

HIV test–treat–retain cascade analysis

Guide and tools



**World Health
Organization**

Regional Office for the Eastern Mediterranean

HIV test–treat–retain cascade analysis

Guide and tools



**World Health
Organization**

Regional Office for the Eastern Mediterranean

WHO Library Cataloguing in Publication Data

World Health Organization. Regional Office for the Eastern Mediterranean

HIV test-treat-retain cascade analysis: guide and tools

World Health Organization. Regional Office for the Eastern Mediterranean

p.

ISBN: 978-92-9021-994-1

ISBN: 978-92-9021-995-8 (online)

I. HIV Infections – diagnosis - therapy 2. Data Collection 3. Antiretroviral Therapy, Highly Active
4. Continuity of Patient Care I. Title II. Regional Office for the Eastern Mediterranean
(NLM Classification: WC 503.2)

©World Health Organization 2014

All rights reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

Publications of the World Health Organization can be obtained from Knowledge Sharing and Production, World Health Organization, Regional Office for the Eastern Mediterranean, PO Box 7608, Nasr City, Cairo 11371, Egypt (tel: +202 2670 2535, fax: +202 2670 2492; email: emrgoksp@who.int). Requests for permission to reproduce, in part or in whole, or to translate publications of WHO Regional Office for the Eastern Mediterranean – whether for sale or for noncommercial distribution – should be addressed to WHO Regional Office for the Eastern Mediterranean, at the above address: email: emrgogap@who.int.

Design by Punto Grafico.

Contents

Introduction	5
The HIV treatment crisis in the WHO Eastern Mediterranean Region	5
The HIV test–treat–retain continuum of care	5
The HIV test–treat–retain cascade	6
Purpose of the guide.....	7
How to carry out HIV test–treat–retain cascade analysis	8
Implementation process in countries	8
Overview of the methodology	9
Data collection and analysis	10
Key quantitative and qualitative information to collect.....	12
Drawing the cascade.....	12
Step 1: HIV testing (HIV diagnosis).....	13
Step 2: Enrolment in care; pre-ART care	15
Step 3: ART and retention in lifelong care.....	17
Special considerations for PWID.....	18
Common issues to be explored for all steps of the cascade	19
Beneficiaries’ perspectives.....	20
Annex 1. Terms of reference	22
Annex 2. The cascade analysis report: outline	26
Annex 3. Country indicators and national targets	27
Annex 4. Creating a fishbone diagram.....	30
Annex 5. Stakeholder consultation	32
Annex 6. Indicator definitions	34
Annex 7. Analysis of health system issues	36

Introduction

The HIV treatment crisis in the WHO Eastern Mediterranean Region

Coverage of antiretroviral therapy (ART) in the WHO Eastern Mediterranean Region is, at just 15%, the lowest in the world. In addition, while new infections are on the decline globally they continue to increase at a high rate in the Region, further increasing the number of people who need treatment.

Although efforts to make ART available in all countries of the Region over the last decade have succeeded in increasing the number of people living with HIV (PLHIV) who are receiving life-saving ART, these have not translated into any significant increase in regional ART coverage. The low ART coverage is the result of an accumulation of failures and weaknesses of current HIV control strategies and programmes. New HIV infections are not prevented because key populations at increased risk of HIV infection do not have access to prevention services responding to their needs. While knowing one's HIV status is a precondition for accessing treatment, the majority of PLHIV in the Region are unaware of their HIV infection.

Early identification of PLHIV, timely initiation of ART and lifelong care are key elements of the WHO strategy towards achieving universal access to HIV treatment and care and are increasingly recognized as the means to ending the epidemic. Entry into and retention in care are critical to the success of HIV treatment. Retention on ART is essential for individual patient outcome and also has public health consequences.

In order to accelerate HIV testing and treatment scale-up, WHO is launching a regional initiative to end the HIV treatment crisis with the aim of achieving universal coverage of HIV treatment by 2020. With strong ownership, political will and the right policies and strategies in place, this is an achievable goal, as has been demonstrated in other parts of the world. The objective of the initiative is to mobilize urgent actions by governments and nongovernmental partners in order to achieve regional and global treatment targets.

The HIV test–treat–retain continuum of care

The continuum of care for PLHIV extends from HIV testing through enrolment in HIV care, ART initiation and retention in life-long ART and chronic care (Fig. 1).

At each step of this continuum of care the health system succeeds in engaging a certain proportion of beneficiaries (PLHIV) and fails to engage or retain others. The losses

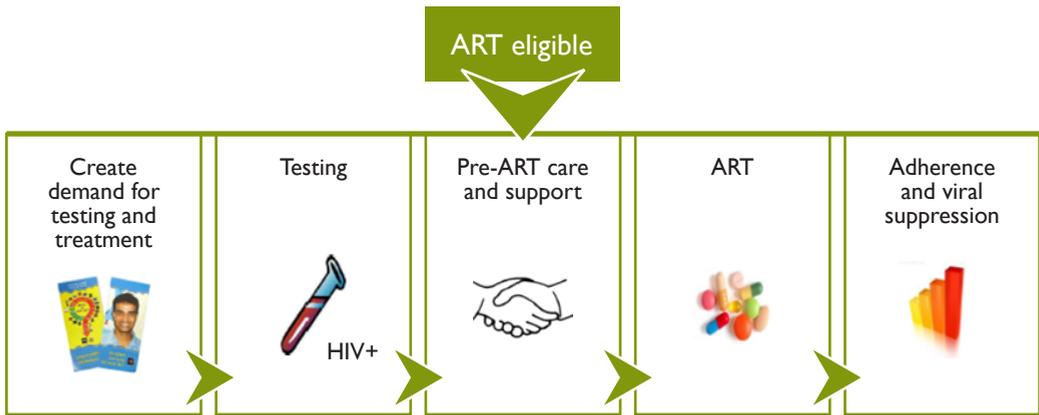


Fig 1. The HIV test–treat–retain continuum of care

from one step to another can be visualized in the format of a HIV test–treat–retain cascade.

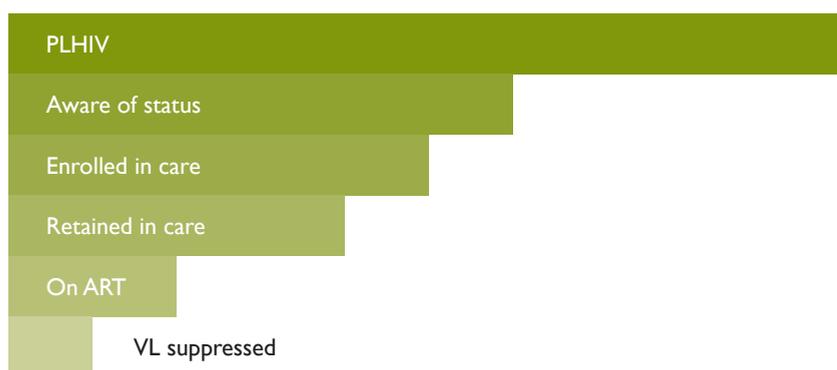
The HIV test–treat–retain cascade

The HIV test–treat–retain cascade shows, in visual form, the number of PLHIV who actually receive the full benefits of HIV testing, care and treatment at each step along the continuum of care for PLHIV (Fig. 2).

