governmental organization
NSP	Needle and syringe programmes
OAT	Opioid agonist treatment
OPD	Outpatient department
ORW	Outreach worker
PEP	Post-exposure prophylaxis
PITC	Provider-initiated testing and counselling
POC	Point of care
PrEP	Pre-exposure prophylaxis
RDT	Rapid diagnostic test
SOP	Standard operating procedure
SRH	Sexual and reproductive health
STI	Sexually transmitted infection
TB	Tuberculosis
VMMC	Voluntary medical male circumcision
VCT	Voluntary counselling and testing
WHO	World Health Organization

"We have been doing so many outreach testing campaigns, but they hardly identify any new people living with HIV. How can I reach people living with HIV who have not yet tested or linked to treatment and make sure they start ART with the limited resources that I have?"

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Preface

Background to the Decision Framework series

The first Decision Framework for ART delivery [4] was released in July 2016 and set the background and principles of differentiated service delivery (DSD) using the elements and building blocks to design and build differentiated ART delivery models for people who are established on treatment.

Expanding to specific populations, two more Decision Frameworks were developed and launched The second in the series, on differentiated ART delivery for children, adolescents and pregnant and breastfeeding women, was launched in 2017 [5]. A decision framework for key populations was published in 2018 [6].

The fourth decision framework in the series, released in 2018, applied the DSD principles to HIV testing services (HTS). This is an updated version of the fourth framework for differentiated HTS. It specifically takes into account: (a) updates in global HTS policy; (b) lessons learnt from HTS for the COVID-19 pandemic; and (c) adaptions when prioritizing testing for prevention and treatment for specific populations and contexts.

This document is not a guideline, but serves as a complementary resource to existing guidelines. It offers operational support to developing suitable service delivery models for HTS in a given context.

Differentiated HIV testing services

In many settings, HTS have incorporated elements of a DSD approach. HIV testing is offered in both the facilities and the community (addressing the "where"), and in many contexts, it has been delegated to lay cadres (addressing the "who"). However, systematic use of the elements (Part 4) and building blocks (Part 5) for the three components of any differentiated HTS delivery model (mobilizing, testing and linking) outlined in Part 2 may not have been consistently implemented in all programme settings.

Objectives of the Decision Framework for differentiated HIV testing services

The *Differentiated service delivery for HIV: A Decision Framework for HIV testing services (2024 update)* is the fourth in a series of frameworks for the implementation of DSD. However, it is designed to be comprehensible as a stand-alone document. The framework aims to achieve the following objectives:

- Provide a **background** on the principles of DSD.
- Offer **examples** of differentiated HIV testing service delivery models illustrating the utilization of core components (Part 2), elements (Part 4) and building blocks (Part 5).
- Provide **guidance** on the steps to determine necessary differentiated HTS delivery models, including whether to improve, adapt or build new models (Part 5) and the appropriate strategic mix of models (Part 6).

This updated decision framework for HTS targets national and district HIV programme managers and, where applicable, implementing partners, donors and other organizations supporting national HIV programmes. The online repository, www.differentiatedservicedelivery.org, has been updated to incorporate best practices and relevant publications on differentiated testing and linkage.

"The peer leaders are helping people within their communities to find out their HIV status and get started on treatment when necessary. This innovative approach is breaking down barriers to care for people who need it most."

– World Health Organization, Viet Nam

Part 1

Introduction

Differentiated service delivery (DSD) is a person-centred approach that simplifies and adapts HIV services across the HIV care continuum to align with the needs and preferences of diverse groups of people living with HIV and those most vulnerable to HIV acquisition [7]. By implementing DSD, clients and healthcare workers should experience reduced burden associated with accessing and providing services, respectively. This facilitates the refocusing of resources to those most in need.

To meet the diverse needs of people requiring HIV testing and ART services, the World Health Organization (WHO) recommends a differentiated service delivery approach.

DSD seeks to elevate the quality of the client experience, placing the client at the centre of service delivery, and ensuring that the health system operates with both medical accountability and efficiency. The primary reason for adapting service provision is in response to the client's needs and preferences. This approach considers diverse clinical needs, specific population needs (such as children, adolescents, men or key populations), and the contextual factors influencing a client's life. These three elements are further detailed in Part 4.

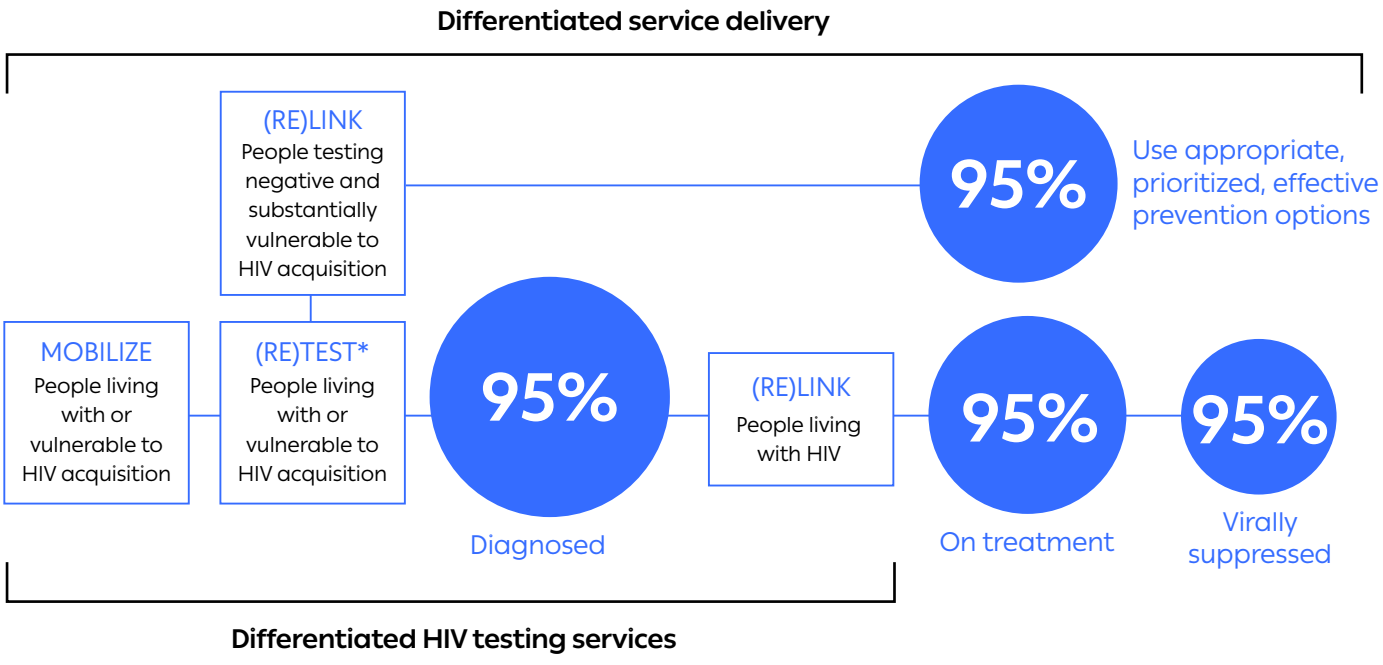
DSD supports reallocating resources to clients with the most pressing needs. In the context of HIV testing, the focus is on developing strategies to identify people living with HIV and individuals most vulnerable to HIV acquisition who are unaware of their status or have not yet linked to or re-engaged in care. The aim is to link clients to treatment services or appropriate, prioritized and effective prevention services. In the current context, the overarching challenge is determining the optimal strategic mix of HTS models to accomplish this task effectively.

Differentiated service delivery includes HIV testing

DSD applies across the HIV continuum, from prevention to viral suppression (Figure 1), and aligns with all three 95-95-95 treatment targets and the 95 prevention target [1]. Global HIV testing and treatment cascade data indicates an improvement in knowledge of HIV status among people living with HIV, increasing from 71% in 2015 to 86% in 2022. However, advancements in the first 95 lag behind other areas of the cascade [8].

Context-dependent disparities may exist, with specific populations contributing a higher proportion of new acquisitions and facing barriers to accessing HTS. Achieving the first 95 target requires identifying the remaining people living with HIV who do not know their status and those clients most vulnerable to HIV acquisition. The development of differentiated HTS delivery models adapted to reach these populations is imperative for achieving our global HIV targets.

Figure 1: Differentiated service delivery is applicable across the HIV care continuum



* (Re)test broadly indicates the need to retest people (a) previously testing HIV negative where retesting is recommended by WHO at specified frequencies, (b) for people who have not linked to treatment services and want further confirmation of their HIV status to support linkage and (c) for people who have disengaged from care who prefer to re-engage through HTS.

Differentiated HIV testing services must include linkage

Differentiated HTS must encompass three core components outlined in this framework: mobilizing, testing and linking (Part 2). Despite existing examples of differentiated HTS delivery models, systematic consideration of all three components is not consistently present. Addressing the linkage component is crucial for achieving the 95-95-95 targets, particularly by linking those testing positive for HIV to ART. Strengthening linkage of people most vulnerable to HIV acquisition to prevention services is equally essential to meet the ambitious 95 prevention target. Importantly, the focus on linkage to prevention should prioritize options known to be appropriate, prioritized and effective for a specific population or context.

How are HIV testing services already differentiated?

Over the course of the HIV pandemic, the focus of HTS programmes has shifted. Initially, attention was given to voluntary counselling and testing (VCT), progressing to the systematic integration of HTS in antenatal care (ANC). In the mid-2000s, there was an increased emphasis on HTS for key populations through mobile moonlight testing strategies. This was alongside national "know your status" campaigns that utilized mass media mobilization and door-to-door testing. Provider-initiated testing and counselling (PITC) was introduced in 2007, expanding rates of diagnosis in healthcare facilities. In the years before COVID-19, many countries shifted to focusing on approaches that maximized testing positivity.

While some elements of DSD have been incorporated into HTS (Table 1), a re-evaluation is recommended if we are to meet the 95 treatment targets. In addition, with the exception of ANC testing, many differentiated HTS strategies are often implemented only in pilot programmes or with support from implementing partners. Policy and legal barriers may impede implementation in certain settings, such as for key populations, and stigma-related challenges may hinder other populations from accessing existing testing services.

Previous systematic reviews have highlighted the benefits and challenges of implementing differentiated HTS [9,10]. Community-based testing has proven effective in reaching first-time testers, men and clients with higher CD4 counts. Yet, gaps persist, revealing missed opportunities for HIV testing and underserved populations. For example, a systematic review of PITC in central, eastern, southern and western Africa identified numerous missed testing opportunities at facility-based service entry points [11].

As some countries achieve some or all of their 95 treatment targets in certain populations, differentiated HTS should also focus on identifying clients most vulnerable to HIV acquisition and linking them to appropriate, prioritized and effective prevention options.

Table 1: Select examples of how HIV testing has been differentiated

Building blocks	Specific focus population	HTS delivery differentiation
WHEN are HTS delivered?	Postnatal women	Once at either 6- or 9-month immunization visit
WHERE are HTS offered?	Men (over 25 years)	Workplaces and community settings where men congregate
WHO are providing HTS?	Adolescent girls and young women	HIV self-testing in facility-based SRH service before seeing nurse for contraception refill
WHAT HTS package is being delivered?	Gay men and other men who have sex with men	Offer for both prevention and treatment benefits irrespective of HIV test result (status-neutral HTS)

Why do we need to reassess how HIV testing services are differentiated?

A reassessment of how HTS are differentiated is essential due to identified gaps that underscore missed opportunities, especially among specific populations:

- Testing opportunities and uptake for men remain lower than for women.
- With the highest number of new acquisitions among adolescent girls and young women in eastern and southern Africa, only 25% have tested for HIV [12,13].
- Key populations are disproportionately affected by HIV. Yet, their uptake of HTS is limited.
- Systematic testing is lacking for sexual partners of people living with HIV and their children.

HIV testing service delivery: Mobilizing + testing + linking

This framework emphasizes three core components in any HIV testing service delivery model:

- **Mobilizing**
- **Testing**
- **Linking** to treatment and/or prevention

Strategic consideration of each component, both individually and as a comprehensive package, is expected to increase uptake and efficiency of HTS (see Part 2). Differentiated approaches to increase efficiency of HTS delivery models may involve reducing some current practices.

How this framework will support developing a strategic mix of differentiated HIV testing services

This framework offers programme managers a seven-step approach (refer to Part 3) to develop a strategic mix of differentiated HTS delivery models, addressing missed opportunities and underserved populations. The strategic mix will be influenced by the context, including the policy and legal environment, HIV burden and current coverage of the first, second and third 95 goals, coupled with an assessment of how available resources can be most efficiently utilized. This approach may vary across different regions of a country.

For example, in some settings, there may be HTS delivery models that should be universally implemented, such as providing HTS to all adults and children with signs and symptoms of HIV, tuberculosis (TB) and sexually transmitted infections (STIs), as well as sexual or drug-injecting partners of people living with HIV.

In high-burden settings with a high proportion of clients already aware of their status, differentiated HTS strategies may focus on community-based HTS for populations with remaining gaps, such as workplace testing programmes for men and mobile or virtual services for key populations. Conversely, in low-burden settings with a low number of people living with HIV unaware of their status, considerations may include reducing routine testing in outpatient departments (OPDs) and increasing PITC in TB and STI clinics, alongside strengthened partner services. Regardless of the settings, the inclusion of community-based and network-based HTS to reach key populations promoting prevention and treatment benefits should be considered [14].

How this framework will support the systematic building of differentiated HIV testing service delivery models

After conducting a situational analysis of HTS, challenges and gaps, the client-centred elements (refer to Part 4) and building blocks ("when", "where", "who" and "what", as detailed in Part 5) will provide programme managers and implementers with a systematic approach. This approach will guide them in improving, adapting or building each of the three core components of an HTS delivery model (refer to Part 2).

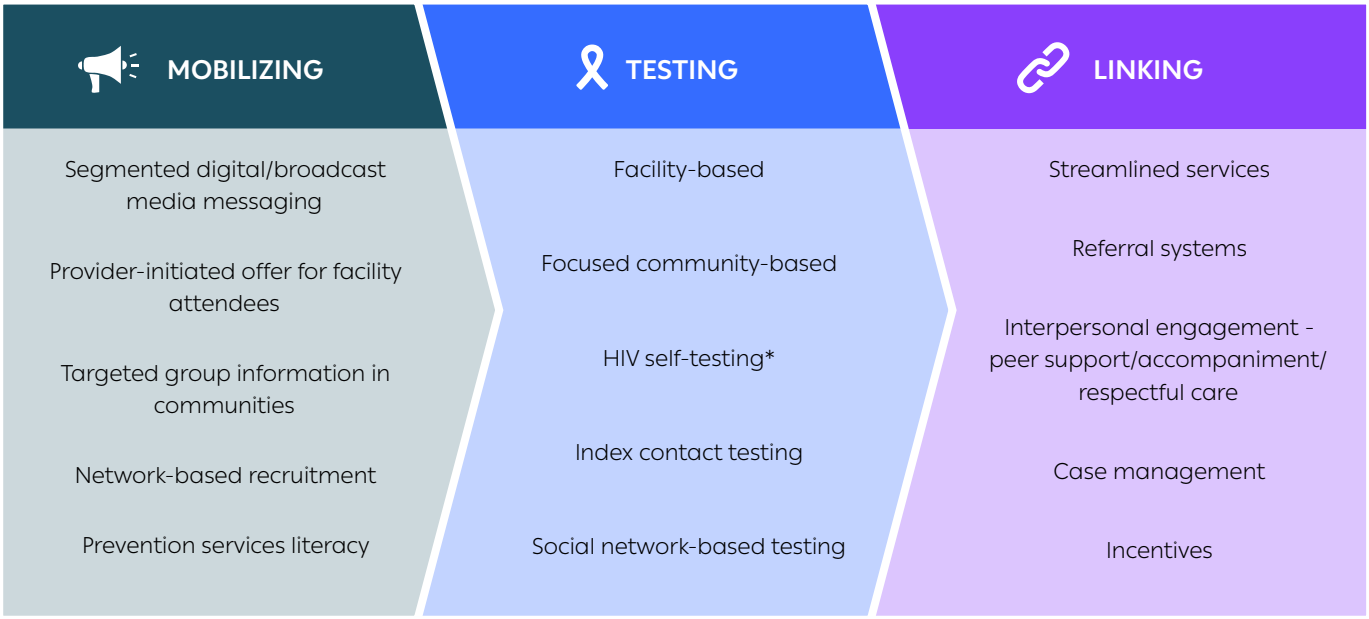
Part 2

The core components of differentiated HIV testing services

Any HTS delivery model should include the following three core components: mobilizing, testing and linking (Figure 2). **These three components are described in further detail in Annex 1.** When conceptualized as a service delivery model of HTS, the inclusion of all three components is essential and should be integral to the design of the model.

Throughout this framework, examples are provided that outline these core components, with their implementation described through use of the building blocks (Part 5). Table 2 further illustrates how these three components, along with the building blocks, should be used to design a differentiated HTS delivery model.

Figure 2: Three components of differentiated HIV testing services



* Self-testing is a testing modality that can be used in all testing approaches, including in health facilities and in the community.

Table 2: Components and building blocks for building an HTS delivery model

	MOBILIZING	TESTING		LINKING
WHEN	Timing and frequency	Timing and frequency		Timing of linkage activities and timing and frequency of follow-up
WHERE	Location of mobilization activities	Location of HIV testing		Location of linkage activities
WHO	Who does the mobilization	Who does the HIV testing		Who supports the linkage activities
WHAT	The mobilization approach(es) used	The package of services:		The interventions to link to ART services
		The HIV test	and related activities	The interventions to link to appropriate, prioritized, and effective prevention services

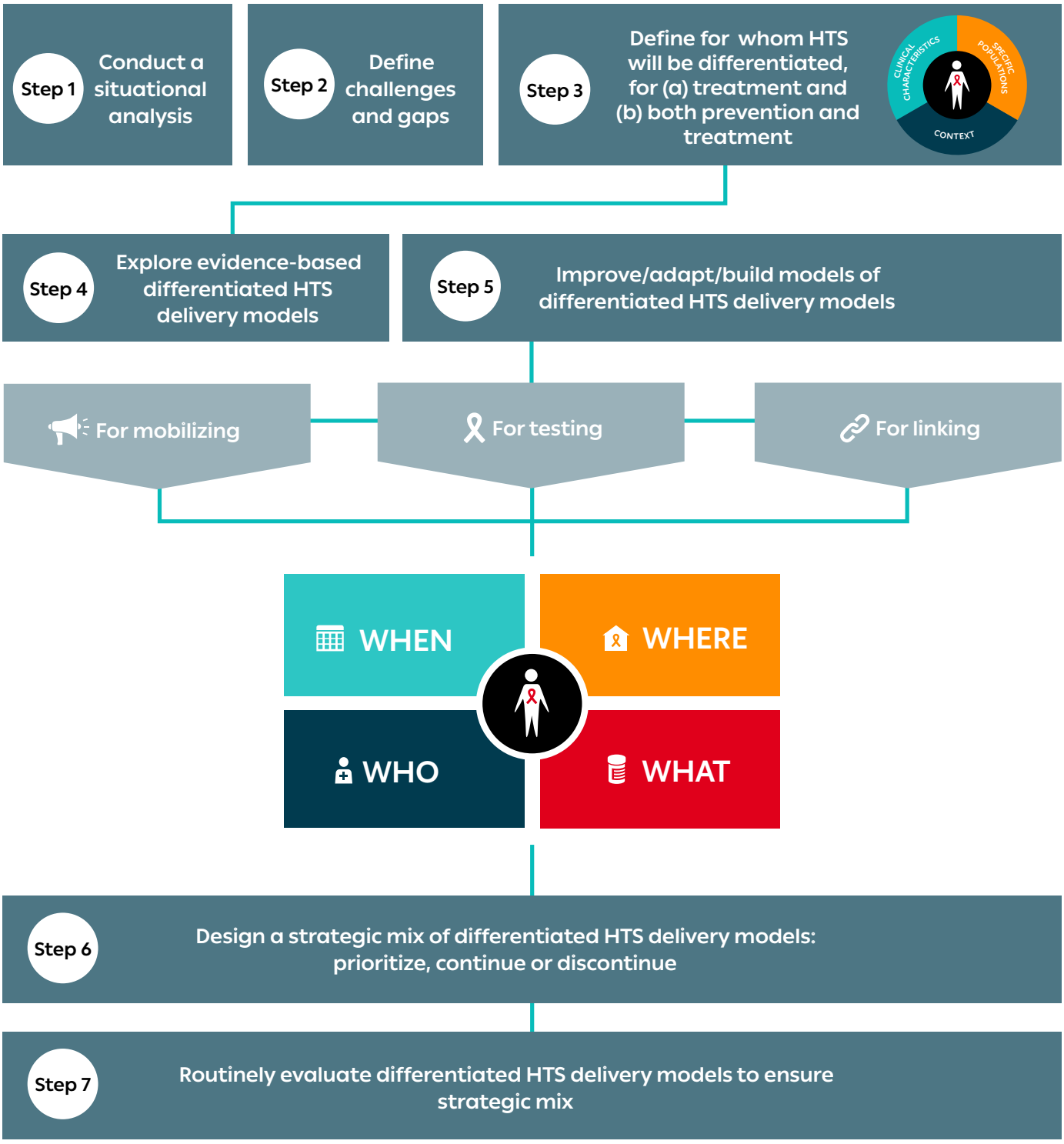
Part 3

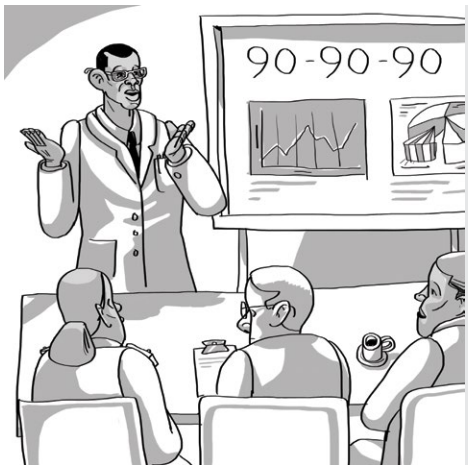
The seven-step approach to differentiated HIV testing services

In developing differentiated HTS delivery models, strategic decisions may need to be made at both national and regional levels. While a strategic mix might be endorsed at national level, the appropriateness of each model, how it should be adapted, and where it should be implemented will depend on the local context. Engaging local stakeholders in priority settings helps support ownership and buy-in for implementation.

The seven-step approach outlined in this section guides ministries of health and supporting partners in planning differentiated HTS (Figure 3). For a complete list of available annexes online, please refer to Annex 2.

Figure 3: Seven-step approach to differentiated HIV testing services





Learn more about Andrew

Andrew is a district HIV manager. Recently, he attended a sensitization meeting outlining the differentiated HTS delivery models supported by the national programme. In his district, HIV prevalence is 7% and ART coverage is approximately 85%. According to the latest data, 91% of women, 72% of men and 56% of children living with HIV know their status. Healthcare workers in primary care clinics, providing OPD services, including STI treatment, have faced challenges in testing more people for HIV due to long queues and a lack of additional human resources. Lay workers have been trained to conduct tests in VCT centres linked to the district hospital. However, there are no lay workers trained to test in the primary care clinics, and community health workers (CHWs) lack training to perform test for triage in the community.

Learn more about Namrata

Namrata is a sex worker residing in a large city. She has a good understanding of HIV and has been tested for HIV a couple of times in recent years. She is aware of the importance of testing regularly for HIV, but the challenges of attending a clinic during the day – due to expenses, fatigue and the daunting experience of queueing – are a barrier. Many of her sex worker colleagues face similar challenges. Namrata has heard of a project in another city where sex workers distribute HIV self-tests and condoms among their peers and are being trained to raise awareness about HIV testing and HIV prevention services, including PrEP. She is wondering if this is something she could do in her community.

Learn more about John

John works as a security guard, starting work at 7am and ending at 6pm. Despite being aware of the prevalence of HIV in his community, he has never tested for HIV. He is familiar with HTS, often advertised on the radio, and he has heard about women being tested in ANC. Additionally, he is aware that CHWs in his neighbourhood have previously done door-to-door HIV testing. However, due to the challenges of reaching the local clinic during his working hours and his reluctance about someone coming to his home, he decides not to pursue being tested for HIV.

Learn more about Judith, David and her family

Judith was diagnosed as living with HIV during the last trimester of her pregnancy. Aware that her husband, David, has not tested for HIV or attended a health centre for several years, she has tried to persuade him to be tested for HIV. However, he consistently says that he does not have time. While Judith understands that he is busy, she also thinks that he is nervous about attending the clinic and having the test, especially if he has to be tested close to home.

Step 1: Conduct a situational analysis

The first step to improving, adapting or building differentiated HTS delivery models and designing a strategic mix is completing a situational analysis. This analysis is crucial for identifying gaps in achieving the first 95 target (testing), linking to the second 95 (treatment) and achieving the prevention 95 (use of combination prevention). It should include geographical coverage and coverage by specific populations to understand how existing HTS strategies are addressing these gaps. The analysis should consider the three core components of a successful differentiated HTS delivery model: mobilizing, testing and linking.

Key components of the analysis should include:

- Data related to the epidemiologic context
- Data on access and coverage of HTS, both for general and specific populations
- Existing policies related to HTS, including age of consent, HIV self-testing and age of use, the HTS algorithm and task sharing
- The HTS delivery models being currently implemented
- Perspectives of clients and healthcare workers on specific barriers and facilitators to testing

Ideally, the national HIV programme should lead this process in collaboration with regional and district HTS coordinators, implementing partners and representatives of people living with HIV or vulnerable to HIV acquisition.

A template questionnaire to facilitate this situational analysis is available in the Annex 2 online resources.

1.1 Assess the data

To assess the existing strategic mix of HTS delivery models and identify gaps towards achieving the 95 targets, consider the following data:

- Regional HIV prevalence and treatment-adjusted prevalence [15]
- HIV prevalence and incidence within specific populations
- Prevalence and/or incidence of HIV indicator conditions (TB, hepatitis B and C and syphilis)
- HIV testing coverage of people living with HIV from population-based surveys
- HIV testing coverage (ever tested and in past 12 months) within specific populations (for example, percentage of men versus women tested) against targets, sourced from population-based surveys and demographic health surveys, specific reports and/or surveys among key populations (for example, integrated biological and behavioural surveillance surveys)
- HIV testing coverage in priority clinical areas (ANC and postnatal clinics, TB, STI, FP, hepatitis, malnutrition and hospital inpatient department entry points)
- Number and percentage of people living with HIV on ART at national and regional level
- Number and percentage of people on ART virally suppressed at national and regional level
- Number of people started on PrEP, PEP, harm reduction services, such as needle and syringe exchange programmes (NSP) or therapy (OAT) and VMMC at national and regional levels

Balancing the number of people tested, testing positivity and need

The testing positivity of an HIV testing model is determined by the number of people living with HIV identified among the number of people tested. For example, if 200 people are tested and one person is identified as living with HIV, the yield is 1/200 or 0.005%. **The utility of testing positivity is secondary to the number of people diagnosed with HIV.** When testing positivity is assessed, it must be considered alongside absolute numbers – the number of people diagnosed, and increasingly in certain contexts, the number of people identified with high levels of vulnerability to HIV acquisition for linkage to appropriate, prioritized and effective prevention services.

