GUIDE FOR MONITORING AND EVALUATING NATIONAL HIV TESTING AND COUNSELLING (HTC) PROGRAMMES

FIELD-TEST VERSION

World Health Organization
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UNAIDS
UNHCR UNICEF WFP UNDP UNFPA UNODC ILO UNESCO WHO WORLD BANK
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS
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FROM THE AMERICAN PEOPLE
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The work was coordinated by Rachel Baggaley, Chika Hayashi, and Ying-Ru Lo (HIV/AIDS Department, WHO, Geneva) and edited by Bandana Malhotra.

ACRONYMS AND ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
AIS	AIDS Indicator Survey
ANC	antenatal care
ARV	antiretroviral
ART	antiretroviral therapy
BSS	behavioural surveillance survey
CBO	community-based organization
CDC	US Centers for Disease Control and Prevention
CITC	client-initiated testing and counselling
DBS	dried blood spot
DHS	Demographic and Health Survey
EID	early infant diagnosis
ELISA	enzyme-linked immunosorbent assay
HIV	human immunodeficiency virus
HTC	HIV testing and counselling
IBBS	integrated biological and behavioural survey
IDU	injecting drug user
MARP	most-at-risk population
M&E	monitoring and evaluation
MICS	Multiple Indicator Cluster Survey
MIS	management information system
MSM	men who have sex with men
NGO	nongovernmental organization
PCR	polymerase chain reaction
PEPFAR	US President's Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission (of HIV)
PITC	provider-initiated testing and counselling
QA	quality assurance
QC	quality control (refers to testing)
RDS	respondent-driven sampling
SPA	service provision assessment
STI	sexually transmitted infection
SW	sex worker
TB	tuberculosis
TLS	time–location cluster sampling
UA	universal access
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
VCT	voluntary counselling and testing
WHO	World Health Organization

I. INTRODUCTION

Expanding HIV testing and counselling (HTC) services has been a key step taken by national programmes towards achieving universal access to prevention, treatment and care. As services are scaled up and more resources are invested in HTC, national programmes must be able to establish standards, and ensure the quality of and coverage with HTC services among populations with the greatest need. An effective HTC programme will result in a larger number of people with HIV receiving an early diagnosis of, and care and treatment for, HIV. Focusing HTC services on those who are most vulnerable to acquiring HIV also presents an important opportunity for prevention counselling and referral to prevention services.

As in any programme, achieving these objectives requires a minimum, reliable set of data to guide the efficiency and effectiveness of service implementation.

The purpose of this guide is to describe a set of indicators that can be used by national AIDS programmes to monitor and evaluate their HTC services.

Provider-initiated HIV testing and counselling (PITC)*(1)* is the international standard for delivery of HIV testing in health facilities. PITC should ensure that health-care providers recommend an HIV test for patients during a medical encounter. There are specific recommendations for PITC by population and epidemic setting. The purpose of this approach is to increase the early diagnosis of people with HIV who are unaware of their HIV-positive status, encourage partner and family testing of people with HIV, and facilitate early access to HIV care, treatment and prevention services, and psychosocial support. In generalized epidemics, this includes all people attending health-care facilities. In concentrated and low-level epidemics, PITC is offered to target groups (e.g. antenatal care [ANC] attendees, and those with sexually transmitted infections [STI] and tuberculosis [TB]).

In addition to PITC services, walk-in HTC services, often referred to as client-initiated HIV testing and counselling (CITC) or as voluntary counselling and testing (VCT)[1],*(2)* are also commonly available. They may be located within health facilities or stand-alone testing sites.

HTC services can also be offered at mobile sites, at the workplace, in temporary sites, in the home, as part of "Know your HIV status" campaigns, and other innovative approaches to enhance access to HTC. National AIDS programmes combine these varied service delivery models to meet the specific needs of their populations and make the best use of available resources.

1 All testing and counselling should be voluntary.

Box 1: HIV testing and counselling (HTC) terminology

In this guide, the term HTC is used to refer to all services involving HIV testing provided with counselling. Different countries may use different terms, for example:

Client-initiated HIV testing and counselling (CITC) – HTC services where people actively seek HTC. This may be a stand-alone service or part of a clinical service, in the workplace or a youth centre. Some countries use the term voluntary counselling and testing (VCT), or voluntary confidential counselling and testing (VCCT) to describe CITC services.

Provider-initiated HIV testing and counselling (PITC) – HTC is recommended routinely by health-care providers to people attending health facilities as a standard part of medical care. This may be part of general medical services or special services, for example, for people attending TB or STI clinics, antenatal services (including prevention of mother-to-child transmission [PMTCT]), family planning, or services for injecting drug users (IDUs).

HTC can also be conducted as part of a **campaign**, or though **outreach services** or through **home-based testing**.

As the recommendations from this guide are adapted or adopted locally, countries may choose to retain the terminology most familiar and descriptive of the services provided by their national programme.

2. HOW TO USE THIS GUIDE

This guide has been developed in collaboration with a large number of individual experts, international agencies and civil society groups from all regions, during a period of significant change and development in approaches to HIV prevention, treatment and care. HTC remains the key entry point for most interventions. In order to make progress towards universal access, increasing access to HTC services needs to be a priority to enable people to access life-saving treatment promptly so that HIV transmission can be prevented. However, countries and regions have widely varying epidemics, and social and political contexts with differing priorities and resources. These will shape choices and determine service provision, and mean that countries will have to choose the indicators most relevant for their circumstances. Some indicators,*(3)* as pointed out in the guide, have been chosen for use in generalized epidemics and others have more relevance in low and concentrated epidemic settlings. The standard and quality indicators outlined in this guide should be considered for all epidemic settings as they can be used to assess whether HTC services are being implemented in a manner that is in line with internationally agreed standards and human rights considerations. Before countries select relevant indicators, a process of review and adaptation can be conducted by the main stakeholders, taking into consideration their country context, so that the optimal combination of indicators is selected.*(4)*

This guide attempts to be as comprehensive as possible, and includes all current United Nations General Assembly Special Session on HIV/AIDS (UNGASS) and Universal Access (UA) indicators, as well as current relevant HTC indicators from WHO monitoring and evaluation (M&E) guides for TB/HIV and PMTCT. UNAIDS Monitoring and Evaluation Reference Group (MERG) guidelines are also integrated. The guide includes both indicators that rely on data collected as part of routine monitoring and those that use data collected as part of periodic population-based surveys. Collecting data using both approaches allows triangulation of data.*(5,6)*

Several of the indicators presented are new and require field-testing, as indicated. Other indicators may prove difficult to collect in many contexts, such as the UA and UNGASS indicator "*the number and percentage of various 'most-at-risk population' subgroups that have received an HIV test in the past 12 months and know their results*". In many settings, particularly where vulnerable populations may face discrimination or criminalization, it may be difficult to collect this type of data. In other settings, the data collected may merely give an indication of trends rather than coverage if measurement or estimation of the denominator is difficult or impossible.

Choosing indicators

- Countries should not expect to use all the indicators in this guide
- Selection of indicators should be based on factors such as level of the epidemic, national HTC goals and objectives, scale of the programme and resources available to collect and analyse data.
- Some indicators can be adapted and if adaptations are made, a revised indicator reference sheet including definitions and method of measurement should be included in the national HTC M&E guide.
- In some cases, special studies to evaluate programme performance for specific areas of interest can be considered for those countries that require additional information

2.1 What is included in this guide

2.1.1 Review of M&E concepts for HTC

This document reviews basic M&E concepts in the context of HTC programmes, including a suggested logic model for these. A logic model is a tool to describe the objectives of a programme and the approach used to reach these objectives. Logic models include a clear set of indicators that programmes use to measure their progress and achievements using standard definitions.

2.1.2 Discussion of indicators, their use and the need for representative data collection

The indicators defined in this guide are for use at the national programme level. However, the progress of a national programme is based on the performance of individual sites providing HTC services. Therefore, programme-level data from individual HTC sites form the backbone of the M&E system used to manage a national programme. An M&E system must be practical and provide useful information to guide HTC service delivery and performance at all levels of management, including at the site level. For this reason, each national-level indicator presented in this guide includes pointers for local managers to enable them to adapt and use the indicator at site level. Local managers at HTC sites will require additional M&E data to address more detailed operational issues than those included in this guide.

Box 2: Differences in the use of indicators at the global, national and site levels

Global indicator – A global indicator provides standard measures of achievement in a given programme area, which can be used to assess progress towards a target. For example, it can be used to measure the "scale up" over time or coverage of a service, or allow a comparison to be drawn across different countries or regions with similar epidemics. For providing a global assessment, it is necessary for as many countries as possible to report against a standard set of indicators.

National-level indicator – A national-level indicator is used to measure an expected level of programmatic achievement in priority areas of a national strategy. A national HIV/AIDS strategy should have a manageable number of core indicators, so any specific programme area (such as HTC) may have a small number of national-level core indicators. National-level indicators should prompt action from a national manager if performance falls below the expected level. This requires all reporting units to use standard definitions and methods for reporting data on national-level indicators.

Site-level indicator – To operate a service delivery site efficiently and effectively, site managers must monitor a range of inputs and outputs of their programme. The M&E data collected and analysed locally should lead to action at the site level, and much of the data may not need to be reported to higher levels of management. Different sites may require different indicators to account for variations in models of service delivery, local targets and priority populations.

2.1.3 Range of HTC services addressed in this guide

Programmes have recognized the need to develop and offer a variety of service delivery models for HTC to more effectively meet the needs in different epidemic contexts, while maintaining the core values of informed **consent, confidentiality** and **counselling**, and ensuring accurate HIV test results.

This guide recommends indicators appropriate for a range of service delivery models.[1] Indicators are made up of one or more variables (for example, **indicator B1** "percentage of HTC sites which meet quality standards" will be made up of a number of variables). Acknowledging this variation in service delivery and clearly defining delivery models is important. This will affect the method of data collection and target-setting for the indicators used to measure a programme's achievements.

The number of indicators used from this guide may vary between countries. For global-level analysis of M&E data from national HTC programmes, it is critical for each country to clearly document which global-level indicators are relevant to its national context and how indicator definitions may vary from the globally defined standards.

2.2 Basic concepts in M&E of HTC

M&E plays an important role in the effective and efficient management of health programmes by ensuring that:

- resources devoted to a programme are used appropriately;
- services provided are accessed by the target population;
- programme activities happen in a timely manner;
- expected results are achieved.

2.2.1 What is M&E?

Monitoring is the *routine tracking* of service and programme performance using information collected on an ongoing basis. Monitoring is used to assess the extent to which a policy or programme is achieving its intended activity outputs and targets as planned.