The main objective of an analysis of the HIV test–treat–retain cascade (“cascade”) is to describe and quantify losses and missed opportunities to engage and retain PLHIV along the continuum of care and to explore reasons for these losses.

Analysis of the first step in the continuum, i.e. getting to know one’s HIV status (HIV testing), may reveal low demand for, access to and utilization of HIV testing and counselling services. This situation prevails in the Region and results in the majority of PLHIV being unaware of their HIV status. When diagnosed with HIV infection, many PLHIV are lost before they are linked to care or before they are initiated on ART. Failure to retain PLHIV on life-long treatment after treatment initiation is another reason for loss of PLHIV and for the failure to achieve and sustain viral load (VL) suppression. It is important to bear in mind that the situation at each step of the continuum of care may be different for different population groups and in different countries and may require different solutions.

Identifying losses and missed opportunities for engaging PLHIV along the continuum of care will inform the development of strategies, service delivery approaches and action plans for accelerating access to HIV testing and treatment.



Source: Adapted from Gardner EM et al. The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. *Clinical Infectious Diseases*. 2011; 52:793–800.

Fig 2. HIV test–treat–retain cascade

Purpose of the guide

The WHO Regional Office for the Eastern Mediterranean developed this guide to help national AIDS programme managers and their partners implement the HIV test–treat–retain cascade analysis at country level. It includes guidance on how to:

- identify where, along the steps of the continuum of care, programmes fail to engage and retain PLHIV in HIV testing, care and treatment;
- determine the magnitude of the losses/gaps along the continuum;
- identify and analyse causes of the losses/gaps, i.e. issues and challenges related to policies, health systems, community systems and beneficiaries.

It also suggests a process for conducting the cascade analysis in country in order to achieve broad stakeholder participation, consensus on the findings of the analysis and ownership of the conclusions and recommendations for improvements resulting from it.

How to carry out HIV test–treat–retain cascade analysis

Implementation process in countries

In order to achieve broad ownership of the cascade analysis exercise and the findings and conclusions resulting from it, decision-makers from relevant government bodies and partner agencies, and representatives of service providers, civil society organizations and beneficiaries must be involved.

The following implementation process is proposed:

1. establishment of steering committee (see terms of reference in Annex 1a);
2. establishment of technical working group (see terms of reference in Annex 1b) and recruitment of a national consultant if needed (Annex 1c);
3. collection of data to draw the HIV test–treat–retain cascade; drawing the cascade and identifying the main gaps along the steps of the cascade;
4. determining further needs for quantitative and qualitative data that can explain the causes for the gaps;
5. identification and selection of key stakeholders for interviews/discussion and of sites to be visited to fill the information gaps;
6. development of tools for collection and compilation of data;
7. collection of relevant data;
8. data analysis: quantification and description of engagement of PLHIV along the HIV test–treat–retain cascade; and interpretation and summary of findings related to the losses/gaps in the treatment cascade;
9. presentation and discussion of the main findings to the steering committee;
10. national stakeholders meeting:
 - presentation, discussion and validation of the assessment findings;
 - development of recommendations for urgent action to be taken to accelerate HIV testing and treatment scale-up;
11. development of report (see Annex 2) summarizing:
 - assessment process and implementation;
 - main findings and discussion;
 - conclusions and recommendations;
12. steering committee meeting to agree on planning process for implementation of recommendations.

Overview of the methodology

The HIV test–treat–retain cascade analysis (“cascade analysis”) examines the achievements and losses/gaps in engaging PLHIV along the continuum of care. Experience with implementing the cascade analysis in countries of the Region shows that it is useful for data collection and analysis to distinguish three interlinked steps along the continuum of care:

- step 1: HIV testing
- step 2: enrolment in HIV care and pre-ART care
- step 3: ART initiation and retention in lifelong HIV care.

For each of these steps the cascade analysis will:

- describe briefly current policies and practices;
- collect the relevant data to determine the magnitude of gaps/losses;
- address key questions to explore the most relevant factors that determine the magnitude of gaps/losses (factors related to policies, practices, patients and the health system) and explain the gaps/losses; and
- identify missed opportunities (services that are lacking, population groups that are not addressed, geographical areas not covered, etc.).

Data collection employs a combination of methods and draws on various data sources (Table 1).

It is proposed that data collection and analysis is carried out through an iterative process that involves: 1) collecting and analysing relevant information to determine the magnitude of gaps/losses at each step of the continuum of care; 2) exploring and drawing conclusions on the determinants for the observed gaps/losses; and 3) developing recommendations for action.

Table 1. Data collection methods and data sources

Data collection method	Sources of information
Desk review	National policies and strategies, guidelines for HIV testing and counselling and HIV clinical management, standard operating procedures, annual programme reports, programme reviews and monitoring and evaluation reports, clinic registers, cohort analysis reports
Interviews/discussions with stakeholders	Policy-makers, public, private and nongovernmental organization health service providers, social service providers, clients of services, PLHIV associations, community service organizations, law enforcement and prison authorities, individuals from key populations, health workers (e.g. voluntary HIV counselling and testing staff [HCT], HIV clinic staff, antenatal clinic staff, TB clinic staff, nongovernmental organization staff), national AIDS programme team

Data collection and analysis

Getting started

At the start of the exercise, the technical working group needs to take time to familiarize itself with this tool and reach common understanding of the methodology: the steps in the continuum and related definitions, quantitative indicators, and questions/prompts for discussion with stakeholders. It is recommended that the technical working group discuss their understanding of the tool and agree on a common approach to data collection and analysis.

Determining the magnitude of gaps/losses along the HIV test–treat–retain cascade

The assessment starts with the collection of relevant quantitative data on a few indicators required to draw the cascade of the country. This will provide a first overview of the magnitude of gaps/losses at each step of the cascade.

Since each step of the cascade reflects a combination of processes (“sub-steps”) required to achieve diagnosis, linkage and continued lifelong engagement of PLHIV in care and treatment, understanding the gaps/losses along the cascade of the country will necessitate the collection of additional data in relation to these processes. Also, since the extent to which different population groups access services is likely to differ, it is useful to explore gaps/losses by subgroup of beneficiaries.

In order to provide an overview of the most relevant quantitative data it is recommended to fill in the table on country indicators provided in Annex 3. Details on additional quantitative information to be collected are provided below for each step.