A higher-positivity HTS delivery model does not necessarily indicate greater effectiveness. For example, a focused community-based HTS delivery model may test 200 people and have a yield of 12.5%, but identify only 25 people living with HIV. In comparison, a facility-based model, testing 20,000 people, may have lower yield of 3% but diagnose 600 people. The testing positivity of any model should be balanced with needs and a human rights approach to ensure that all people have access to quality HIV testing.

- Condom distribution at national and regional levels
- Routine HTS site-level data, including:
  - Number of individuals tested, disaggregated by age, sex and specific population
  - Testing location (community or facility) and whether it resulted from network-based testing
  - Proportion of clients retesting
  - Number and percentage positivity in different populations and through differing HTS delivery models and facility service entry points
- Current human resource allocation for HIV testing
- Where available, data on linkage to treatment or prevention services from community-based surveys or national registries with a unique identifier given at testing
- Current costs of HTS delivery models and, where available, costs per person living with HIV identified (additional resources related to costing are outlined in Annex 2.)

1.2 Assess policies

Compare national-level policies with the current WHO service delivery recommendations for HTS. Utilizing the building blocks ("when", "where", "who" and "what"), as outlined in Part 5, can serve as a framework for evaluating policies that will facilitate effective differentiation of HIV testing and linkage services.

Case study 1:

Conducting an HTS situational analysis for Cameroon

In 2022, Cameroon's Ministry of Health, with support from Jhpeigo and WHO, undertook a situational analysis of DSD across the cascade, including HTS, prevention and treatment. The analysis included the following steps:

- A **review of Cameroon's policies** for HTS and **identifying DSD models** for HTS, prevention and treatment in the country was carried out
- **Selected site visits** were undertaken to assess facility-based HTS delivery in 10 regions.
- **Key informant interviews** with stakeholders took place to identify current HIV testing service delivery models. These interviews used a structured key informant questionnaire. Interviews took place at 111 health facilities, 20 CBOs and 10 regional technical groups supported by monitoring and evaluation team for quantitative data collection.
- **Consultative stakeholder meetings, including with people from focus populations,** were convened to share findings and provide feedback on identified gaps and challenges

Key findings from the analysis included:

Gaps in differentiated HTS delivery policy and data

- Limited consideration of mobilization and linkage building blocks
- Lack of clarity with regards service providers ("who") responsible for each of the three HTS components
- Combined facility-based HTS outcomes not disaggregated by specific service entry points

Gaps in implementation of the HTS programme

- *Gaps in facility-based HTS models:*
  i) Low coverage of HIV testing across facility sites visited, especially for children and adolescents and ii) in the far north province, limited availability of client-initiated testing and counselling (CITC)
- *Gaps in community-based HTS models:*
  i) Poor involvement of community leaders, ii) limited workplace HTS, iii) limited targeted stand-alone out-of-facility HTS and iv) limited integration of HTS into other health services
- *Gaps in network-based approaches:*
  Low healthcare provider knowledge of index and family testing models

Identification of enablers of the HTS programmes

- Skilled service providers with continuous capacity building; DSD guiding policies, SOPs and registers; free HTS, including HIV self-testing; good IEC sessions in the morning in facility waiting rooms to mobilize for testing; good community health worker collaboration

Critical policy considerations for implementing differentiated HIV testing include:

- Policies that define the recommended frequency for retesting ("when")
- Policies related to decentralization of HIV testing outside of healthcare facilities, the use of virtual platforms and health services (telehealth, e-pharmacy), and the integration of HIV testing into other health services ("where")
- Policies that enable task shifting to nurses, pharmacists and other lay providers, including peers ("who")
- Policies that support the use of HIV self-testing as a potential test for triage and for specific prevention service options, such as PrEP ("what")

In addition to the specifics of differentiated HTS, policies related to HIV testing more broadly should be considered. These may include policies related to the age of consent, age at which HIV self-testing is allowed, legal barriers preventing specific key populations from accessing testing, and the use of a validated HIV testing algorithm.

1.3 Assess the existing HIV testing service delivery models implemented

Analysing the current delivery of HTS is essential to determine whether existing models should be improved or adapted for different populations or contexts or whether new models should be built (Part 5). While many settings may already have somewhat differentiated HTS delivery models, their implementation may be poor or their coverage limited geographically or within specific populations. It is possible that only one of the core components (mobilizing, testing and linking) has been differentiated, leaving room for improvement in the other model components.

As a community health worker, I am visiting my community all the time and telling them about HIV testing. Why can't I also test them? I would be very happy to do that.

The recommendation is to start with a broad mapping of differentiated HTS. This mapping should describe what HTS models are being implemented and with what coverage, considering the proportion of facilities or community structures offering a particular model. Examples of differentiated HTS are given throughout this framework, categorized based on how mobilizing, testing and linking have been implemented.

The mapping should be coordinated at national level, drawing on subnational- and/or district-level data. Ideally, this mapping should consider the entire cascade of differentiated HIV care to maximize resource utilization. Proposed steps for mapping include:

1. A desk review of existing published literature of models within the country
2. A review of local country and partner activity reports
3. A survey among district HIV coordinators and implementing partners
4. Selected site visits, using the client-centred elements (Part 4) and the building blocks (Part 5) to assess current HTS programming

The **online Annex 2 template** provides an outline of what may be asked to assess whether HTS have been differentiated.

1.4 Assess the perspectives of healthcare and community workers and focus populations

To respect the client-centred nature of differentiated HTS, seeking perspectives from representatives of both general and specific populations within a community is crucial. Understanding how HTS are currently perceived, including the facilitators and barriers, aids the design of appropriately differentiated HTS delivery models.

Data on these perspectives can be collected through:

- Attending clinic services at different entry points or with community-based organizations for specific populations – observing and discussing facilitators and barriers to testing with clients
- Using surveys, focus group discussions and/or individual interviews with representatives from the community
- Reviewing available data on HTS from community-led monitoring
- Consulting with healthcare workers, including clinical staff, lay workers and peer volunteers.

Step 2: Define challenges and gaps

Building on Step 1, identify the challenges that can be effectively addressed through differentiated HTS. Consider hosting a workshop involving key stakeholders from the health system and civil society, including representatives of people living with HIV and specific populations vulnerable to HIV acquisition. The objectives would be:

- Sensitizing on the background and core principles of differentiated HTS delivery
- Presenting the outcomes of the national-, regional- and/or district-level desk review and mapping exercise on HTS
- Providing a platform for stakeholders to showcase existing examples of differentiated HTS implemented that address the challenges faced by specific populations in their settings. These examples should present the "when", "where", "who" and "what" of each core component of a HTS model. Where possible, costing should also be provided.
- Consulting with civil society representatives on facilitators and barriers to taking up HTS within mapped differentiated HTS models.

It is strongly encouraged that the mapping process and review consider the entire cascade and cover each specific population.

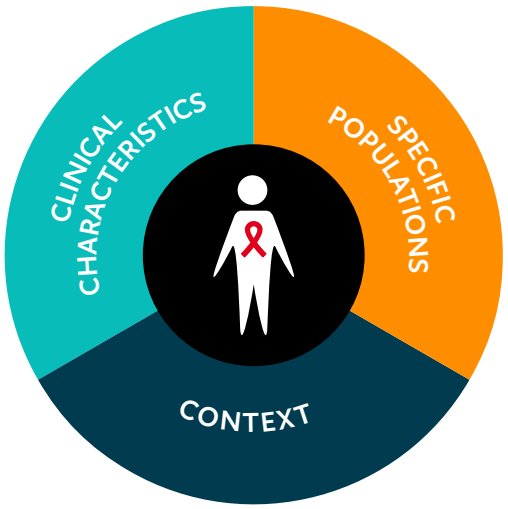
Step 3: Define for whom HIV testing services will be differentiated for (a) treatment and (b) both prevention and treatment

With a clear understanding of existing HTS, including identified current challenges and gaps, the next step is to determine the target population(s) for differentiated HTS delivery models. Decide whether differentiation is needed for:

(a) Case finding for treatment

(b) Vulnerability to HIV acquisition for prevention and treatment (status-neutral)

To determine the target population(s), utilize the three elements outlined in Part 4. Specify the specific population (for example, general, adolescents, men or specific key populations), whether they have particular clinical characteristics (such as symptomatic, common co-morbidities and level of HIV acquisition vulnerability), and how the specifics of their context may influence the delivery of the HTS delivery model (for example, HIV burden, progress toward the first and second 95 targets, and the policy and legal environment).



Step 4: Explore evidence-based differentiated HTS delivery models

After determining the target audience for differentiated HTS delivery models, specify whether it is for treatment or both prevention and treatment. Conduct a comprehensive review of the latest evidence and experiences from other settings related to testing the defined population/s. Identify the HTS delivery models that have demonstrated increased testing coverage and linkage to treatment or appropriate prevention services and cost effectiveness.

While exploring the evidence, describe the building blocks (the "when", "where", "who" and "what"), outlined in Part 5, for each core component of HTS delivery models (mobilizing, testing and linking). By describing the building blocks of each model, it will become easier to determine which block may have contributed to the success of the model.

Step 5: Improve, adapt or build models of differentiated HIV testing services

The situational analysis and evidence review will have identified existing HTS delivery models implemented at scale or with more limited implementation. The models in the review may have had partner support, been done in a pilot or research project or been more broadly implemented. Additionally, the evidence review will have highlighted potential HTS delivery models from other settings.

These review findings create a pool of potential models to consider to meet the needs and preferences of the defined populations prioritized for either treatment or both prevention and treatment. The models should be improved or adapted based on the challenges experienced by specific focus populations.

Based on challenges experienced by the specific population or segment of the specific population, considering context and clinical characteristics, select existing HTS delivery model/s to be improved or adapted to enhance uptake and efficiency.

When no HTS delivery model exists or where existing models will not achieve sufficient testing coverage or linkage for a population or in a given context, a new model should be built. Define the building blocks (Part 5), considering the "when", "where", "who" and "what" for mobilizing, testing and linking, to establish the foundation of the new model.

For the past three years, I have been actively supporting and educating the community of gay men and other men who have sex with men in my town around HIV testing. My focus has been on emphasizing the importance of HIV testing, highlighting that regardless of the result, testing opens avenues for either accessing PrEP for prevention or ART for treatment.

Testing rates remain disappointingly low. Following discussions between the CBO I work for and the Ministry of Health, a new approach has been suggested – conducting HIV testing in the community with accompaniment to a preferred service point for initiating PrEP or treatment, including the option of a key population-friendly drop-in centre. I am now able to distribute HIV self-test kits along with a demonstration or administer rapid HIV testing. This really improves accessibility of HIV testing, and I think many more men will test.

Step 6: Design a strategic mix of differentiated HIV testing service delivery models: prioritize, continue or discontinue

The goal of a strategic mix of HTS is to efficiently expand treatment and prevention coverage, aiming to minimize morbidity, mortality and HIV incidence. Considering constrained resources, prioritizing effectiveness and efficiency is critical. Nonetheless, ensuring equitable access to HTS and related prevention services, even for those who are not part of specifically targeted populations.

Selecting a strategic mix will require difficult decisions, necessitating clear choices on which HTS delivery models to prioritize in the short, medium and long term. When there is no explicit prioritization, it happens implicitly and can lead to greater inequity and reduced overall impact of the HTS programme.

When deciding which HTS delivery models to prioritize, be sure to consider the:

- Gaps in the 95-95-95 treatment targets for specific populations, focusing on case finding and the benefits of durable linkage to treatment
- Gaps in the 95 prevention for specific populations most vulnerable to HIV acquisition and linkage to both appropriate, effective prevention services and, when necessary, treatment
- *Effectiveness measures for HTS models:* Evaluating the reach, number of people living with HIV not on treatment identified, successful treatment services linkage or re-engagement, number of people with substantial vulnerability to HIV identified, prioritized prevention service linkage and overall testing coverage (Part 6 describes these in more detail)
- *Efficiency measures for models of HTS and the strategic mix:* Assessing costs, resource allocation, opportunities for integration, time to diagnosis and treatment linkage, operational efficiency, scalability, potential for rationalization, implementation feasibility, and sustainability (Part 6 describes these in more detail)
- *Equity measures for the strategic mix:* Ensuring HTS access by vulnerable and underserved populations across geographical contexts, including those not explicitly targeted. All included HTS models must protect confidentiality and reduce stigma associated with testing or linking to treatment or prevention services.

Decisions should be made to either continue or discontinue other existing HTS delivery models. All prioritized or continued HTS delivery models include optimized building blocks for mobilizing, testing and linkage. Part 6 provides examples of developing this strategic mix.

Step 7: Routinely evaluate differentiated HTS delivery models to ensure a strategic mix

After the selection and prioritization of models of HTS, the implementation of the strategic mix should be monitored through routine monitoring and evaluation and quality improvement.

It is essential to periodically re-evaluate the strategic mix of HTS models to ensure continued effectiveness, efficiency and equity, as outlined in Step 6. As coverage gaps narrow within specific populations, the prioritization of HTS models should be updated, and the overall strategic mix should evolve accordingly. Establishing clear criteria for decision making – such as scoring systems or decision tree-based approaches – can help determine when to reprioritize, continue or discontinue certain HTS models. These criteria should assess the effectiveness and efficiency of each model and the strategic mix as a whole, ensuring that resources are optimized. Additionally, ongoing analysis may indicate opportunities for further adaptation or, if successful, create pathways to develop new models targeting missed segments of specific populations.

I'd heard on the radio that all pregnant women are offered HIV testing. When my midwife tested me in ANC, I tested positive for HIV and was started on treatment. I know my new baby will be tested, but how am I going to get my husband and other children to test? And if they test positive, where will they get treatment since they don't come to ANC?

I'm also worried about my ex-partner. What if he has HIV?

Learn more about **Judith, David and their family** on page 8

Case study 2:

Facility service entry point testing and retesting coverage, Tanzania [11]

Tanzania is a high HIV-burden context. In 2018, only 78% of people living with HIV knew their status, with 22% of women and 46% of men never having been tested for HIV. A treatment as prevention project introduced **universal HIV testing at facilities and communities.** Clients were screened out for HTS if they tested negative within the past three months.

A cross-sectional survey conducted in two mostly rural regions from May 2017 to June 2019 revealed that 38% (44,286/115,979) of facility clients were offered HTS, of whom 53.8% were women. The HIV positivity rate among health facility attendees was 3.8% (women: 4.2% and men: 3.4%), compared with 0.7% in community testing (0.6% at testing campaigns and 1.2% at special events).

Over time, the **testing in communities decreased markedly, more than in facility-testing.** Consequently, the **main recommendation was for facility-based PITC to be sustained as it was the most significant and cost-effective HTS strategy.** Tanzania's 2019 HTS guidelines revision recommended prioritizing PITC for all clients accessing health facilities, including those at OPD, IPD (including malnutrition and paediatric wards), TB, STI, FP, ANC + MNCH, VMMC, cervical cancer and friendly corners for key populations and adolescents, and specifically addressed each entry point.

The guidelines recommended complementing facility-based testing with targeted community testing for those with limited access to healthcare.

Part 4

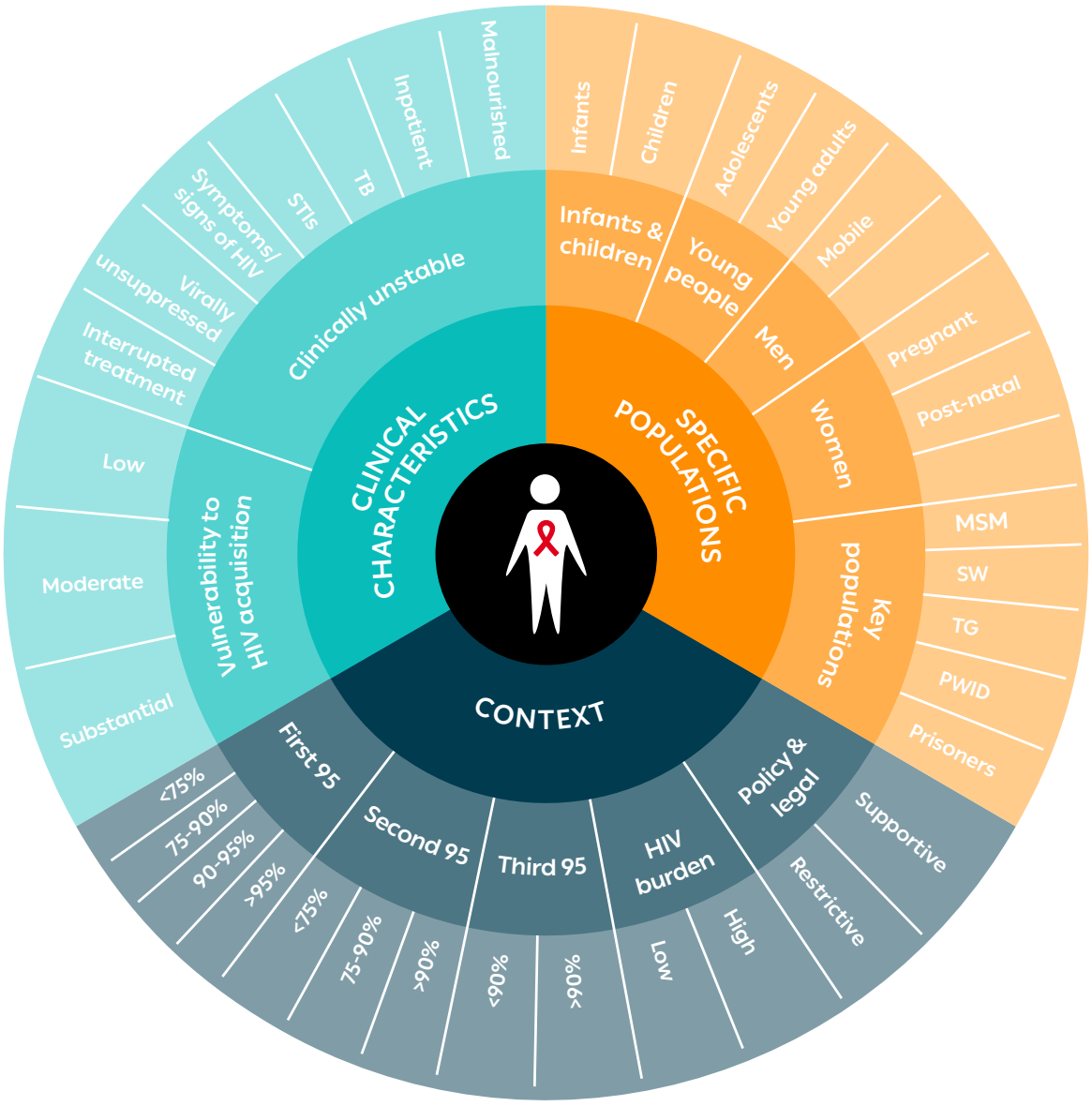
What are the three elements?

The three elements

The three elements provide the starting point for differentiating services (Figure 4). Placement on the three elements wheel has four important functions:

1. Identifying for whom we are differentiating services by their specific population/s and/or their clinical characteristics and/or the context in which they live
2. Determining the purpose of the HTS delivery model/s – for treatment or for prevention and treatment
3. Exploring evidence-based HTS delivery models to meet the needs and preferences of the defined population/s (Step 4)
4. Improving, adapting or building HTS delivery models using building blocks that meet the needs and preferences of the people within the identified population/s (Step 5 – discussed in Part 5)

Figure 4: The three elements for differentiated HIV testing



How to identify for whom we are differentiating HTS (wheel placement)

By intentionally placing the undertested population/s on the element wheel in terms of their specific population/s and/or their clinical characteristics and/or the context in which they live, we define for whom we are differentiating services.

The defining element will usually be identified first, followed by the two remaining elements. The combination of the three elements will enable the development of the HTS delivery model and, ultimately, determine a strategic mix of HTS delivery models. Below, examples are provided for when the defining element is a specific population, a clinical characteristic or the context.

Defining element – specific population

In many contexts close to reaching the first 95 goal overall, the defining element is increasingly a specific population with suboptimal testing coverage. The segments provided in Figure 4 are illustrative and additional segmentation may be needed, for example, mobile men interrupting treatment. Once the specific, undertested population is identified, the specific population's context will be selected. It may be useful but is not always necessary to add any relevant clinical characteristics.

Scenario 1 illustrates what happens when the specific population is the defining element.

Defining element – clinical characteristic

In high HIV-burden contexts close to reaching the first 95 across population groups, HTS delivery models may need to shift towards targeting people substantially vulnerable to HIV acquisition. People with substantial vulnerability will be identified as the defining clinical characteristic, followed by selecting the specific population(s) and their context.

The clinical characteristics in Figure 4 are self-explanatory, with the exception of HIV vulnerability.

How to identify a population substantially vulnerable to HIV acquisition

A population can be identified as at substantially vulnerable to HIV acquisition based on global guidance or a definition from your context-specific HIV epidemiology.

The World Health Organization (WHO) defines a specific population as having "substantial risk" of HIV acquisition if the rate of new acquisitions surpasses three per 100 person-years. WHO recognizes that even within specific populations where the overall incidence rate may be lower, certain individuals or subgroups can still face a "substantial risk". This increased vulnerability can be due to the behaviours or attributes of their sexual partners. Refer to Box 1, which contains WHO's guidance on defining "substantial risk" of HIV acquisition.

Scenario 1: Defining element is a specific population

Situational analysis outcome: High-burden context close to reaching all 95-95-95 goals except in men, with the largest number of men not tested or linked to treatment between 25 and 49 years old

DEFINING ELEMENT

SPECIFIC POPULATION	Men aged 25-49 years not identifying as men who have sex with men

ASSOCIATED ELEMENTS

CONTEXT	**Men**	83-92-93	High HIV burden	Supportive legal and regulatory environment
	Overall	91-95-95		
CLINICAL CHARACTERISTICS	Clinically unstable: Interrupted treatment; virally unsuppressed; signs and symptoms of HIV; inpatient, STI; TB		Moderate vulnerability to HIV acquisition	

Some contexts, especially low overall HIV-burden or high-burden contexts close to reaching their 95-95-95 targets with sufficient resources, may define "substantial risk" at lower incidence level thresholds.

Employing a differentiated approach to HTS delivery requires a public health approach, tailoring HTS delivery models to characteristics prevalent within identified populations. While individuals who are not part of these focus populations may recognize themselves as being vulnerable and should have access to prevention services, the HTS model will not be structured to prioritize identification and active linkage to prevention services.

For illustration, follow Scenario 2 through the remainder of this framework.

Scenario 2: Defining element is a clinical characteristic

Situational analysis outcome: High-burden context close to reaching first 95 goal across populations. More people living with HIV interrupting treatment than newly initiating on ART

DEFINING ELEMENT:

CLINICAL CHARACTERISTICS	Substantial vulnerability to HIV acquisition

ASSOCIATED ELEMENTS

SPECIFIC POPULATIONS	Key populations	STI clients and their partners*	Discordant partners of people on ART with elevated viral loads or previously on ART*	Pregnant and breast-feeding women [16]	Adolescent girls and young women

CONTEXT	**Key populations**	92-80-95	Restrictive legal and regulatory environment	High HIV burden
	Pregnant and breastfeeding women	98-90-89	Supportive legal and regulatory environment	
	Adolescent girls and young women	90-88-85		
	Overall	95-92-90		

* Context data not available for these specific populations

WHO Guidelines [17]

Box 1: WHO note on "substantial risk" of HIV acquisition in 2021 HIV consolidated guidelines

"When this recommendation was initially made in 2016, WHO defined substantial risk of HIV infection provisionally as HIV incidence greater than 3 per 100 person–years in the absence of PrEP. HIV incidence greater than 3 per 100 person–years has been identified among men who have sex with men, transgender women and heterosexual men and women who have sexual partners with undiagnosed or untreated HIV infection. In 2016, it was suggested that implementing PrEP in a population with this level of HIV incidence was considered cost-effective or cost saving, although PrEP may still be cost-effective at lower HIV incidence levels.

However, individual risk varies considerably within populations depending on individual behaviour and the characteristics of sexual partners. In locations with a low overall incidence of HIV infection, there may be individuals at substantial risk who should be offered PrEP services. PrEP programmes should consider local context and heterogeneity in risk.

Individual characteristics and behaviour that could lead to exposure to HIV, rather than population-level HIV incidence, are most important when considering those who might benefit from PrEP. Individuals requesting PrEP should be given priority to be offered PrEP, since requesting PrEP likely indicates there is a risk of acquiring HIV. Cost–effectiveness should not be the only consideration when implementing PrEP programmes, since remaining HIV negative and having control over HIV risk has intangible value to people and communities."

Defining element – context

In settings further behind in reaching their 95-95-95 goals with high HIV-related morbidity and mortality, context may be the defining element. Depending on whether it is a low- or high HIV-burden context, specific populations to target will differ. In low HIV-burden, concentrated epidemics, HTS delivery models are likely needed for key populations, their partners and biological children. In high HIV-burden epidemics, HTS delivery models will need to reach across population groups and may prioritize those who are symptomatic.

For illustration, follow Scenario 3 through the remainder of this framework.

Scenario 3: Defining element is the context

Situational analysis outcome: Low-burden context far from reaching their first or second 95 goals

DEFINING ELEMENT:

CONTEXT	Key populations	65-70-60	High HIV burden	Supportive legal and regulatory environment
	Overall	50-60-55	Low HIV burden	

ASSOCIATED ELEMENTS

SPECIFIC POPULATIONS	Key populations and their partners and children	
CLINICAL CHARACTERISTICS	Clinically unstable: Interrupted treatment; virally unsuppressed; signs and symptoms of HIV; STI; TB; inpatient; malnourished	Substantial vulnerability to HIV acquisition

How to identify for whom we are differentiating for treatment or prevention and treatment

Differentiated HTS for treatment

Where the combination of elements identified selects population characteristics other than at substantial vulnerability to HIV acquisition, differentiated HTS delivery models will prioritize identifying people living with HIV who are unaware of their HIV status, have not linked to care, or have disengaged from care.

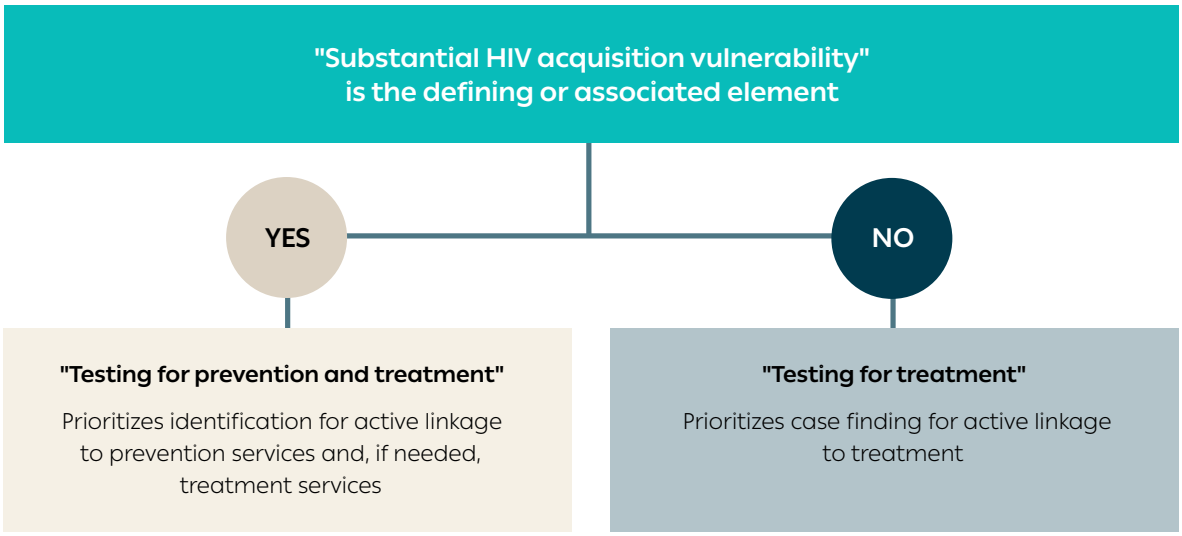
Mobilizing will focus on the advantages of early treatment following a positive HIV test, aiming for an undetectable viral load. The key messages focus on the significant reduction in morbidity and mortality rates and the principle of U=U (undetectable equals untransmittable), which underscores the prevention of transmission to partners, families and social circles.