Evaluation is the *episodic assessment* of changes in results that can be attributed to programme activities. It uses monitoring data as well as additional indicators and information that are not collected through routine information systems. Evaluation explores the causes of failure to achieve the expected results as planned and allows for mid-course corrections that may be necessary. Evaluation is concerned with measuring both the progress in programme implementation and the outcomes and impact of programme activities on target populations.

To assess different types of achievements of a programme, we define a set of standard indicators. **An indicator** is a quantitative or qualitative measure that helps to determine how well a system or programme performs and progresses towards meeting its objectives.*(7,8)*

Useful indicators are those which are: **SMART**, i.e. **S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**ime bound, and meet international indicator standards.*(9)*

1 HIV testing performed as part of screening blood products to ensure the safety of the blood supply is not considered in this guideline.

Box 3: Types of indicators *(10)*

Indicators are often grouped according to the different aspects of implementation that they measure:

Inputs – refer to the various types of resources invested in a programme, including the guidelines and strategy document for implementation.

Activities/Processes – refer to the actions that cover all parts of implementation, making use of the available resources.

Outputs – refer to the immediate results (i.e. services provided) of the activities and processes of implementation.

Outcomes – refer to the downstream changes (usually in behaviours) that may result from provision of services.

Impact – refers to the achievement of the programme's goals, often in terms of biological or epidemiological changes.

2.2.2 Basic concepts in how to select indicators

When selecting core indicators for M&E of a national-level HTC programme, it is best:

- to select a minimum set (with the number of indicators for HTC proportionate to the relative importance of HTC in the overall national AIDS control strategy);
- to focus on the priorities of the HTC programme, as defined by the programme logic model (see figure 1), and those issues which may prevent efficient implementation of services;
- to address issues which can be corrected or improved through national-level management action;
- to refer to the national checklist for selection of high-quality indicators that would meet indicator standards.*(9,11)*

When countries formulate their core indicators, they should be aware of those indicators that are designated as standard/core global indicators, such as those in the World Health Organization (WHO) framework for global monitoring and reporting of the health sector response towards UA, or for biennial UNGASS reporting. Globally reported HTC indicators are customized at the country level by adding the specific targets that are relevant to the national HTC strategy or action plan.

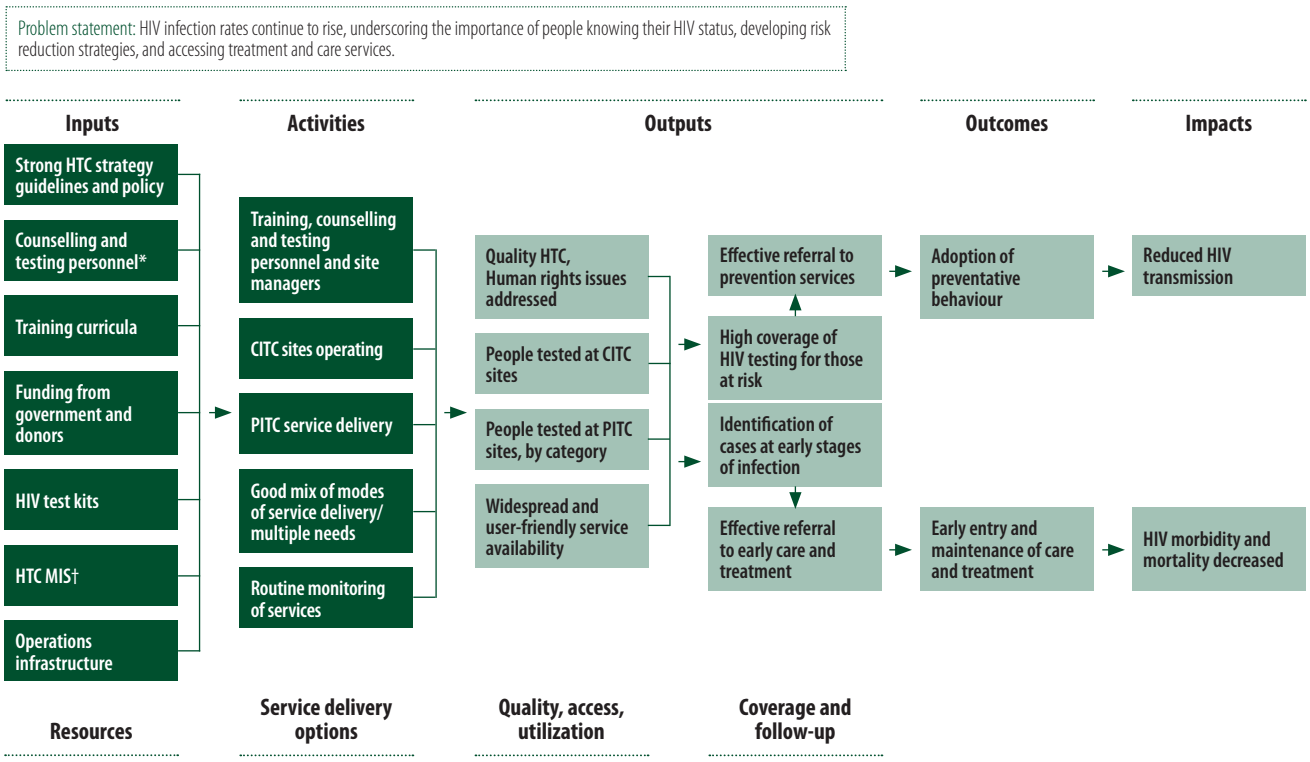
2.2.3 Selecting indicators by reviewing the HTC programme logic model

An important step in selecting and organizing core indicators for the national HTC programme is to review the programme logic model or the strategic plan for the programme. The term "logic model" describes a programme's big-picture goals and objectives, and the logical sequence that links inputs to activities and processes, which lead to the intended outputs, outcomes and finally impact.

To monitor or evaluate any programme, the programme logic must be clear, i.e. goals and objectives should be well articulated and reflected in how services are designed and implemented. By understanding how each component of the HTC programme relates to the larger goals and objectives, indicators can be developed for the issues that are most critical for success. Realistic, epidemiologically relevant targets can then be set to establish clear expectations about what can be accomplished in a given time period. An example of a logic model that could be used for a national HTC programme is described in Figure 1.

The contribution of HTC to a national AIDS control strategy is as an entry point for people who are at risk for acquiring HIV to receive prevention services. Those who are diagnosed with HIV infection have an opportunity to be diagnosed early, access early care, begin treatment as indicated by international standards, and adopt behaviours which will prevent further transmission to others. In the absence of prevention, care and treatment follow-up services, HTC cannot fulfil the programme's goals and objectives, i.e. it will not contribute to universal access to prevention, treatment, care and support.

Figure 1. Example of HTC programme logic model



* Personnel include counsellors, laboratory technicians and VCT site managers.

† At the beginning of a programme, inputs such as HTC guidelines, protocols, management information systems (MIS) and referral systems will need to be developed and would be considered "activities" and "outputs". When these products and systems are in place, they become "inputs".

By this programme logic, evaluating whether HTC programmes achieve their intended outcomes (e.g. HIV preventive behaviour change, improved outcomes for people with HIV) is directly related to the effectiveness of how national programmes deliver prevention, care and treatment services.

The national core indicators recommended in this guide cover key inputs (standards) and outputs (quality and coverage), as well as a crude measure of outcomes (linkages between HTC and care/ treatment). Assessing the outcomes and impact of HTC programmes requires more complex evaluation approaches than can be addressed in this guide. *(Those interested in conducting more extensive evaluation of HTC programmes can find additional guidance in Appendix 4.)*

2.2.4 Human rights protection in the context of HTC

All aspects of HIV programming should ensure the protection of human rights of those with HIV and of marginalized populations who are vulnerable to acquiring infection. In the context of HTC, human rights issues are particularly relevant in terms of:

- ensuring that all testing is voluntary;
- ensuring that informed consent of patients is obtained before testing;
- ensuring the confidentiality of test results and establishing mechanisms to minimize harms or provide redress for wrongful disclosure of results;
- minimizing stigma and discrimination or other forms of harassment/abuse against those who test and those who test positive;
- supporting effective counselling;
- monitoring the uptake/acceptability of models of testing by those being tested (e.g. PITC);
- linking those tested to prevention, care and treatment services.

Monitoring human rights protection in an HTC programme is implicit in any basic assessment of the quality and effectiveness of services.

2.2.5 Developing and setting targets for each indicator

This is an often neglected aspect of selecting and developing indicators.

Establishing targets at the beginning of a programme is critical for effective management as:

- it ensures that implementers are clear about their higher-level managers' expectations and how their performance will be judged;
- it allows local managers to assess periodically whether they are on track to achieve what is expected and to make corrections as necessary.

Targets for each indicator should be based on what is both epidemiologically relevant (i.e. the level of achievement necessary to have the intended effect on the epidemic in their situation) and achievable with the available resources. Indicator data should be reviewed each year so that targets can be gradually increased with the aim of improving upon previous efforts in a step-wise approach. For example, it does not make sense to set targets for 100% coverage levels, which would be impossible to achieve if sufficient numbers of staff, sites or test kits are not available. Instead, programmes should set realistic targets that are achievable in a specified period of time while planning how to obtain optimal results over time.

Given the variability in country contexts, setting universally applicable targets is not always appropriate. Instead, countries will need to invest in the process of target-setting to customize the national core indicators to their HTC programme and context. For this reason, a participatory approach can result in the development of realistic targets and clarity among implementers and higher-level managers about what is required to achieve satisfactory performance. Guidance on how to set targets for each core indicator is provided in the section on indicator definitions.

2.2.6 Importance of the "Three Ones" principle

The "Three Ones"[2] *(12)* principle recognizes the importance for a national authority of maintaining a countrywide overview of the services implemented, including HTC, regardless of the source of funding, implementing partner or geographical area. Although the national authority takes responsibility for bringing together stakeholders, and obtaining their support and endorsement for both programmatic and M&E standards, each partner must also play a proactive role in supporting the system.

From an M&E perspective, the national authority should consider data from HTC sites outside the public sector to be as much a part of the national HTC system as those within government programmes. In many countries, the private sector and nongovernmental organizations (NGOs) are critical partners in scaling up HTC services, and special attention may be required to make sure that they are included in a national M&E programme.

2.2.7 Data sources

M&E data on HTC can be collected by three main methods:

- Routine monitoring is carried out through programme monitoring and is usually conducted quarterly and reported on annually, so that progress and trends can be measured.
- Periodic assessment of particular aspects of the HTC services, such as site assessments for quality assurance (QA) and quality improvement purposes, can be used to monitor and improve performance.
- Population-based survey data from international data collection programmes such as the Demographic and Health Survey (DHS)*(13)* and Multiple Indicator Cluster Surveys (MICS).*(14)* These national surveys are carried out periodically, usually every three to five years.