Understanding the determinants for the gaps/losses

The next step in the cascade analysis process involves collecting qualitative information to help identify and understand the reasons for, and contributing factors to, the observed gaps/losses along the cascade. This will include exploring the reasons/factors related to the programme (policies, strategies, management), to the client/patient and to the health system. In many countries of the Region it will be important in this context to look into how far integration (or the lack thereof) of HIV services into the overall health system contributes to the gaps and attrition along the continuum. The technical working group should agree on the information to be collected, data collection methods and time frame.

To analyse and understand the cause–effect relationship between various findings, certain tools can be used, such as the drawing of problem trees or fishbone diagrams (see Annex 4).

Additionally, some more in-depth analysis for relevant key population groups might be needed to understand the unique challenges for engaging and retaining them in care, for example, people who inject drugs (PWID).

Developing recommendations for action

A summary of the most relevant findings, conclusions and suggestions for potential solutions should be prepared by the technical working group for validation and discussion at the stakeholder consultation (see Annex 5). The technical working group will present the findings to the stakeholders, and discuss and recommend strategies and interventions to reduce the gaps/losses along the cascade and thus increase access to HIV testing, care and treatment. (Innovative thinking “out of the box” should be encouraged for “chronic” problems.)

Limitations

There are several limitations to using this methodology in all countries: some of the relevant data are not readily available, standard definitions are lacking for some concepts (e.g. linkage to care, loss to follow up) and there is overlap in the different steps of the continuum of care. Engagement and retention in HIV care is a dynamic and longitudinal process, and the cascade analysis only gives us a snapshot of this process.

Key quantitative and qualitative information to collect

Drawing the cascade

At the beginning of the HIV test–treat–retain cascade analysis, the cascade for the country should be drawn to visualize the achievements and losses/gaps at each step (see Fig. 2). This will require discussion and agreement on operational definitions for all relevant terms and indicators. Internationally-agreed definitions exist for many terms and indicators, which can be referred to, such as definitions used in the Global AIDS Response Progress Report (GARPR). However, for some terms, definitions may vary between countries. Examples of definitions of these terms are available in Annex 6.

The information outlined in Table 2 is required to draw the cascade. Where such information cannot be found in countries, proxy indicators should be agreed upon by the technical working group.

Table 2. Drawing the cascade: information required

Information required	Value (add values in this column)	Operational definition	Data sources
Estimated number of PLHIV		Most recent country/UNAIDS estimate	Country and UNAIDS published estimates
Number/percentage of PLHIV who know their HIV status		Definition to be agreed upon at the start of the cascade analysis ^a	HIV case registry, death registry
Number/percentage of PLHIV who have ever been enrolled in care		Definition to be agreed upon at the start of the cascade analysis ^a	Health facility records and reports
Number of PLHIV currently in care (pre-ART and ART)		Definition to be agreed upon at the start of the cascade analysis ^a	ART site records/registers
Number of PLHIV on ART		Definition used in GARPR	GARPR, ART site records/registers
Number of PLHIV with suppressed VL (early warning indicator)		Definition used in WHO global strategy for the surveillance and monitoring of HIV drug resistance 2012	Patient records/registers

^a See example in Annex 6

Step I: HIV testing (HIV diagnosis)

This step represents the entry point to care and treatment. It involves: putting in place the appropriate strategies to create demand for HIV testing; reaching out and providing targeted services for key populations at increased risk of HIV; putting in place provider-initiated testing and counselling (PITC) services in health care services (such as tuberculosis [TB], antenatal clinic and sexually transmitted infection [STI] services); and encouraging partner testing. The approaches to service delivery should be conducive to increasing uptake of services by the target groups and, eventually, to effective linkage of those diagnosed HIV positive to HIV care and treatment services.

Key questions

HIV testing

- What proportion of PLHIV know their HIV status?
- Why are we not able to identify more PLHIV?
 - Are we using the right strategies/approaches to create demand for HIV testing?
 - Are we testing the right people?
 - Do we prioritize the right population groups for HIV testing?^{1, 2}
 - How big is the HIV testing gap among each of the prioritized populations?
 - Do we succeed in creating demand for client-initiated HIV testing among the right population groups (populations at higher risk of HIV infection)?
 - Are our approaches to delivering HIV testing services conducive to increasing uptake:
 - Is our approach to provider-initiated HIV testing conducive to increasing uptake of HIV testing and counselling in health care facilities?
 - Are we using the right approaches to deliver services for client-initiated HIV testing depending on the target population?*

*HIV testing approaches include: community-based (nongovernmental organization), outreach, health facility-based, PITC for clients of health facilities, mobile HCT, etc.

Linkage to HIV care

- Are we losing patients between an HIV positive diagnosis and enrolment in HIV care? If so, what are the reasons?
- What system do we have in place to ensure that people who are diagnosed HIV positive are effectively linked and enrolled in HIV care? How effective is this system? What are the specific challenges for infants/children?

¹ Service delivery approaches to HIV testing and counselling (HTC): A strategic policy framework. Geneva: WHO; 2012 (http://www.who.int/hiv/pub/vct/htc_framework/en/, accessed 15 December 2013).

² Guidance on couples HIV testing and counselling: including antiretroviral therapy for treatment and prevention in serodiscordant couples. Recommendations for a public health approach. Geneva: WHO; 2012 (<http://www.who.int/hiv/pub/guidelines/9789241501972/en>, accessed 15 December 2013).

Relevant quantitative information

- Number of people diagnosed positive for HIV in the past year (by target population) (see table below)

HIV testing coverage and HIV-positivity rate among population groups prioritized for HIV testing (in the past year)

Population group	(Estimated) population size	Estimated number HIV+ve	Number/percentage tested for HIV	Number/percentage diagnosed HIV+ve
Men who have sex with men				
Sex workers				
PWID				
Sexual partners of PLHIV				
Prisoners				
Other population groups if relevant to be added here (e.g. sexual partners of PWID, other populations at increased risk or unknown risk). This can include HCT clients where it is unknown to which of the above population groups they belong				
	Estimated cases per year	Recorded cases per year	Estimated number HIV+ve	Number tested for HIV (out of recorded cases)
TB patients				
Antenatal clinic attendees				
STI patients				
Infants and children exposed to HIV (infants and children born to mothers living with HIV)				
Other if relevant or data available (e.g. hepatitis services, emergency ward patients, hospital admissions)				

Problem analysis

Some factors to be considered when exploring the determinants of gaps/losses (issues related to policy, strategy, service delivery, health systems and clients/patients)

Demand creation and HIV testing

- Priority target groups for HIV testing and counselling
- HIV testing coverage targets by population
- Approaches to demand creation among target populations (coverage of outreach and education among priority target groups for HCT; approach to offering the test in PITC settings, i.e. universal offer, risk-based offer, opt-in versus opt-out approach, HIV test onsite or referral to other facility)
- Appropriateness of approaches to HIV testing and counselling service delivery (community-based, outreach, facility-based, PITC, HCT mobile, etc.)
- Availability and accessibility (location, opening hours, safety of clients and providers, stock-outs of tests, etc.)
- Acceptability of HIV testing and counselling services to target groups and in particular to key populations (consider factors such as trust between key populations and service providers, staff attitudes, staff competence, confidentiality, barriers related to cumbersome HIV testing procedures, partner notification policies and practices, exclusion of population groups from access to HIV testing)
- Quality of testing and counselling:
 - HIV testing strategies and algorithms, quality assurance
 - Observation of 5 Cs (confidentiality, counselling, consent, correct results, connection to care and treatment)
- Affordability (is cost for client a barrier)
- Programme coordination (coordination between HIV programme and other programmes, such as TB, maternal and child health, etc.)