For HIV testing, pre-test information and post-test counselling will emphasize the critical steps to be taken if results return positive, highlighting the urgency of (re)commencing treatment and providing clear referral paths to ART services. Those using an HIV self-test need confirmatory rapid testing and HTS options. Individuals who test negative are provided with prevention information, with condoms, and briefed on when they should undergo their next HIV test.

Linkage interventions will facilitate reaching ART services timeously and initiating treatment and may extend to facilitating durable linkage (initial clinical management and early retention). Linkage interventions include organization of treatment services (streamlining and co-location), referral systems, interpersonal engagement (peer support, accompaniment, respectful care), case management approaches (follow-up, tracing), and possibly incentives.

All HTS models, including those that prioritize case finding (testing for treatment), will continue to empower clients with prevention information emphasizing the importance of using condoms irrespective of the HIV test result. An ongoing self-managed condom collection plan should be made, with immediate distribution of condoms and lubricant.

Figure 5: When to prioritize mobilizing, testing and linking for prevention and treatment



Differentiated HTS for prevention and treatment

Where substantial vulnerability to HIV acquisition is identified as the defining or an associated element, differentiated HTS delivery models should consider prioritizing people most vulnerable to HIV acquisition for prevention services literacy, offering testing and linkage to prevention and, when necessary, treatment services. This is most appropriate for specific populations in high-burden settings with high testing and treatment coverage and for key population services. WHO has provided guidance on when it may be appropriate to plan HTS to prioritize prevention and treatment (Box 2).

Prioritizing HTS for prevention and treatment critically includes all the considerations for mobilizing, testing and linkage when focused on HTS for treatment as discussed above. In addition, it adds considerations for health system-facilitated linkage to prevention. "Status-neutral" mobilization approaches will focus on an individual's increased vulnerability to HIV acquisition and the importance of testing to access appropriate, prioritized and effective prevention service options.

WHO Guidelines [18]

Box 2: WHO guidance on testing for both prevention and treatment

Contexts to consider implementation: "Testing that focuses on both treatment and prevention is best used in high-burden settings with high testing and ART coverage rates (resulting in significantly declining HIV positivity). This approach may be less applicable in settings with low HIV testing coverage or low HIV burden other than in key populations."

Routine testing services: "WHO recommends annual testing for individuals at substantial ongoing risk in high HIV burden settings. As part of elimination efforts, testing should also be offered during pregnancy in all settings. Focusing on linkage to both treatment and prevention is important. Emphasizing linkage to prevention will not increase testing provision but may require proactive support for a person with HIV-negative results, including assessing HIV risk, providing linkage to appropriate prevention options, and a scale-up of prevention options, notably PrEP."

Focused testing services: "Testing for treatment and prevention would be appropriate in focused testing services for populations with higher HIV risk – such as key population testing services and focus entry points, such as STI services."

Prioritized retesting: "Retesting priority populations for both treatment and prevention is justified because of the opportunity to link people to prevention, contributing to cost-effectiveness by increasing linkage to PEP and PrEP."

For HIV testing, pre-test education and post-test counselling will emphasize the essential steps to be taken if results return negative or positive and provide clear referral paths to prevention and treatment services. For those testing negative, the utility of a risk screening or profiling to identify clients in need of prevention services should be carefully considered. Refer to the box below for more guidance on when to consider using risk screening.

Similar to the importance of active linkage of people testing HIV positive to treatment services, people testing HIV negative will be prioritized for active linkage to appropriate prevention services, specifically PrEP, PEP, NSP-OAT and VMMC, using similar approaches.

From a national perspective, implementing differentiated HTS delivery focusing equally on mobilizing, testing and linkage for prevention and treatment for all populations requires significant resources. Also, it may inadvertently shift the focus from critical case finding and linkage to treatment activities. Such approaches should be applied selectively to specific populations where they can have the highest impact.

Expanding this approach to all populations using risk screening to identify who to actively link to prevention services requires capacity to screen every individual with a negative HIV result, implementing effective linkage interventions to prevention services for a diverse audience, and a commitment to substantially increase the availability of prevention services, particularly PrEP.

In some countries, unmet PrEP targets have prompted decision makers in high HIV-burden areas to offer PrEP to all sexually active individuals who test HIV negative. This strategy, removing risk screening complexity and resource intensiveness (see the box below), may be viable when relying on self-managed linkage rather than health system-supported linkage. However, if health systems aim to actively support clients to link to prevention services, the human resources required – for active referrals, accompaniment and follow-up – should not be underestimated.

While increasing active linkage could lead to more PrEP initiations, it risks deprioritizing linking the most vulnerable people to prevention services. Additionally, it may limit investment in more effective, albeit costlier, options like injectable PrEP, which demonstrate higher continuation rates among those particularly vulnerable to HIV.

Utility of risk screening for individuals with a negative HIV result to guide referral for prevention services

Assessing vulnerability to HIV acquisition before or after a negative test result can be resource intensive and, due to only low to moderate sensitivity, may lead to misclassification [19], potentially excluding vulnerable individuals from accessing prevention services.

Risk screening is unnecessary for key populations, individuals with a partner who is living with HIV and not virally suppressed, people diagnosed with STIs and their partners in high HIV-burden settings, and people self-identifying for prevention services. These groups are generally considered substantially vulnerable to HIV acquisition. Other identifiable population segments, such as adolescent girls attending antenatal or family planning services in high HIV-burden areas, could also be included. This does not preclude an individual self-reporting specific information that would modify their need for linkage to prevention services.

Short, non-invasive, highly sensitive screening tools may be useful for efficiently allocating prevention services, especially in high-incidence populations, like pregnant and breastfeeding women or adolescent girls and young women in areas with high HIV burden. This is particularly important where further population segmentation is not feasible.

Self-screening tools that encourage or nudge individuals to take up prevention services without requiring response disclosure could be an effective alternative. These tools do not have to be digital or written forms; they can be conveyed verbally or via posters or handouts that are returned for reuse. They can be offered before or after testing, and it's helpful if these tools support healthcare worker engagement on next steps.

Importantly, such tools should never be used to exclude individuals from accessing prevention services if they are concerned about HIV and motivated to use these services [19].

Exploring evidence-based HTS delivery models to meet the defined population's needs and preferences

Once the target population, purpose and barriers to HTS access or uptake have been identified, it is necessary to review the evidence on HTS approaches and models that have successfully addressed these gaps but are not currently used in the context. Identifying the key components for mobilizing, testing and linking to these models will be essential to enable appropriate adaptation in Step 5.

A good starting point is the differentiated HTS approaches outlined in WHO's updated 2024 guidelines (Box 3). In contexts where facility-based, community-based and index testing (partners and biological children) are already in place, new WHO-recommended HTS delivery approaches could be considered. These include HIV self-testing for triage at large-volume health facility entry points, social network testing extended beyond key populations, and virtual HTS [20].

Case study 3:

Using HIV self-testing as a test for triage to reach men attending or accompanying others attending health facilities, Malawi [21,22]

In Malawi, despite overall HIV testing coverage exceeding 90%, men have notably lower testing rates. The lower attendance of men at public health facilities is repeatedly highlighted as the reason for their poorer testing coverage. Previous research highlighted that **42% of men and young people had either never been tested for HIV or had not been tested in the past two years despite 80% reporting visiting a health facility in the previous two years.**

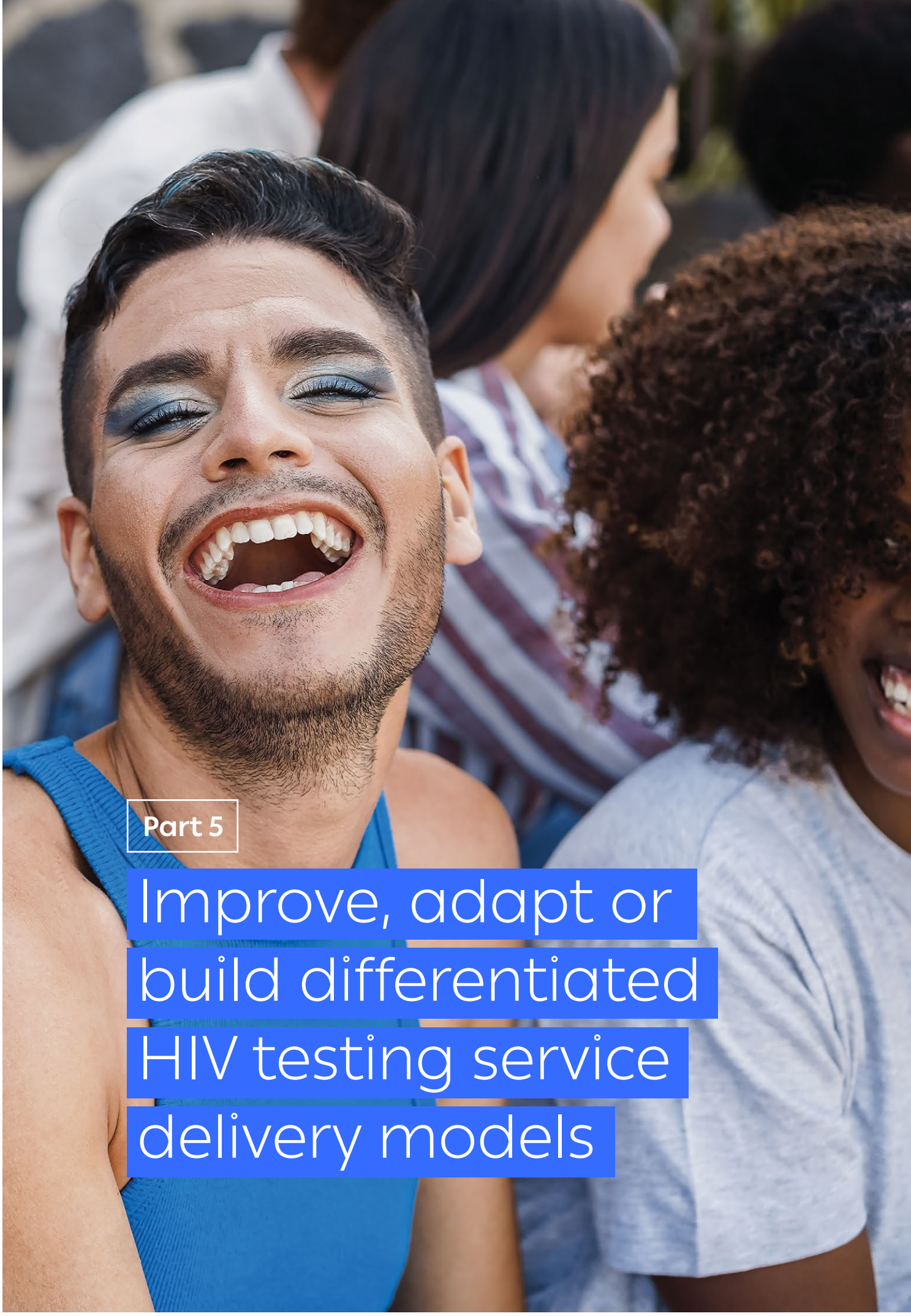
To address this, a randomized controlled trial was conducted to evaluate the effectiveness of standard provider-initiated testing and counselling (PITC), enhanced PITC and HIV self-testing as an initial screening tool in waiting rooms of outpatient departments (test for triage) in improving HTS coverage in men. The study found that offering **HIV self-testing significantly increased the uptake of HIV testing, tripling the number of individuals tested, including three times more men and adolescents.** This approach also reduced the time HTS required from healthcare providers as they only needed to spend time with clients who had a reactive self-test and required confirmatory testing.

WHO Guidelines [18]

Box 3: WHO-highlighted HTS approaches to consider for selected priority populations*

Priority population	Facility-based services	Community-based services	Self-testing	Network-based testing services*
Key populations	Routine in all facilities and testing sites serving key populations; HIVST in facilities	Mobile or outreach testing for key populations in all settings	Offer full range of selftesting options in all settings across HIV, HCV, syphilis	Offer to partners and social contacts of key populations
Men	Routine in high HIV-burden settings; HIVST in facilities Focused in other settings, for example, indicator condition- or risk-based	Workplace testing in high-burden settings	Peer distribution or to male partners by ANC clients in high burden settings	Offer to partners and social contacts of men who have sex with men
Adolescents (10-19 years) and young people (15-24 years)	Routine in high HIV-burden settings; HIVST in facilities Focused in other settings, for example, indicator condition- or risk-based	In high burden areas, offer in settings such as educational institutions or sports festivals	Online distribution via social media in high-burden settings	Offer social network testing to young people
Pregnant and postpartum women	One test routinely in ANC in all settings Retesting: routine in late pregnancy in high HIV burden settings; and for those at ongoing HIV risk, such as pregnant and breastfeeding women from key populations or who have partners from key populations or with HIV	In high-burden settings where women receive community-based postpartum care	Can be considered for retesting during the postpartum period or for women attending contraception/ family planning services in high-burden settings Self-testing for HIV and syphilis could be beneficial in settings with low testing and treatment coverage	Offer to partners and social contacts of pregnant women; and follow-up family and household testing for biological children of women diagnosed with HIV
Infants and children	Routine in high HIV-burden settings In other settings, focus on children with an indicator condition or with a parent with HIV	HIV-exposed children and children with a parent with HIV	Not for children <18 months of age See further information in Web Annex E	Outreach to increase family and household testing including biological children of people with HIV is a priority in all settings

*Partner services should be offered to all people with HIV to reach their sexual and/or drug-injecting partners as well as including the biological children whose HIV status is unknown.



Part 5

Improve, adapt or build differentiated HIV testing service delivery models

Assess whether to improve, adapt or build

After completing the situational analysis and identifying both HTS gaps and client barriers to access and uptake of existing HTS (Part 3), defining populations for enhanced HTS delivery based on the element wheel and exploring the evidence base for effective models (Part 4), we now have a comprehensive understanding to work with. This knowledge enables us to improve, adapt or build differentiated HTS delivery models, drawing from existing HTS delivery models for the specified population, adaptable models already being used for other populations in the same context and innovative models from different contexts.

Making changes to how health systems deliver services requires buy-in, motivation, coordination, training and often, at least in the first phases, financial investment. An important first step is to assess if existing models serving the target population can be improved upon or models serving other populations in the same context adapted to meet the target population's needs before building a new model.

Where a model is already well-understood, implemented and functioning within the health system, it is often easier to make improvements or adaptations to target a different population than to introduce an entirely new model. Enhancing and adapting familiar models may be more straightforward for healthcare workers to implement and could be prioritized as short-term strategies to differentiate HTS. Some models may not have been implemented with fidelity to their original design, particularly the mobilize and link components, highlighting the need for improved implementation quality. In other cases, these components may need to be redesigned to better address barriers to access and uptake for specific population segments.

Case study 4:

Reaching previously indexed partners using a status-neutral mobilization approach for retesting, South Africa [23]

Facility-based index testing registers were reviewed in the Sedibeng health district in Gauteng, South Africa.

Lay providers **identified people who had tested HIV negative** between March 2019 and September 2021.

Most of the people had been tested shortly after their partner was diagnosed and initiated ART but had likely not yet achieved viral suppression. From October 2021 to September 2022, this group was **contacted via telephone and invited back to the health facility for another HIV test.** The outreach was conducted by lay providers using a carefully designed script that adopted a status-neutral mobilization approach to encourage participation. **The script highlighted the availability of PrEP at the health facility, noting that retesting for HIV was the initial step to access PrEP.**

Of the 968 individuals reached by telephone, almost **half (n=462, 48%) returned for retesting**. Among them, a quarter (n=121, **26%) tested positive** (66/275 men and 55/186 women) and were linked to ART. All were newly positive given they had tested negative in the previous 12-24 months. For those who tested negative, 57% (n=194/341) screened eligible for PrEP, with 62% (n=121) accepting the offer. This intervention effectively identified people who recently acquired HIV and is now being expanded to other districts.

Case study 5:

Reaching people who inject drugs and their partners through a mobile community-based needle and syringe programme, Pakistan [24]

HIV testing and treatment coverage in Pakistan remains low, with only 26% of people living with HIV aware of their status and just 17% of those people on ART. Nai Zindagi (NZ), a local non-profit organization, has been working with people who inject drugs in Pakistan since 1989. Supported by the Global Fund, NZ's harm reduction programme operates across 62 districts at over 580 hotspots, serving around 45,000 people who inject drugs annually. Initially, HTS were offered at community-based drop-in centres in major cities. NZ shifted its strategy to better reach people who inject drugs and their spouses.

In 2013, NZ introduced a **mobile outreach programme targeting street-based hotspots frequented by people who inject drugs**, with locations updated regularly based on drug supply and law enforcement activity. **Motorbike outreach workers provide clean needles, syringes and condoms while fostering demand for biannual HIV testing through building trust and rapport.** A total of 20,305 people who inject drugs were tested, 39% of whom were first-time testers. Since February 2024, rapid hepatitis C (HCV) testing has also been available.

To address the vulnerability and needs of the spouses of people who inject drugs, NZ employs a gender-sensitive approach through its Spouses Prevention Program. With the **written consent of people who use drugs, female outreach workers visit spouses at home**, providing a safe environment for counselling, condom distribution, HIV and HCV rapid testing and quarterly nutritional support for eligible families. Spouses diagnosed with HIV are encouraged to test their children, a critical step in a country with low antenatal HIV testing coverage. **Outreach workers offer case management, including support for starting and adhering to treatment at public HIV clinics and accompaniment to public HIV clinics. Spouses testing negative are offered biannual retesting.**

In 2023, NZ reached 6,768 spouses, with 68% receiving HIV testing; 19% (892 individuals) were first-time testers. The positivity rate was 3%, with 162 spouses diagnosed as living with HIV. Pakistan's Ministry of Health has introduced PrEP services for gay men and other men who have sex with men, trans people and sex workers. In the next phase, spouses of people who inject drugs will be prioritized for PrEP access.

Case study 6:

HIV testing and retesting for PrEP or treatment within ante- and postnatal services, South Africa [25]

In 2022, South Africa had an estimated 7.4 million people over the age of 15 years living with HIV and 152,000 new acquisitions a year, including 56,000 among women 15-24 years old and 44,000 among women older than 24. While more than 90% of women and men living with HIV have been tested in the country, **only 80% of women and 68% of men who know they are living with HIV are on treatment**. Treatment coverage among pregnant and breastfeeding women is high at 98%.

South African guidelines provide for frequent retesting throughout the ante- and postnatal period. Nationally, only coverage of the first test is monitored.

In the Western Cape province, eight public sector clinics were supported to provide status-neutral testing. **Women were mobilized at antenatal visits to test or retest with group or individual pre-test education on the importance of taking ART if diagnosed with HIV or PrEP if testing negative with vulnerability to acquiring HIV**. Posters in waiting rooms and pamphlets distributed to pregnant or postnatal women encouraged retesting in accordance with guidelines. ANC and MNCH nurses were trained and mentored to provide PrEP services. Where the offer was accepted, the **trained ANC or MNCH nurse initiated PrEP immediately within the same service**. PrEP maintenance and refills were also provided within the antenatal service. Where PrEP offer was not accepted, it was offered again at the following retest.

Overall, 12% (1,493/12,614) of pregnant women who tested negative in antenatal care started PrEP, with 41% continuing at three months. Among breastfeeding women who tested negative in postnatal care, 14% (179/1,315) initiated PrEP, with 25% continuing at three months.

Question 1: What if an existing HTS delivery model, despite its appropriate focus, underperforms?

In most settings, some differentiation of HTS likely already exists. If there is still a gap in the access, uptake or coverage for a specific population, is the model being implemented as designed? How might this model be further improved? Have all three components of HTS (mobilizing, testing and linking) been fully considered in the model?

In one scenario, a clinic analysed its HIV testing data and was concerned about the low number of couples being tested. Nurses in the antenatal services had noticed poor retention of women from a particular faith. To address this, the clinic organized monthly outreach testing at two churches of the identified faith, which had high attendance in the area. However, after three months, they found that most of those tested were still women, and only 30% of those who testing positive were registered in the district ART database.

Using the building blocks of mobilizing, testing and linking, the clinic realized they had not developed a formal strategy to engage men in the community or provided enough information for linking to treatment. Focus group discussions were then held with church leaders and a representative sample of couples who attended these churches. In the table below, the bold text highlights where additions were made to the core components of mobilizing and linking.

The building blocks, with the improvements in bold

	MOBILIZING	TESTING		LINKING
WHEN	**The Sunday before planned testing**	Sunday mornings, once a month		**Immediately after HIV testing** **Follow up after two weeks, three attempts to call**
WHERE	**In the church**	Outside two churches		**Virtual case management** **Traced by phone or through home visits**
WHO	**The pastor**	Nurse/**client (if HIV self-test preferred)**		**Lay volunteers attached to the clinic providing the outreach testing**
WHAT	**Information about importance of having a general health check, including an HIV test and the availability of preferred testing method** **Encouraging members of the congregation to bring their partners and family members for testing the following Sunday** **Offering and discreetly distributing HIV self-tests to take home for partners to test and encouraging attendance for confirmatory testing the following week**	**HIV testing on-site options: HIV self-test or rapid test** Information about prevention and care services, BP check	Information about prevention, including VMMC and treatment services BP check Condoms	**ART services:** **Identify preferred ART site and refer with an appointment card.** **Follow-up by preferred method: Phone call/ WhatsApp/SMS**

Question 2: Can an existing HTS delivery model be adapted for the defined population or setting?

Where a model has been successfully implemented in a particular setting or for a specific population, consider how it might be adapted for other settings populations with similar needs and preferences.

In one example, to reach sex workers, the HIV clinic at the district hospital partnered with a civil society sex worker organization to identify peers who could identify the best times and locations to mobilize sex workers for HIV testing. They distributed HIV self-test kits and assisted where needed while also providing information on how to access prevention and treatment services in the district. This model, incorporating mobilizing, testing and linking, was highly effective.

Later, the clinic was approached by a group of gay men and men who have sex with men concerned that many men who have sex with men had never had an HIV test due to fear of attending the clinic, and those who had tested were not accessing PrEP services. By simply adapting the "where" and "who" for mobilizing, testing and linking, the clinic team worked with a community-based organization to tailor the model and address barriers to testing and PrEP among this population. In the table below, the bold text highlights where adaptations were made.

The building blocks, with the adaptations in bold

	MOBILIZING	TESTING	LINKING
WHEN	Between 8pm and midnight	Between 8pm and midnight	Traced three times over a three-month period
WHERE	Identified bars in the centre of town for sex workers	Identified bars in the centre of town for sex workers	Selected prevention or ART clinic
	Identified bars in the centre of town for men who have sex with men	**Identified bars in the centre of town for men who have sex with men**	
WHO	Peer sex worker	Peer sex worker distributing self-tests	Peer sex worker
	Peer men who have sex with men	**Peer men who have sex with men distributing self-tests**	**Peer men who have sex with men**
WHAT	Information about HIV testing, prevention and care services Condom and lubricant distribution	HIV testing Condom and lubricant distribution STI screening	**ART services:** **Referral or accompaniment to preferred ART service** **Case management**
			Appropriate, prioritized and effective prevention services: **Referral or accompaniment to preferred PrEP provider including MSM CBO option**

Question 3: When is it appropriate to build a new HIV testing service delivery model?

The aim of changing an HTS delivery model is to address specific gaps or challenges identified for specific populations or healthcare workers in a particular setting. A new model should be considered only if it addresses a clearly identified gap or challenge. If there is a segment of the population that is not being reached by existing services, a new HTS delivery model, incorporating all three components – mobilizing, testing and linking – may be necessary. The next section provides guidance on using the building blocks of DSD to create a new HTS delivery model.

The building blocks

This section introduces the four building blocks and highlights the relevant WHO recommendations supporting their implementation. Real-world examples are provided to illustrate how the building blocks can be applied. We also follow Andrew and Namrata as they address challenges in providing and accessing HTS.

The building blocks form the foundation of any HTS delivery model (see Figure 6):

- **When** are HTS delivered (timing and frequency of mobilizing, testing and linking)?
- **Where** are HTS delivered (location of mobilizing, testing and linking)?
- **Who** provides HTS (the cadres responsible for mobilizing, testing and linking)?
- **What** HTS are provided (the package of services when mobilizing, testing or linking to treatment or to appropriate, prioritized and effective prevention services and treatment)?

Separate building blocks should be described for the three core components of HTS

As outlined in Part 2, designing any HTS model requires consideration of the three core components: mobilizing, testing and linking to ART and/or prevention services. For each component, the building blocks of "when", "where", "who" and "what" must be clearly defined . The examples provided in this section will illustrate how this approach can support the planning and implementation of HTS delivery models.

Each building block may be performed at the same or different times and locations, and by the same or different providers.

In all differentiated HTS models, client needs should be central to the design, guiding service adaptations. District health managers must collaborate with healthcare workers and clients to analyse local challenges and determine the "when," "where," "who," and "what" that effectively address these issues. Behavioural science approaches may be employed to better understand and respond to barriers related to access, uptake and service delivery, considering the needs and preferences of both clients and health workers. Further detail on how to use behavioural science approaches is set out in Annex 5. The decision-making process must balance the goal of improving access to and uptake of HTS with the efficient use of available resources. Part 6 will explore how to determine the strategic mix of HTS delivery models.

We faced challenges in testing men, with many not testing in over three years. To address this, we established a weekly mobile STI service at the large taxi rank from 2 to 7pm. We informed taxi drivers and advertised inside the taxis. While clients waited to see male nurses, we conducted HIV screenings using self-testing kits. As a result, the number of men tested increased significantly. For those who tested HIV positive or chose PrEP, we provided a two-week ART/PrEP starter pack, a referral to their preferred clinic, and verified contact details for follow-up.