It is useful to have data from both routine monitoring and population-based survey sources for triangulation purposes.

2 The "Three Ones" are: one agreed HIV action framework that provides the basis for coordinating the work of all partners; one national AIDS coordinating authority with a broad-based multisectoral mandate; and one agreed country-level M&E system.*(12)*

3. SYSTEMS FOR COLLECTING AND ANALYSING ROUTINE MONITORING DATA FOR M&E OF HTC

3.1 Collection systems for routine monitoring purposes

An M&E system of a national HTC programme requires the following data collection systems.

1. A national inventory of HTC sites which contains basic information about all sites providing HTC services. Maintaining this inventory is critical for the national AIDS programme to track the HTC services in the country, know which sites should be expected to send routine monitoring data, and provide a basis for sampling sites that should undergo periodic service quality assessments.

This inventory should be kept in an electronic format, in either a simple database or spreadsheet, and be updated as new sites are established or when services change at existing sites. For the specific data elements to be included in a national inventory of HTC sites, *see* Appendix 2.

2. A site-level client/patient register to record basic information about the people coming for service at every registered HTC site. Most HTC programmes already collect a minimum set of variables about each HTC client, which are critical for monitoring service utilization and national coverage. Formats for collecting these data may be stand-alone or integrated into existing data collection tools when HTC is one of multiple services provided to patients.

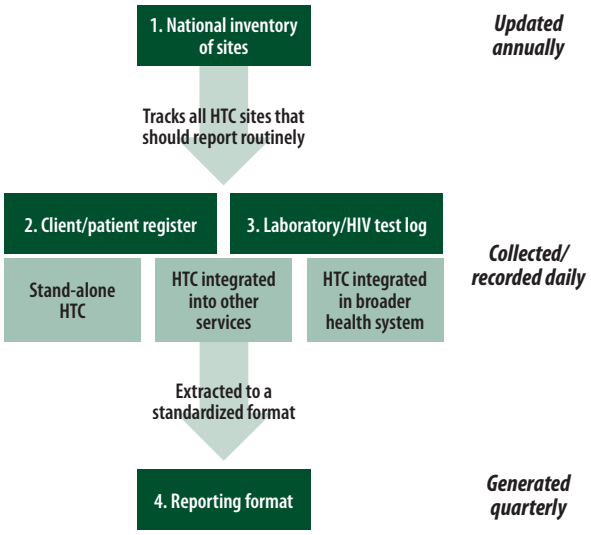
3. A laboratory log to record the test kit information, test results and HIV status should be completed by anyone performing the HIV test (i.e. laboratory technician, professional or lay counsellor). When the HIV testing component of HTC is conducted by laboratory technicians in a separate unit of the facility, laboratory forms for logging and processing specimens, including confirmation of positive results must also be recorded. Depending on the work flow, test results may be transcribed onto client registers, or looked up on laboratory reporting forms linked by a specimen or client ID number.

4. Standard data collation tools and reporting formats for sites to report centrally or to regional offices ease the process of aggregating data across sites. An example of this type of standard reporting format is provided in Appendix 2.

National programmes must consider how data should be collated at the site level. Data should be aggregated from the whole reporting period (e.g. each quarter) and then further collated across sites.

At some point along the reporting chain, data may be entered into electronic databases for ease of transmitting and aggregating the data. Some countries may decide to have data for each individual record entered into an electronic database to be sent centrally for data analysis; others may enter aggregated data from quarterly reporting formats at the site or regional level. The higher the level at which data entry occurs, the smaller the amount of data to be entered, but this also reduces flexibility in the subsequent analysis of the data.

Figure 2. Sample flow of data



3.2 Collection issues and systems for periodic assessments

1. System for conducting assessments of service quality at HTC sites. The protocol for collecting and analysing the information that each country develops may or may not be extensive, depending on who is responsible for conducting the assessment, the number of sites to be covered, the diversity of HTC service delivery models in the programme, and the resources allocated for assessing service quality. Structured and standardized data collection tools for assessment of service quality at sites should be developed as part of this protocol. For improving the quality of HTC, a quality improvement framework and tools are available.[1] These could include surveys of clients at facilities that provide testing. This can monitor the quality and acceptability of services and identify problems. It can also be done in the context of operational research or programme evaluation.

2. A committee of technical experts who are able to assess national policies, guidelines and strategies for the HTC programme as and when these are developed or updated. Such a team may already be engaged to provide technical review of other national AIDS programme activities, or convened on an ad-hoc basis.*(16)*

3. Finally, a mechanism for coordinating with population-based surveys of general or specific most-at-risk populations (MARP) as and when they are planned by the national AIDS programme or by others in the health sector, so that a few HTC-related questions can be included to assess utilization/coverage or corroborate other aspects of HTC service quality. The use of population-based surveys in M&E of HTC is described in more detail in Appendix 3.

Countries are strongly encouraged to establish timetables and milestones for completing the tasks to facilitate timely and accurate reporting of data for each indicator. Although the indicators in this guide are defined on an annual basis (e.g. percentage of people tested in a 12-month period), it is recommended that routine monitoring data be reported to the regional or national level at least quarterly, to enable early detection of problems in data quality and programme implementation and allow periodic managerial intervention to strengthen service delivery when needed.

1 WHO (2010) Handbook for improving HIV testing and counselling services http://whqlibdoc.who.int/publications/2010/9789241500463_eng.pdf

HTC services situated in health facilities where other services are provided may integrate the HTC data needs into the larger health information system at the facility.

3.3 Quality assurance/control measures for M&E data of HTC

The effective use of M&E data for decision-making is based largely on the credibility of the data collected and the various processes used to establish data quality.

A number of best practices can be introduced into routine monitoring systems to improve the quality of these data:

- The variables collected should be minimal in number and clearly defined.
- People involved in data collection and collation should have these tasks included in their terms of reference and be allocated time to complete these activities. A data flow chart that describes how and when different variables are collected and reported, the people responsible, the formats used, and timing of each step provides clarity to the data collection process.
- People involved in data collection, including supervisors, should receive instructions and training in using the formats.
- Supervisors should regularly review data collection formats to ensure that they are correctly and completely filled out.
- Management, QA and use of data should be included as part of routine supervisory assessments and as an aspect of service quality.
- Data collection formats should be simple and structured (i.e. the data required in each space should be specified, and categorized or coded for easy entry).
- Data collection formats should be designed to reflect the work flow of people completing the forms.
- Whenever possible, data on the format should be recorded as service is provided rather than recorded later from memory.
- Minimal transcription of data should be built into data collection formats.
- Primary data collection formats should be archived systematically to allow for verification or record review to confirm aggregated results, as needed.
- M&E data should have inherent value and be available for use and analysis locally (e.g. at site level) instead of being reported up for higher level or central level use only.

Another important aspect of data quality is **maintaining data security.** As for any health record, it is important to protect and limit access to HTC patient registers due to the confidentiality of the information provided. Registers in the health facility should protect patient information. This involves secure storage of registers when not in use, covers to protect registers from scrutiny by unauthorized persons, and staff training on protecting the confidentiality of patient/client information.

3.3.1 HTC data analysis and use

When analysed and interpreted, M&E data can answer important questions about an HTC programme. Are the services provided achieving a minimum level of quality? Are the highest priority populations being served? What level of coverage does the programme provide?

In addition to being used for calculating specific core indicators, developing figures and graphs that can be used routinely to review the core indicators can be helpful. Graphical formats often

help to more easily identify potential weaknesses in programme performance than viewing the data in tables of numbers. For example, graphs or figures can:

- incorporate aspects of trends over time;
- compare different subgroups (by geography, target population, implementing agency or type of service);
- mark targets or thresholds of minimum performance standards for clear comparison with actual achievements;
- indicate major events (e.g. policy change, scale up of services or change in technology), which could have had an underlying effect on the quality, accessibility or utilization of services.

Once standard formats are developed for such figures and graphs, these can be easily generated with updated data for use on a regular basis by managers at different levels.

It is important to consider issues related to data reliability or completeness when analysing, interpreting and presenting M&E data. For example, is an increase in service utilization in a region the effect of recent expansion of the number of HTC sites, or does it reflect effective promotion of services? Is a sudden drop in coverage due to a missing routine report, or a recalculation of the size of the population (i.e. the denominator), or a real decline in the uptake of services?

3.3.2 What is the value of feedback?

Site-level data are generally forwarded to a more central site such as a district, province or state office where they may be further aggregated and then forwarded to the national level. M&E data have a use at every managerial level and should be reviewed actively. Information collected for the national HTC programme should be made available to all levels (i.e. national, subnational and site) through strategically designed feedback mechanisms. Communication between management levels should flow in two directions; just as systems for reporting data to higher levels of management are established, so should feedback and data analysis flow regularly back down.

The dissemination of programme results from data analysis and use of findings for programme improvement and policy development is a key step in the M&E process. This includes allowing sites to understand their performance in the context of how other sites are performing and can encourage sharing of best practices and joint problem-solving among sites.

Broader sharing and discussion of HTC programmatic data at all levels is intended:

- to lead to improved service provision and delivery;
- to identify target populations in need of strengthened HTC efforts;
- to motivate programme staff and stimulate programme performance;
- to address issues in data quality;
- to ensure that HTC sites, as well as district and national offices, realize the benefits of dedicating resources to the M&E process.

4. NATIONAL INDICATORS

The national-level HTC indicators described in this guide address four main areas of programming as illustrated in Figure 3:

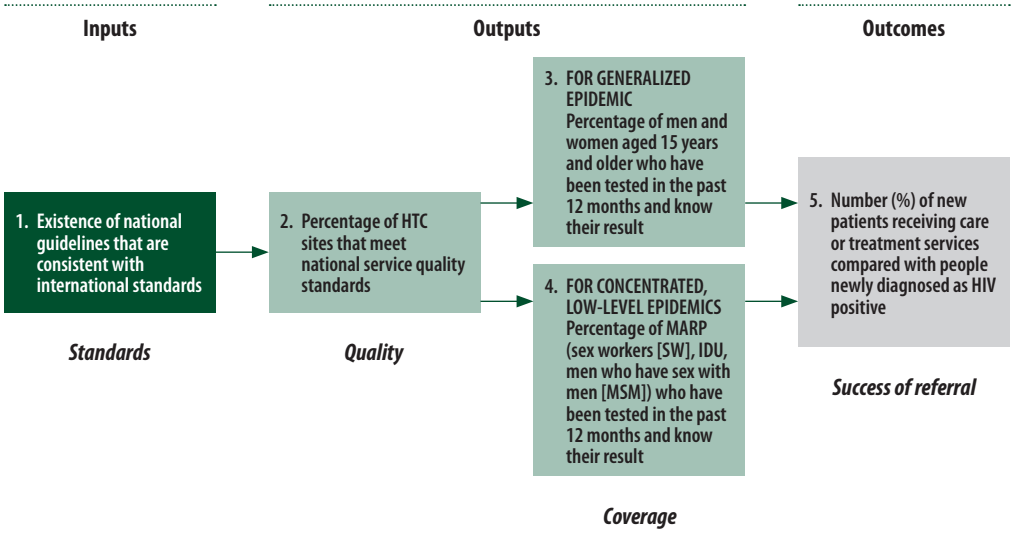
A. Standards (input)

B. Quality (output)

C. Coverage (output)

D. Success of referral (outcome)

Figure 3: Examples of national indicators



Together, these indicators describe, at the national level, whether the programme is being implemented according to a national level strategy and whether it is making the intended contribution to the national AIDS control strategy, with respect to improving access to prevention, care and treatment.