Referral system

Is there adequate information about HIV care and treatment during post-test counselling?

Referral from testing to HIV care: mechanisms and effectiveness (e.g. referral card, patient navigators, community mediators, referral reports, scheduling appointments), role of HIV testing providers, monitoring of referral, etc.

For common issues/challenges related to the patient/client (beneficiary) and to health systems that may lead to gaps in this step please refer to pages 19–21 and Annex 7.

Step 2: Enrolment in care; pre-ART care

This step may last for a very short period only if a person is in WHO clinical stage 3 or 4 or has a low CD4 count, or may last for years for someone who is asymptomatic and with a high CD4 cell count. Among the important interventions during this step are:

- enrolment at an HIV care service
- initial assessment of ART eligibility (after which patients in need of ART start ART promptly)

- Provision of comprehensive package of services and retention of patients in pre-ART care (including frequent repeat assessment of ART eligibility).

Key questions

Pre-ART care

- How big is attrition in pre-ART care and what are the main reasons for attrition?
- Initial and repeat assessment of ART eligibility: What are the challenges?

Relevant quantitative information

Enrolment in care

- Number of PLHIV newly enrolled in care in the past year
- Ratio of new PLHIV enrolled in HIV care to number of new people testing positive for HIV
- Number of PLHIV enrolled in care within a certain period of time after HIV diagnosis (as per definition agreed in country, e.g. within 1, 3 or 6 months of HIV diagnosis, > 6 months)
- Mean and median CD4 count at time of enrolment in HIV care

Pre-ART care

- Number of PLHIV ever enrolled in care
- Percentage of patients enrolled in care in the last reporting year with CD4 < 350 cell/mm³
- Number of PLHIV currently in pre-ART care (note: technical working group needs to develop an operational definition of “currently in pre-ART care”)

Problem analysis

Some factors to be considered when exploring the determinants of gaps/losses (issues related to policy, strategy, service delivery, health systems and clients/patients)

Enrolment in care

- What is our definition of “enrolled in care after HIV testing”?

Assessment of ART eligibility

- Availability of CD4 testing
 - How many CD4 testing sites? Where?
 - Do some patients have to travel long distances to have access to a CD4 test?
 - How often during the year is CD4 testing not available (machine broken, stock-out of reagents, other reason), is this one reason for loss to follow-up?

Pre-ART care

- What motivates PLHIV to remain in pre-ART care?
- Is there a comprehensive package of services?
- What are the main reasons for loss to follow-up?

For common issues/challenges related to the patient/client (beneficiary) and to health systems that may lead to gaps in this step please refer to pages 19–21 and Annex 7.

Step 3: ART and retention in lifelong care

A person living with HIV who is eligible for ART based on CD4 cell count or clinical criteria should be promptly started on treatment. Once initiated on ART, the ultimate goal of this step is to ensure retention in lifelong successful treatment as evidenced by the patient achieving and sustaining VL suppression.

Key questions

- What are the reasons for low ART coverage?
- What are the reasons for deferring ART in those eligible?
- Are key populations accessing HIV treatment?
- How big is attrition and what are main reasons/contributing factors for attrition among patients on ART?

Relevant quantitative information

- ART coverage: percentage of eligible adults and children currently receiving ART (GARPR indicator 4.1)
- Percentage of adults and children still alive and known to be on treatment 12 months after initiating ART (GARPR indicator 4.2)
- Percentage of patients initiating ART whose VL is < 1000 copies/ml after 12 months of ART (HIV drug resistance early warning indicator)
- Percentage of health facilities dispensing antiretroviral (ARV) drugs that experienced a stock-out of at least one required ARV drug in the last 12 months (GARPR indicator 4.4)

Problem analysis

Some factors to be considered when exploring the determinants of gaps/losses (issues related to policy, strategy, service delivery, health systems and clients/patients)

- Availability/accessibility of ART services, service delivery model
- Clinic experience, fear of stigma and discrimination
- Continuity in supply of ARV drugs and laboratory reagents
- Unique challenges for some populations groups to access and remain in care (e.g. PWIDs)

For common issues/challenges related to the patient/client (beneficiary) and to health systems that may lead to gaps in this step please refer to pages 19–21 and Annex 7.

Special considerations for PWID

The ART coverage for PWID is especially low in the Region. PWID are more likely to have poor adherence to treatment and poor retention in care.

Key question

- Why are PWID not accessing treatment?

Relevant quantitative information

- Number of integrated drug treatment/ART services
- Number of PWID ever enrolled in care (and what percentage of total PLHIV ever enrolled in care)
- Number of PWID ever started on ART (and what percentage of total PLHIV ever started on ART)
- Number of PWID currently on ART (and what percentage of total PLHIV currently on ART)

Problem analysis

Some factors to be considered when exploring the determinants of gaps/losses (issues related to policy, strategy, service delivery, health systems and clients/patients)

Enrolment in care

Most PWID are diagnosed with HIV outside the mainstream health system (through outreach programmes, nongovernmental organization facilities, etc.)

- Links/referrals/coordination from testing to ART services
- Monitoring of successful linkage to care for PWID

Pre-ART care

- Adequate education/information about HIV
- CD4 test on day of enrolment; time to receipt of CD4 result
- ART preparedness
- Coordination with nongovernmental organizations, drug dependence treatment facilities, prisons, etc.

Initiation of ART to retention in lifelong successful ART

- Issues/challenges that limit access to ART based on history of, or current, injecting drug use (restrictions in guidelines, access, reluctance on the part of the prescriber, etc.)
- Availability of opioid substitution therapy
- Management of co-infections available for HIV infected PWID
- Collaboration/integration between ART sites treating PWID and drug dependence treatment facilities, nongovernmental organization working with PWID, prisons, etc.
- Psychosocial support; adherence support (e.g. treatment buddies)
- Financial support (e.g. transport costs)
- Retention strategies for PWID (case management strategies to improve engagement and retention in care)
- Availability of ART for PWID during incarceration (how is this managed?)
- Links/coordination mechanisms between prisons and ART sites

Common issues to be explored for all steps of the cascade

Health system issues

The organization and efficiency of health systems and the way HIV programmes and services are integrated or not integrated in the existing system can have major effects on access to and utilization of services. Health system-related issues are often common for all components of the test–treat–retain continuum of care (demand creation for testing, testing, enrolment in care, ART, retention).