Figure 6: The building blocks of HTS delivery models

	MOBILIZING	TESTING		LINKING
WHEN	While waiting at a health facility During a clinical consultation Specific time to reach specific population Following diagnosis of a partner/family member/social network member *Frequency defined by vulnerability to HIV acquisition*	Clinic operating hours, 24 hours/ day in maternity and IPD Same time or at scheduled times following community mobilization Any time for HIVST *Frequency defined by vulnerability to HIV acquisition*		Immediately after HIV testing Follow up over a defined period
WHERE	Online Media Community Health facilities	Health facilities Community Home		Health facilities Community Via phone/online/home
WHO	Healthcare workers Lay cadres Peers Partners/family members/ social network members	Healthcare workers Lay cadres Peers Client/caregiver		Healthcare workers Lay cadres Peers Partners/family members/ social network members
WHAT	Segmented messaging/ information about why and where to test Index contact notification Social network-based recruitment – e.g., targeted voucher to test Concurrent offer of other testing/screening/health service provision Prevention services literacy	**First test:** HIVST (oral or blood) HIV RDT Multiplex	**Related activities:** Pre-test education Post-test counselling Provision of other screening/testing Distribution + plan for ongoing condoms and lubricants collection *Screen-in for appropriate, prioritized and effective prevention options offer**	**ART services** Same-day ART provision Referral Peer support Accompaniment Respectful care Data quality + utilization In person/phone/virtual follow-up Compensation/incentives **Appropriate, prioritized and effective prevention services** Same-day PrEP/PEP/ NSP-OAT/VMMC Referral Peer support Accompaniment Respectful care In person/phone/virtual follow-up Data quality + utilization Compensation/incentives

* This building block could be used when the model is targeting a specific population with substantial overall vulnerability to HIV acquisition but with high numbers of people testing negative and significantly diverse levels of vulnerability. It is not required for key populations, partners of people with unsuppressed viral loads or clients with an STI or their partners in a high HIV-burden setting but may be needed to identify adolescent girls and young women requiring active linkage to PrEP services.

"WHEN" are HIV testing services delivered?

MOBILIZING	TESTING	LINKING
Timing and frequency	Timing and frequency	Timing of linkage activities and timing and frequency of follow-up
While waiting at a health facility During a clinical consultation Specific time to reach specific population Following diagnosis of a partner/family member/social network member *Frequency defined by vulnerability to HIV acquisition*	Clinic operating hours, 24 hours/day in maternity and IPD Same time or at scheduled times following community mobilization Any time for HIVST *Frequency defined by vulnerability to HIV acquisition*	Immediately after HIV testing Follow up over a defined period

Under this building block, the timing and frequency of all three HTS components (mobilizing, testing and linking) must be determined.

Timing

Mobilizing and **HIV testing**: At the facility, in high-burden settings, mobilization for HIV testing should be done at every facility attendance. In addition to mobilization in waiting rooms through verbal and audiovisual HTS offers, healthcare providers should strongly recommend testing during consultations (provider-initiated testing and counselling) to all clients with unknown HIV status and to those who may be sexually active but have not tested in the previous 12 months. Providing on-site HIV self-testing at busy facility entry points while queueing can increase mobilization for testing among attendees and improve retesting efficiency. HIV testing should be available during regular clinic opening hours and should be available 24 hours a day in maternity and IPD services. Extending availability of testing after standard working hours or at weekends may be considered in some sites and in specific clinics where HIV testing should be prioritized, such as emergency departments.

Community-based mobilization and testing should be delivered at a time that is appropriate for the specific population being targeted (for example, for men outside of working hours and for children and adolescents outside of school hours). Utilizing peers who mobilize for testing to also offer the initial rapid HIV test (known as test for triage) can boost uptake. Adopting a peer-led, community-based test-for-triage method, instead of the entire three-test algorithm, requires careful consideration of the potential downsides, such as the need for an extra step to link individuals to confirmatory testing. In situations where regulations or other barriers hinder rapid testing by lay providers or if individuals have a preference for self-testing, the provision of assisted or unassisted HIV self-testing at the time of mobilization should be explored.

Every HIV testing session is an opportunity to mobilize the personal networks of the individual tested. During post-test counselling, testing providers should routinely recommend partner and family network services and method options to individuals who test positive and recruit "social network test promoters" when the individual represents a specific population most vulnerable to HIV acquisition irrespective of their test result. If there is an oversight in seizing this mobilization chance, treatment or prevention services should be adapted to check and rectify.

WHO Guidelines [18]

Box 4: WHO recommendation on facility HIV self-testing as a test for triage

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

- HIVST does not replace provider-administered testing. Individuals with a reactive self-test result should receive further testing from a trained provider using the full national testing algorithm.
- HIVST can replace risk screening tools to optimize testing among those presenting at health facilities.

Frequency

Mobilizing: Integrating HTS promotion into the work of existing community cadres (community health workers or people living with HIV working as volunteers in the community) and working with peers living in a specific community or key populations may allow for more frequent mobilization activities at community level. Mobilization activities aimed at reaching specific populations should be planned and frequency determined according to the likely case finding in relation to resources for transport, staffing and future testing.

Testing: The frequency of HIV retesting should be determined by the individual's ongoing vulnerability to HIV acquisition. Adopting a public health approach involves routine retesting at intervals tailored to the specific population and their context. WHO recommends six- to 12-monthly retesting for key populations and annual testing for other sexually active populations in high-burden settings (Box 6). Importantly, window period testing is not universally recommended, presenting a valuable opportunity to reallocate scarce resources from retesting vast numbers of people six to 12 weeks after their initial test.

Using individual risk assessments in high-burden settings to decide who should or should not be tested has significant disadvantages due to poor sensitivity and specificity, resulting in undiagnosed people living with HIV being excluded from testing. WHO cautions against the use of risk screening tools that aim to exclude individuals from testing ("screen-out") and suggests using risk screening only to nudge towards taking up testing ("screen-in") among specific populations who might otherwise not consider themselves to be vulnerable.

It is more useful in low-burden contexts that do not provide routine testing. Validated screen-in tools have been effectively used for children in immunization services. This does not preclude reminding a person that annual testing is sufficient unless there has been a specific recent exposure of concern. Screen-out risk assessments can be replaced by on-site HIV self-testing.

Linkage: Standard operating procedures (SOPs) for linkage to ART and, when appropriate, prevention services should be developed for both facility-based and community-based testing. These should specify the timeframe for successful linkage to these services, including how soon after testing follow-up and tracing efforts should begin, and the frequency and types of follow-up actions within a predetermined period. Annex 6 outlines a sample SOP for linkage to ART services. In situations where case management strategies are utilized, individuals should be assigned to a case manager, either during the HIV testing session or within a predetermined timeframe if the individual has not followed through with the referral.

WHO Guidelines [18]

Box 5: WHO guidance on "screening in" tools or questionnaires

Screening in

"Some evidence suggests the utility of tools or questionnaires that prompt providers to offer testing to individuals with HIV-related risk factors when they would otherwise not be offered HIV testing [26]. This is particularly useful for low HIV burden settings and in populations at low risk who are not routinely tested, as the screening tools increased HTS coverage [27]."

Screening out

"Caution should be exercised with the use of tools to screen people out of testing in settings where it is routinely offered. There is a risk of missing diagnoses, and there is less evidence of the effectiveness of screening-out tools [26]. Recent analyses also suggest that screening tools do not create long-term savings or efficiencies. Programmes considering the use of such tools need to consider their use carefully, as they may include questions that are personal or sensitive which may deter some people from testing due to confidentiality concerns. Further, these tools may mistakenly screen out some people at high ongoing risk who need testing [28]."

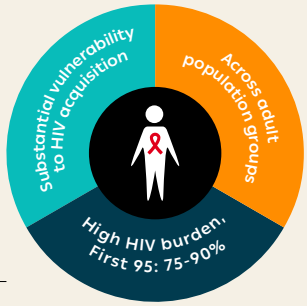
WHO Guidelines [18]

Box 6: Retesting populations, conditions and intervals

Population or condition	Retesting interval	Comments
Key populations	Every 6-12 months	Testing at least annually is recommended. Costing analysis shows possible benefit of more frequent testing.
Individuals with STIs, TB or viral hepatitis	Upon diagnosis or presentation	HIV testing should be conducted for anyone presenting with these infections, regardless of previous testing
Pregnancy: initial test	At first ANC visit	Initial testing in pregnancy recommended for all pregnant women in all settings.
Pregnancy: retesting	Low-burden settings: not recommended High burden settings: in 3rd trimester	In low-burden settings, third trimester testing should be conducted for members of key populations and those with a partner living with HIV. In high-burden settings, third trimester retesting should be conducted for all pregnant women.
Postpartum	Once between three and nine months postpartum	Suggested for those with ongoing risk, recommended for members of key populations.
Sexually active individuals in high-burden settings	Annually, depending on risk	Risk should be assessed and a retesting interval should be agreed on with the client.
Individuals with sexual partners known to be living with HIV and not virally suppressed on ART	Annually	Risk should be assessed and a retesting interval should be agreed on with the client.
Individuals with symptoms indicative of HIV	Upon presentation	For individuals suspected of having acute HIV, retesting may be necessary. Indicator conditions-guided testing is one option to consider.
Individuals with recent HIV exposure	Upon presentation	For individuals taking PEP, retesting is part of standard procedures. For individuals suspected of having acute HIV, retesting may be necessary.
Individuals who use PrEP	Every 2-3 months depending on type (injectable or oral)	Self-testing can be used for retesting for oral PrEP and the dapivirine vaginal ring.
People previously tested and know they have HIV but not taking ART	Upon presentation	Retesting is an important window to welcome people with HIV back to care.
Verification of HIV diagnosis	Before ART initiation	One-time verification testing prior to initiating ART is recommended.

Example 1:

Facility-recruited social network approach to reach most vulnerable individuals, Uganda [29]



Overview

In 2022, Uganda had an estimated 1.4 million people over the age of 15 years living with HIV and 46,000 new acquisitions a year. An estimated 81% of people living with HIV had been diagnosed (84% of women and 76% of men) [30,31]. **Uganda identified that community-based testing was not sufficiently focused on individuals most vulnerable to acquiring HIV, resulting in limited case finding**.

To increase HIV testing among more vulnerable adult populations, including hidden members of key populations, people who remained untested and people not successfully linked to treatment or previously on ART and disengaged, **Uganda built a social network testing model. The model mobilized within health facilities to improve index partner contact elicitation and identify social networks with higher HIV vulnerability beyond sexual partners and biological children**. Pre-test education was given in waiting rooms and at facility service entry points on the importance of testing and supporting social network members – friends, acquaintances, partners and relatives – to test if the client was living with HIV or vulnerable to HIV acquisition.

Facility attendees previously tested or willing to test and disclose their social networks were then seen by healthcare or lay providers, and recruited as mobilizers. Contact elicitation was done during post-test counselling. Each recruited mobilizer named their social contacts and the reason they considered the person to be vulnerable to HIV acquisition. **The mobilizer was briefed on how to recruit their named social network members, and together with the healthcare provider, developed an appropriate notification plan for each social contact** (including timing and method of notification). This social network-based model was implemented nationally across facilities. See further detail in the SOP and training tools in the online available tools.

Uganda implemented the approach, with support from PEPFAR's implementing partners, in high HIV-burden districts in 2021 and monitored outcomes nationally. After 12 months of implementation, 124,514 social network contacts were tested, 48% in facilities and 52% in communities. More than 6,000 (n=6,457) people were diagnosed with HIV (5% overall, 5.4 % in facilities and 8.6% in communities), contributing significantly to case finding and improving upon the previous community-based HTS positivity rate of 2.1%.

The building blocks of facility recruited social network-based HTS, Uganda

	MOBILIZING	TESTING	LINKING
WHEN	Daily as part of pre-test education Once-off recruitment as a social network mobilizer	**Timing:** At time preferred by social network contact **Frequency:** Dependent on specific population	Active follow up for 14-day period
WHERE	Recruited in ART services waiting room and other facility entry point waiting rooms when providing pre-test education with network elicitation as part of individual post-test counselling	Choice between facility (mobilizer escorts contact to the facility) or in community (at home, community venue or workplace with the testing provider going to preferred community location or the mobilizer providing an HIVST kit)	Facility, community in person or by phone
WHO	Lay provider or healthcare worker supported by social network HTS champion (could be existing index testing focal point)	Lay providers or healthcare workers at facilities or in community Client (if HIV self-test)	Healthcare providers Lay providers (for example, linkage and referral assistants, case managers or peers)
WHAT	Education on importance of testing social network contacts with higher vulnerability to support treatment initiation and reduce community transmission Social network elicitation, reason for considering at risk, briefing the recruiter, jointly identifying timing of notification and preferred notification method	**First test:** Rapid test or HIV self-test (assisted or unassisted) **Related activities:** Pre-test education, including explaining both network-based approaches and risk profiling to identify need for active linkage to prevention services Post-test counselling, including prevention education *Irrespective of result,* recruitment as a social mobilizer (restart mobilization of a new social network) Condoms **+ if diagnosed with HIV:** index testing recommended and if accepted, contact elicitation conducted	**Treatment services:** If testing at facility, same day ART initiation (or within 7 days) If testing in community, community ART initiation or appointment scheduling, phone/home visit follow-up until initiated on ART Offer of accompaniment to health facility **Appropriate, prioritized and effective prevention services:** *For clients with risk profile indicating need for prevention services* If testing at facility: same-day PEP or PrEP initiation (or within 7 days) If testing in community: same-day community PEP or PrEP initiation or appointment scheduling at preferred facility with phone/home visit follow-up Key population individuals provided with key population-friendly facility and community service options, including those offering harm reduction services if needed Men are referred to VMMC services with appointment booking

"WHERE" are HIV testing services delivered?

MOBILIZING	TESTING	LINKING
Location of mobilization activities	Location of HIV testing	Location of linkage activities
Online Media Community Health facilities	Health facilities Community Home	Health facilities Community Via phone/online/home

Under this building block, the optimal location of HTS (mobilizing, testing and linking) must be determined.

Decentralization of HTS to primary care clinics and further to the community has been recommended to enhance uptake. Increasingly, provision of HTS through virtual community spaces is also employed. Decentralization is appropriate in all high-burden settings and may be appropriate in low-burden settings, but the choice of location depends on service accessibility, cost effectiveness and community preferences.

Integrating HTS across different healthcare levels can address different barriers faced by clients. People concerned about the time and costs of travel might prefer local testing sites, whereas those worried about stigma may choose more centralized sites, away from their community. For example, in low-burden settings, prioritizing testing of key population decentralization beyond higher-level healthcare facilities to general primary care services (excluding antenatal care) would be resource intensive and less effective than providing testing at community fixed sites; and mobile outreach to congregant settings would be more likely to reach those targeted.

Facility-based HTS are less costly and already identify individuals who may be symptomatic or seeking prevention services associated with increased vulnerability to HIV acquisition. For example, utilization of family planning or antenatal services can be a marker for sexual activity that may not consistently involve condom use, highlighting a potential increased vulnerability to HIV. The development of an HTS strategic mix, including the improvement and adaptation of existing delivery models, should prioritize facility-based HTS as the starting point.

Community-based and, where appropriate, virtual HTS should be considered as supplementary strategies to extend reach, especially in instances where facility-based testing provides significant access and uptake barriers for the target population, often due to the population's limited engagement with health facilities. Utilizing network-based testing (index testing and social network-based) can significantly enhance the efficacy of facility-based testing efforts. In high-burden settings, reducing facility-based testing limits the identification of contacts to mobilize for testing either at the facility or in the community.

HTS delivery at health facilities

Mobilizing and testing may be integrated into the client flow within a specific clinic (OPD, TB, STI, family planning or IPD), which is more appropriate in high-burden settings, or clients may be referred to stand-alone HTS. The selection of entry points for mobilization and testing may vary according to HIV burden. Box 7 outlines the WHO recommendation for the selection of entry points based on the type of epidemic.

HIV testing in antenatal care services in all settings is recommended and, bundled with index testing services, can increase case finding, including among hidden key populations harder to target through focused community-based testing. However, setting up comprehensive HTS within all antenatal settings in low-burden contexts may be unfeasible. Instead, antenatal services could adopt test for triage with robust referral systems to higher-level health facilities for completing diagnosis processes and undertaking index testing (partners and children).

For HIV self-testing, kits may be distributed at the facility for tests to be performed at the facility or taken home from the facility for self-use or to test younger children (caregiver HIV self-testing)* or to give to partners, older children or social-network contacts (secondary distribution).

Clients should be provided with the opportunity to choose their preferred ART or prevention service site. This may not be the same as the testing site. Clients tested at central facilities during an inpatient admission or when attending for another OPD service should be given the option to be referred to a decentralized site closer to home, when available. In high-burden settings, integration of the prioritized prevention service for a specific population into the most commonly attended facility service can increase uptake. An example is PrEP integration into family planning services.

* WHO 2024 HIV testing guidelines do not recommend for or against caregiver HIV self-testing due to insufficient evidence at the time. Some countries' HTS policies endorse caregiver HIVST; an example is Uganda.

WHO Guidelines [18]

Box 7: WHO recommendations on HTS

"**In high HIV burden settings**, routine HIV testing should be offered to all clients (adults, adolescents and children) in all clinical settings."

"**In low HIV burden settings**, HIV testing should be offered in clinical settings to clients who present with symptoms or medical conditions that could indicate HIV infection including presumed and confirmed TB cases."

"**In all settings**, routine HIV testing should be considered for STI, viral hepatitis, TB, ANC, malnutrition clinics and other health services for key populations."

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

HIV testing services outside of health facilities

Mobilizing and HIV testing outside health facilities may take place at:

- Non-health facilities
- Institutions targeting specific populations (schools, workplaces, prisons and military)
- Community fixed premises (for example, key population drop-in centres)
- Community locations or gathering points targeting specific populations (youth centres for adolescents, bars or clubs for sex workers, taxi ranks for men)
- Clients' homes (community-based index or social network-based testing)
- Virtual spaces (with HIV testing at a preferred location, including HIV self-test kits being delivered to the home for self-testing)

The mix of HTS locations must be strategically chosen in the decision-making process and will be determined by:

- The HIV prevalence in the general population and in specific populations
- HIV testing coverage data for general and specific populations
- ART coverage data for general and specific populations
- Demographic and behavioural characteristics of populations unaware of their HIV status or not linked to treatment
- HTS performance metrics (such as the number of people who tested positive, testing positivity rate, cost per positive test, and linkage to prevention of people most vulnerable to HIV acquisition)

Linking from community to health facility sites providing treatment or prevention services can be challenging, requiring referral to another location with potential access barriers.

Peer navigation, accompaniment and respectful care on arrival can support successful linkage. Integrating treatment and prevention services into community-based sites can increase uptake, especially for prevention services.

Providing sufficient community-based HTS in all communities that need these services is often not feasible. Virtual HTS can serve as an important complement, extending access where in-person services are limited. Additionally, because clients are already engaged through virtual platforms, there is a valuable opportunity for active follow-up to support successful linkage to care.

WHO Guidelines [18]

Box 8: WHO recommendations on community-based HIV testing services

In high-burden settings, "WHO recommends community-based HIV testing services, with linkage to prevention, care and treatment services, particularly for key populations, in addition to routinely offering facility-based testing (strong recommendation, low-certainty evidence)."

In low-burden settings, "WHO recommends community-based HIV testing services, with linkage to prevention, care and treatment, for key populations in addition to facility-based testing (strong recommendation, low-certainty evidence)."

Community-based ART initiation and maintenance in high-burden settings works for populations that avoid health facilities or for whom facilities are difficult to reach (rural populations). ART initiation is commonly done by mobile outreach with maintenance through less-intensive differentiated ART delivery community-based models.

Initiating and maintaining people on PrEP in the community through telehealth and drop-in centres is showing increased uptake among key populations. Out-of-facility PrEP management has been made easier by WHO's endorsement of HIV self-testing for both starting and continuing PrEP (see Box 9). Clients can now self-test at home, begin PrEP via telehealth, and receive longer refills, using self-testing between clinical reviews.

WHO Guidelines [18]

Box 9: WHO recommendation on HIV self-testing to support PrEP

"**HIVST may be used to deliver pre-exposure prophylaxis, including for initiation, re-initiation and continuation** (conditional recommendation, low-certainty evidence)."

Case study 7:

HTS integration into stand-alone STI services and outpatient department STI services, Côte d'Ivoire [32]

In 2023, Côte d'Ivoire had an HIV prevalence of 4.1% with an estimated 140,000 people living with HIV [33,34]. Similar to other West African countries, it has adopted the WHO guidelines to routinely conduct HIV testing for clients diagnosed with an STI. However, **HIV testing rates remain low in facility-based STI services**. STI services are offered in dedicated or stand-alone clinics and integrated in general outpatient services.

To identify obstacles to providing HIV testing to all clients diagnosed with an STI and their partners, the client flow and organizational structure of both types of services were analysed. Findings indicated that it was more feasible to integrate HIV testing in dedicated STI services. Systematic modifications to client flow, enabling the provision of HIV testing to all STI clients were implemented. In waiting areas, videos introducing HIV self-testing were broadcast. HIVST kits were distributed in STI services both for clients and for secondary distribution to their partners. This enhanced HIV testing coverage.

Integrating HIV testing into outpatient STI management was more challenging, necessitating assistance in modifying client flow and organization to achieve desired testing rates. **Training on and implementing routine opt-out HIV testing for all STI clients, task shifting in these high-demand settings, utilizing HIV self-testing as a triage tool, and distributing HIV self-tests for secondary distribution to partners can promote increased HIV testing, thereby facilitating greater testing coverage among STI service attendees**.

Case study 8:

Targeted HIV self-testing to reach children and adolescents, Nigeria [35]

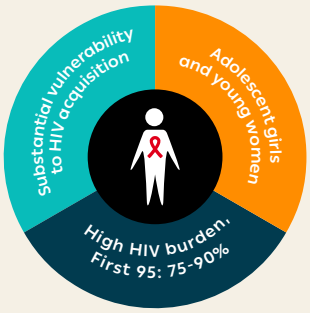
In 2023, approximately 171,000 children and 72,000 adolescents in Nigeria were living with HIV, yet only 32% of children were receiving treatment. To address this, **HIV self-test kits were prioritized for child and adolescent contacts of people living with HIV, while non-index or social network contacts were screened through assessments.** Children aged two to four years received caregiver-assisted self-testing, while adolescents could choose between assisted and unassisted self-testing.

A total of 43,246 testing kits were used for children, with 60% of tests conducted in the community and 77% being first-time testers. Among the children tested, 487 (1.2%) tested positive, and 416 (97.4%) were linked to treatment. **Facility-based testing was three times as likely to identify children living with HIV than community-based testing.**

For adolescents, 34,092 kits were used, with 82% of tests conducted in the community, and 63% being unassisted. Of the adolescents testing, 73% were first-time testers, and 1,809 (5.4%) tested positive. **Unassisted testing was 2.6% more effective in identifying adolescents living with HIV.** Of those who tested positive, 1,744 (98.9%) were successfully linked to care.

Example 2:

Testing and retesting coverage in facility-based family planning services, Zimbabwe [18,36,37]



Overview

In 2020, Zimbabwe had an estimated 1.2 million people over the age of 15 years living with HIV and 31,000 new acquisitions a year, with 13,000 of these among 15–24 year olds. It was estimated that 87% of people living with HIV had been diagnosed (88% of women and 84% of men). Among adolescents and young people aged 15-24, 75% knew their status. Furthermore, 34% of 15-19 year olds and 62% of 20- to 24-year-old women self-reported having been tested in the previous 12 months [38].

In a concerted effort to reduce unnecessary retesting, the number of HIV tests provided decreased in 2018 and 2019 while positivity remained at 5-6%. This resulted in a reduction in the number of people, including adolescent girls and young women, diagnosed and linked to treatment.

To achieve the first 95 target and improve case finding and prevention efforts among adolescent girls and young women, facility-based testing needed to increase.

To reach adolescent girls and young women, plans were made to increase testing in family planning services through the routine offer (PITC) of HIV testing. In 2020, Zimbabwe formed a multi-agency team to **fully integrate HTS and STI services into family planning services. Women were offered HIV testing annually with the option to rapid test on site or take an HIV self-test home. STI screening and treatment was done at every family planning visit.** Initially, those testing positive were referred for ART but later, ART services were also integrated into family planning. Those testing HIV negative were screened for PrEP eligibility with PrEP initiation in family planning services.

The building blocks of facility-based family planning HTS, Zimbabwe

	MOBILIZING	TESTING		LINKING
WHEN	While attending family-planning services for contraception – in waiting room and clinical consultations	**Timing:** At family planning consultation or at home (HIVST) **Frequency:** Recommended annually		Immediate linkage by providing ART and PrEP services within family planning services
WHERE	Facility-based family planning services	Facility-based family planning services or at home (HIVST)		Facility-based family planning services
WHO	Lay providers and family planning nurses	Lay providers and client if HIVST		Family planning service lay providers and nurses
WHAT	Waiting room talks, including on the importance of testing for treatment and for PrEP for ongoing biomedical prevention	**First test:** Rapid test or HIVST	**Related activities:** Group pre-test education, including PrEP availability for prevention of HIV acquisition Post-test counselling, including prevention education Condoms **+ if diagnosed with HIV:** index testing recommended and if accepted, contact elicitation – partners and children (provider-assisted or enhanced passive method with HIVST to take home) **+ if testing HIV negative:** provider-administered risk assessment to establish eligibility for PrEP	**Treatment services:** Same-day ART initiation within family services by the family planning service provider **Appropriate, prioritized and effective prevention services:** *for women assessed as eligible* Same-day PrEP initiation within family services by the family planning service provider

Initial pilot data from the family planning services in four large clinics showed an increase in HIV testing coverage from 0.5% of attendees to 36% (most women seen quarterly). Approximately 21% (1453/6680) chose HIV self-testing and 8% (557/6680) of attendees took HIV test kits for their partners. Overall, 6.7% women tested positive for HIV and were linked to ART. Approximately one-third of women testing HIV negative were assessed as eligible for PrEP and offered PrEP services.

"WHO" delivers HIV testing services?

MOBILIZING	TESTING	LINKING
Who does the mobilization?	Who does the HIV testing?	Who supports the linkage activities?
Healthcare workers Lay cadres Peers Partners/family members/social network members	Healthcare workers Lay cadres Peers Clients/caregivers	Healthcare workers Lay cadres Peers Partners/family members/social network members

Under this building block, the provider for each component of HTS (mobilizing, testing and linking) must be determined.

Importance of task sharing

The rational redistribution of tasks between cadres, including lay providers and clients, has been a fundamental principle that has supported the scale up of HIV programmes, including HTS. In each HTS delivery model, it is important to define who performs the mobilizing, testing and linking activities. To enable task sharing of HTS, a review of regulatory frameworks in the country is required and, in some settings, policy barriers related to task sharing remain a key obstacle to the scale up of HTS.

Lay providers can be trained to perform HIV testing, but ongoing mentorship and quality assurance must be carried out at facilities and in the community. Community health workers or lay providers may also be trained to perform a single test for triage or assist with HIV self-testing to screen clients prior to referral for performance of the complete algorithm by a trained counsellor or healthcare worker.

In linkage activities, there should also be a clear definition of who is responsible for each step of a linkage SOP. In high-burden settings, the linkage responsibilities should be defined for those working in HTS and those working in the prevention or treatment services. For example, within a facility, ideally, the person performing the test will escort the client from HTS to the ART service when testing positive. In low-burden settings, when test for triage is used, who is responsible for facilitating linkage to the client-preferred confirmatory testing location? For example, in community-based HTS, it may be appropriate to assign responsibility to peer lay providers providing the first rapid test. In antenatal or TB services, responsibility may lie with a designated staff member at the ART service through an electronic notification system.

The role of peers

The role of peers in all three components of an HTS delivery model has been shown to enhance the uptake of testing in specific populations (adolescents, men and key populations) and has been recommended by WHO in supporting clients to link to care. Peers will need specific training, but their ability to access certain communities may overcome barriers related to stigma and build strengthened links between the specific population and the health system.

WHO Guidelines [18]

Box 10: WHO recommendations on lay providers

"Lay providers who are trained and supervised can independently conduct safe and effective HIV testing using rapid diagnostic tests (strong recommendation, moderate- certainty evidence)."