Tables 1 and 2 list currently available HTC indicators recommended in this guide. They include the frequency, primary data source and notes about the applicability of each indicator to different types of country contexts. Indicators are listed as those used as national indicators and those that fulfil global reporting requirements. Among the set presented here, the recommended core indicators are already part of the set of indicators routinely reported globally through UNGASS, and monitoring and reporting on health sector progress towards UA. There are additional HTC indicators which are part of global reporting (UA) and are considered core to prevention of mother-to-child transmission (PMTCT) and TB/HIV programming.

For countries that have put resources into PITC approaches to scaling up HTC (e.g. countries with high-prevalence generalized epidemics), a new indicator that measures the levels of testing through PITC has been developed for field testing.

Table 1. Indicators to be considered for national HTC programmes

Indicator	Frequency	Primary data source	Applicability
A. Standards			
A1. Existence of national HTC policies and guidelines that are consistent with international standards (new – for field testing) proposed US President's Emergency Plan for AIDS Relief (PEPFAR)	Every 3–5 years or when policies/ guidelines change	Technical committee review	All epidemic types*
B. Quality			
B1. % of HTC sites which meet national service quality standards (new – for field testing) proposed PEPFAR	Annually from a sample or all HTC sites	Service quality assessment	All epidemic types*
C. Utilization/coverage			
C1. # of health facilities that provide HTC services(UA #A1) indicator for UA reporting 2011 proposed PEPFAR	Annually	Routine service reporting	All epidemic types*
C2a.# of facilities providing antenatal care (ANC) services which also provide HTC for pregnant women (UA #I4)[1]	Annually	Routine service reporting	All epidemic types, with PMTCT services*
C2b. % of health facilities that provide ANC services with both HIV testing and antiretroviral (ARV) drugs for PMTCT on site (UA #I5) indicator for UA reporting 2011	Annually	Routine service reporting	All epidemic types, with PMTCT services*
C3a. # of women and men aged 15+ years who received an HIV test in the past 12 months and who know the results (UA #A2) *indicator for UA reporting 2011* proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring + population size estimates	All epidemic types*
C4a. % of MARPs that have received an HIV test in the past 12 months and know the results (new – for field testing) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring + MARP population size estimates	For concentrated low-level, and mixed epidemics
D. Treatment uptake			
D1. Ratio of # of new patients receiving care/pre-antiretroviral therapy (ART) or ART services: # of new people who test positive for HIV (new – for field testing) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types
E. PITC scale up			
E1. % of pregnant women who know their HIV status (WHO PMTCT guide 2010 core indicator 3 [UA #I 8 & WHO/IATT PMTCT M&E guide]) indicator for UA reporting 2011 proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types, with PMTCT*
E2. % of TB patients who had an HIV test result recorded in the TB register (WHO TB/HIV M&E guide indicator C1.1) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types*
E3. % of people tested through PITC (new – for field testing) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types, with PITC programme*
F. Re-testing			
F1. % of individuals aged 15+ years who received HTC and received their results and who report ever having been previously tested for HIV (new – for field testing) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types*
G. Couples HTC			
G1a. % of individuals aged 15+ years who received couples/partner HTC and learned the results of their HIV test together with their partner in the past 12 months (new – for field testing) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types*
G1b. % of pregnant women attending ANC whose male partner was tested for HIV (UA #I9 & WHO/IATT PMTCT M&E guide) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types, with PMTCT*

Indicator	Frequency	Primary data source	Applicability
H. Infant testing			
H1a. % of infants born to HIV-infected women who receive an HIV test within the first 12 months of life (WHO/IATT PMTCT M&E guide indicator A5, UA #I 15) proposed PEPFAR	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types, with PMTCT*
H2a. % of health facilities that provide virological testing services (e.g. polymerase chain reaction [PCR]) for infant diagnosis on site or through dried blood spots (DBS) (UA #I 7)	Annually	Routine service reporting	All epidemic types, with PMTCT*
H2b. % of infants born to HIV-infected women who receive a virological test for HIV within 2 months of birth (WHO/IATT PMTCT M&E guide indicator #9, proposed new UNGASS)	Quarterly collation (annual reporting)	Routine monitoring system	All epidemic types, with PMTCT programme*

[1] Indicator description not included in this guide.

* All countries are requested to report the data for **global monitoring purposes**, but these indicators may be more important for countries that prioritize HTC services, e.g. countries with generalized epidemics or those that have resources for case-finding. Countries with concentrated and low-level epidemics may put resources into HTC after substantial scale-up of prevention interventions for MARPs.

Table 2. Indicators to be considered for population-based surveys

Indicator	Frequency	Primary data source	Applicability
C3b.% of women and men aged 15–49 years who received an HIV test in the past 12 months and who know the results (UA #A3) UNGASS indicator core # 7 (DHS 5.1.2)	Every 3–5 years with survey data	Population-based survey	All epidemic types*
C3c. % of women and men aged 15–24 years who received an HIV test in the past 12 months and who know the results (sub-set of UA #A3)	Every 3–5 years with survey data	Population-based survey	All epidemic types*
C3d. % of people aged 15–49 years who know their HIV status (DHS 5.1.1)	Every 3–5 years with survey data	Population-based survey	All epidemic types*
C4b. % of MARPs who have received an HIV test in past 12 months and know the results (UA #A4) UNGASS indicator core # 8	Every 3–5 years with survey data	Population-based survey	For concentrated, low-level and mixed epidemics

* All countries are requested to report the data for **global monitoring purposes,** but these indicators may be more important for countries which prioritize HTC services, e.g. countries with generalized epidemics or those that have resources for case-finding. Countries with concentrated and low-level epidemics may put resources into HTC after substantial scale-up of prevention interventions for MARPs.

5. APPENDICES

Appendix 1. Indicator descriptions

A. Standards

A1. Existence of national HTC policies and guidelines that are consistent with international standards	
Purpose Disaggregation of indicator	To assess whether national policies and guidelines follow international HTC standards *(1)* for HTC delivery. Sound policies and guidelines are key inputs for ensuring that HTC sites operate in an enabling environment as defined by international standards; i.e. clear guidance on provision of quality, ethical and rights-based services.
Applicability	All epidemic types
Data collection frequency	Every 3–5 years or when relevant policies and guidelines are changed or updated
Measurement	The following checklist of priority international standards in HTC is applicable to all countries. National policies in place that: 1. protect the confidentiality of people tested for HIV; 2. prohibit compulsory and mandatory HIV testing of any population; 3. prohibit HIV testing of people without their informed consent or the consent of the adult caregiver; 4. provide a legal or policy framework for HTC provision to all populations that may benefit from services (e.g. MARPs, prisoners, adolescents, children, etc.). National guidelines in place that: 5. specify what pre-test information (for PITC) or pre- and post-test counselling is required for all individuals in all HTC settings; *(1)* 6. describe minimum qualifications/training for those able to provide counselling and perform rapid testing and how they should be supervised; 7. describe minimum standards for HTC sites to provide linkages and mechanisms for tracking referrals to prevention, care and treatment services, and provide appropriate risk reduction counselling; 8. identify methods of evaluation and which HIV test kits have been validated for use in-country (according to WHO guidance *(17)*); 9. include a QA plan for laboratory testing for HIV; 10. establish standard operating procedures and M&E reporting requirements for all HTC sites. Some countries or regions may choose to include additional items in the checklist. **Numerator:** # of international standards fulfilled by national policies and guidelines **Denominator:** # of international standards on the checklist, i.e. the 10 items listed above
Method of measurement	This indicator assumes that the national programme has established HTC guidelines. National HTC policies and guidelines are reviewed against the checklist by a committee of technical experts who are familiar with international guidelines for HTC. Some countries may issue national guidance for different types or components of HTC services in separate documents (e.g. laboratory standards for HIV testing; PITC in different settings; HTC for MARPs); all documents should be reviewed for consistency with the minimum checklist of international standards. For the national policies and guidelines to have met the international standard for a particular item on the checklist, all policy and guideline documents should be consistent with the standard as well as internally consistent.
Disaggregation of indicator	Not applicable
Interpretation	The items in the checklist comprise minimum standards that adhere to international recommendations for inclusion in the national guidelines. To be rated as satisfactory, 100% of the checklist should be met by national policies and guidelines. Countries that have not complied with specific items should develop action plans and monitor progress towards meeting these standards. **Strengths:** This indicator focuses on international standards relevant for all HTC programmes. **Weaknesses:** This indicator cannot assess how well policies and guidelines are being implemented or adhered to. The review of guidelines and policies is limited by the expertise of the technical review panel assembled to assess the guidelines and policies.

A1. Existence of national HTC policies and guidelines that are consistent with international standards	
Target-setting	All national HTC programmes should have an ultimate goal of meeting all standards specified in the checklist described above, i.e. achieve scores of 100%. However, to achieve policies, long-term strategies are often required and it may be feasible to update guidelines only periodically. Countries that fall below the 100% achievement level should have a clear baseline assessment to identify the areas that need to be addressed. Countries that fall short on items related to national guidelines can plan clear timelines for when and how national guidelines can be updated. Countries that fall short on items related to national policies should establish realistic time frames for making the necessary policy changes. It should be noted that many of the issues related to good HTC policy may also be part of a strong overall HIV policy. Efforts to change HTC policy may be integrated into larger HIV policy activities and consequently be subject to these timelines.
Relevant site-level indicator	This indicator refers to national-level guidelines which all HTC sites should follow. A useful site-level indicator is whether: • staff members are aware of and have on-site access to the national guidelines; • the service delivery model adopted by the site is consistent with the national guidelines (*see* indicator 2).
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

B. Quality

B1. Percentage of HTC sites that meet national service quality standards	
Purpose Disaggregation of indicator	Service quality is essential for both providing correct test results as well as ensuring potential end-users' trust and utilization of HTC services. Poor service quality may result in low utilization by high-priority populations. Clear standards of quality should be established by national guidelines for all providers of HTC. All sites should regularly assess their own progress against these standards using clearly defined quality measures, as well as receive regular supportive supervision from regional or national oversight mechanisms.
Applicability	All epidemic types
Data collection frequency	Annually, depending on availability of resources to conduct site visits In large HTC programmes, annual assessments of a sample of sites may be conducted. For programmes where resources are not available to conduct annual assessments of all sites, sites with poor past performance can be selected with certainty and a random sample of sites can be assessed each year at least every three years. In large programmes, responsibility for external site visits may be decentralized to regional units, with review of the results at the national or central level.