In order to capture major causes for loss along the HIV test–treat–retain cascade, it is recommended to primarily explore issues related to four elements of health systems: governance, financing, human resources, and procurement and supplies management. However, this should not be confused with an extensive and thorough review of the health system of the country. It should look only at those areas where the HIV programme's weaknesses may be related to lack of integration in the mainstream health system or may be due to underlying health system weaknesses (e.g. weak procurement and supplies management system).

Health system building block	Key questions
Governance	<p>Does the way that the HIV programme and HIV service delivery are governed or organized have a (direct or indirect) effect on access to and utilization of services?</p> <p>Is there effective collaboration and coordination with other related programmes (e.g. TB, maternal and child health) for developing policies, planning, designing, implementing, monitoring and evaluating HIV care and treatment services related to those programmes?</p>
Financing	<p>Does the way that the HIV programme and HIV service delivery are financed have an effect on access to and utilization of services?</p>
Human resources	<p>Are human resources for HIV service delivery adequate in number, professional skills and competences?</p> <p>Is the staff of HIV services part of the overall pool of staff of the health service where they work?</p> <p>Are staff/volunteers sufficiently motivated?</p>
Procurement/supplies management	<p>Does the way procurement and supplies are managed affect access to and utilization of HIV services?</p>
Information systems	<p>Are their challenges with regard to the health information system that impede HIV testing and treatment scale-up?</p>

Beneficiaries' perspectives

Key questions

- To what extent are the beneficiaries aware of the services?
- To what extent are the beneficiaries satisfied with the services?
- What are the challenges faced by beneficiaries at each step of the cascade?

For each step in the cascade explore the perspective of beneficiaries with regard to issues and challenges affecting access to and utilization of services.

Issues/challenges related to beneficiaries' knowledge, perceptions and acceptance of the service

- How people learn where they can get the services (HIV test, pre-ART care, ART, support services for PLHIV)
- Extent to which community members know where to get the services
- Ease of accessing a service (HTC, enrollment in care and treatment, support services)
- Perception of the quality of the services (health workers attitudes, health workers skills and competencies, safety of procedures, responsiveness to needs of clients, etc.)
- Opinion about aspects of the existing services that would encourage community members to seek/ accept the services (HTC, care and treatment, support services)
- Opinion about aspects of the existing services that would deter community members from seeking/ accepting the services (HTC, care and treatment, support services)

Issues/challenges related to service requirements

- Procedures and papers required for registration/admission
- Waiting time at the service
- Number of health care providers to see in order to receive the service
- Number of visits to get a service (e.g. number of visits needed to get counselled, tested and informed about the test result; number of visits needed for ART preparation; number of follow-up visits per year)
- Commuting distance (km, time)
- Opening hours (suitable?)
- Fees (affordable?)

Issues/challenges related to referrals and linkages

- Existing mechanisms for referral and linkages between prevention, HTC and treatment and care services

Issues/challenges related to active involvement

- Role of community members and PLHIV in patient support and service navigation
- Existence and role of community support groups
- Involvement in committees, working groups, decision-making forums

Other issues/challenges

- Relevant issues/challenges in the country not covered above

Annex I. Terms of reference

a) Terms of reference of the steering committee

The implementation of the test-treat-test cascade analysis will be guided by a steering committee to ensure high-level support by the national authorities concerned for the assessment. The steering committee will, furthermore, be instrumental in carrying forward assessment findings into future policy-making and planning processes.

Composition

The guiding role of the steering committee requires that its members are stakeholders who have a significant influence on policy-making and planning processes regarding health and HIV services. It is therefore recommended that the steering committee comprises the following (or similar):

- Minister's Deputy
- Directors of relevant Ministry of Health departments
- WHO Representative
- Chair of Country Coordinating Mechanism
- National AIDS Programme Manager
- Representative from nongovernmental sector involved in HIV service delivery.

Roles and responsibilities

The steering committee will play a guiding role throughout the entire assessment process, spanning a period of approximately 1–2 months. In particular, the steering committee will:

1. review the objectives and methodology of the HIV test–treat–retain cascade analysis exercise and advise on any additional important issues to be looked into;
2. make recommendation to the technical working group (TWG) with regard to key stakeholders to be included in the exercise;
3. review the main findings related to the barriers/gaps in the test–treat–retain cascade analysis;
4. provide the TWG with contextual inputs relevant for further analysis;
5. review and endorse the final report including findings and recommendations;

6. agree on planning process for the implementation of recommendations.

It is anticipated that the steering committee will meet with the TWG on three separate occasions.

- **First meeting:** This meeting will precede the primary data collection. During the meeting the steering committee will discuss the assessment objectives and methodology, particularly in their relation to the country context. The meeting is designed to ensure a broad base of support for the assessment processes itself and to create commitment to take forward its key findings.
- **Second meeting:** At the end of the data collection, the members of the TWG will report the assessment progress and key preliminary findings to the steering committee. This meeting is designed to identify potential data gaps and provide contextual input useful to the data analysis.
- **Third meeting:** The TWG will present the assessment findings and the outcomes of the national stakeholders meeting to the steering committee in a final meeting. This meeting is designed to get agreement from the steering committee on a planning process for the implementation of recommendations.

b) Terms of reference of the technical working group

Members of the technical working group (TWG) will be nominated by the chair of the steering committee. The TWG will facilitate the implementation of the assessment throughout the entire process.

Composition

The TWG will comprise:

- National AIDS Programme manager;
- national consultant;
- an international consultant (only if support of an international consultant for cascade analysis is needed);
- one staff member working for the National AIDS Programme; this expert will have good knowledge of the activities of the Programme and will be in a position to facilitate interview appointments with key informants working within the national HIV response;
- one staff member working for the Ministry of Health who has broad knowledge of the national health system; preferably this staff member works in an area of the Ministry where activities cut across all programmatic areas, e.g. department

for policy and planning, human resources department, health systems strengthening;

- WHO HIV staff;
- UNAIDS staff;
- one nongovernmental organization representative;
- one PLHIV representative.