Remember Namrata?

Namrata has been trained to distribute HIV self-tests and, where her peers prefer, to directly assist self-testing. After the self-test is performed, she encourages her fellow sex workers to attend the clinic to access either treatment or prevention services and, when needed, makes arrangements to go with them.

Remember John?

His employer is planning a week where all employees can book a medical check-up at headquarters. The check-up will not just be for HIV; he can also get his blood pressure checked and have a sexual health screen. It seems much more worthwhile to get tested for a few different things at the same time, and he does not have to take any time off work.

The role of the client

Clients are increasingly empowered to actively engage in all components of HTS, promoting greater self-care. This is crucial as testing coverage gaps close and sustainable HTS systems are developed to maintain progress. Digital tools now allow clients to assess their need for (re)testing, access HIV self-testing through home delivery, private vendors or health facilities, and choose preferred biomedical prevention options, such as specific PrEP products. Offering diverse testing options is key to reaching those in need. HIV self-testing broadens client choice, enabling people to receive assistance from healthcare workers, community cadres or trained peers, or to conduct self-testing independently at a location of their choice.

The role of healthcare workers

Task sharing plays a crucial role in mobilizing and testing, but does not relieve healthcare workers of the responsibility of following up on HIV testing during clinical consultations. In many clinical environments, especially those with a low HIV burden, lay providers are not available. In high-burden settings, there may not be enough lay providers or facility-based HIV self-testing to meet the demand for HIV testing. Differentiated HTS delivery recognizes differing individual needs and preferences. Some clients may be more inclined to follow through with testing if recommended by their clinician.

Case study 9:

Integrated screening package demand creation by peers in prisons, India [39,40]

India has a concentrated HIV epidemic with a prevalence of 0.2% (2022) in the general adult population and 1.9% among inmates in central jails. In 2022, Plan India, under the guidance of the National AIDS Control Programme, prioritized **implementing integrated HTS, STI, hepatitis B and C screening** in 357 prisons and 223 other closed settings across 13 Indian states. This was done through **monthly health camps for inmates and integrating screening into the existing health screening package upon entry for convicts and inmates under trial.**

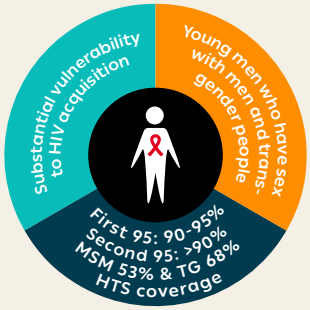
Prison inmates who tested HIV negative and are not released from prison are **retested every six months**. Prison staff were sensitized, prison-based healthcare providers upskilled and **selected inmates trained as peer volunteers to further mobilize fellow inmates for HTS, provide basic HIV information and follow-up on treatment adherence.** Any inmate who tested positive was accompanied to a district hospital with a designated ART centre to initiate ART. Thereafter, prison-based healthcare workers coordinated with ART centres to collect and distribute ART refills within prisons. Adherence was supported by prison inmate peer volunteers.

From August 2022 to March 2024, 63% (490,600/782,468) of inmates were tested for HIV, 1,927 (0.4% positivity) were newly diagnosed with HIV and an additional 720 previously diagnosed people were identified. Of those newly diagnosed, 83% (n=1,601) initiated ART. A high proportion (~80%) of those newly diagnosed were inmates with a history of injecting drug use, highlighting the importance of HIV testing in prisons to complement mobile community-based HTS outreach to people who inject drugs. The integrated screening approach also diagnosed 66 people as having active TB (388,002 screened), 224 with STIs (60,775 screened) and 1,163 with hepatitis C (114,870 screened). More than 6,000 prison peer volunteers were trained to continue mobilization, HIV education and treatment adherence support.

At treatment initiation, inmates were registered at their closest ART centre, supporting treatment continuity after discharge. Those residing in areas further away were supported to transfer their registration to an ART centre closer to home. For further case study details, see here.

Example 3:

Online demand creation with linkage to virtual peer outreach workers providing testing choices for younger members of key populations, Thailand [41,42]



Overview

In 2023, Thailand had an estimated 560,000 people living with HIV and 9,200 new acquisitions annually, with an HIV prevalence of 1.1%. An estimated 90% of people living with HIV had been diagnosed. Gay men and other men who have sex with men and trans people had a higher HIV prevalence than the general population, estimated at 11%, with suboptimal testing coverage of 52.8% and 68.4%, respectively [33].

To increase HIV testing among members of key populations, particularly younger gay men, men who have sex with men and trans people, Thailand expanded virtual HTS across seven provinces with support from Service Workers in Group Foundation and FHI 360's EpiC project. **Key population-led health service organizations promoted HIV and STI services using online platforms. Clients could book appointments at preferred testing sites or request HIV self-test kits through the TestMeKnow website, with kits delivered to the client's preferred location.** Key population peer outreach workers (ORWs) followed up with clients to support appointment attendance, confirmatory testing and linkage to treatment or PrEP services.

From October 2022 to September 2023, 2,230 HIV self-test kits were distributed, with 83% utilized. Of these, 102 people tested positive for HIV (6%). Approximately 40% of the HIV self-test kits were distributed to young people (ages 15-24 years). Virtual post-test follow-up ensured that 93% of those diagnosed started ART. While the HIV positivity rate from self-testing was high (6%), the absolute number of newly identified people was small compared with routine HIV testing at key population-led clinics and mobile HTS points (866/40217 (2%)). **Virtual HTS complemented community-based key services for key populations.**

The building blocks of online HTS demand creation, Thailand

	MOBILIZING	TESTING		LINKING
WHEN	24 hrs a day with linkage to peer outreach worker from 10:00 to 20:00 each day	**Key-population-led clinics:** Operating from 11:00 to 18:00 **Mobile HTS points:** Scheduled monthly **HIV self-testing:** Client's preferred time		Follow-up within 3 days of HIVST kit delivery Regular follow-up for 7 days until linkage to confirmatory HIV testing, ART or PrEP initiation confirmed by client
WHERE	Through social media (Facebook, X, TikTok) and dating applications (Blue D, Hornet)	Choice between key population-led clinic, mobile HTS point, designated public sector hospital or health centre or in community or home delivery (HIV self-test)		Virtual follow-up through LINE messaging application
WHO	Key population peer ORW	Key population peer ORW at key population-led clinic, mobile HTS point, healthcare provider at hospital or health centres Client (if HIV self-test)		Key population peer ORW
WHAT	Messaging on the importance of testing for HIV, including for treatment and PrEP and screening for STIs Virtual demand creation sites provided: (a) a direct test link/ QR code for booking appointments at a choice of key population-led clinics, mobile HTS points or public sector hospitals or health centres; and (b) token and link to "www.Testmenow" to initiate the testing process, including delivery of HIV self-tests	**First test:** Rapid test or HIV self-test assisted or unassisted	**Related activities:** Virtual follow-up on HIV self-test utilization Virtual post-test counselling irrespective of whether result disclosed or not, including prevention education	**Treatment services:** *If testing at key population-led clinic or public health facility:* same-day ART initiation if client is ready *If testing at mobile HTS point:* referral to preferred ART initiation site (key population-led clinic or nearest public sector hospital with ART services) *If self-testing:* virtual follow-up until confirmatory testing undertaken Where client wants to initiate ART at a hospital, offer accompaniment Travel reimbursement **Appropriate, prioritized and effective prevention services:** *If testing at key population-led clinic or public health facility:* same-day PEP or PrEP initiation *If testing at mobile HTS point:* referral to preferred PrEP initiation site (key population-led clinic or nearest public sector hospital with ART services)

"WHAT" services are delivered?

MOBILIZING	TESTING		LINKING
The mobilization approach(es) used	The package of services:		The interventions to link to ART services
	The HIV test	and related activities	The interventions to link to appropriate, prioritized and effective prevention services
Segmented messaging/ information about why and where to test Index contact notification Social network-based recruitment – e.g., targeted voucher to test Concurrent offer of other testing/screening/health service provision Prevention services literacy	**First test:** HIVST (oral or blood) HIV RDT Multiplex	**Related activities:** Pre-test education Post-test counselling Provision of other screening/testing Distribution + plan for ongoing condoms and lubricants collection *Screen-in for appropriate, prioritized and effective prevention options offer**	**ART services** Same-day ART provision Referral Peer support Accompaniment Respectful care Data quality + utilization In person/phone/virtual follow-up Compensation/incentives **Appropriate, prioritized and effective prevention services:** Same-day PrEP/PEP/ NSP-OAT/VMMC Referral Peer support Accompaniment Respectful care In person/phone/virtual follow-up Data quality + utilization Compensation/incentives

* This building block could be used when the model is targeting a specific population with substantial overall vulnerability to HIV acquisition but with high numbers of people testing negative and significantly diverse levels of vulnerability. It is not required for key populations, partners of people with unsuppressed viral loads or clients with an STI or their partners in a high HIV-burden setting but may be needed to identify adolescent girls and young women requiring active linkage to PrEP services.

Under this building block, the package of services provided for each component of HTS (mobilizing, testing and linking) must be determined. Importantly, additional package components for people mobilized, tested or linked for the provision of prevention services, should be considered.

Mobilizing: The package for mobilizing has two important considerations: the particular HTS approach that is being used (facility-based, community-based or network-based); and the focus of message content, whether aimed at encouraging testing primarily to access treatment or prevention services.

Package associated with particular HTS approach utilized

Increasingly, mobilization approaches will require engagement with a client to obtain consent and access to their network – partners, biological children or wider social networks. To facilitate implementation, it is necessary to develop standard operating procedures. These procedures should outline both preferred and alternative methods for execution, along with the support tools involved, such as vouchers, HIV self-testing kits and possibly, incentives.

Message content

While all mobilization messaging should cover the "why" and "where" to test, the nuance of this messaging requires careful consideration as HTS becomes more focused on specific populations and missed segments within those specific populations that are not taking up testing. Previous message framing has been unsuccessful and would benefit from co-development with the target population. For example, in South Africa, co-development with men identified that previous messaging approaches increased already deep and paralysing fears about HIV. For mobilizing efforts to improve testing uptake, messaging should shift to:

- Proof that a man with HIV can live a happy normal life
- Proof that a pill every day works
- Help with disclosure to their partner, family and friends [43]

Message delivery by men living with HIV who had navigated the journey successfully was also key.

Where the specific population targeted has been identified as at substantial HIV acquisition vulnerability, messaging should consider how

best to convey understanding of vulnerability, the availability of specific prevention services (for example, VMMC or PrEP) and products (for example, injectable PrEP) and the importance of testing or retesting to enable the provision of the preferred prevention service and/or prevention product.

Testing: The testing package of services is driven by the first test offered and the related activities at the time of testing, including integrated testing for other diseases.

First test

Global guidance enables use of an HIV self-test as the first test in communities and facilities – not to substitute using a rapid test, but to increase coverage and reach (Box 11). As self-care empowerment increases, other self-tests can be simultaneously provided to focus populations, some of which will become available as multiplex self-tests; these include syphilis testing, hepatitis C self-testing and STI self-swabbing.

HIV testing can be provided on its own or in combination with testing and screening for other conditions, such as TB, non-communicable diseases, viral hepatitis and STIs. Use of a multiplex rapid test, like the dual HIV/syphilis rapid test, as the first test in the algorithm, reduces the cost and number of tests required to achieve triple elimination. This test can apply to antenatal testing and has been recently endorsed for key population testing (Box 11).

WHO Guidelines [18]

Box 11: WHO guidance on HIV and syphilis self-testing and dual HIV/syphilis rapid testing

HIV self-testing

"HIV self-testing is recommended as an approach to HIV testing services (strong recommendation, moderate-certainty evidence)."

Syphilis self-testing

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

Good practice statements for dual HIV/syphilis RDTs:

Pregnant women:

"Dual HIV/syphilis rapid diagnostic tests (RDTs) can be considered as the first test in ANC and for maternal retesting where affordable and pragmatic. Dual HIV/syphilis RDTs can be used for retesting where affordable and pragmatic."

Key populations:

"Dual HIV/syphilis testing can be used for key populations."

Related activities

Whether HTS is aimed at testing for treatment or testing for prevention and treatment, related activities consistently incorporate behavioural prevention counselling. This involves emphasizing the importance of condom use, distributing condoms after testing (regardless of the test result), and developing a plan for ongoing self-managed condom collection.

For specific populations made up of large numbers of people with significantly diverse levels of vulnerability to HIV and where it is not feasible or impactful to offer prevention services to everyone, screening clients for active linkage to prevention services may be necessary, either before or after testing (see box on page 23). Screening should be limited to a few simple questions. These questions should allow clients to self-assess without disclosing sexual behaviour details to healthcare workers. Previously used risk assessments for deciding who to test should not be repurposed for access to prevention services.

Prevention services should be offered immediately when a person tests negative and belongs to a population with all members considered substantially vulnerable to HIV (for example, in community-based HTS for key populations or facility-based STI services) or has indicated such vulnerability during screening (for example, adolescent girls and young women). This enables active linkage support. To facilitate this, testing providers need to be trained on the specific prevention options relevant to the populations they serve and on how to access these services.

Linkage

The linkage package of services can be broadly categorized into the following components:

1. **Organization of services:** This includes confirmatory testing, treatment and prevention services tailored to specific populations, with options for co-location, service integration, fast tracking and same-day provision.
2. **Referral systems:** These involve appointment scheduling, referral letters and reminders to ensure smooth transitions between services.
3. **Interpersonal engagement:** This encompasses peer support, additional counselling, service navigation, accompaniment and respectful care to enhance the client experience.
4. **Case management:** This includes database tracking with unique identifiers, active monitoring systems, and follow-up through in-person phone or virtual means, along with tracing for clients who need further engagement.
5. **Incentives:** Both financial (for example, travel reimbursements and day wage compensation) and non-financial incentives can be offered to encourage participation and retention in care.

To further HIV testing for diagnosis

When the first test is an HIV self-test or a rapid test for triage, careful consideration should be given to the package to support linkage to confirmatory testing for individuals with a reactive result. In both facility and community settings, on-site HIV self-testing may facilitate easier linkage, but it remains critical that a client be provided with the option to conduct the HIV self-test elsewhere to provide a more confidential testing option for those who want it. Disclosure of results should never be required. Information should be provided with the HIV self-test kit to enable a person to access confirmatory testing. Following up with people who were provided with a self-test can help encourage use and linkage if the result was reactive.

To HIV treatment services

Intensifying linkage support efforts in both scope and method – despite the additional costs and demands on resources – becomes an increasingly strategic priority as finding new people living with HIV becomes more challenging when the majority of people living with HIV have already been diagnosed. Improving understanding of barriers to linkage for a segment of a specific population through active consultation is crucial for identifying which linkage interventions to prioritize. For example, where the barriers are cost and time, peer support or same-day initiation may not be useful, but after working hours options, abbreviated in-person initiation processes or compensation for travel may be more successful. Monitoring HTS provider linkage outcomes has significantly improved active linkage efforts.

To HIV prevention services

By prioritizing who should be actively linked to prevention services and which specific prevention services (PrEP, PEP, OAT, VMMC) they should be linked to, health system-supported linkage becomes more feasible utilizing the same intervention toolbox as for treatment services. However, the barriers to prevention service uptake may differ and must be clearly understood for the targeted population. Burdensome PrEP initiation processes at centralized facilities, especially those integrated within ART services (commonly perceived as stigmatizing), are less likely to be taken up.

As countries reach their first 95 target, there may be multiple, diverse populations that should receive targeted linkage to prioritized prevention services. It will be essential to vary the intensity and the cost of these linkage interventions based on their impact and ongoing use of the prevention service. For example, sex workers might benefit more from high-cost peer case management and community-based PrEP services. Meanwhile, pregnant women could be offered and initiated on PrEP immediately after facility-based antenatal testing, with follow-up only during subsequent antenatal visits if initially refused. This tailors the approach to each population's needs, resource availability and potential impact.

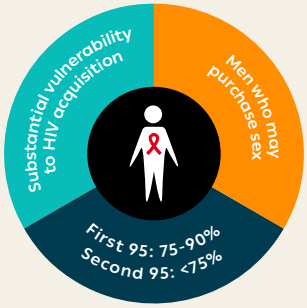
Remember Judith, David and her family?

After a month of encouraging referral, her nurse asked Judith if it would be OK if a community health worker came to her house one evening or on a weekend when her husband was there or if she would like to take a self-test kit home for her husband to use. Judith knows and likes her local community health worker and agreed for her to come to her home. As well as offering an HIV test to David, the CHW checked his blood pressure and screened the family for nutrition and TB.

Judith did not feel happy contacting her ex-partner and so the nurse agreed to contact him anonymously.

Example 4:

Targeted community-based testing to reach men, Democratic Republic of Congo [44,45]



Overview

In 2022, the Democratic Republic of Congo (DRC) had an estimated 430,000 people over the age of 15 years living with HIV and 8,600 new acquisitions a year. An estimated 82% of people living with HIV had been diagnosed with lower cascade figures for men than women across knowledge of status (75% vs 89%), on ART (61% vs 79%) and viral suppression (54% vs 69%) [34].

The DRC trialed different targeted community-based testing approaches to reach and link heterosexual men more vulnerable to acquiring HIV by focusing on men with a higher probability of purchasing sex. To reach this population, **community mobile outreach HTS was implemented, focusing on men in streets and areas where sex work was known to take place.** HTS did not specifically enquire about whether the client did or did not purchase sex.

The building blocks of community-based testing in sex work areas, DRC

	MOBILIZING	TESTING	LINKING
WHEN	During the day	**Timing:** HIV testing provided immediately after mobilization also during the day	Immediate linkage by initiating ART in the mobile van OR accompanied referral to the nearest health facility by a peer navigator Follow-up by phone or home visit twice in following 2 weeks to confirm linkage to health facility to start ART
WHERE	Streets adjacent to where sex work is known to take place	Mobile HIV testing provided on the streets in a tent	Same mobile outreach service or at health facility near to the outreach area
WHO	Female sex worker peer educators	Nurse	Nurse in HTS outreach tent with immediate link to peer navigator for follow-up
WHAT	Mobilized men in the area, highlighting their vulnerability and the importance of testing and starting treatment and the availability of PrEP for prevention	**First test:** Rapid test **Related activities:** Individual pre-test education Post-test counselling, including prevention education + condoms Social network-based testing offer, including HIVST kits for elicited social network **+ if diagnosed with HIV:** index testing recommended and if accepted, contact elicitation – partners and children (provider-assisted or enhanced passive method with HIV self-test) **+ if HIV negative:** PrEP is offered to all	**Treatment services:** Same-day ART initiation at the mobileoutreach service OR at the indicated health facility OR scheduling date (within the 2 weeks following HIV testing) to attend ART service at preferred health facility Offer of accompaniment to the ART services Phone or in-person follow-up **Appropriate, prioritized and effective prevention services:** Same-day PrEP initiation at the mobile outreach service OR at the indicated health facility

Between October 2022 and September 2023, 24,862 men were tested and 6% (n=1,615) were diagnosed as living with HIV through this targeted community-based approach. This mobilization approach enhanced existing female sex worker index testing, which during the same period, elicited a total of 984 men who purchased sex for HIV testing, with 25% diagnosed as living with HIV (n=324).

Remember Andrew?

After carrying out the situational analysis, Andrew discovered that HTS was not available overnight and at weekends in the IPD departments and maternity in the district hospital. In the family planning service, it seemed that women were tested every two to three months when they returned for their injectable. He also acknowledged that there were no testing services adapted for key populations.

As a first action, he decided to ensure 24-hour access in the IPD and maternity department and start an HIV service delivery model (including mobilizing, testing and strategies for linking) at hotspot locations for sex workers in the evening once a month. In the family planning service, he discussed whether clients could be made aware that retesting is needed only annually unless they were specifically concerned about a specific exposure, which could then be discussed with the nurse for earlier retesting.

Case study 10:

Targeted community-based testing to reach untested, not linked or disengaged men living with HIV, Kenya [46,47]

In 2023, Kenya had an estimated 1.3 million people over the age of 15 years living with HIV, with 8,100 new acquisitions annually. Approximately 94% of people living with HIV had been diagnosed. However, the proportion of men on ART (93% vs 96%) and virally suppressed (89% vs 97%) was lower than for women.

The Outreach and Prevention at Alcohol Venues (OPAL) trial aimed to address this by **mapping all formal and informal drinking venues** in rural western Kenya, where HIV prevalence is high. OPAL staff visited these venues during peak hours and **distributed referral cards to patrons and workers aged 18 and older. These cards invited people to attend the nearest health facility for free status-neutral HIV testing, with the goal of facilitating initiation of ART and/or access to biomedical HIV prevention services** (including PrEP: oral or dapivirine ring), non-occupational PEP (including PEP "pill in pocket").

A total of 91 out of 95 (96%) mapped drinking venues were enrolled in the trial, four of which had rooms for sex work. Staff distributed 3,768 referral cards (1,532 to women and 2,236 to men), and 3,388 (90%) attended for screening. The median age of participants was 33 years (interquartile range: 26-42), with men making up 58% of those screened. Among those previously diagnosed, 5% (39/874) were out of care. For individuals not previously diagnosed, the positivity rate was 1% (31/2,514). Of those testing HIV negative, nearly 40% (961/2,472) were identified as more vulnerable to HIV acquisition. Building blocks available online.

Case study 11:

HIV self-testing for triage to improve facility testing entry point coverage, Eswatini [48]

Eswatini has surpassed the 95% treatment targets and is focusing on identifying people who recently acquired HIV and those who have disengaged from care. To achieve this, a pilot programme was launched to **increase retesting coverage and identify disengaged individuals among all health facility attendees**. Alongside TB screening, clients are asked: *(1) Have you ever tested for HIV? (2) If yes, what is your HIV status?* **If the HIV status is unknown or if the client tested negative more than eight weeks prior, they are offered HIV self-testing in the HTS room.**

Those screening HIV negative are then screened for PrEP eligibility, and eligible individuals are retested with a rapid diagnostic test (RDT). People screening positive are confirmed through the national testing algorithm. If a person discloses having previously been on ART, they are immediately referred for re-initiation of treatment.

At four large health facilities, this approach increased the number of people tested from 468 in Q1 2022 to 4,339 in Q1 2023, **with a 3.5-fold increase in case finding** (from 20 to 92 people). Screening all facility attendees and using HIV self-testing to triage people for further confirmatory testing helped close significant gaps in facility (re)testing coverage.

Part 6

Design a strategic mix of differentiated HIV testing service delivery models – prioritize, continue or discontinue

A strategic mix

A strategic mix of differentiated HTS delivery models is required to address gaps in case finding and identify people most vulnerable to HIV acquisition. The approach depends on the population identified on the element wheel. For case finding, the goal is to diagnose and initiate treatment for as many of the targeted population/s as early as possible while maximizing efficiency, cost effectiveness and equity. For prevention, the goal is to identify and protect as many people in the population/s most vulnerable to HIV acquisition as possible, again prioritizing efficiency, cost effectiveness and equity.

Crafting a strategic mix involves combining effective existing models with improved building blocks or adapted models from other populations or contexts. It may also involve developing new models to broaden HTS reach and address identified gaps. **The process requires making informed decisions about which models to prioritize, continue or discontinue in the short, medium and long term, rather than cataloguing all possible models at the expense of quality implementation.**

Key considerations include healthcare worker deployment, task shifting to lay cadres and increasing self-care. Effective capacity building is also crucial and can be achieved through more efficient methods, like hybrid training models.

How to optimally combine facility-based, network, community-based and virtual models

Facility-based models are the most cost-effective HTS approach and should form the backbone of a strategic mix. In high-burden settings, HTS should be integrated across all services entry points, with a focus on those with higher attendance by the target population. The HTS model at these entry points should be designed to maximize testing coverage and effective linkage to care. In low-burden settings, it is not cost effective to offer HTS at all facilities or across services at a facility. Instead, facility-based models should be selected based on their ability to significantly improve testing coverage for the target population – often hidden and not self-identifying – or for their partners who may be attending the services. These models should also optimize linkage outcomes. In both high- and low- burden settings, multiplex testing should be considered to enhance efficiencies.

Neglecting **network-based testing** in facility-based HTS can miss critical opportunities to diagnose untested partners and children most vulnerable to HIV. Once contacts are identified, notification, testing offer and provision can take place in facilities, virtually or at preferred community locations. While implementing network-based testing can be challenging, its sustainable integration into the testing service can yield long-term benefits, particularly as contexts progress towards reaching their first 95 goal to reduce the number of undiagnosed individuals living with HIV.

When facility models enhanced with network-based testing fall short of reaching targeted populations, incorporating **community-based models** becomes essential. These models should be evidence-based, demonstrating effective targeting and outcomes. Community-based HTS delivery models that are unfocused, overly complex or have limited reach must be avoided. Increasing evidence supports investing in **virtual models** for specific populations, which can lessen the need for a physical presence in every community.

Balancing effectiveness, efficiency and equity measures

Balancing effectiveness, efficiency and equity measures is essential for optimizing the strategic mix of HTS models. By integrating the key metrics outlined in the box on page 54, we can ensure that the selected models effectively address coverage gaps while maximizing resource utilization and overall impact. Additional optimization tools are included in Annex 2.

The following three scenarios from Part 4 summarize the decision-making processes in diverse settings to determine the strategic mix of HTS delivery models implemented.

Prioritizing within the short, medium, and longer term

Prioritization within the strategic mix must align with a context's 95-95-95 trajectory. In the short term in high burden contexts, larger investments may be needed to rapidly close testing gaps, such as expanding community-based testing to reach men or increasing (re)testing coverage at facilities using HIVST as a triage tool. If close to the 95s, programs may transition more quickly to medium-term approaches.

The medium-term focus is on sustaining gains with fewer resources, such as shifting network-based testing to public sector management or embedding virtual HTS. In the longer term, priorities should shift to maintaining efficient, high-impact models, including routine (re)testing at key facility entry points and leveraging data-driven surveillance to adjust testing strategies.