B1. Percentage of HTC sites that meet national service quality standards	
Measurement	HTC service delivery points include fixed health-care facilities such as hospitals, public or private clinics, inpatient or outpatient wards; CITC, ANC, labour and delivery, PMTCT or TB sites; stand-alone sites such as free-standing HTC sites not associated with medical institutions; and mobile testing sites such as outreach, home-based services and workplace testing events. A service "quality checklist" should be developed from quality standards/indicators articulated in the national HTC guidelines. The checklist of items may vary according to the type of service (PITC vs CITC) or mode of service delivery (fixed site vs mobile site vs testing events vs outreach). A minimum score for meeting the quality standard should be established by the national HTC programme. Specific checklist items may be identified as critical and may be required for a site to meet the service quality standard. The checklist should address the following areas through site visits and a combination of **site observation** (SO), **client exit interviews** (EI), **key informant interviews** (KI), **and record review** (RR): • Availability on-site of national policies/guidelines and standard operating procedure for HTC – SO • Counselling/client education conducted by trained (certified) providers – SO/RR • At sites serving large numbers of MARPs, counsellors receive specific training (certified) on providing HTC services for MARPs – SO/RR • Stock inventory available and up to date – RR • Availability of an uninterrupted supply of test kits necessary for carrying out the national algorithm and essential consumables – RR • Routine use of standard safety procedures including correct disposal of bio-hazardous waste – SO/RR/KI • Accurate and properly maintained client/patient records – RR/SO • Site participates routinely in laboratory QA programme – RR/KI • QA tools are used for self-assessment of quality of service provision, e.g. EI, counsellor self-assessment, etc. – SO/RR/KI • Whether clients were aware of and consented to testing – EI/RR • Measures taken to protect client confidentiality – SO/EI/KI • Clients receive their test results – EI/RR • Risk reduction plan or prevention messages discussed with client – EI/RR • Condoms and/or needle/syringes available and supplied to patient/client, as needed – EI/RR • Linkage to care and treatment services is specific and clear – RR/KI/EI • HIV-positive patients referred for care and/or treatment – EI/RR/KI ***(See Appendix 5 for sample service quality assessment tools)*** Sites that are assessed are scored against the checklist to determine if they meet the minimum score required for service quality. **Numerator:** # of sites that meet the minimum score on the service quality checklist **Denominator:** # of sites undergoing assessment
Method of measurement	Site visits are conducted using a standardized quality checklist. Site visits may be conducted by national or regional HTC programme officers or technical experts, teams of peer site managers, or qualified third-party assessors contracted to conduct the standardized site assessments. Combination teams may also be used. Site assessment results should be filed electronically at the central and local levels for future reference and assessment of progress.
Disaggregation of indicator	The performance of different types of sites can be assessed by calculating and comparing the scores or pass rates by • different implementers • geographical regions • types of PITC sites or CITC sites • modes of service delivery (e.g. fixed sites, mobile sites, testing events, etc.) • public sector vs private sector vs civil society-managed sites. Comparing the performance of different types of sites will require appropriate levels of sampling for each type if all sites do not undergo assessment every year.
Interpretation	All HTC sites (i.e. 100%) should meet the minimum standards of quality set by national HTC guidelines. When the percentage of sites that meet the minimum quality standard is below 75%, it suggests systemic issues in implementation, which should be corrected through national-level action. The lowest performing sites or sites with similar areas of weakness can be the focus of initial management efforts to strengthen services. **Strengths:** This indicator provides a more in-depth assessment of service implementation than other quantitative indicators. **Weaknesses:** Measuring service quality can be resource intensive and may be feasible only periodically and at a sample of sites. Different countries may include different aspects of quality and set different standards for minimum levels of quality, making this indicator difficult to standardize across countries.

B1. Percentage of HTC sites that meet national service quality standards	
Target-setting	The ultimate target is to ensure that all sites (i.e. 100%) meet the minimum standards for service quality. Interim targets may be tied to the impact of systemic efforts to improve services (e.g. training of HTC providers, improvements in systemwide supply chain management, increasing supervision to weaker sites, standardizing M&E tools, etc.).
Relevant site-level indicator	The results of service quality assessment of individual sites should be fed back to each site, for further management action. Some specific measures of quality that can be used for site self-assessments and are readily obtained through routine monitoring systems include: • % of persons tested who return for their results • % of HIV-positive patients reaching the care/treatment referral site • # of days per quarter when test kits or consumables are out of stock • % of concordant test results for QA samples
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

C. Coverage

C1. Number of health facilities that provide HTC services (UA #A1) *Indicator for UA reporting 2011*	
Rationale	Knowledge of HIV status is critical to expanding access to HIV treatment, care and support, and prevention. Availability of HTC services is the pre-requisite for scaling up coverage of testing and counselling, so that more people know their HIV status, which can be expanded through CITC and PITC models.
Measurement	Availability of testing and counselling services in health facilities **Number of health facilities that provide HTC services** *(Efforts should be made to include all public, private and NGO-run health facilities.)*
How to measure and measurement tools	Two possible sources of information, either: 1. Central register of all HTC sites; 2. Central test kit procurement records for the number of facilities requesting kits. If both are available, then provide the information from both *Please include data on all facilities providing services in the country, whether private, public, NGO, or other.* Information on the availability of certain services is usually summarized at the national or sub-national level. National HTC programmes should have a record of facilities that provide HTC services. Efforts should be made to include facilities that provide services in the private and NGO sectors, especially where these provide a significant proportion of HTC services. A recent health facility census can also provide this information as well as much more in-depth information on the availability of services. All sites where HTC is offered should be counted. Thus, sites that offer testing and send samples to a laboratory elsewhere, get test results back, and give results to the client should be included.
Disaggregation of indicator	If possible, by: 1. *Type of health facility (e.g. government health facilities, NGOs, community-based organizations [CBOs], mission hospitals and private health facilities)* 2. *Type of services offered (e.g. TB clinic, ANC clinic, etc.)*
Strengths and weaknesses	This indicator is intended to monitor the availability of HTC services as countries continue to expand HTC. It does not intend to capture the quality of HTC services provided.
Data utilization	Coverage: to look at an increase in the number of health facilities that provide testing and counselling. Analysing the data geographically and by type of health facility is important. In addition, triangulating these data with population data can provide insights into where there is a need to increase the availability of HTC services.

C1. Number of health facilities that provide HTC services (UA #A1) *Indicator for UA reporting 2011*	
Target-setting	Overall guidance for **generalized epidemic** settings to promote the availability of HTC services in all types of facilities. However, the end-line target in each country – the national policy or testing guideline – will specify the level and types of facilities that are expected to have HTC services, and the number of such facilities defines the maximum target level of all health facilities in the country that are expected to provide HTC. Realistic interim targets may also be set based on the resources available for supporting facilities that maintain a minimum standard of quality (e.g. QA for the laboratory component, and training/supervision for counselling and testing staff, etc.). Similar considerations for end-line and interim targets are relevant for countries with **concentrated or low-level epidemics**. In concentrated or low-level epidemics, because the types of facilities that provide HTC may be limited, targets will be lower than for generalized epidemics. At a global level, "achievements" in coverage for this indicator are not comparable between countries with different types of epidemics, because the goals and targets of the HTC programme will be different. This is an example where at the **global level** it can be useful to present the data as the number of facilities where HTC is offered per 100 000 population, as presented in the UA reporting, because it allows for a uniform indicator across countries. At **a national level**, the indicator allows a comparison of trends in service availability over time.
Additional considerations	It is recommended that every health facility has the capacity to offer testing and counselling in generalized epidemic settings.*(1)* In low-level and concentrated epidemics, the goal may not be to have HTC services available in every facility and thus trends are captured.
Data quality control and notes for the reporting tool	*National representativeness: Efforts should be made to include all public, private and NGO-run health facilities.*
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

C2b. Percentage of health facilities that provide ANC services with both HIV testing and ARV drugs for PMTCT on site (UA #I5) *Indicator for UA reporting 2011*	
Rationale	While programmes for PMTCT include several other interventions that are also important, these two areas were chosen because of the importance of: • the availability of HIV testing in ANC services to identify pregnant women who are infected with HIV and need services for PMTCT; and • the availability of and increased access to ARV drugs for PMTCT among HIV-infected pregnant women. On-site availability is important as it helps to reduce loss to follow up of HIV-infected pregnant women and HIV-exposed infants.
What it measures	On-site availability of HIV testing and ARV drugs for PMTCT at all health facilities that provide ANC services
Numerator	Number of health facilities providing ANC services that offer both HIV testing and ARV drugs for PMTCT on site at the end of the reporting period
Disaggregation	It is recommended that countries disaggregate this indicator by the number of ANC facilities that provide: • HIV testing and a single-drug prophylactic regimen (e.g. single-dose nevirapine); • HIV testing and combination ARV drug prophylaxis but no ART for treating pregnant women for their own health; and • HIV testing, any ARV prophylaxis for PMTCT and ART for the mothers' own health. "Antenatal care facility" means any health facility that provides ANC services. "On site" means that a service is offered within a health facility structure or compound. Services that are offered in separate units but within the same health facility (e.g. HIV testing in the ANC facility and ARV drugs for PMTCT in the HIV care and treatment unit are considered to be "on site".) When blood samples are collected on site, but sent out for HIV testing (e.g. to a national reference laboratory or health facility), this is also considered "on site".
Denominator	Total number of health facilities providing ANC services
Tools	The numerator could be calculated by the following methods: • national or subnational programme records of health facilities providing HIV testing services and ARV drugs for PMTCT; • health facility survey of a representative sample of facilities in the country (e.g. service provision assessment [SPA]); or • health facility census of all health facilities (e.g. service availability mapping). The denominator is generated from: • national programme lists of health facilities providing ANC services; or • where health facility surveys have been conducted, the total number of representatively selected health facilities providing ANC services. All public, private and NGO-run health facilities that provide ANC services should be included.