Roles and responsibilities

The TWG will coordinate the day-to-day activities essential to implementation of the assessment. The TWG has the following tasks:

1. agree on operational definitions;
2. prepare the background documents;
3. obtain relevant information for a desk review;
4. organize a first meeting to orient the steering committee on the test–treat–retain cascade analysis objectives and methodology;
5. if necessary, adapt the cascade analysis tool to the local context, taking into account the input from the steering committee;
6. prepare an initial list of key informants;
7. validate and contextualize findings, based on personal experience and knowledge;
8. organize a debriefing meeting after completion of collection and analysis of information in order to inform the steering committee of assessment progress and preliminary findings;
9. organize a national stakeholder meeting during which assessment findings and their implications are discussed and recommendations for urgent action will be made;
10. provide inputs on the draft recommendations of the national stakeholder meeting;
11. organize a third meeting with the steering committee to discuss assessment findings, outcomes of the national stakeholder meeting and next steps in country;
12. prepare the final version of the cascade analysis report with the assistance of the national/international consultant.

c) Terms of reference of the national consultant

Specific duties and responsibilities

The national consultant will work closely with the technical working group (TWG) in the various stages of the cascade analysis implementation. S/he will work under the supervision of the WHO Representative/WHO HIV team leader to:

1. ensure that all background and relevant documents for the cascade analysis are available and shared with the TWG;
2. coordinate and support the activities and meetings of the TWG;
3. develop the minutes of the TWG meetings;
4. assist in the preparation and organization of the steering committee meetings and prepare meeting minutes;
5. support the TWG in conducting the stakeholder analysis and in identifying key stakeholders;
6. support identification of persons and groups for individual/group discussions;
7. prepare and organize the site visits as well as individual/group discussions;
8. participate with the TWG in collection and compilation of information;
9. provide inputs in the analysis of data;
10. prepare a draft report on the cascade analysis findings for review by the TWG and prepare the presentation of the findings for the stakeholder meeting;
11. support the TWG to prepare and organize the national stakeholder meeting and prepare the report on the meeting;
12. prepare the final cascade analysis report taking into account the TWG and steering committee's comments and inputs.

Annex 2. The cascade analysis report: outline

A report of the results of the cascade analysis should be written and should contain the following.

1. Title page.
2. Preface.
3. Acknowledgements page: the contributions of all those who made it possible to carry out of the assessment should be acknowledged.
4. Summary page: in no more than one or one and half pages the HIV test–treat–retain cascade analysis should be summarized. The summary should state the objectives of the assessment, the methods and the findings related to the main barriers/gaps in the cascade.
5. Introduction section: in the introduction, the current status of the treatment coverage being assessed should be described in detail. The HIV test–treat–retain cascade analysis methodology should be summarized. The objectives of the study should be clearly listed in a sub-section of this section. A sub-section on the limitation of the assessment should be part of this section.
6. Methods section: the methods of the assessment should be described in full detail and should include thorough description of the data collection method, data entry and data analysis, and any statistical methods used.
7. Findings section: the findings obtained should be described fully. Results should be given in narrative form and, wherever possible, tables, figures and graphs should be included. Gaps/leakages in the cascade should be clearly determined and their main identified causes well-highlighted.
8. Conclusion: conclusions should be drawn on the main reasons affecting access to and retention in care and treatment. This section summarizes the main problems as well as key opportunities for improvement.
9. Recommendations: key recommendations for improving the engagement and retention of PLHIV along the steps of the test–treat–retain cascade should be described in this section. These recommendations should be in line with the recommendations of the stakeholders consultation.

Annex 3. Country indicators and national targets

Table A3.1. Country indicators

HIV care continuum	Indicator	Value	Source	Year
Country overview				
	Estimated number of PLHIV			
	Number of notified HIV cases			
	HIV prevalence among key populations			
	<ul style="list-style-type: none"> • Sex workers • Men who have sex with men • Transgender • PWID 			
	Estimated number of PLHIV among key populations ^a			
	<ul style="list-style-type: none"> • Sex workers • Men who have sex with men • Transgender • PWID 			
	Estimated number of PLHIV (adults and children) eligible for ART			
	<ul style="list-style-type: none"> • Adults • Children 			
HIV testing uptake				
	Number of people diagnosed HIV positive in the past year			
	Number/percentage of TB patients receiving an HIV test in the past year			
	Number/percentage of antenatal clinic attendees receiving an HIV test in the past year			
	Number/percentage of PWID receiving an HIV test in the past year			
	Number/percentage of sex workers receiving an HIV test in the past year			
	Number/percentage of men who have sex with men receiving an HIV test in the past year			
	Number/percentage of PLHIV newly enrolled in care whose sexual partners were tested for HIV			

^a To be calculated from HIV prevalence and population size estimates.

HIV care continuum	Indicator	Value	Source	Year
Linkage to HIV care				
	Number/percentage of people enrolled in HIV care within a certain period of time after diagnosis (as per definition agreed in country, e.g. within 1, 3 or 6 months of diagnosis)			
	Ratio of number of new PLHIV enrolled in HIV care to number of new people testing positive for HIV			
Pre-ART care and treatment				
	Number of PLHIV ever enrolled in care		ART site registers	
	Number of PLHIV newly enrolled in HIV care in the last reporting year		ART site registers	
	Percentage of patients enrolled in HIV care in the last reporting year with CD4 < 350 cell/mm ³		Patient records	
	Number of PLHIV currently in pre-ART care (note: the TWG needs to develop an operational definition for “currently in pre-ART care”)		Pre-ART register	
	ART coverage: Percentage of eligible adults and children currently receiving ART		GARPR 4.1	
Retention and viral load suppression				
	Percentage of adults and children still alive and known to be on treatment 12 months after initiating ART		GARPR 4.2	
	Percentage of patients initiating ART whose VL is <1000 copies/ml after 12 months of ART			
	Percentage of health facilities dispensing ARV drugs that experienced a stock-out of at least one required ARV in the last 12 months		GARPR 4.4	

Table A3.2. National targets

HIV testing targets									
Population group	Target number of facilities offering testing			Target number of people tested (or percentage of population group tested)			Target number of people identified HIV-positive		
Target year (specify calendar year)	Year 1	Year 3	Year 5	Year 1	Year 3	Year 5	Year 1	Year 3	Year 5
General population									
Men who have sex with men									
Sex workers									
PWID									
TB patients									
Pregnant women									
STI patients									
Other (specify)									
Other (specify)									
HIV treatment targets									
Target year (specify)	Number of ART facilities			Target number of PLHIV receiving ART			Target national ART coverage		
Year 1									
Year 3									
Year 5									

Please add tables as necessary and available in your country. Examples:

- targets for preventing mother-to-child transmission of HIV
- targets for infant diagnosis
- targets for key populations at increased risk of HIV infection reached with prevention programmes

etc.

Annex 4. Creating a fishbone diagram

Purpose

A fishbone diagram is an analysis tool. Its purpose is to provide a systematic way of understanding effects and the causes that create those effects. The design of the diagram looks like the skeleton of a fish, hence it is referred to as a fishbone diagram. An example of a generic diagram is shown in Fig. A4.1. Drawing fishbone diagrams can be of great value in assisting the technical working group to categorize the many potential contributing factors to gaps/losses along the steps of the continuum in a systematic way.