Balancing effectiveness, efficiency and equity to shape the strategic mix

Effectiveness of HTS models:

- *Reach*: Ability to reach a targeted specific population
- *Number of people living with HIV not on treatment identified:* New diagnosis, re-diagnosis, people not linked to treatment or disengaged
- *Positivity rate*
- *Number of people with substantial vulnerability to HIV identified*
- *Treatment linkage rates*
- *Prioritized prevention service linkage rates*
- *Testing coverage:* Sufficient scale achieved or achievable for broader impact

Efficiency of HTS models and the strategic mix:

- *Cost per test:* Resources required for each test conducted, including human, consumable and logistics costs
- *Cost per positive diagnosis, cost per linkage to treatment, cost per linkage to prioritized prevention service:* Balancing resource input with the number of people diagnosed, identified for linkage and linked
- *Resource allocation:* Appropriate distribution of financial and human resource costs across strategic mix HTS models
- *Integration of other screening or services:* Multi-disease testing (separate tests or multiplex), combining HIV testing with other health services to maximize reach and minimize costs of testing
- *Time to diagnosis and/or treatment linkage:* Speed and ease with which a person can access testing and treatment reducing future client and health system costs
- *Operational efficiency:* How quickly and smoothly HTS is delivered, including time required for test administration, results and follow-up
- *Scalability:* Ensuring that the model can rapidly close coverage gaps, allowing for reduction or discontinuation as needed, or demonstrating that it remains cost effective and feasible at larger scales, reducing reliance on more resource-intensive approaches
- *Potential for further rationalization:* Opportunities to reduce costs by using more affordable tests, increasing self-testing, or combining testing strategies, such as network-based approaches, to better reach populations with increased vulnerability
- *Implementation feasibility:* Practicality of rolling out the model, considering available infrastructure, workforce capacity, regulatory environment and community acceptance
- *Sustainability:* Long-term feasibility of maintaining the model with existing or foreseeable resources without overburdening the health system

Equity of the strategic mix:

- *HTS access for vulnerable people within the specific population targeted*
- *HTS access for populations not specifically prioritized across geographical contexts*
- *Prevention services access for populations not specifically prioritized*
- All included HTS models protect confidentiality and minimize stigma associated with testing or linking to treatment or prevention services

Strategic mix example 1:

High-burden, high overall testing coverage but lower testing coverage in specific population

Situational analysis outcome: High-burden context close to reaching all 95-95-95 goals except in men, with the largest number of men not tested or linked to treatment between 25-49 years old

DEFINING ELEMENT

SPECIFIC POPULATION	Men aged 25-49 years not identifying as men who have sex with men

ASSOCIATED ELEMENTS

CONTEXT	Men	83-92-93	High HIV burden	Supportive legal and regulatory environment
	Overall	91-95-95		
CLINICAL CHARACTERISTICS	Clinically unstable: Interrupted treatment; virally unsuppressed; signs and symptoms of HIV; inpatient, STI; TB		Moderate vulnerability to HIV acquisition	

Key takeaways from a review of current HTS services using the questionnaire in Annex 3:

- PITC is offered at all entry points within hospital settings, and all PHC clinics have staff trained to perform HTS. Of people with TB, 95% were tested for HIV versus 75% of STI clients. Medical wards test 80% of admissions. Annual retesting coverage among family planning attendees was low at 30%.
- Index testing (partners and biological children) is not performed systematically. Where it is performed, people diagnosed with HIV are encouraged to refer their partners to the facility for testing (passive partner notification).
- Community HIV testing is taking place through the following focused approaches:
  - Formal workplace testing programmes – recommended annual HTS for employees
  - Community testing campaigns in high-burden districts. In the previous year, a month-long community testing campaign was held in the highest-burden districts, which required health providers from facilities to set up mobile outreach testing in feeder communities. Uptake of testing by men was low (<10% of tests provided) and overall positivity was low (0.9%).
- HIV self-testing has been implemented through two distribution approaches:
  - At health facilities: HIV self-testing is offered in tents on the grounds of larger health facilities and facilitated by lay providers.
  - In communities: HIVST kits are distributed in the workplace for people who do not want to test on site and from community testing locations for people to take home when rapid testing is refused.

Prioritize

Facility-based HTS

- **Prioritize testing coverage in facility-based STI and inpatient services.**
- **Prioritize retesting coverage in facility-based family planning services.**
- **Prioritize index testing with provider-assisted network-based HTS as the preferred method in all facility and community HTS.**
- **Prioritize community-based HTS for men engaging in social activities that increase vulnerability and in informal congregant work settings, faith-based communities and mobile populations.**

Continue

- Continue HTS for people (including all men) attending health facilities (PITC at all entry points).
- Continue formal workplace HTS.

Discontinue

- Discontinue untargeted community HTS campaigns and HIV self-test distribution approaches.

Key components to improve, adapt or build

MOBILIZING:

Build index testing services into health facility and community HTS services with a focus on offering the preferred method during post-test counselling, starting with HTS services provided in STI, ANC and FP services.

Improve the mobilization of men at health facilities, whether they are attending services or accompanying others. Ensure distinctively marked navigation to the HIV self-testing area. Identify and assign appropriate staff to encourage men waiting at the entrance and in all waiting areas to self-test for HIV, if they have not been tested in the last year, before their clinical consultation. Establish a reliable system in each waiting area to hold their place in the queue. Continuously improve the mobilization approach and messaging through a co-design process with men attending the clinic, who will have experienced the enhanced mobilization approach being implemented. All clinician consultations with men should enquire about HTS uptake and if not taken up, offer rapid testing. Facility managers should undertake 10 random brief exit interviews per month to monitor implementation.

Adapt community-based testing services to reorientate to focus on specific men subgroups (for example, men frequenting taverns), utilizing both primary distribution of HIV self-tests and an incentivized social network approach already utilized for secondary distribution by men who have sex with men. Continually engage faith-based leaders and taxi and bus drivers along common transport routes, and identify locations where men seek daily employment.

TESTING:

Improve PITC in STI and inpatient services, monitoring coverage and reporting by facility at district quarterly meetings.

Improve annual retesting coverage among family planning attendees, including systematic group education in the waiting room, utilizing on-site HIV self-testing option with queue place holding, and adjusting register to assess last test date.

Build stand-alone male-focused STI services at transport hubs in the three biggest cities and monitor HTS coverage among all men seeking services.

LINKING:

Improve linkage of inpatients diagnosed with HIV, whether this is initiated in hospital or not, to preferred clinics by setting up a hospital-managed system for booking first appointments at preferred clinics before discharge and placing a specified number of check-ins (clinical condition at home and uptake of appointment) by designated hospital staff members.

Build by STI transport hub services initiating ART on the same day as diagnosis. Allocate a peer case manager who verifies contact numbers and supports linkage by the preferred virtual method to the preferred clinic for one month post-initiation follow-up. Immediately provide transfer documentation to support treatment continuation for mobile men.

Strategic mix example 2:
High-burden, high testing coverage across all populations

Situational analysis outcome: High-burden context close to reaching first 95 goal across populations. More people living with HIV interrupting treatment than newly initiating on ART

DEFINING ELEMENT:

CLINICAL CHARACTERISTICS	Substantial vulnerability to HIV acquisition

ASSOCIATED ELEMENTS

SPECIFIC POPULATIONS	Key populations	STI clients and their partners*	Discordant partners of people on ART with elevated viral loads or previously on ART*	Pregnant and breastfeeding women [16]	Adolescent girls and young women
CONTEXT	Key populations	92-80-95	Restrictive legal and regulatory environment	Supportive legal and regulatory environment	High HIV burden
	Pregnant and breastfeeding women	98-90-89			
	Adolescent girls and young women	90-88-85			
	Overall	95-92-90			

* (20% uptake and high discontinuation)

Key takeaways from a review of current HTS services using the questionnaire in Annex 3:

- PITC is offered at all entry points to health facilities. All PHC clinics have staff trained to perform HTS. Site observations identified window period retesting, three-monthly testing through antenatal and postnatal period, and retesting at every contraceptive care visit.
- Index HIV testing is performed systematically in both the facility and community. HTS employs provider-assisted notification as the preferred method and enhances passive referral, with HIV self-test kit provision and information on other HTS options.
- Community HIV testing is taking place, focusing on key populations, men and adolescents:
  - Key populations: mobile HTS at hotspots and drop-in centres
  - Men: workplace, taverns, truck stops and transport hubs
  - Adolescent girls and young women: mobile testing at high schools, tertiary institutions and faith-based organizations
- HIV self-testing has been implemented through two distribution approaches:
  - Integration into focused community approaches
  - Men who have sex with men targeted online HIV self-testing promotion with collection through the private pharmacy network
- PrEP is provided within ART services at health facilities. Harm reduction services are limited to hospital-based OAT services. VMMC services are provided at health facilities and in mobile camps.
- PEP and PrEP are not systematically offered within STI services, and STI partner notification is passive with poor outcomes.
- PrEP uptake by gay men and other men who have sex with men is poor (20% uptake and high discontinuation).

Prioritize

- **Prioritize enhanced index testing services within STI services and ART services.**
- **Prioritize facility retesting coverage for all identified specific populations.**
- **Prioritize virtual HTS, PEP and PrEP services for gay men and other men who have sex with men.**
- **Prioritize active linkage to PEP and PrEP services for identified specific populations plus harm reduction services for people who inject drugs.**

Continue

- Continue facility entry point testing coupled with index testing.
- Continue community testing for key populations, expanding index testing to social network-based testing.

- Continue targeted online HIV self-testing promotion, with collection through private pharmacy network.

Discontinue

- Discontinue window period retesting and unnecessarily frequent retesting.
- Discontinue community testing for men and adolescents.

Key components to improve, adapt or build

MOBILIZING:

Improve messaging to focus populations to create awareness of PEP, PrEP and harm reduction service options and PrEP product choice. Employ co-design methodology, including client panels made up of the end users (see Annex 5).

Adapt the STI partner notification system to align and integrate with provider-assisted HIV partner notification and testing and improve implementation quality.

Build a national messaging campaign that highlights the success of the HIV programme, as well as its vulnerability and the need to continue to work together. The campaign should include: i) U=U information; ii) encouragement to return to ART services for any person who has interrupted treatment; and iii) how to self-assess vulnerability and access HTS and prevention services.

Build a mobilization campaign and enhanced index testing services within ART services to notify and retest partners of clients with elevated viral loads or who interrupted ART.

Build reliable mobile needle and syringe programmes at hotpots and drop-in centres for people who inject drugs. Integrate HTS.

Build a virtual HTS and PEP-PrEP provision platform for gay men and other men who have sex with men that is co-developed and strongly supported by influencers. Include offering social network mobilization for testing within virtual HTS.

TESTING:

Improve national guidelines to recommend:

- Immediate retesting for all inpatients, STI clients and their partners, individuals accessing TB or paediatric malnutrition services, or any facility service if symptomatic or reporting a specific risk exposure
- A total of three HIV tests during the antenatal and postnatal period (following WHO guidance for high HIV-burden settings)
- Annual retesting for key populations and adolescent girls and women accessing family planning services
- Removing PITC general population retesting while continuing client-initiated retesting
- Removing window period testing (that is, retest only at six weeks after a specific HIV exposure event – excluding unprotected sex with a regular partner).

Improve HTS guideline training and monitor guideline implementation.

Improve national indicators by tracking second and third HIV test coverage in the third trimester of pregnancy and at the nine-month immunization visit.

Improve the first antenatal post-test counselling session to recommend PrEP to all women with a negative HIV test result with scripted explanations of vulnerability and an option to opt out with follow-up at scheduled routine ANC visits.

Improve pre-testing education for all non-pregnant women aged 15-24 years who test negative to include a brief HIV vulnerability self-screen. Offer PrEP to those self-reporting risk during post-test counselling.

Improve HTS pre-test information and post-test counselling for specific populations to recommend and offer prioritized service packages.

Improve annual retesting coverage among family planning attendees by systematically introducing HIV self-testing for triage and adjusting the register to assess the last test date with a national testing coverage indicator.

Build national surveillance with specified thresholds to identify where: i) testing – in ANC, PNC and family planning services – is finding an increase in positivity; and ii) facility proportions of elevated viral loads or treatment interruptions are increasing). Respond by reintroducing PITC retesting across facility entry points and targeting community-based testing.

LINKING:

Improve re-engagement service delivery by enabling immediate multi-month dispensing and accelerated access into less-intensive DSD models.

Improve all PrEP services to provide choice of products, including injectable PrEP.

Adapt mobile and fixed community-based key population services (including at drop-in centres and through a virtual platform) to offer PEP and PrEP initiation and maintenance. Reorientate peer accompaniment to follow up successful linkage.

Adapt antenatal and family planning services to integrate same-day co-located PrEP initiation services.

Build case management systems to ensure retesting or linkage to PrEP services for STI clients and their partners and partners of discordant ART clients with elevated viral loads.

Build community-based PEP full package collection points in consultation with potential end users.

Strategic mix example 3:
Low-burden, low testing and ART coverage

Situational analysis outcome: Low-burden context far from reaching their first or second 95 goals

DEFINING ELEMENT:

CONTEXT	**Key populations**	65-70-60	High HIV burden	Supportive legal and regulatory environment
	Overall	50-60-55	Low HIV burden	

ASSOCIATED ELEMENTS

SPECIFIC POPULATIONS	Key populations and their partners and children	
CLINICAL CHARACTERISTICS	Clinically unstable: Interrupted treatment; virally unsuppressed; signs and symptoms of HIV; STI; TB; inpatient; malnourished	Substantial vulnerability to HIV acquisition

Key takeaways from a review of current HTS services using the questionnaire in Annex 3:

- HTS is provided at HIV clinics at designated tertiary and secondary hospitals. The first rapid test in the HIV testing algorithm is offered on an opt-out basis systematically at TB and antenatal services at all public sector health facilities. Linkage to HIV clinics for diagnosis is suboptimal.
- Community-based testing is provided to female sex workers, trans people and men who have sex with men at a limited number of drop-in centres. Peer lay providers mobilize at community hotspots and refer to drop-in centres and health facilities with HIV clinics for testing. Drop-in centres utilize outreach nurses, who provide HTS on site once a week.
- Drop-in centres employ and assign peer case managers who accompany clients with an HIV-positive test result to HIV clinics at hospitals for ART initiation and maintenance.
- A virtual platform to generate demand for HTS and PrEP among key populations has recently been developed and has been operational for 12 months. It has limited traffic.
- There are no systematic prison HTS. HIV testing campaigns are conducted in some prisons on an ad hoc basis, often by partners.
- PrEP has recently been added to HIV clinics, but there has been low uptake to date.

Prioritize

- **Prioritize HIV testing coverage for all STI clients and inpatients with signs and symptoms of HIV.**
- **Prioritize index testing with provider-assisted notification as the preferred method in both facility and community HTS.**
- **Prioritize reach of community-based HTS for key populations.**
- **Prioritize inclusion of HTS in all prison health services.**

Continue

- Continue facility-based HIV clinic HTS and TB and antenatal services' test-for-triage approach.
- Continue community-based drop-in centre HTS.

Discontinue

- As HTS is included in prison health services, stop ad hoc prison HIV testing campaigns by partners.

Key components to improve, adapt or build

MOBILIZING:

Improve key population-targeted HTS-related messaging to focus on testing for accessing PEP and PrEP services with associated prevention benefits.

Build reliable mobile needle and syringe programme at hotpots for people who inject drugs. Integrate HTS.

Build routine index testing services in HIV clinics, community-based testing sites and prisons, with a focus on offering provider-assisted notification as the preferred method as part of post-diagnosis counselling for sexual and drug-injecting partners and children. When provider-assisted notification is refused, enhance passive referral by providing HIV self-tests for partners and children with follow-up at next appointment.

Build the virtual HTS demand generation platform to include HTS and PrEP management enabling booking appointments for on-site testing or home delivery of HIV self-tests and PrEP. Actively engage men who have sex with men, trans and sex worker influencers to attract traffic to the site.

Build a segmented digital HIV awareness, creating awareness about HIV, HIV self-testing, PEP and/or PrEP availability (including injectable products), a brief self-screen and information on how to access HIV testing online, from private vendors and in the public sector. The intention is to nudge people not reached through antenatal testing, key population community-based or network-based HTS or to test.

Build a social network-based approach by identifying peer mobilizers among clients attending drop-in centres to facilitate HTS provision to five to 10 network contacts with testing options that include assisted virtual HIV self-testing, unassisted HIV self-testing and peer lay provider testing at a preferred location.

TESTING:

Improve community-based mobilization by training peer lay providers to provide test for triage at community hotspots or the preferred client location with ongoing case management to complete the HIV testing algorithm at preferred location.

Adapt the test-for-triage approach used in TB and antenatal services to all STI services with referral to HIV clinics for diagnosis enhanced with index testing and provider-initiated partner notification as the preferred method. Set up a centralized electronic system for referrals. Monitor HIV testing coverage.

Build HTS into men's prisons, including opt-out testing on entry, annually and on discharge (with ART services).

LINKING:

Improve uptake of community-based referral to centralized HIV clinics for ART initiation by reimbursing transport costs for ART initiation and subsequent two visits until enrolment into DSD for HIV treatment models.

Adapt drop-in centre services to provide in-person and online PEP and PrEP services and less-intensive DSD models for PrEP and ART after initiation. PrEP services should include product choice, including injectable PrEP.

Build prison-led appointment booking at a preferred HIV clinic with a referral letter for ART or PrEP continuation at discharge and weekly follow-up to confirm linkage.

Part 7

Conclusion

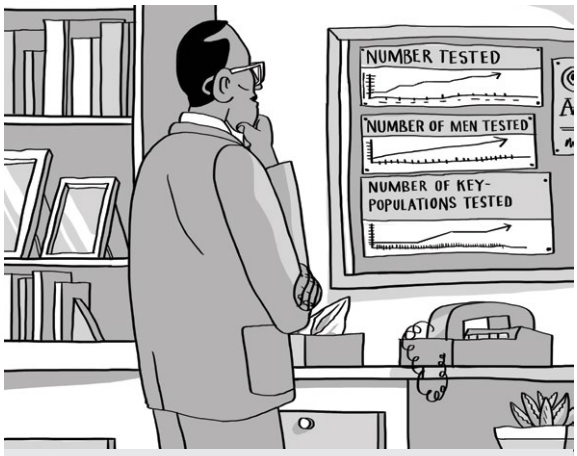
The principles of DSD and differentiated HTS should be expanded to reach the people living with HIV who are still unaware of their status or not linked to or engaged in treatment services and people most vulnerable to HIV acquisition who are not using prevention services. The strategic mix of differentiated HTS delivery models will be context specific, based on the situational analysis with models improved upon, adapted or built to respond to local challenges and specific needs and preferences of clients.

Differentiated service delivery for HIV: A Decision Framework for HIV testing services uses the seven-step approach to guide HIV programme managers to examine changes that can be made to existing HTS delivery models or design new ones for specific populations in specific contexts. By following these steps, quality HIV testing service delivery models can be designed. This framework should be used in parallel with the WHO guidelines on HTS and the HIV consolidated guidelines [49].

Find further examples and tools at www.differentiatedservicedelivery.org. We welcome your feedback.

Please email us at dsd@iascociety.org and visit www.differentiatedservicedelivery.org for more details.

With differentiated HIV testing services ...



Andrew has been able to identify which specific population to target and will use the building blocks to design the models that his district will use for mobilizing, testing and linking clients to treatment and prevention services.

Namrata will be able to retest herself annually for HIV with an HIV self-test. She will also be able to provide information on HIV self-testing to other sex workers she knows and distribute kits. She can assist if preferred. She will follow up to make sure everyone links to either to treatment or PrEP services.

Judith's newborn has been tested at the clinic and will have follow-up testing until she is 18 months old. The remainder of her family have all been tested by the community health worker who performed provider-assisted partner notification and community-based index client testing. Judith's partner and older child tested negative. The community health worker provided the couple with condoms and lubricant and provided Judith's husband with information on prevention options, specifically VMMC and PrEP. He is interested in both, and the community health worker referred him to the VMMC service at the closest clinic, which also provides PrEP.

John and his colleagues at the security firm are feeling positive about continuing in their jobs and appreciate the annual health screen, including having his BP checked and an HIV test. They have been advised of a number of ART clinics nearby, and John was grateful when the counsellor who tested him gave him a call to check that he had gone to the clinic and started on ART.

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Annexes

Annex 1

Approaches within the three components of differentiated HIV service delivery models

As outlined in Part 2, any HIV testing service delivery model should include mobilizing, testing and linking. This annex outlines options for these three components.

MOBILIZING

Mobilizing strategies are required both for healthcare workers and lay providers to be encouraged to actively offer testing and for specific populations to accept HIV testing. At all facility entry points where HIV testing is indicated, healthcare providers should be sensitized about the benefits of HIV testing. They should also be oriented on how to link people who test positive to treatment and, when appropriate, to prioritized prevention services.

Additionally, these healthcare providers should have a good understanding of how network-based strategies work and their role in the process. Improving this understanding requires collaboration and coordination across departments within larger institutions. For example, in low HIV-burden settings, staff within the HIV clinic should ensure that all partners and family members of index clients are tested. Conversely, in high HIV-burden settings, an understanding of network-based strategies will be necessary for all staff working in departments with HIV testing.

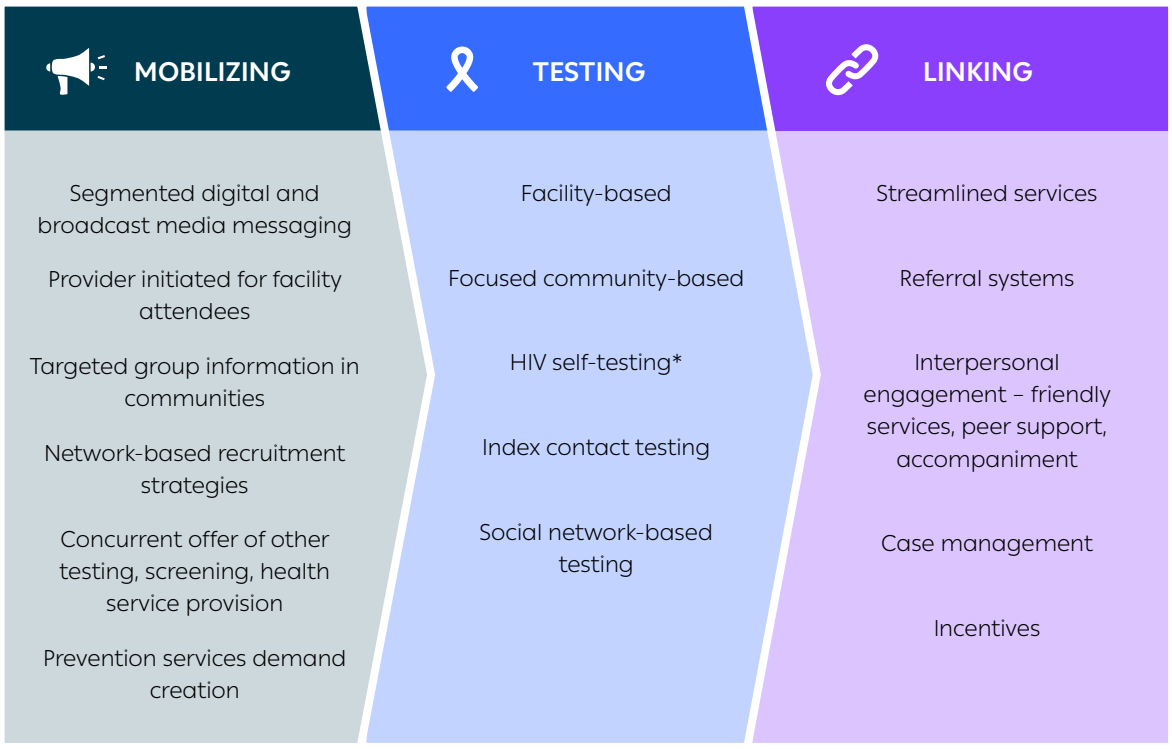
Mobilization of the population to be tested can be achieved through a range of strategies and by using multiple strategies in parallel. Potential mobilization strategies are outlined in Figure 7.

Segmented digital/broadcast media messaging

Segmented digital and broadcast media messaging involved tailored communication strategies that utilize digital platforms or traditional broadcast channels to effectively reach targeted population segments. In digital media, segmentation allows for personalized ads and social media content. For broadcast media, it involves analysing demographic data to identify which radio stations or television programmes best engage the intended audience.

Recruiting prominent community members to promote HIV testing can increase reach and help reduce stigma, normalizing HIV testing [50]. Online social media platforms, including social networking and dating apps, are particularly effective for creating demand among specific populations, especially when leveraging a combination of influencers and peer outreach workers [51].

Figure 7: Components of differentiated HIV service delivery models



* Self-testing is a testing modality that can be used in all testing approaches, including in health facilities and in the community.

Provider-initiated offer for facility attendees

Healthcare providers should routinely offer HIV testing to people who attend health facilities. In high HIV-burden settings, this should be done across facility service entry points. The routine offer can be supported by lay providers in waiting rooms, audiovisual materials and using HIV self-testing as a test for triage. This support does not obviate a healthcare provider's responsibility to follow up during consultations. In low HIV-burden settings, healthcare providers should routinely offer HIV testing during consultations with populations who are at increased vulnerability to HIV acquisition, including members of key populations, partners and children of people living with HIV, and people accessing STI, TB and/or antenatal services. The routine offer can be opt-in or opt-out. Opt-out HIV testing has been shown to be effective in antenatal [52], STI and TB services [53].

Targeted group information in communities

Increasing demand for HIV testing among members of specific populations requires targeting the provision of information. Identifying congregant settings or "hotspots" where HTS information sharing is more likely to reach people who remain untested or not on treatment is preferential to general HIV awareness campaigns. An example of targeted information to a group with increased vulnerability would be providing information and referral cards to patrons of formal and informal bars [46].

Network-based recruitment strategies

Index contact notification

Index testing involves mobilizing the partners and children of people living with HIV to be offered HTS. It is a voluntary process where a trained healthcare worker asks people newly or previously diagnosed with HIV about their sexual partners and biological children, and if the client agrees, offers HTS to identified contacts. Partner notification may be provider assisted or passive. In provider-assisted notification, after consent is provided, the provider will contact the partner/s directly and inform them about the potential exposure. This is done

WHO Guidelines [18]

Box 12: WHO explanations of index contact notification methods

Provider-assisted methods	**Provider-assisted partner services** Sometimes called: assisted partner services, assisted partner notification	"Trained providers ask clients about their partners and then, with the consent of the client, inform partners of their potential exposure. The provider then offers voluntary testing and additional services to partners."
	Delayed assisted partner services Sometimes called: contract referral, provider-assisted delayed referral	"Clients enter into an agreement with a trained provider to suggest testing to partners within an agreed period. If the partners do not access HTS or contact the provider within that period, the provider contacts the partners directly to offer voluntary HTS."
Passive methods	**Partner referral** Sometimes called: patient referral	"Trained providers encourage clients to suggest testing to the partners, with or without disclosing their status. Providers advise clients on the need for partners to get tested, strategies for disclosing safely, and where and how partners can obtain testing, prevention services and treatment."
	Enhanced partner referral Sometimes called: enhanced patient referral	"Trained providers use various support tools (written information, referral slips, web-based messaging, provision of HIVST kits) to facilitate the offer of testing by clients to their partners, with or without disclosing their status."

"Where feasible and acceptable to the client, provider-assisted partner services should be prioritized as it is more effective and provides the opportunity to offer comprehensive prevention interventions to partners who may continue to be vulnerable to HIV, STIs and/or viral hepatitis infection.

"Provider-assisted partner services can be offered at the time of diagnosis of the client and periodically through the course of the client's engagement with the health-care system. The provider-assisted referral method and timing can be adapted to suit the client's needs and availability of resources."

anonymously or with disclosing the identity of the index case dependent on client instruction. Passive notification involves the index client informing their partner/s of their HIV status and encouraging HIV testing for their partners and/or children. Provider assistance can be delayed, providing a time-bound opportunity for the index client to disclose, and passive notification can be enhanced with information leaflets and the provision of an HIV self-test kit [18]. Box 12 provides more detail on index contact notification.

Social network-based recruitment

The approach of index testing, while effective, has its limitations. There can be reluctance to identify partners due to concerns about safety, stigma or other issues restricting the efficacy of this approach. Social network-based testing broadens mobilization efforts to include specific populations with high vulnerability to HIV acquisition, regardless of their HIV status, and taps into their wider social networks assuming a similar level of vulnerability. This method can identify partners without necessitating explicit disclosure of any sexual or drug-injecting relationship [18,54,55].