C2b. Percentage of health facilities that provide ANC services with both HIV testing and ARV drugs for PMTCT on site (UA #I5) Indicator for UA reporting 2011	
Strengths and weaknesses	This indicator allows countries to monitor improvements in the availability of HIV testing and ARV drugs for PMTCT in health facilities providing ANC services. It does not measure other interventions that are also critical for effective PMTCT (e.g. family planning, eligibility assessment for ART). This indicator is limited to ANC facilities for simplicity and does not capture the availability of testing and ARV drug services at stand-alone labour and delivery sites. The indicator does not capture the quality of the ARV drug and HIV testing services provided.
Disaggregation	Countries should maintain an updated list of health facilities that provide ANC services and services for PMTCT, which can be supplemented with more detailed data from health facility surveys or censuses conducted every few years. Some countries may wish to monitor the scaling up of HIV testing and ARV drug provision separately at health facilities that provide labour and delivery services; i.e. the percentage of labour and delivery facilities that provide both HIV testing and ARV drugs for prevention of PMTCT. Countries that provide HIV testing only during ANC or labour and delivery might consider monitoring the number of those facilities that provide HIV testing. This indicator could also be disaggregated by regimen and level of facility (primary, secondary, tertiary) to monitor trends in the decentralization of services for PMTCT.
Data utilization	Look at trends over time. If disaggregated data are available by region, see whether any lower-performing areas can be identified. Review if data are available on the percentage of ANC attendees who know their status (including those with previously confirmed HIV status and those tested) and percentage of labour and delivery attendees who know their status.
Data quality control and notes for the reporting tool	Annually or more frequently, depending on a country's monitoring needs
Target-setting	In countries with **generalized epidemics** the aim will be for all ANC sites to have HTC and ARVs for PMTCT. In **low-level and concentrated epidemics**, the goal may not be to have HTC available in every facility and targets will be set accordingly. The denominator in low-level and concentrated epidemics can therefore be adjusted to be a subset of all facilities, depending on the country context.
Additional information	**For UA reporting 2011**

C3a. Number of women and men aged 15+ years who received an HIV test in the past 12 months and who know the results (UA #2) *Indicator for UA reporting 2011*	
Purpose	To review the programmatic progress of testing and counselling. Tracking the number of individuals who are tested and counselled (voluntarily, should not include people tested mandatorily) and know their status provides an indication of the uptake of HTC in the country.
Applicability	Generalized epidemics: For these settings, a large proportion of the general population is expected to know their HIV status, i.e. to be tested for HIV and to receive their test results. This is not the case for concentrated and low-level epidemic areas, where the focus should be on MARPs *(see indicators C4a and C4b)*.
Frequency	This indicator can be measured annually when based on routine monitoring data (i.e. collected routinely, collated quarterly and calculated annually). **Triangulation options:** In generalized epidemics, data from population-based surveys (usually carried out every five years) estimating the number and calculating the percentage of people tested can be compared with this indicator value to assess and discuss any major differences (see indicator C3b).
Measurement	***By routine monitoring*** **Numerator:** # of men and women aged 15+ years who were tested and received their results in the past 12 months and know their results **Denominator:** n/a. Although not required for the purposes of this indicator, the denominator may be gauged by using the general population as the denominator in generalized epidemics, and MARPs and other groups in low-level and concentrated epidemics.

C3a. Number of women and men aged 15+ years who received an HIV test in the past 12 months and who know the results (UA #2) *Indicator for UA reporting 2011*	
Method of measurement of indicator	Programme service statistics compiled from routine **reports of the number of people tested and who know the results from all service points**, including CITC sites, clinics, hospitals and NGO outreach points, etc. which are often aggregated at the district or local levels and subsequently at the national level. ***This indicator is not measured through population-based surveys (see indicator C3b).*** **Numerator:** Routine monitoring data should provide sufficient information for the numerator. For data quality purposes, it is recommended that these data be collated and reported on at least a quarterly basis and then calculated annually by summing up the number of people tested with results returned across the four quarters of a year. This indicator requires HTC sites to report the number of individuals tested (men and women) aged 15+ years who received an HIV test and know their results; therefore, patient registers must collect data on age so that the total number of tests can be disaggregated by the necessary age groups. It is important to assess the proportion of people who are tested more than once in a 12-month period to avoid double-counting of individuals tested. ***(See indicator F1 and Appendix 6 for accounting for re-testing when using routine monitoring data)***. In contrast, this indicator may underestimate coverage of the general population, depending on the volume of HIV testing provided at places that do not report to the national M&E system, e.g. private laboratories, independent NGOs (therefore, efforts should be made to include HTC data from private providers as well). This indicator may be more informative if broken down by: • smaller geographical units (e.g. state/province level) • gender • MARP category (see indicator C4a) • test result (disaggregation by test result [e.g. positivity rate]) could be used to monitor the effectiveness of case-finding. Sites could monitor the trend in the number of HIV cases diagnosed at their site and compare this with regional or national data to determine if they have been successful at targeting services to those in greatest need. **UA reporting also includes disaggregation by these different age groups, if possible:** • Age: 15–19, 20–24, 25–49, 50+ years • Test: new test, re-test Disaggregation requires sites to use client registers that allow the volume of tests to be reported separately for different age groups.
Interpretation	**Strengths** This indicator permits comparison of trends in the quantity of HTC services delivered and the strength of scaling-up HTC services over time. These data provide key measures of how effectively HTC has been promoted. They can also indicate which target populations or geographical areas are not being reached based on an analysis of the disaggregated data. This indicator is also a measure of the quality of services because it only counts those individuals who received their results. **Weaknesses** This indicator will provide information on the number of times HTC occurred, and not necessarily the number of ***people*** who received HTC services unless countries have a mechanism to avoid double-counting of re-testers. The indicator does not provide information on whether those who were tested were adequately referred to and received follow-up services to benefit from knowing their status. In low-level and concentrated epidemics, this indicator may not be as useful. In countries with laws against accessing HTC services by those 18 years and below, this should be indicated. Often, there are difficulties in collecting data on age. In anonymous testing, most of those who get tested do not indicate their age or gender. In some countries, a significant proportion of testing and counselling services are provided by CBOs or unregistered organizations, which often may not be included in the national statistics. These organizations are encouraged to register with national authorities so that all data on testing and counselling can be reflected in the national statistics. **Double reporting:** Countries will need to estimate the extent of re-testers in order to determine the true number of persons tested over a period. If countries have a mechanism to make such a meaningful assessment (e.g. record of the number of re-testers), it is recommended that they do so and note how this was done. ***(See indicator F1 and Appendix 6 for accounting for re-testing when using routine monitoring data.)***

C3a. Number of women and men aged 15+ years who received an HIV test in the past 12 months and who know the results (UA #2) *Indicator for UA reporting 2011*	
Target-setting	From a care and treatment perspective, the target proportion of the general population tested should be based on case-finding efficiency, i.e. if testing focuses on higher-risk populations, fewer people need to be tested. The efficiency of case-finding can be assessed by comparing the positivity rate among those tested to the actual HIV prevalence in the general population. At the same time, targets should be consistent with the resources allocated for HTC. For example, the maximum number of people that could be tested is: • the # of people that can seek HTC at each site per day X the # of workdays in the year X the # of HTC sites in the country The expected number of people receiving HTC per site per day may be different for different types of sites and different regions of the country, and may have to be accounted for in the calculation. This target also assumes an adequate level of resources (e.g. test kits, consumables, staff, appropriate promotion of HTC services, etc.) available to provide the targeted level of service.
Relevant site-level use of indicator	Individual sites with well-defined catchment areas may be able to determine the number of males and females aged 15+ years in the population they serve. Using this number as a denominator, sites can use their own service statistics to calculate the percentage of men and women aged 15+ years in their catchment area who have been tested and who have received their test results. This percentage can be compared with national or regional averages, depending on the levels of disaggregation of the national M&E data.
Additional information	UNGASS, Global Fund, PEPFAR, UA #2. *For UA reporting 2011,* proposed PEPFAR indicator

C3b. Percentage of women and men aged 15–49 years[1] who received an HIV test in the past 12 months and who know the results (UA #A3, UNGASS #7) *based on a population-based survey UA #A3*	
Purpose	To assess progress in implementing HTC To determine what proportion of the general population has been covered by HTC services recently
Applicability	Generalized epidemics: For these settings, large proportions of the general population are expected to know their HIV status, i.e. to be tested for HIV and to receive their test results. This is not the case for areas with concentrated and low-level epidemics, where the focus should be on MARPs.
Data collection frequency	This indicator can be measured when population-based surveys of the general population are conducted (e.g. every five years in generalized epidemic settings collected through the same DHS and MICS programmes).
Measurement	**Numerator:** # of survey respondents aged 15–49 years who have been tested in the past 12 months and have received their results **Denominator:** total # of survey respondents aged 15–49 years
Method of measurement of indicator	Population-based surveys (DHS, AIDS Indicator Survey [AIS], MICS or other representative survey, consistent with UNGASS requirements) The indicator must be presented as percentages for males and females, and should be disaggregated by the age groups 15–19, 20–24 and 25–49 years. Respondents are asked: 1. I don't want to know the results, but have you been tested for HIV in the past 12 months? 2. If yes: I don't want to know the results, but did you get the results of that test?
Disaggregation of indicator	This indicator may be more informative if broken down by: • smaller geographical units (e.g. state/province level) • gender • MARP category ***(see indicator C4b)*** • age*15–19, 20–24, 25–49 years*
Interpretation	This indicator can provide a direct measure of HTC coverage of the overall population. Reaching coverage targets suggests that services are trusted, easy to access, and/or PITC scale up is reaching a broad segment of the population. In order to protect themselves and prevent infecting others, it is important for individuals to know their HIV status. Knowledge of one's status is also a critical factor in the decision to seek treatment. The introductory statement "I don't want to know the results, but…" allows for better reporting and reduces the risk of underreporting of HIV testing among people who do not wish to disclose their serostatus.
Target-setting	The target-setting guidance for this indicator should be the same as that for C3a.
Additional information	**UNGASS, GFATM, PEPFAR, UNGASS indicator core # 7**