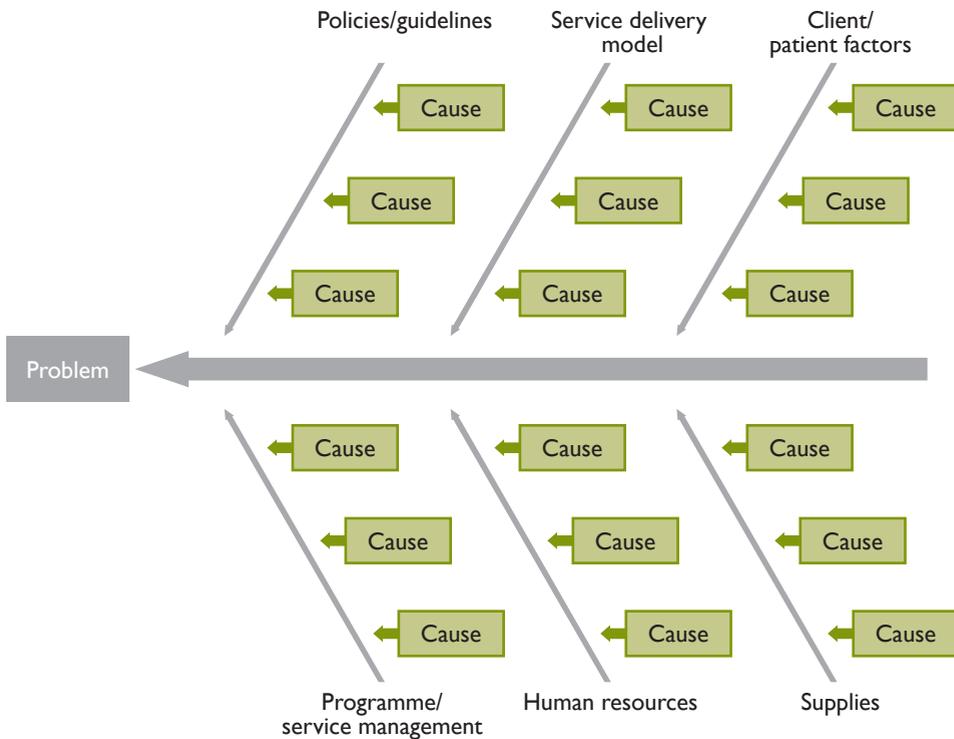


Fig.A4.1. Fishbone diagram template

Generic instruction for using fishbone diagrams for problem analysis

1. Draw a fishbone diagram.
2. List the problem/issue to be studied in the head of the fish.
3. Label each bone of the fish.
4. Repeat this procedure with each cause under the category to produce sub-causes.
5. Continue until you no longer get useful information as you ask, “Why is that happening?”
6. Analyse the results of the fishbone after team members agree that an adequate amount of detail has been provided under each major category. Do this by looking for those items that appear in more than one category. These become the “most likely causes”.
7. For those items identified as the “most likely causes”, the team should reach consensus on listing those items in priority order, with the first item being the “most probable” cause.

Annex 5. Stakeholder consultation

Background

Following the completion of the HIV test–treat–retain cascade analysis a stakeholder consultation should be conducted to validate and discuss the findings and conclusions and to recommend action to overcome the challenges and address the gaps in the continuum of care.

Objective of the consultation

The main objective of the consultation is to brief key stakeholders on the findings of the HIV test–treat–retain cascade analysis and to provide the opportunity to discuss these findings and develop recommendations for urgent action to overcome the obstacles, gaps and missed opportunities identified through the cascade analysis. These recommendations are the basis of planning for effective strategies and interventions to accelerate HIV testing and treatment scale-up.

Specific objectives

1. To present and discuss the findings of the HIV test–treat–retain cascade analysis with key stakeholders;
2. To validate the findings;
3. To make recommendations for urgent action to be taken to address gaps and missed opportunities.

Participants

Participants should be key stakeholders, i.e. representatives of institutions and organizations whose collaboration and contributions are required to accelerate HIV testing and treatment scale-up. This includes current HIV partners and the potential future partners as well. Stakeholders may include:

- civil society/nongovernmental organizations (representing beneficiaries and service providers);
- representatives of PLHIV;
- private sector;
- health government sectors;
- relevant non-health government sectors;
- key development partners.

Expected outputs

1. Consensus on main findings of the HIV test–treat–retain analysis;
2. Recommendations for urgent action to be taken to accelerate HIV testing and treatment scale-up.

Annex 6. Indicator definitions

Indicators include options for measures of case-finding (i.e. diagnosis of PLHIV), enrolment into ART and retention.

Indicator	Definition	Comments
Number and percentage of PLHIV who know their status, i.e. have been diagnosed with HIV infection, by age and gender	Numerator: Cumulative number of PLHIV who have been diagnosed with HIV and are still alive Denominator: Total estimated number of PLHIV	Accurate numerator requires complete reporting of HIV testing and counselling and HIV/AIDS death counts as well as sound estimates of current number of PLHIV
Number of PLHIV who have ever been enrolled in care (pre-ART and ART)	Numerator: Cumulative number of PLHIV ever enrolled in care (pre-ART and ART)	Depending on the country definition, <i>ever enrolled in care</i> may refer to PLHIV who have been assessed at least once for ART eligibility (e.g. received at least one CD4 count, or have been seen at least once by an ART prescriber)
Number of PLHIV currently in pre-ART care	Based on the facility records of the latest reporting period, determine the number of PLHIV currently in pre-ART care	Depending on the country definition <i>currently in pre-ART care</i> may refer to PLHIV who have been enrolled in pre-ART care and who collected cotrimoxazole in the last 3 months – or – who had at least one CD4 test in the last year, etc.
Number of PLHIV retained in care (pre-ART and ART)	Based on the facility records of the latest reporting period, determine the number of PLHIV currently in care	Consistent with the country definition of <i>retained in care</i> , retained in care may refer to (for example) PLHIV who have been assessed at least once for ART eligibility and have reported to the HIV care and treatment facility during the latest reporting period
Percentage of (specified population) who have been tested and know their status in the past 12 months	Based on surveys of specific populations, e.g. men and women aged 15–49, young people aged 15–24, sex workers, PWID, men who have sex with men. Self-reported data from survey respondents	Consistent with GARPR indicators. This indicator is more useful when the percentage of people who are HIV positive among those tested is known