Recruitment strategies for social networking-based testing are diverse. A common approach involves enlisting individuals who have recently or previously been tested as mobilizers. These mobilizers are briefed on how to engage a fixed number of people in their social network to encourage HIV testing. The mobilizers then collaborate closely with healthcare providers to facilitate the provision of HIV testing. Incentives may be offered to encourage participation. An example of this strategy in action is detailed in Example 1.

Concurrent offer of other health screening

HIV testing can be offered alongside other health screening or management services. Health screening for other diseases or infections may be readily accepted or in higher demand. A combination of screening services can make taking up HIV testing more discreet. Examples are providing HIV testing alongside or following hepatitis C or TB screening, STI screening and management, and hypertension and diabetes screening [56,57,58].

Prevention services literacy

For populations with substantial vulnerability to HIV acquisition, information and messaging should emphasize the benefits of testing for both prevention and treatment. Increasing knowledge and demand for specific prevention services and products can increase HIV testing uptake. These include VMMC among men, clean needles and syringes, and OAT for people who inject drugs. Additionally, there is a need for awareness around specific PrEP options, such as oral, injectable or ring, formulations for various use cases (one-off sexual exposure, short-term or extended use). An example of mobilizing for testing while providing prevention options is illustrated in Case study 2, which details how previously tested contacts are re-contacted through index texting services and informed about available PrEP services.

TESTING

The testing component here refers to the service delivery model implemented for performing the HIV test and the related activities at the time of testing. Each of these building block aspects, or the "when", "where", "who" and "what" of testing delivery, is considered in more detail in Part 5.

Accurate and quality HIV testing must utilize WHO-prequalified tests within a validated testing algorithm as outlined in the WHO HIV testing guidelines. Retesting, following the same algorithm, prior to ART initiation to verify HIV status, is recommended and important to prevent unnecessary use of ART. This retesting is different to the frequency of retesting for those clients with ongoing vulnerability to HIV acquisition, which should also be clearly defined for the model.

In addition to healthcare workers performing the full HIV testing algorithm, the test-for-triage strategy may be more feasibly implemented in certain contexts. This is often performed at community level where a lower cadre or peer worker performs the first HIV test. If reactive, the client is linked to either a facility- or community-based HTS site where the full algorithm is then performed. Similarly, for HIV self-testing, confirmation of a reactive self-test must be completed.

Explanations of index testing and social network-based services should be part of pre-test education. Where consent is obtained, contact elicitation (partners, biological children or social network) and notification method consensus should be part of post-test counselling. Where a person is recruited as a social network mobilizer, briefing and planning the notification approach and testing provision options should also be incorporated.

LINKING

Linking to care establishes a connection between the client and either further testing, ART initiation or re-initiation, use of prevention services or use of other required services.

Following an HIV-positive test result, it is critical that the client is actively linked. This could be linking the client to further testing if the reactive result was through HIV self-testing or test for triage or for ART initiation or re-initiation if a client is re-engaging in care.

For everyone who tests negative, post-test counselling should be provided; this should include prevention education and the provision of condoms and lubricant, with a plan for self-managed continued collection of these consumables at

convenient locations. In addition, those with substantial vulnerability to HIV acquisition should be actively linked to appropriate, prioritized and effective prevention services. Not every person with an HIV-negative result requires facilitated linkage. This depends on the context and who is prioritized for prevention. This could be by a specific population (for example, all STI service attendees) or by the self or provider risk screening within a target population (for example, adolescent girls and young women).

Linkage to care can be influenced by individual, community and health system factors [59], requiring client-centred approaches that support the needs, barriers and opportunities experienced by specific populations or geographical regions. Different types of testing delivery models (for example, health facility and community) and HIV testing modalities (PITC versus self-testing) may impact opportunities for linkage and hence will require different linkage approaches [60,61]. A combination of linkage strategies may be required to enhance uptake of ART and PrEP [62,63]. The extent of linkage interventions and resource allocation should also be determined by weighing up the specific population's probability of failed linkage. Different strategies to support linkage to ART initiation or prevention services are outlined below.

Streamlined services

Streamlining reduces the time and client effort required between testing and engagement in HIV treatment or prevention services. Offering rapid and same-day ART initiation to people who are ready to start ART has demonstrated improvements in the proportion of newly identified HIV clients initiating treatment. Co-location of services supports same-day initiation. ART initiation is being decentralized further – from hospitals to primary care centres to communities [64].

For members of key populations, a growing number of community-based organizations are working with clinics and providing on-site ART initiation and ART refills within community-based organization premises, such as drop-in centres [65]. Similarly, co-location of testing and PrEP services has been shown to improve PrEP uptake, such as at drop-in centres for members of key populations or within family planning and antenatal facility-based services. The

WHO Guidelines [18]

Box 13: WHO definitions of linkage

"**Linkage to care** is the deliberate establishment of a connection between the patient and the services they require. Linkage is essential for all people newly diagnosed with HIV to be initiated on treatment and for people re-engaging in care.

Linkage to further testing. In certain cases linkage to further testing is needed – after a reactive self-test or a test for triage, or for those with inconclusive status.

Linkage to ART. For all people diagnosed with HIV, WHO recommends that treatment be offered and ART be initiated as early as possible—preferably on the same day.

(Re)linking to ART. People with HIV who know their status and are not currently taking ART need to be supported to engage in care and initiate treatment. Retesting can be a critical entry point, allowing for linkage from HTS sites to starting or resuming treatment.

Linkage to prevention will depend on the person's ongoing needs, risks and vulnerabilities. While prevention services, such as information on HIV, sexual and reproductive health services, and condoms, are beneficial for all people testing for HIV, most people testing HIV-negative do not need to be linked to additional prevention services. For those who are HIV-negative but at ongoing risk and not currently using prevention services, linkage to a specific HIV prevention intervention may be beneficial. Those with a discrete exposure in the past 72 hours may be eligible for PEP. Those with ongoing risk of HIV may be eligible for PrEP.

Linkage to other services following testing may benefit many people, depending on the needs and circumstances of clients, such as sexual and reproductive health (contraception and cervical cancer screening), mental health and substance use services. Some HIV testing services may be integrated, and so a client can receive treatment, prevention and other services at the same time and site. In other programmes, specific linkages must be made to relevant services. For example, where testing services are integrated, such as using a dual HIV/syphilis rapid test, programmes need to prioritize linkage to syphilis treatment, as well as further syphilis testing when needed."

virtual offer and provision immediately after testing is increasing [66,67]. Initiating and managing PrEP within ART services has been shown to deter PrEP uptake. Beyond initial linkage, durable linkage can further be supported by early access to longer ART or PrEP refill [68,69].

Referral systems

Once tested, clients will require written, telephonic or electronic referral to a service providing confirmatory testing, treatment or prevention services. Standardized forms and procedures should be in place to support this process. Referral systems should enable client preference for appointment timing and location.

Interpersonal engagement

Peer support

Having a peer to support linkage can be effective, and sharing common experiences and challenges during the linkage process can be beneficial. The peer can be a person who either tested the client or to whom the client was linked after testing. Peer support can be provided within a linkage intervention or alongside. For example, a peer can accompany a client or provide case management. Peer linkage support has been shown to improve uptake of treatment and prevention services, especially for members of key populations, adolescents and men [51].

Accompaniment

When HIV testing is performed at a range of entry points within large facilities, it may be challenging for clients to physically locate the ART or PrEP site and emotionally challenging to present themselves for care. Likewise, if tested in the community, there may be a number of challenges for a client to locate an ART or a prevention services site (PEP, PrEP, VMMC or harm reduction). After delivery of testing, direct accompaniment (also called navigation) of the client to an ART or prevention service by the person who has performed the test or a designated member of staff (such as a lay provider or peer) improves linkage rates [51,70]. Working with peers to accompany clients to an ART or a prevention service site has also been shown to be particularly beneficial, for example, for adolescents [71] and members of key populations.

Respectful care

Knowledge about and experience of healthcare services may significantly influence the likelihood of a client linking to care. If HIV or prevention services are perceived as disrespectful or uncaring, are overcrowded or are not open at convenient hours, clients may be deterred from attending. Improving the quality of ART or prevention services through a client-centred differentiated services delivery approach may in itself improve linkage between HIV testing and initiation of ART or PrEP. Community-based PrEP initiation is perceived as more client centred and key population friendly. Post-test counselling must provide sufficient information about the service sites available and how and when to access services.

Case management approaches

Case management approaches can be employed immediately after testing or if linkage is not achieved within a specified period. A preferred provider, or case manager, can be assigned to follow up on linkage for a specified period at specified intervals. This follow-up can be done virtually through a phone or messaging system or in person. Initiating case management from testing is more costly, but may be warranted for specific populations with poorer linkage outcomes. Initiating follow-up when linkage has failed requires reliance on quality data systems to flag who requires follow-up and procedures for doing so. At testing, clients should consent to case management and/or tracing and be encouraged to provide accurate telephone and location contact details. Systems to verify contact details have also been shown to improve tracing outcomes.

Compensation and incentives

Providing compensation for travel expenses can improve linkage [72,73,74], especially when services required are beyond walking distance or centralized. Provision of other financial and non-financial incentives has been used in other study settings with mixed results [75].

The linkage intervention, or combination of interventions, should be planned for every model and can be designed using the building blocks (Part 5). Standard operating procedures (SOPs) for linkage to treatment and prevention services should be developed for both facility-based and community-based HTS models, including defining who is responsible for linking the client to services and the timeframe for the activity to be completed. Annex 6 gives an example of an SOP for linking clients to HIV care. A similar SOP could be developed for linkage to prevention.

Annex 2

Online annexes available to support implementation

Available on the IAS DSD website

Online Excel template to conduct a review of DSD across the cascade with a focus on HTS (2018, updated 2021, updated 2024), including:

- Differentiated HTS at a national level, including:
  - National overview data
  - National overview of HIV self-testing data
  - Data by location, age and sex
- Relevant DSD policies with a focus on HTS
- HIV testing procedures
- Mobilizing, testing and linking building block assessments

This template can be adjusted for regional-, facility- or community site-level assessments.

Additional resources available related to HIV testing and costing

Available on the IAS DSD website

- IAS HIV testing webinar series
- The WHO and the Cost-Effectiveness of HIV Testing Services (CENTS) working group multipart webinar series – slides and recordings
- WHO HIV testing dashboards (HIV testing data and modelled estimates submitted to WHO/UNAIDS including First 95 progress, HIV positivity, new diagnosis/re-diagnosis): https://whohts.web.app/
- District HIV estimates - UNAIDS Naomi model (district estimates for: HIV prevalence and people living with HIV, ART coverage, untreated population, new HIV infections by age and sex, antenatal attendance/testing outcomes): https://naomi-spectrum.unaids.org/
- Subnational estimates in priority populations - UNAIDS/Global Fund SHIPP Tool (stratifies population by size and new acquisitions by district, sex, age group and risk population): https://hivtools.unaids.org/shipp/
- WHO 2024 self-testing implementation toolkit
- Virtual HIV testing booking system: www.quickres.org
- Index testing-related training and SOPs
  - PEPFAR Safe and Ethical Index Testing online training curriculum
  - Training tools, SOPs and job aides
- Social network-based training and SOPs
- Examples of HIV vulnerability screening (self or provider) for linkage to appropriate, prioritized and effective prevention services

Annex 3

Questionnaire to assess differentiated HTS

Excel template available on the IAS DSD website

Mobilizing

GENERAL POPULATION (add any specific population targeted below)	
WHEN	Are HIV awareness and HTS mobilization carried out after hours at community-based outreach locations?
	Is information provided on when to retest if HIV test result is negative? Y/N. Describe what information on retesting frequency is provided to general population men and women.
	Index testing: Are sexual partner contacts elicited from a client at time of HIV-positive diagnosis? Y/N/NA? Describe.
	Index testing: Are sexual partner contacts elicited from client at any time after HIV-positive diagnosis? Y/N. Describe (For example: high viral load, re-engagement)
WHERE	Describe mobilizing activities carried by facility entry points below: (For example: posters, audiovisual, waiting room talk and offer, HIVST offer while waiting, PITC [opt-out or opt-in])
	TB services
	STI services
	Inpatient services
	Outpatient, acute services, emergency department
	Family planning, sexual reproductive health services
	Hepatitis services (if any)
	Any other service entry point?
	Are call centres or websites available to request HIV/HTS information? Y/N/NA? Describe, including what time operational.
	Are any primary healthcare community outreach services mobilizing for HTS? Describe.
	Do virtual platforms (chatrooms, dating apps, other) create HIV awareness and mobilize for HTS? Y/N/NA? Describe.
WHO	Who elicits contacts from clients diagnosed as HIV positive? Professional healthcare cadres only? Lay providers? Describe.
	Who contacts elicited contacts and offers HTS? Professional healthcare cadres only? Lay providers? Describe.
	Are clients who are tested and diagnosed with HIV provided with HIVST kits for their sexual partners? Y/N/NA? How many? Describe.
	Are community health workers who visit homes tasked with creating HIV awareness and encouraging testing? Y/N? Describe.
	Are community health workers able to distribute HIVST kits? Y/N. To who and where?
	Are clients who are tested and diagnosed with HIV provided with HIVST kits to specifically provide to their sexual partners? Y/N. Describe.
WHAT	Are provider-assisted partner services provided? Y/N. Describe any preferred/most common method. (Provider-assisted, provider-assisted delayed, provider-partner [dual]?)
	Where a client chooses passive partner referral (client discloses to their partner and encourages testing), does the healthcare provider provide support tools? (For example: leaflet, referral slips, web-based information, HIVST kits)
	Is screening done for HCV independently of HTS? Y/N/NA. Describe. (Health facility, community screening)
	Is screening done for STIs independently from HTS? Y/N/NA. Describe. (Health facility, community screening and treatment)
	Is screening done for TB independently from HTS? Y/N/NA. Describe. (Health facility, community screening)
	Are any other health screening done independently of HTS? Y/N/NA. Describe. (For example: NCD screening at health facility, community level).
General	Are mass group mobilizing campaigns carried out (media, radio campaigns)? Y/N and how frequently?
	Describe any new approaches or successes in mobilizing the general population for HIV testing.
	Describe challenges for mobilizing the general population.
CHILDREN	
WHERE	Describe mobilizing activities carried out at these facility entry points. (For example: posters, waiting room talk and offer, risk assessments, PITC [opt-out/opt-in])
	Malnutrition services
	Paediatric inpatient services
	EPI, immunization, under-5 child health services
WHAT	Index testing: Are biological children index contacts elicited, traced and offered HTS? Y/N. Describe.
General	Describe any new approaches or successes in mobilizing caregivers for HTS for their children.
	Describe challenges for mobilizing caregivers for HTS for their children.
ADOLESCENT GIRLS AND YOUNG WOMEN	
WHEN	Is information provided on when to retest if HIV test result is negative? Y/N. Describe how it is provided.
WHERE	Describe mobilizing activities carried by facility entry points below: (For example: posters, audiovisual, waiting room talk and offer, HIVST offer while waiting, PITC [opt-out/opt-in])
	Family planning, sexual reproductive health services
	Are any HTS mobilization activities carried out in schools and/or tertiary institutions? Y/N. If yes, please specify the age group.
	Are any HTS mobilization activities at any other targeted community locations? (For example: hair salons, churches, youth centres) Y/N. Describe.
	Do virtual platforms commonly used by adolescent girls and young women (chatrooms, dating apps, networking) mobilize of HTS? Y/N. Describe. (If no, which ones are most commonly used by adolescent girls and young women?)

WHO	Are adolescent girls and young women peers involved in mobilizing activities? Y/N. Give examples.
	Are adolescent girls and young women peers employed by CBOs to mobilize for HTS? Y/N/NA. Describe recruitment. approach (temp/permanent)
	Are adolescent girls and young women peers provided with HIVST kits to distribute? Y/N/NA. Describe.
	Are adolescent girls and young women clients tested for HIV (irrespective of result) provided with HIVST kits to provide to their social network? Y/N/ NA? How many? Describe (incentives?).
WHAT	Are adolescent girls and young women who test for HIV (irrespective of result) encouraged to refer their social network for HTS? Y/N/NA? Describe.
	Does HIV awareness and HTS offer take a status neutral approach – for case finding (starting ART) and for adolescent girls and young women who would substantially benefit from PrEP? Y/N. Describe.
General	Describe any new approaches or successes in mobilizing adolescent girls and young women for HTS.
	Describe challenges for mobilizing the population group of adolescent girls and young women.
PREGNANT AND POSTNATAL WOMEN	
WHEN	Is information provided on when to retest if HIV test result is negative? Y/N. Describe how it is provided.
WHERE	Describe mobilizing activities carried by facility entry points below: (For example: posters, audiovisual, waiting room talk and offer, HIVST offer while waiting, PITC [opt-out/opt-in])
	ANC services
	Maternity. labour services
	PNC services (until referred to MCH services)
	MCH services (under 5s)
	Are men encouraged to attend antenatal visits? Y/N. Describe.
WHO	Are mentor mothers involved in providing information on partner testing, retesting during pregnancy and postnatally and PrEP? Y/N. Describe.
	Are pregnant and postnatal women offered HIVST kits to give to their partners? Y/N. Describe.
WHAT	Is couples testing encouraged? Y/N. Describe
	Is partner testing followed up at every ANC/PNC visit until partner has tested? Y/N. Describe.
	What partner testing options are provided? Describe. (For example: HIVST at home, rapid testing at ANC/PNC services, rapid testing at other facility entry point, community/home testing)
	Does HIV awareness and HTS offer take a status-neutral approach – for case finding (starting ART) and for ANC/PNC clients who would substantially benefit from PrEP? Y/N. Describe.
General	Describe any new approaches or successes in mobilizing ANC/PNC clients' partners for HTS.
MEN (not for men who identify as men who have sex with men - see below)	
WHEN	Is information provided on when to retest if HIV test result is negative? Y/N. Describe how it is provided.
WHERE	Describe mobilizing activities carried by facility entry points below: (For example: posters, audiovisual, waiting room talk and offer, HIVST offer while waiting, PITC [opt-out/opt-in])
	VMMC, men's health services (if any)
	Are men offered HTS when accompanying a facility attendee? Y/N. Describe.
	Are any HTS mobilization activities at any other targeted community locations? (For example: taverns, churches, transport hubs) Y/N. Describe.
WHO	Are male peers involved in mobilising activities? Y/N. Give examples.
	Are male peers employed by CBOs to mobilize for HTS? Y/N/NA. Describe recruitment approach (temp/permanent).
	Are male peers provided with HIVST kits to distribute? Y/N/NA? Describe.
General	Describe any new approaches or successes in mobilizing men for HTS.
	Describe challenges for mobilizing men for HTS.
FOR EACH KEY POPULATION GROUP (men who have sex with men, sex workers, trans people, people who use or inject drugs, and people in prisons and other closed settings)	
WHEN	Are HIV awareness and HTS mobilization carried out after hours at community-based outreach locations? (For example, men who have sex with men bars at night). Y/N. Describe.
	Are HIV awareness and HTS mobilization carried out after hours at KP group specific drop-in centres? Describe
	Is information provided on when to retest if HIV test result is negative? Y/N. Describe how it is provided.
WHERE	Is there HTS information provided at general facilities targeted towards key population attendees? Y/N. Describe.
	Are HTS mobilization activities carried out at specific community "hotspot" locations for key populations? Y/N. Describe locations.
	Are community hotspots regularly updated? Y/N. Describe process.
	Are there key population drop-in centres (DICs)? Y/N? Describe, including accessibility of DICs.
	Do specific virtual platforms commonly used by key populations (chatrooms, dating apps, networking) mobilize HTS? Y/N. Describe. (If no, which ones are most commonly used by men who have sex with men, trans people, sex workers and people who inject drugs?)

WHO	Are peers from specific key population groups engaged in mobilizing their communities for HTS? Y/N/NA. Describe.
	Are key population group-specific peers employed by CBOs to mobilize for HTS? Y/N. Describe recruitment approach (temp/ permanent).
	Are key population group-specific peer outreach workers active in virtual platforms to mobilize for HTS? Y/N/NA describe
	Are key population group-specific peer outreach workers available online to answer questions on HTS and service locations? Y/N. Describe.
	Are key population group-specific peer outreach workers provided with HIVST to distribute? Y/N/NA. Describe, including how many.
	Are key population clients who test for HIV (irrespective of whether result) identified as a social network mobilizer? Y/N. Describe.
	Are key population clients tested for HIV (irrespective of result) provided with HIVST kits to provide to their social network? Y/N. Describe, including how many.
WHAT	Have health facilities been trained and orientated on key population-friendly services? Y/N. Describe, including %.
	Are clients who test for HIV (irrespective of result) encouraged to refer their social network members for HTS? Y/N. Describe. (For example: social networking approached used, vouchers/incentives used, restrictions on numbers)
	Does HIV awareness and HTS offer take a status-neutral approach – for case finding and for prevention services? Y/N. Describe.
General	Describe any new approaches or successes in mobilizing specific key population groups for HTS.
	Describe challenges for mobilizing this key population group.
Add: For people who inject drugs only	
WHERE	Are needles and syringes provided at community outreach locations? Y/N. Describe.
	Are needles and syringes provided at fixed/static community sites? Y/N. Describe, including whether these are the same sites as HTS.
	Is naloxone provided at any community sites? Y/N. Describe, including to who and where.
	Where is wound and abscess care provided for people who inject drugs? Y/N. Describe.
WHO	Are people who inject drugs who are tested and diagnosed with HIV provided with HIVST kits to for partners who inject drugs? Y/N. Describe.
Add: Add for populations assigned female at birth using contraception	
WHERE	Can oral contraception refills be distributed at community level? Y/N. Describe.
	Are there community sites providing clients with self-injectable sub-cutaneous contraception? Y/N. Describe.
	Are there community sites providing clients with intra-muscular injectable contraception? Y/N. Describe.
	Where are long-acting contraceptive methods provided and inserted?
WHO	Can lay providers distribute oral contraception refills? Y/N. Describe who and where.
	Can lay providers distribute and assist self-injectable contraception? Y/N. Describe who and where.
	Can lay providers provide intra-muscular injectable contraception? Y/N. Describe who and where.
OTHER FOCUS POPULATIONS (e.g., miners or mobile populations)	
WHERE	Are HTS mobilization activities carried out at specific community locations for specific focus populations? Y/N. Describe locations.
WHO	Are peers from specific focus group engaged in mobilizing their communities for HTS? Y/N/NA. Describe.
General	Describe any new approaches or successes in mobilizing specific focus population group for HTS.
	Describe challenges for mobilizing specific focus population group.

Testing

GENERAL POPULATION (add any specific population targeted below)	
WHEN	Is the retesting frequency for general population adult men and women clear? Y/N. Detail frequency.
	Facility-based HIV testing provision
	Is out-of-office-hours testing available at health facilities? Y/N. Specify times.
	Is testing available at weekends at health facilities? Y/N If yes, specify days and times.
	Is testing available 24 hours in IPD? Y/N
	Is testing available 24 hours in maternity? Y/N
	Can index contacts or social network members request and be provided with testing at a health facility after hours? Y/N. Describe.
	Community-based HIV testing provision
	Is testing provided at community-based fixed HTS sites after hours or on weekends? Y/N. If yes, describe.
	Is testing provided at mobile outreach locations at times when prioritized populations are congregating? Y/N. Describe.
	Can index contacts or recruited social network members request and be provided with testing after hours? Y/N. Describe.
	Can a person request an HIVST online after hours? Y/N? Describe, including collection or delivery options.

WHERE Which the following facility or community sites provide HTS?	Facility-based HIV testing locations:
	PITC at TB services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at STI services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at OPD/acute services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at FP/SRH services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at emergency services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at VMMC/men's health services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	PITC at hepatitis services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	CITC (previously VCT) available at facility? Y/N. Describe, including any restrictions
	Is HIV self-testing used as a test for triage in any facility entry point/service? Y/N. Describe, including where.
	Can HIV self-tests be obtained or collected at health facilities for use elsewhere? Y/N. Describe from where.
	Community-based HIV testing locations:
	Community fixed site testing for general population? Y/N. Describe, including if any sub-population is targeted (for example, mobile men based at transport nodes).
	Community outreach & mobile testing for general population? Y/N. Describe, including if any sub-population is targeted.
	Community home-based door to door testing? Y/N. Describe, including if any sub-population is targeted.
	Workplace testing? Y/N. Describe.
	Any other locations for testing not covered above? Y/N. Describe, including who is targeted.
	Can index contacts request testing at their preferred community location including home? Y/N. Describe options available.
	Can recruited social networks members request testing at their preferred community location including home? Y/N. Describe options available.
	Can HIV self-tests be obtained in the community? Y/N. Describe from where.
	Can HIV self-test kits be obtained online by people other than key population individuals? Y/N. Include online platform link.
WHO Which of the following cadres are able to perform HIV rapid tests?	Doctor? Y/N
	Clinical officer? Y/N
	Nurse? Y/N. Detail any training or proficiency requirements and any barriers to authorization.
	Pharmacist? Y/N. Detail any training or proficiency requirements and any barriers to authorization.
	Counsellor? Y/N. Detail any training or proficiency requirements and any barriers to authorization.
	Community health worker (who is not a counsellor)? Y/N. Detail any training or proficiency requirements and any barriers to authorization.
	Expert client, peer, lay provider? Y/N. Detail any training or proficiency requirements and any barriers to authorization.
	Other – please specify
WHAT	Is any risk assessment done to screen in or out adult men/women for testing? Y/N. Describe and provide assessment tool.
	If a client tests HIV negative, are prevention services offered? Y/N/NA? Which ones? Describe.
	If any adult man/woman tests HIV negative, is any risk assessment done to screen in/out for specified prevention services? Y/N/NA? Which ones? Describe and provide assessment tool.
	What resources is a client given with an HIV self-test? Describe. (For example: demo/link to demo, simplified/ abbreviated how-to-use leaflet, linkage-related information)
	What (if any) resources is a client given about HIV treatment?
	What (if any) resources is a client given about prevention options, including PrEP?
	Is screening done for HCV when testing for HIV? Y/N/NA. Describe.
	Is screening done for STIs when testing for HIV? Describe.
	Is screening done for TB when testing for HIV? Y/N/NA. Describe.
	Is any other health screening done when testing for HIV? Y/N/NA. Describe. (Other than HIV, HCW, STI or TB)
General	Describe any new approaches or successes in providing HIV testing men and/or women (not covered below).
	Describe challenges with providing HIV testing to men and/or women (not covered below).
CHILDREN	
WHEN	When are infants/children tested? Describe and include any infant/child screening algorithm. (For example: If HIV exposed last test at 18m or if sick or if mother is living with HIV or status is unknown, and no documented test for child at/after 18 months).