[1] Currently under review and is proposed to be changed to age 15+ years

C4a. Percentage of MARPs aged 15+ years who have received an HIV test in the past 12 months and know the results (subset of indicator C3a)	
Purpose	To determine whether the populations prioritized for HTC (MARPs) in concentrated and low-level epidemics are accessing services/adequately covered. Countries will have to determine which MARP category (e.g. SW, MSM/transgender, IDU) they wish to monitor, depending on relevance and feasibility.
Applicability	Low-level and concentrated or mixed epidemics: In these areas, MARPs should be the focus of prevention interventions and are the populations that may be in greatest need of care and treatment services.
Data collection frequency	This indicator can be measured annually when based on routine monitoring data (i.e. collected routinely, collated quarterly and calculated annually). **Triangulation option:** In low-level and concentrated epidemics, data from population-based surveys or special population-based surveys of MARP categories can be conducted, which can be compared with this indicator value to assess and examine major differences ***(see indicator C3b).***
Measurement	**By routine monitoring** **Numerator:** # of MARP category (e.g. SW, MSM, transgender, IDU) who were tested in the past 12 months and received their results **Denominator:** Estimated number of MARP category (This indicator is calculated separately for each MARP group relevant to the country's epidemic.)
Method of measurement	Measuring this indicator through routine monitoring data is ideal, but is not feasible in all settings. Calculating this indicator through routine monitoring systems requires an HTC client register which can distinguish whether clients are SW, MSM/transgender or IDU for the numerator. Service statistics must also be collated and reported separately for each of the relevant MARP categories. Denominators for this indicator are also challenging as population size estimates for MARP categories are not available in all countries with low-level and concentrated epidemics. However, these denominators are required for more fundamental measures of coverage with prevention interventions for MARP groups as well as surveillance measures, and may be more readily available in a larger number of areas in the near future. When using routine monitoring data for the numerator, it is important to assess the proportion of people who were tested more than once in a 12-month period.
Disaggregation of indicator	This indicator is more meaningful when calculating this percentage for subnational geographical units and by specific MARP category (e.g. SW, IDU, MSM/transgender, etc.) with disaggregation by HIV status (disaggregation by test result [e.g. positivity rate] could be used to monitor the effectiveness of case-finding). Sites could monitor the trend in the number of HIV cases diagnosed at their site and compare this with regional or national data to determine if they have been successful at targeting services to those in greatest need.
Interpretation	This indicator can provide a direct measure of both how well MARPs are covered by HTC services and utilization of services by MARP categories. Reaching coverage targets for these populations suggests that services are trusted, friendly to priority populations and easy to access. Due to the difficulties in obtaining reliable data on MARPs, triangulation of two or more sources of data to determine the extent of true coverage is recommended. **Strengths:** Utilization/coverage information provides key measures of how effectively HTC has been promoted in a given community. **Weaknesses:** Methods of measurement for both the numerator and denominator are challenging, and may result in unreliable levels of utilization/coverage. If the data show that coverage targets have been reached, it could be due to other undesirable reasons (e.g. the same people are being tested multiple times, the population size used for the denominator may be inaccurate). Measuring this indicator is not feasible in all settings. Client registers need to be adapted to document the MARP groups served. However, many people from the various MARP categories may not identify themselves when attending HTC services. Denominator estimates are also challenging.

C4a. Percentage of MARPs aged 15+ years who have received an HIV test in the past 12 months and know the results (subset of indicator C3a)	
Target-setting	Because prevention interventions are the highest priority of a programme in a concentrated or low-level epidemic area, it does not make sense for HTC coverage targets to be higher than those set for reaching MARPs through prevention interventions (e.g. condom or needle/syringe distribution, outreach, etc.). National targets for the proportion of MARPs who have been tested and know their test results should also be informed by the available resources for HTC among MARPs, i.e. • the # of MARPs expected to seek HTC at each site per day X the # of workdays in the year X the # of HTC sites in the country serving predominantly MARPs This calculation also assumes an adequate level of resources (e.g. test kits and consumables, counsellors trained to provide HTC for MARPs, sites for care and treatment services, and appropriate promotion of HTC services, etc.) available to provide the targeted level of service. Guidance on target-setting for IDU populations considers <40% coverage to be "low"; 40–75% coverage to be "medium;" and >75% coverage to be "high." *(18)*
Relevant site-level use of indicator	Individual sites with well-defined catchment areas and local population size estimates for MARPs may be able to use this denominator to calculate coverage with their own service statistics. This percentage can be compared with national or regional averages depending on the levels of disaggregation of national M&E data.
Additional information	This indicator (collated from routine monitoring data) is new and requires field-testing, proposed PEPFAR indicator

C4b. Percentage of MARPs 15+ years who have received an HIV test in the past 12 months and know the results *(subset of indicator C3b if part of a population-based survey)* UA #A4 UNGASS #8	
Purpose	To determine whether the populations prioritized for HTC (MARPs) in concentrated and low-level epidemics have been adequately covered. This indicator is calculated separately for each MARP group relevant to the country's epidemic.
Applicability	Low-level and concentrated or mixed epidemics: In these areas, MARPs should be the focus of prevention interventions and are the populations that may be in greatest need of care and treatment services.
Data collection frequency	This indicator is collected through a population-based survey of MARPs conducted, for example, every 2–5 years in selected sites.
Measurement	**By population-based survey (consistent with UNGASS)** **Numerator:** # of survey respondents in the specified MARP group who have been tested in the past 12 months and received their results **Denominator:** # of survey respondents in the specified MARP group
Method of measurement	Population-based surveys of MARPs are technically challenging and resource intensive, so are done only periodically. However, when such surveys are planned, the addition of two simple questions: "Have you been tested for HIV in the past 12 months?" and "Did you receive your test result the last time you were tested?" provides the key information required for this indicator. Another consequence of population-based surveys being resource intensive is that it may not be possible to measure this indicator among MARPs in all geographical areas. Neither is it possible to draw a national-level sample of MARPs. Careful thought must be put into the design of these surveys to determine how the selection of survey sites will contribute to a national-level assessment of achievement against this indicator. For example, aggregating data across sites must consider how to address the diversity of epidemic areas, implementers of services and density of the population.
Disaggregation of indicator	This indicator is more meaningful when calculating this percentage for subnational geographical units and by specific MARP group (e.g. SW, IDU, MSM/transgender, etc.) with disaggregation by HIV status.
Interpretation	This indicator can provide a direct measure of both how well MARPs are covered by HTC services and utilization of services by MARP categories. Reaching coverage targets for these populations suggests that services are trusted, friendly to priority populations and easy to access. Due to the difficulties in obtaining reliable data on MARPs, triangulation of two or more sources of data to determine the proportion of true coverage is recommended. **Strengths:** Utilization/coverage information provides key measures of how effectively HTC has been promoted in a given community. **Weaknesses:** Methods of measurement for both the numerator and denominator are challenging and may result in unreliable levels of utilization/coverage. If the data show that coverage targets have been reached, it could be due to other undesirable reasons (e.g. the same people are being tested multiple times, the population size used for the denominator may be inaccurate). Measuring this indicator is not feasible in all settings, especially where various MARP groups are criminalized or face stigma and discrimination, which prevents people from identifying themselves in many settings.

C4b. Percentage of MARPs 15+ years who have received an HIV test in the past 12 months and know the results (subset of indicator C3b if part of a population-based survey) UA #A4 UNGASS #8	
Target-setting	Because prevention interventions are the highest priority of a programme in an area with a concentrated or low-level epidemic, it does not make sense for targets for HTC coverage to be higher than targets set for reaching MARPs through prevention interventions (e.g. condom or needle/syringe distribution, outreach, etc.). National targets for the proportion of MARPs who have been tested and know their test results should also be informed by the available resources for HTC among MARPs, i.e. • the # of MARPs expected to seek HTC at each site per day X the # of workdays in the year X the # of HTC sites in the country serving predominantly MARPs This calculation also assumes an adequate level of resources (e.g. test kits and consumables, counsellors trained to provide HTC for MARPs, sites for care and treatment services, and appropriate promotion of HTC services, etc.) available to provide the targeted level of service. Guidance on target-setting for IDU populations considers <40% coverage to be "low"; 40–75% coverage to be "medium;" and >75% coverage to be "high." *(18)*
Relevant site-level use of indicator	Individual sites with well-defined catchment areas and local population size estimates for MARPs may be able to use this denominator to calculate coverage with their own service statistics. This percentage can be compared with national or regional averages depending on the levels of disaggregation of national M&E data.
Additional information	**Global Fund, PEPFAR UA #A5, UNGASS indicator core number 8**

D. Uptake of care and treatment

D1. Ratio of number of new patients receiving care/pre-ART or ART services : number of new people who test positive for HIV	
Purpose	To determine the access/uptake of care and treatment services by newly diagnosed people with HIV, which is a primary outcome of effective HTC programmes
Applicability	All epidemic types
Data collection frequency	Data are collected routinely, collated quarterly and calculated annually.
Measurement	**Numerator:** # of newly diagnosed HIV patients who have accessed HIV care/pre-ART, or ART services for the first time in the year **Denominator:** # of new patients who test positive for HIV in the year The ideal measure would be the percentage of people who are diagnosed as positive and who successfully access care or treatment. However, tracking these data at the individual level may not be feasible in most countries. The ratio recommended here is a proxy measure that uses data which may be more readily available. This would be avoided where there are unique patient identifiers, and systems to track patients across services.
Method of measurement of indicator	**Numerator:** The ability to measure this indicator requires countries to track the number of new individuals enrolling in pre-ART and/or ART services in a year through routine monitoring systems at care and treatment sites. It is necessary to consider ways of avoiding double-counting if people are accessing multiple service delivery sites. **Denominator:** To count the number of people who test positive for HIV requires all HTC client registers to include the results of the test and for the total number of clients who test positive to be collated and reported routinely. In some cases, people who test positive may repeat the test at the same or a different facility to confirm their status.[1] Efforts to determine the percentage of HIV-positive people who re-test should be made to minimize potential double-counting of people in the denominator. HTC programmes should ensure that confirmatory results, i.e. a second positive test result, conducted as part of routine algorithms for HIV testing, are recorded in a way that does not result in inflation of the denominator. Disaggregation may be useful by gender, age group or MARP group. Each disaggregation category requires data to be collected, collated and reported by these subgroups for both the care/treatment numbers and the HIV testing data. These requirements may put a considerable burden on sites for reporting, if data are not entered into electronic formats at the site level. Disaggregation by geographical units may also be more informative for progress towards this outcome in different regions of the country. However, disaggregation by subnational geographical units assumes that individuals seek testing and care/treatment in the same area. For example, if this indicator is calculated for specific districts, this assumes that individuals who test positive are likely to seek care or treatment in the same district as the one where they were tested. In some countries with low-level epidemics or early-stage care and treatment programmes, not all geographical units that offer HTC may have care and treatment services.

[1] See Appendix 6 for accounting for re-testing when using routine monitoring data.