Indicator	Definition	Comments
Number and percentage of PLHIV currently on ART, by age and gender	Numerator: Number of PLHIV receiving ART at the end of the reporting period Denominator: Total estimated number of PLHIV	Measures ART coverage, independent of national guidelines on ART eligibility. Cannot distinguish between programmes with low levels of case finding, poor linkage between diagnosis and enrolment in care and treatment, and programmes with inadequate ART resources or restricted treatment eligibility guidelines
Number and percentage of PLHIV diagnosed with HIV who are currently on ART, by age and gender	Numerator: Number of PLHIV receiving ART at the end of the reporting period Denominator: Total number of PLHIV who have been diagnosed and who are still alive	Measures ART coverage among those who have been diagnosed as HIV positive, independent of national guidelines on ART eligibility. Puts more emphasis on the effectiveness of linkages between diagnosis and care and treatment
Number and percentage of PLHIV eligible for ART who are on treatment, by age and gender	Numerator: Number of PLHIV receiving ART at the end of the reporting period Denominator: Estimated number of PLHIV who are eligible for ART	Measures ART coverage among the estimated number who meet national guidelines on ART eligibility. Puts more emphasis on the availability of adequate ART resources
Percentage of those initiated on ART who are retained in treatment after 12, 24, 36 and 60 months	Numerator: Number of PLHIV who initiated ART 12 months ago and are still receiving ART Denominator: Number of those in the cohort of individuals who initiated ART 12 (24, 36 or 60) months ago	Measures the ability to follow up persons who initiate ART after a specific period of time. Does not distinguish between those with good and those with poor measures of regimen adherence (i.e. timeliness, completeness, etc.). Does not take into account virological failure or potential switch in regimen
Percentage of PLHIV on ART who are virologically suppressed at 12 months of treatment by age and gender	Numerator: Number of PLHIV on ART who meet laboratory-based criteria of virological suppression at 12 months time point Denominator: Total number of PLHIV on ART with viral load measures at 12 months time point, during the reporting period	To be consistent with the definition of early warning indicator for HIV drug-resistance measuring virological suppression requires viral load measurement at 12 months to be routine practice, or taking a representative sample of viral load measurements among patients on ART at 12 months

Source: Adapted from *Meeting report on framework for metrics to support effective treatment as prevention. 2–3 April, Geneva, Switzerland.*

Annex 7. Analysis of health system issues

I. Governance

Key question

- Does how the HIV programme and HIV service delivery are governed have (indirect) effects on access to and utilization of services?

The following issues need to be looked into.

Policy and strategy development

- Which stakeholders have influence on policy and strategy development – and which not? Are other government sectors, civil society and private sector providers involved?
- Is the development of policies and strategies for HIV integrated in health policy/strategy development processes in the country – or is it happening through separate processes?

Decision-making on funds allocation

- Which bodies decide on allocation of: (1) national budget; and (2) larger donor (mainly Global Fund to Fight AIDS, Tuberculosis and Malaria [Global Fund]) funds?
- Are there obstacles to investing in certain public health approaches due to restrictions imposed by government or donors? (e.g. obstacles to contracting nongovernmental organizations or private sector providers)
- Do decision-making processes on funds allocation cause significant delays in implementation? (i.e. delays that have led to slower scale-up of testing and treatment in the past?)

Management responsibility for service delivery

- Which body has administrative responsibility for HIV service delivery (same body as for other health services, i.e. integrated? National AIDS Programme?)

2. Financing

Key question

- Does how the HIV programme and HIV service delivery are financed have effects on access to and utilization of services?

For each type of service along the test–treat–retain continuum of care (demand creation for testing, HIV testing, enrolment in care, ART, retention) explore the following.

How is the service financed?

- Describe the financing modalities for each type of intervention/service, i.e. demand creation for testing (e.g. outreach to key populations), HIV testing, HIV care and treatment. The scheme below can be used as an aid for this exercise.
- Fill cells with text explaining the relevance* of the funding source for funding of commodities (e.g. ARV drugs, HIV tests), human resources (e.g. outreach workers, laboratory staff, nurses/doctors, counsellors) and other costs (e.g. facility running costs, user transport).

Financing of: (enter here the type of service)

Source of funds	Commodities	Human resources	Other
Government budget			
Health insurance/pooling/ pre-payment			
User out-of-pocket			
External donor funds (e.g. Global Fund).*			
Other funding source			

*If possible, indicate what percentage of the total cost is covered by each of the funding sources, in particular by the beneficiary.

How are external donor funds (e.g. Global Fund, World Bank) channelled from the donor via the grant holder (principle recipient for the Global Fund) to the service provider?

What are the positive/negative effects of how HIV services are financed on access to and utilization of services? (Look into effects on quality and acceptability, and financial and geographical accessibility of services).

3. Human resources

Key questions

- Are human resources for HIV service delivery adequate in number, professional skills and competences?
- Are staff/volunteers sufficiently motivated?

For each type of intervention/service along the test–treat–retain continuum of care (demand creation for testing, HIV testing, enrolment in care, ART, retention) explore the following.

Number and profile of staff

- How is the need for human resources for HIV service delivery estimated? Is the estimation methodology appropriate? According to estimates, is staff sufficient in number?
- Do staff have the right profile (education, skills, competencies)

Training

- What system (if any) is in place to ensure that staff has the necessary knowledge, skills and competencies (pre- and in-service training, mentoring, coaching, supportive supervision)? Are there weaknesses in the system that seriously affect staff ability to provide quality services?

Integration in human resource plans and management

- Which body is responsible for human resources planning for HIV? Is human resources planning for HIV integrated in overall human resources planning for health?
- Are staff providing the HIV service an integral part of the service providers human resources plan/structure? If not, in which human resources plan/structure do they appear (if any)?
- On whose payroll are the staff providing the HIV service: Service provider? National AIDS Programme? Nongovernmental organization? United Nations? Other? (This question is linked to the financing mechanism)

Motivation

- Is there a strategy/system in place to keep health workers motivated? Is there a special strategy/system for staff providing HIV services?

Turnover

- Is there too frequent turnover of staff? What are the reasons?

Supervision

- How is supervision conducted? By whom? How often? What is looked for? What are correction measures?

What are the positive/negative effects of how human resources are planned for and managed on access to and utilization of services? (Discuss effects on quality, financial and geographical accessibility of services)

4. Procurement and supplies management

Key question

- Does how procurement and supplies are managed affect access to and utilization of HIV services?

Explore the following issues related to the procurement and supplies management of HIV medicines, diagnostics and other essential supplies for laboratory services and infection control.

Procurement

- How is procurement of HIV medicines and laboratory equipment/supplies organized? Is it integrated/not integrated in the general procurement and supplies management system? Is it centralized/decentralized? Are facilities authorized to purchase urgent needs by themselves and be reimbursed? Focus on ARV drugs, oral substitution therapy for PWID, CD4 count and HIV tests.
- Are there challenges with regard to procurement of these items?

Supplies management

- What system is in place to ensure uninterrupted supplies of HIV medicines, oral substitution therapy and diagnostics?
- Are there weaknesses in the system that seriously affect continuity and/or quality of services?

5. Information systems

Key question

- Are there challenges with regard to the health information system that affect increasing the coverage of people in need at the different steps of the HIV test–treat–retain cascade?

This guide was developed to support national AIDS programme managers and their partners to implement the HIV test–treat–retain cascade analysis at country level. It includes guidance on how to use the cascade model to assess the magnitude and determinants of engagement along the continuum of care and also opportunities to improve the delivery of services to PLHIV and, ultimately, access to HIV testing and treatment. It suggests a process for conducting the cascade analysis in country in order to achieve broad stakeholder participation, consensus on the findings of the analysis and ownership of the conclusions and recommendations for improvements resulting from it.