WHERE	Is HIV testing provided at the following paediatric facility entry points?
	Malnutrition services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	Paediatric inpatient services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	EPI, immunization, under 5-child health services? Y/N. Detail if opt out/opt-in and any coverage challenges.
	Any other locations for testing not covered above? Y/N. Detail where.
	Where are child contacts of a person diagnosed with HIV tested? Describe facility and community options available.
WHO	Who performs DBS for EID?
	Doctor? Y/N
	Clinical officer? Y/N
	Nurse? Y/N
	Pharmacist? Y/N
	Counsellor? Y/N
	Community health worker (who is not a counsellor)? Y/N
	Other – please specify
	Are there lay providers (for example, counsellors) available in children facility entry points to provide HTS?
	Who performs testing for child contacts of a person diagnosed with HIV?
	Are mothers and caregivers provided with HIVST kits to screen children under their guardianship? Y/N. Describe.
WHAT	Index testing services: Which children are tested? (biological if mother is living with HIV/biological if mother or father are living with HIV or all children in the household?)
	Is any risk assessment done to screen in/out children for testing? Y/N. Describe and provide assessment tool. (Also consider for community-based services, including social services)
General	Describe any new approaches or successes in providing HIV testing to children.
	Describe challenges with providing HIV testing to children.
ADOLESCENT GIRLS AND YOUNG WOMEN	
WHEN	Is parental consent required for testing? Y/N. Detail age that a test can be requested without parental consent.
	Is the retesting frequency for adolescent girls and young women clear? Y/N. Detail including any assessment of sexual activity and age bands.
	Is testing provided out of school hours? Y/N and detail if at health facilities, schools or community.
WHERE	Are there any adolescent-specific services at health facilities providing testing? Y/N. Describe.
	Are there any community fixed sites for contraception? Y/N. Detail, including if HTS is provided at these sites.
	Is PITC provided for girls under 15 if attending family planning, termination or antenatal services? Y/N. Describe.
	Is testing provided at schools? Y/N. Describe, including whether parental consent is required.
	Can an adolescent girl or young woman request an HIVST online? Y/N? Describe, including collection or delivery. options.
	Can an adolescent girl or young woman collect an HIVST from a vending machine? Y/N. Describe where and how (voucher, pin, etc.).
WHAT	Is any risk assessment done to screen in/out adolescent girls and young women for testing? Y/N. Describe and provide assessment tool (if different from general/children population above).
General	Describe any new approaches or successes in providing HIV testing to adolescent girls and young women.
	Describe challenges with providng HIV testing to adolescent girls and young women .
PREGNANT AND POSTNATAL WOMEN	
WHEN	Is the retesting frequency for pregnant and postnatal women clear? Y/N. Detail, including total number of tests if HIV negative and attach the algorithm.
	Are there any reporting indicators that monitor 2nd or 3rd test coverage?
WHAT	Are men encouraged to attend antenatal services with their partners? Y/N. Describe if this is common or uncommon.
General	Describe any new approaches or successes in providing HIV testing to pregnant and postnatal women and their partners.
	Describe challenges with providng HIV testing to pregnant and post-natal women and their partners
KEY POPULATIONS	
WHEN	At what times is testing (rapid) provided at key population DICs?
	What days of the week is testing (rapid) provided at key population DICs?
	When is community outreach testing provided? Describe adaption for specific key population group and targeted location.
	Is retesting frequency for key population individuals clear? Y/N. Detail frequency.
	When is testing done for people in prisons and other closed settings? Describe. (For example: On entry, annually and at discharge)
WHERE	At which community locations are mobile outreach services providing testing to key populations? Describe
	Are there health facilities specifically providing for key population health needs, including testing? Y/N. Describe.
	Do prisons provide testing? Y/N. Describe, including who provides the service.
	Can clients request an HIVST through a virtual platform (chatrooms/dating apps/networking)? Y/N/NA. Describe and provide online links.
	Can clients request an HIV rapid test at preferred location through a virtual platform (chatrooms, dating apps, networking)? Y/N. Describe how this works.

WHO	Are key population group-specific peer ORWs allowed to provide rapid HIV testing? Y/N
	Are clients allowed to conduct an HIV self-test unassisted?
	Are clients required to disclose their HIV self-test result? Y/N. And to who?
WHAT	If a key population client tests HIV negative, is any risk assessment done to screen in/out for specified prevention services? Y/N/NA? Which ones? Describe and provide assessment tool.
	If a client tests HIV negative, are prevention services offered? Y/N/NA? Which ones? Describe.
	Does the package of services with testing differ from the general population? Y/N. Describe (refer to WHEN rows above).
General	Describe any new approaches or successes in providing HIV testing to specific key population.
	Describe challenges with providing HIV testing for specific key population group.
OTHER FOCUS POPULATIONS (e.g., miners or mobile populations)	
General	Describe any new approaches or successes in providing HIV testing to other focus populations.
	Describe challenges with providing HIV testing for other focus populations.

Linkage to ART

GENERAL POPULATION (add any specific population targeted below)	
WHEN	What are the biggest barriers to improving rapid ART initiation for adults?
	Where HTS/ART services are co-located, is same-day ART initiation offered and available? Y/N. Detail any barriers to same-day ART initiation (for example, baseline investigation result review).
	Is the client diagnosed with HIV followed up to support linkage to ART? Y/N/NA? How often and at what time intervals?
	Is ART initiated every day at every facility-based ART service? Y/N. Describe any limitations.
WHERE	Do all health facilities offering HTS also have ART services? Y/N. Detail coverage.
	Is ART initiation provided outside of specific HIV/ART services? Y/N. Detail at which entry points (for example, ANC services).
	Is community ART initiation authorized? Y/N. Describe, including for whom and any restrictions.
	Is the person diagnosed with HIV provided with choice as to their preferred ART initiation site? Y/N. Detail choices.
WHO	Is the testing provider responsible for linkage support? Y/N. If not, who is?
	Are clients who are diagnosed with HIV linked with a peer living with HIV for psychosocial support? Y/N. Describe.
WHAT	Is a referral form provided? Y/N. If yes, please share.
	Is there easily accessible treatment literacy available? Y/N. Describe.
	Does the person providing testing book an appointment at the treatment site if elsewhere? Y/N. Detail how (online/ phone).
	Is navigation/escort from HTS to ART services within the same facility provided? Y/N
	Is accompaniment from community HTS to the ART service offered? Y/N
	Is there a data system that supports tracking linkage of each individual? Y/N. Describe.
	Is case management available and offered? Y/N. If yes, detail if from testing or after failure to link within specified period and whether in person, phone or SMS.
	Is any incentive or compensation provided? Y/N. Detail (for example, travel reimbursement).
	Are clients who are diagnosed with HIV provided with the option of joining a support group? Y/N/NA. Describe.
	Are clients provided with information about the treatment pathway ahead, including timing of easier collection locations and longer refills? Y/N
General	Is there an SOP for linking clients diagnosed with HIV to treatment from facility and community testing points? Y/N. If yes, please share.
	Describe any new approaches or successes in improving linkage of men and/or women diagnosed with HIV to ART services.
	Describe challenges with linking men and/or women diagnosed with HIV (not covered below) to ART services
CHILDREN	
WHEN	What are the biggest barriers to improving rapid ART initiation for children?
	Where HTS/ART services are co-located, is same-day paediatric ART initiation offered and available? Y/N. Detail any barriers to same-day ART paediatric initiation (for example, baseline investigation result review).
	Is ART initiated every day for children at every facility-based ART service? Y/N. Describe any limitations.
WHO	Are caregivers whose child is diagnosed with HIV linked with a peer caregiver for psychosocial support? Y/N. Describe.
WHAT	See WHAT section for general population – are any of these linkage interventions specifically targeting children (for example, accompaniment or case management)? Y/N. Detail.
General	Describe any new approaches or successes in improving linkage of children diagnosed with HIV to ART services.
	Describe challenges with linking children diagnosed with HIV to ART services.

ADOLESCENTS	
WHERE	Are there specific adolescent ART services in additional to general ART services which can initiate adolescents? Y/N. Describe.
WHO	Are healthcare workers in ART services orientated and trained to be youth friendly? Y/N. Detail.
	Are adolescent peers engaged in the provision of linkage interventions? Y/N. Detail which ones.
	Are adolescents diagnosed with HIV provided linked with a peer living with HIV for psychosocial support? Y/N. Describe.
WHAT	See WHAT section for general population – are any of these linkage interventions specifically targeting adolescents (for example, accompaniment or case management or support groups)? Y/N. Detail.
General	Describe any new approaches or successes in improving linkage of adolescents diagnosed with HIV to ART services.
	Describe challenges with linking adolescents diagnosed with HIV to ART services.
PREGNANT AND POSTNATAL WOMEN	
WHEN	Is same-day initiation provided to women diagnosed in ANC/PNC or MCH services? Y/N. If not, describe barriers to same-day initiation.
WHERE	Is ART initiated within antenatal services? Y/N. If not, where is ART initiated?
	If a woman is diagnosed with HIV in the postnatal period, where is ART initiated?
General	Describe any new approaches or successes improving linkage of pregnant and postnatal women and their partners diagnosed with HIV to ART services.
	Describe challenges with linking pregnant and postnatal women and their partners diagnosed with HIV to ART. services
KEY POPULATIONS	
WHERE	Are there key population-friendly helplines/virtual platforms to provide treatment literacy and psychosocial support after an HIV-positive diagnosis? Y/N/NA? Describe, including who runs these.
	Is ART initiated at community DICs? Y/N. Describe, including for which key populations.
	Is ART initiated at mobile outreach locations? Y/N. Describe, including for which key populations.
	Can ART be initiated virtually? Y/N. Describe.
	Are there specific key population ART services in addition to general ART services that can initiate key populations? Y/N. Describe.
WHO	Are healthcare workers in ART services orientated and trained to be key population friendly? Y/N. Detail.
	Are key population peers engaged in the provision of linkage interventions? Y/N. Detail which ones for which key populations.
	Are key population individuals diagnosed with HIV provided linked with a peer living with HIV for psychosocial support? Y/N. Describe.
WHAT	See WHAT section for general population – are any of these linkage interventions specifically targeting key populations (for example, accompaniment or case management or support groups)?
General	Describe any new approaches or successes in improving linkage of specific key population individuals diagnosed with HIV to ART services.
	Describe challenges with linking specific key population group individuals diagnosed with HIV to ART services.
OTHER FOCUS POPULATIONS (e.g miners or mobile populations)	
General	Describe any new approaches or successes in improving linkage of other focus group individuals diagnosed with HIV to ART services.
	Describe challenges with linking other focus population group individuals diagnosed with HIV to ART services.

Linkage to prevention

Linkage to PrEP	
WHEN	Where HTS/PrEP services are co-located, is same-day PrEP initiation offered and available? Y/N. Detail any barriers to same-day ART initiation (for example, baseline investigation result review).
	Is the client followed up to support linkage to PrEP? Y/N/NA? How often and at what time intervals?
	Are phone numbers and/or virtual platforms to request information about PrEP operational? Y/N/NA? Describe, including operation times.
WHERE	Do all health facilities offering HTS also have PrEP services? Y/N. Detail coverage.
	Is PrEP initiation provided outside of specific HIV/ART services? Y/N. Detail at which entry points (for example, ANC/FP services).
	Is community PrEP initiation authorised? Y/N. Describe including for whom/any restrictions
	Is community PrEP continuation (i.e. after initiation) allowed? Y/N. Explain if both clinical care and refills or only refills.
	Can a person access PrEP through a virtual platform? Y/N. Describe.
	Is the person provided with choice for their preferred PrEP initiation site? Y/N. Detail choices.
WHO	Is the testing provider responsible for PrEP linkage support? Y/N. If not, who is?
	Does the testing provider have comprehensive information of all PrEP service sites? Y/N
	Are peers engaged in the provision of PrEP linkage interventions? Y/N. Detail which linkage interventions.
	Are lay providers (including peers) able to initiate PrEP? Y/N
WHAT	Is a referral form provided? Y/N. If yes, please share.
	Does the person providing testing book an appointment at the PrEP service site? Y/N. Detail how (online, phone).
	Is navigation/escorting from HTS to PrEP/PEP services within the same facility provided? Y/N. Detail.
	Is accompaniment from community HTS to PrEP/PEP services offered? Y/N
	Is case management available and offered? Y/N. If yes, detail if from testing or after failure to link within specified period and whether in person, phone or SMS.
	Is any incentive/compensation provided? Y/N. Detail (for example travel reimbursement)
	Is PrEP method choice available? Y/N. Details methods.
General	Is there an SOP for linking clients testing HIV negative to PrEP/PEP services from facility and community testing points? Y/N. If yes, please share.
	Describe any new approaches or successes in improving linkage to PrEP services and for which specific population.
	Describe challenges with linking clients to PrEP services and for which specific population.
Linkage to PEP	
WHEN	Where PEP is not provided at all HTS locations, what strategies are used to ensure urgent same-day PEP initiaiton (ensuring that it is started within 72 hours of exposure).
	Is PEP completion followed-up? Y/N. Detail. Attach any SOP.
WHERE	Is PEP available at all health facilities? Y/N. At which service point? Detail any barriers.
	Is PEP available at community locations? Y/N? Which locations (for example, pharmacies, DICs, sexual violence clinics)?
WHO	Is the testing provider responsible for PrEP linkage support? Y/N. If not, who is?
	Does the testing provider have comprehensive information of all PEP service sites? Y/N
	Are lay providers able to initiate PEP? Y/N. Detail which cadres (for example community health workers, key population ORWs).
WHAT	Is a referral form provided? Y/N. If yes, please share.
	Is navigation/escorting from HTS to PEP services within the same facility provided? Y/N. Detail.
	Is accompaniment from community HTS to PEP services offered? Y/N
General	Is there an SOP for linking clients testing HIV negative to PEP services from facility and community testing points? Y/N. If yes, please share.
	Describe any new approaches or successes in improving linkage to PEP services and for which specific population.
	Describe challenges with linking clients to PEP services and for which specific population.
Linkage to VMMC	
WHEN	Is the client followed up to support linkage to VMMC? Y/N/NA? How often and at what time intervals?
	Is HTS required before traditional circumcision? Y/N
	Is HTS required before VMMC provision by the Ministry of Health (MoH)? Y/N
WHERE	Do all health facilities offer VMMC services? Y/N. Detail coverage.
	Are there stand-alone VMMC services? Y/N. Describe.
	Is VMMC provided as part of a more comprehensive mens health service/ Y/N. Detail and attach package of services.
	Are VMMC camps run by the MoH in communities? Y/N. If yes, detail coverage and frequency.
	Does the MoH support any traditional community-based circumcision to ensure quality? Y/N. Describe, including any barriers.

WHO	Is the testing provider responsible for VMMC linkage support? Y/N. If not, who is?
	Does the testing provider have comprehensive information of all VMMC service sites? Y/N
	Are peers engaged in the provision of VMMC linkage interventions? Y/N. Detail which linkage interventions.
	Are lay providers (including peers) able to initiate PrEP? Y/N
WHAT	Is a referral form provided? Y/N. If yes, please share.
	Does the person providing testing, book an appointment at the specific VMMC site? Y/N. Detail how (online/phone)
	Is navigation/escorting from HTS to VMMC services within the same facility provided? Y/N. Detail.
	Is accompaniment from community HTS to VMMC service offered? Y/N
	Is case management available and offered? Y/N. If yes, detail if from testing or after failure to link within a specified period and whether in person, phone, SMS.
	Is any incentive or compensation provided? Y/N. Detail (for example, travel reimbursement).
General	Is there an SOP for linking clients after testing to VMMC services from facility and community testing points? Y/N. If yes, please share.
	Describe any new approaches or successes in improving linkage of men to VMMC services.
	Describe challenges with linking men to VMMC services.
Linkage to NSP, OAT	
WHEN	Is needle and syringe distribution done daily? Y/N. Detail any barriers by location.
	How many needles and syringes are provided at each collection?
WHERE	Are needles and syringes distributed at all health facilities? Y/N. If not, detail at which health facilities?
	Are needles and syringes distributed at DICS that are specific for people who inject drugs?
	Are needles and syringes distributed at hotspot street locations? Y/N. Detail extent of mobile outreach services.
	Are there any other locations to collect needles and syringes? Y/N. Detail.
	At which facilities and community locations is OAT provided? Detail number of sites.
	Does the MoH provide drug rehabilitation services for people who inject drugs requesting such services? Y/N. Describe extent.
WHO	Is the testing provider responsible for NSP-OAT linkage support? Y/N. If not, who is?
	Does the testing provider have comprehensive information of all NSP-OAT service sites? Y/N
	Are peers engaged in the provision of VMMC linkage interventions? Y/N. Detail which linkage interventions.
	Are lay providers engaged in the provision of needles and syringes? Y/N. Describe any peer involvement.
WHAT	Is a referral form provided from HTS? Y/N. If yes, please share.
	Is accompaniment from community HTS to the NSP and OAT service offered? Y/N. Describe.
	Is case management available and offered? Y/N. Describe.
General	Is there an SOP for linking clients to NSP and OAT services from facility and community testing points? Y/N. If yes, please share.
	Describe any new approaches or successes in improving linkage of people who inject drugs to NSP and OAT services.
	Describe challenges with linking people who inject drugs to NSP and OAT services.

Annex 4

Building block considerations by specific population in high HIV-burden settings

These tables do not include common HTS building blocks, which are addressed in Part 5.

INFANTS AND CHILDREN

WHEN	**Timing** Infant exposed to HIV: Specific testing schedule aligned to EPI visits or, if EPI visits missed, immediately upon health facility attendance	**Frequency** At admission to inpatient, malnutrition or TB services if mother's HIV status is unknown or living with HIV; or any facility service if symptomatic, diagnosed with an indicator condition or reporting a specific risk exposure	
WHERE	Facility services, including outreach: EPI (also known as under-5 clinics), OPD, inpatient, malnutrition and TB services Homes (as part of community-based index client testing)		
WHO	Healthcare workers, trained lay cadres and caregivers (HIV self-testing)		
WHAT	**Mobilize** Provider-initiated offer Risk-based screen-in validated assessments (18 months+) coupled with opt-out testing	**Test** Explain disclosure process to caregiver and why it is important	**Link** Case management from testing to linkage

ADOLESCENT GIRLS AND YOUNG WOMEN

WHEN	**Timing** Facility opening hours outside school and tertiary institution hours, school holidays	**Frequency** Annually (unless opt-out by specifically reporting no sexual activity); or earlier if symptomatic, diagnosed with an indicator condition or reporting a specific risk exposure or taking PrEP	
WHERE	*Facility-based:* all entry points, including testing coverage in family planning, STI and antenatal services *Community-based*: schools, colleges, tertiary institutions, youth centres and other community-based locations where adolescent girls and young women gather (e.g., marketplaces, churches and hair salons), virtual platforms (e.g., social network applications and dating apps), private pharmacies and targeted location vending machines (HIV self-test kits) Homes (if partner, biological mother or social network notification)		
WHO	Healthcare workers, trained lay cadres, involvement of adolescent peers in all HTS components, social network mobilizers and client (HIV self-testing)		
WHAT	**Mobilize** Earlier age of consent, HIV awareness and sexual health education, including HIV prevention education and information on family planning and STI services; provider-initiated offer; partner or social network mobilizer notification *Certain high HIV-burden settings:* status-neutral messaging to encourage PrEP uptake	**Test** Individual self or provider risk screening for PrEP offer and active linkage	**Link** Accompaniment and case management for linkage to ART from date of testing to linkage; establish peer network support; follow up if no linkage to PrEP within 7 days; reimbursement for travel to ART and PrEP initiation sites

KEY POPULATIONS

WHEN

Timing

Specific times when key population gathers or high online site traffic

Men who have sex with men: evening in bars or clubs

Trans individuals: late evening or early morning in social gathering venues or late afternoons at residences

Sex workers: work hours in bars, brothels, hotels, congregant streets – consider quieter work times

People who inject drugs: mornings at needle syringe collection points or OAT services

People in prisons and other closed settings: at intake, transfer and discharge

Frequency

Six-monthly to annually or earlier if symptomatic, diagnosed with an indicator condition or reporting a specific risk exposure or taking PrEP

WHERE

Community-based location where key population is known to gather: "hotspots"/"venue-based" (see detail in WHEN); fixed community sites (drop-in centres); virtual platforms (social network applications or dating apps)

Homes (if partner or social network notification)

Key population-specific health facilities, general health facilities utilized by key populations – often those in close proximity to community congregant settings

WHO

Healthcare providers who have been sensitized to deliver HTS for the specific key population; engagement of key population-specific peers in all three components of HTS

Men who have sex with men and trans people: social media influencers for mobilization

Social network mobilizer or clients (HIV self-testing)

WHAT

Mobilize

Provider-initiated offer; negotiated access through any gatekeepers; status-neutral messaging to encourage uptake of prevention services; HTS integrated into STI/TB/HCV screening and management services

Female sex workers: HTS integrated into FP and ANC services

People who inject drugs: HTS integrated with needle and syringe distribution and OAT services

Test

Dual HIV/syphilis rapid test; HIV self-testing option with linkage facilitation options for confirmatory testing

Link

Community ART and PrEP initiation; streamlined services at health facilities with same-day ART and PrEP initiation; peer-supported accompaniment to health facilities and case management from date of testing to linkage; reimbursement/s for travel if required to travel to health facility

People who inject drugs: needle and syringe supply plan and community-based easy-access OAT services

MEN

WHEN	**Timing** Same day as facility service attendance; during working hours at workplaces; and after working hours at facilities and for community testing	**Frequency** Annually or earlier if symptomatic, diagnosed with an indicator condition, or reporting a specific risk exposure or taking PrEP
WHERE	*Facility-based:* all entry points, including STI services and when accompanying others (waiting rooms or outside health facilities) *Community-based:* workplaces (formal or informal); community meeting places (bars, churches, transport nodes, football matches or male community forums) Homes (if partner or social network notification)	
WHO	Healthcare workers, lay cadres, male peers, partners (partner notification, including with HIV self-test kits), social network mobilizer or clients (HIV self-testing)	
WHAT	**Mobilize** HIV awareness messaging showing men living well with HIV with one pill a day working and explaining U=U; provider-initiated offer; partner notification with testing choices; HTS integrated with health screening package: STIs, TB, hypertension and/or diabetes	**Test** Pre-test information to emphasize that treatment and U=U work; HIV self-testing option with linkage facilitation options for confirmatory testing **Link** Male-friendly, same-day, co- located ART initiation; peer- supported follow-up if no linkage within 7 days; referral and appointment booking at preferred VMMC services

PREGNANT AND BREASTFEEDING WOMEN

WHEN	**Timing** First antenatal booking; same day as antenatal, postnatal and EPI service attendance	**Frequency** Third trimester and once at either 6 or 9 months postnatally
WHERE	Facility-based*: HTS integrated within ANC, PNC, EPI	
WHO	Nurses and midwives integrating HTS within ANC and PNC services; peer mothers	
WHAT	**Mobilize** Opt-out provider-initiated HTS; information on HIV acquisition vulnerability and availability of same day ART/PrEP initiation co-located in ANC/PNC/EPI services	**Test** Dual syphilis/HIV rapid test as first test; group pre-test information (in high HIV-burden settings, include status-neutral messaging to encourage PrEP uptake); partner services for all women – including HIV self-test kit distribution and follow-up at subsequent ANC/PNC/EPI visits; individual self-risk screen for PrEP offer and active linkage **Link** Same-day ART and PrEP initiation co-located for ANC

*In settings where many pregnant women are not attending antenatal care at facilities, community-based HTS models are needed. Community health workers, CBOs and traditional birth attendants should use their social networks to identify newly pregnant women and offer home-based testing. Community-based ART initiation should be considered using starter packs. Active case-management to ensure linkage to facility-based antenatal services, treatment continuation and retesting is essential.

Annex 5

How to use behavioural science approaches to improve, adapt or build differentiated HTS models

Behavioural science approaches can significantly enhance the design and implementation of differentiated HTS models by focusing on behaviours and preferences of both clients and health workers and designing building blocks to meet those different needs.

After completion of the situational analysis (Step 1) and during the stakeholder engagement (Step 2), gaps and challenges will **identify the problem you are trying to solve**. This will likely be a big, broad problem (for example, HIV testing among men is low), but behaviourally informed interventions work best when they are targeted at a specific, concrete **focal behaviour** (for example, men do not take up HIV testing when it is offered at clinic appointments).

A focal behaviour should:

- Have impact potential to "move the needle" on the outcome if it is changed
- Be measurable and observable
- Not be a structural problem
- Have existing platforms or touchpoints to reach the target audience

Next, we need to **understand the context** in which the behaviour occurs (that is, social, economic and cultural factors that might influence the behaviour). With your team, think about:

- What steps are needed to achieve the focal behaviour?
- Where and when does the behaviour take place?
- Who or what helps the behaviour happen or gets in the way to prevent the behaviour?

It is helpful to create a map that shows movement and behaviours within a given environment and to map the user journey showing the timelines and touchpoints that a user experiences.

Now that you understand the context and realities of your target population, you can start to **brainstorm the specific barriers users face** in carrying out the behaviour. Using the map from the previous step, managers can start by brainstorming with their team all the barriers that might get in the way of the behaviour. This list can be refined down to three to seven key barriers.

With this list, you can start to **generate mobilizing, testing or linking differentiated HTS building blocks** to address these key barriers. You will want to consider:

- Can you simplify the decision or action to make the behaviour easier to achieve?
- How can you help people follow through with their intentions?
- How can you motivate the behaviour and emphasize the benefits?

The tools you might use to achieve this include: introducing default choice options; giving prompts to make a choice or plan for that action; providing checklists or reminders; reducing the number of choices; removing hassles or steps and simplifying the action; reframing, or loss or gain framing messages; or personalizing messages.

Prototyping or piloting the updated or newly built differentiated HTS model is a great way to pressure test with potential users and incorporate their feedback to improve the design before implementing these to see if they lead to a meaningful improvement.

For more information or support with these processes, please contact the Indlela Behavioural Insights for Better Health Unit at Indlela@heroza.org. There are also several frameworks that can be used to guide these processes:

- The NUDGE Handbook (https://indlela.org/nudge-handbook/)
- EAST Framework (https://www.bi.team/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf)
- The COM-B Model for Behavior Change. The Decision Lab. (Retrieved 27 November 2024 from https://thedecisionlab.com/reference-guide/organizational-behavior/the-com-b-model-for-behavior-change)

Annex 6

Example for linkage to ART services in low HIV-burden setting: Ghana (2022) [76]

3.7 Linkage to ART services

- All clients testing HIV positive should be proactively linked to ART services.
- The person performing the HIV test should ensure that the client is linked to ART services.
- With the client's consent, their contact details should be documented in the HTS register and the client's chosen ART site recorded.

- In large facilities, linkage may require escorting the client to be registered at the ART clinic.

- For inpatient clients who test positive, ART should be initiated in the ward (unless delayed initiation is indicated due to clinical reasons, such as treatment of cryptococcal meningitis). Refer client with a clear referral plan made with the client's preferred ART site.

- Where the client was tested in the community, the healthcare worker or lay cadre performing HIV testing should discuss options for ART sites. The client should, with his/her consent, be linked to a healthcare worker or volunteer (for example, model of hope) from their community.

- Clients who tested HIV positive in the previous month should be followed up to ensure that they have been linked to care either through cross-reference in the ART register or by contacting the client by phone.
- If the client has not been linked to care, they should be provided with further counselling if reached by phone.
- Where they are not contactable by phone, the community health nurse or lay worker should schedule a home visit as part of routine health promotion activities to encourage the client to access ART services.

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Follow these characters as they find solutions to common challenges around testing for HIV

How am I meant to have an HIV test when the queues in the clinic are so long? I'm also not sure where I can get a regular supply of condoms and I heard that some of my friends have started to take PrEP. Where should I go?

Namrata, a female sex worker

How am I going to reach the remaining people with HIV who don't know their status with the resources we have? We have to reach our 95-95-95 targets.

Andrew, a district ART manager

I wonder if I should be tested for HIV. It's not easy for me to go to the clinic to be tested because I'm at work.

John, a security guard

I tested positive during my pregnancy, but my husband says he's too busy to go to the clinic for a test.

Judith, David and their baby