D1. Ratio of number of new patients receiving care/pre-ART or ART services : number of new people who test positive for HIV	
Interpretation	When this ratio approaches 1, it suggests that people who are diagnosed as infected with HIV are adequately accessing HIV care and treatment services. If the ratio is greater than one, it may suggest that counting of people testing positive could be inaccurate or that people are accessing multiple services. **Strengths:** This indicator provides a good estimate of successful access to HIV care and treatment services among those who test positive for HIV at HTC sites. **Weaknesses:** Because this measure does not track individuals from testing to care/treatment services, it cannot determine whether additional factors besides HTC-related referrals were associated with persons seeking care and treatment, and may be difficult to disaggregate by subgroup.
Target-setting	If access to and uptake of care and treatment services is high, the expected level of achievement should be a ratio close to 1:1. However, in many places, the care and treatment services may be limited or there may be factors such as stigma and discrimination which limit people from accessing services and the baseline level of this indicator may be low. Interim targets should reflect the level of effort and resources which are put into strengthening care and treatment services. Targets may also need to reflect some errors, underreporting or duplication of the numbers of people who access care services.
Target-setting	Overall guidance for generalized epidemic settings to promote the availability of HTC services in all types of facilities. However, the end-line target in each country – the national policy or testing guideline – will specify the level and types of facilities that are expected to have HTC services, and the number of such facilities defines the maximum target level of all health facilities in the country that are expected to provide HTC. Realistic interim targets may also be set based on the resources available for supporting facilities that maintain a minimum standard of quality (e.g. QA for the laboratory component, and training/supervision for counselling and testing staff, etc.). Similar considerations for end-line and interim targets are relevant for countries with concentrated or low-level epidemics. In concentrated or low-level epidemics, because the types of facilities that provide HTC may be limited, targets will be lower than for generalized epidemics. At a global level, "achievements" in coverage for this indicator are not comparable between countries with different types of epidemics, because the goals and targets of the HTC programme will be different. This is an example where at the global level it can be useful to present the data as the number of facilities where HTC is offered per 100 000 population, as presented in the UA reporting, because it allows for a uniform indicator across countries. At a national level, the indicator allows a comparison of trends in service availability over time.
Relevant site-level use of indicator	Sites that record referrals may be able to track follow up of individual patients who are diagnosed as HIV positive; and calculate the percentage of those diagnosed as positive who reach a care or treatment referral site.
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

E. PITC scale-up

1. Antenatal and delivery services

E1. Percentage of pregnant women who know their HIV status WHO PMTCT M&E guide indicator #3, UA #I8 *For UA reporting 2011*	
Purpose	This indicator assesses efforts to identify the HIV serostatus of pregnant women in the previous 12 months. Identification of a pregnant woman's HIV serostatus provides an entry point for other services for PMTCT and for tailoring prevention, care and treatment to her needs.
Applicability	Countries with generalized epidemics. It also applies to countries with policies to identify the HIV status of all pregnant women. Countries with low-level or concentrated epidemics that do not have policies to identify the HIV status of all pregnant women should adapt the denominator on the basis of the target population of pregnant women whose HIV status is to be assessed, according to their national policy or strategy.
Data collection frequency	Annually or more frequently, depending on a country's monitoring needs
Measurement	**Numerator:** Number of pregnant women who have been tested for HIV (in the past 12 months) and know their test results **Denominator:** Estimated number of pregnant women in the country during the year

E1. Percentage of pregnant women who know their HIV status WHO PMTCT M&E guide indicator #3, UA #I8 *For UA reporting 2011*	
Method of measurement	**Numerator:** Number of pregnant women of known HIV status This is compiled from the number of women of unknown HIV serological status attending ANC, labour and delivery, and postpartum services, who have been tested for HIV and know their results; and women with known HIV infection attending ANC for a new pregnancy in the past 12 months. The numerator is the sum of categories (a)–(d) below: (a) pregnant women who had an HIV test and received their result during ANC; (b) pregnant women of unknown HIV serological status attending labour and delivery who were tested and received their results; (c) women of unknown HIV serological status attending postpartum services within 72 hours of delivery who were tested and received their results; and (d) pregnant women with known HIV infection attending ANC for a new pregnancy. Pregnant (and postpartum) women of unknown serological status: women who were not tested during ANC or at labour and delivery for this pregnancy or do not have documented proof of having been tested during this pregnancy (a)–(c) include all women who were tested and received their results, irrespective of the HIV test result; (d) includes women with previously known HIV-positive status. Pregnant women with known HIV infection: women who were tested and confirmed to be HIV positive at any time before the current pregnancy, who are attending ANC for a new pregnancy. These women do not need to be retested if there is documented proof of their positive status, in line with national guidelines on testing pregnant women. These women do, however, need services for PMTCT and are counted in the numerator. Disaggregation into: (a) women with known (positive) HIV infection at ANC, (b) women newly identified as HIV positive (c) women testing HIV negative. **Denominator:** Estimated number of pregnant women in the past 12 months
Disaggregation of indicator	This indicator can be broken down by site or geographical area. The numerator can be broken down to calculate the indicator for only those women with unknown HIV status at the time of coming for ANC services or labour and delivery (i.e. to remove pregnant women who have already tested positive for HIV from both the numerator and denominator).
Interpretation	HIV testing for pregnant women is the first step in a cascade of services for PMTCT, and ensuring early care and treatment for HIV-infected mothers. This indicator measures the coverage in scaling up routine HTC in PMTCT services for pregnant women. **Strengths:** This indicator relies on basic information from HTC/PMTCT registers to determine what proportion of all pregnant women in a country know their HIV status and makes it possible to monitor trends in HIV testing among women attending ANC. **Weaknesses:** This indicator does not capture individual components of the testing process such as the number of women counselled but not tested; or women who were tested and counselled, but did not receive their results. It is a measure neither of the quality of testing or counselling nor of the number of women who receive counselling before or after testing. This indicator cannot determine whether women who are diagnosed as positive receive PMTCT or other care and treatment services, or how late in their pregnancy or stage of disease infected women are diagnosed. There is a risk of double-counting with this indicator, as pregnant women can be tested more than once during ANC, labour and delivery or postpartum care, particularly when women are re-tested in different facilities, when they come for ANC or labour and delivery services without documentation of their previous results or when they are re-tested after a previous negative test result during the pregnancy. While double-counting cannot be avoided entirely, countries should set up a data collection and reporting system to minimize it. It is not a meaningful indicator for countries that do not put resources into PMTCT programmes and are not expected to cover a large proportion of pregnant women (or where there are no reliable national birth registration data to provide information for the denominator).

E1. Percentage of pregnant women who know their HIV status WHO PMTCT M&E guide indicator #3, UA #I8 *For UA reporting 2011*	
Target-setting	In generalized epidemic settings, the ultimate target should be 100%. However, current levels of coverage may be relatively low and realistic interim targets must be developed. Targets should also reflect the resources available to provide HTC at ANC and the number of women expected to attend ANC services that offer HTC. If the historical volume of pregnant women attending ANC sites that offer HTC is unknown, this can be estimated by multiplying: • average # of pregnant women attending an ANC site in a year X the number of ANC sites offering HTC
Relevant site-level use of indicator	This indicator can be calculated for an individual ANC site and compared with the national or regional average to assess performance.[1]
Additional information	UNAIDS, Global Fund, PEPFAR, WHO PMTCT Guide 2010, Core indicator 3, UA #2. *For UA reporting 2011* proposed PEPFAR indicator

[1] Note: this is the same indicator as PMTCT guidance core indicator #3.

2. Tuberculosis services

E2. Percentage of TB patients who had an HIV test result recorded in the TB register (WHO TB/HIV indicator C1.1)	
Purpose	This indicator measures the HIV status of TB patients. Knowledge of HIV status enables HIV-positive TB patients to access the most appropriate HIV prevention, treatment, care and support services. Trends over time demonstrate progress towards national and international targets. The indicator is an additional recommended UNGASS indicator*(6)* for national AIDS programmes. *(19)*
Applicability	All countries are encouraged to report; however, this indicator may not be as meaningful where the prevalence of HIV among TB patients is very low.
Periodicity	Data are recorded continuously and reported quarterly at the time of reporting TB case-finding. Additional reporting at the time of the TB treatment outcome report allows HIV results to be recorded at any time during treatment.
Measurement	**Numerator:** Number of TB patients registered during the reporting period who had an HIV test result[1] recorded in the TB register. **Denominator:** Total number of TB patients registered during the reporting period The numerator should include all TB patients previously known to be HIV positive (e.g. documented evidence of enrolment in HIV care) or with a negative HIV result from previous testing that was acceptable to the clinician (e.g. done in the past 3–6 months in a reliable laboratory). All TB patients with unknown HIV status should be offered PITC. A referral system may need to be established so that the TB control programme records when a TB patient is referred for an HIV test and receives the result. TB patients should ideally be tested at the start of TB treatment so that they can benefit from appropriate care throughout their treatment. However, a recording and reporting system should be able to capture these tests; otherwise, the total number of TB patients knowing their HIV status will be underreported. This indicator measures the ability of HIV and TB services to ensure that the HIV status in people coinfected with HIV and TB is known. A large proportion of TB patients knowing their status provides a sufficiently robust estimate of the true HIV prevalence among TB patients for surveillance purposes. It also forms the basis for more in-depth prevention efforts (e.g. condoms, partner testing).
Method of measurement	Measurement of this indicator requires all TB centres to maintain registers that include data on the HIV status of newly registered patients. TB registers must be able to capture test results of new TB patients who are referred for HIV testing at the beginning of their TB diagnosis. TB centres must regularly collate and report both the numerator and denominator data calculated from their registers. Mechanisms must be established for TB/HIV programmes to share these indicators with the national HTC programme.
Disaggregation of indicator	This indicator can be broken out by sites, geographical region, or by age and sex. TB/HIV guidelines recommend age groupings that separate adults and children (defined as ages 0–14 years).

[1] This should include all TB cases previously known to be HIV positive or with a negative HIV result from previous testing that was acceptable to the clinician (e.g. done in the past 3–6 months in a reliable laboratory).

E2. Percentage of TB patients who had an HIV test result recorded in the TB register (WHO TB/HIV indicator C1.1)	
Interpretation	**Strengths:** A high indicator value suggests good collaboration between HIV–TB services or a high uptake of HIV testing at TB treatment sites. A low value suggests problems with uptake of HIV testing at the start of TB treatment and late detection of HIV, but provides no indication of where the problem lies. HIV infection rates are higher among TB patients than in the general population. Knowledge of HIV status can help promote safer behaviours to reduce HIV transmission and improve access to appropriate care for TB patients to reduce stigma. Health-care workers who know the HIV status of their patients at the start of TB treatment are able to provide the most appropriate treatment, care and support. A high value of the indicator suggests good referral from HIV care sites or a high uptake of HIV testing at TB treatment sites – both signs that the TB/HIV collaboration system as a whole is working well. A low value suggests problems with HIV testing uptake at the start of TB treatment and late detection of HIV, but provides no indication of where the problem lies. **Weaknesses:** The indicator gives no information on whether a patient knows his or her status or has received appropriate pre- or post-test counselling, which is crucial if behaviour change is to be achieved to reduce HIV transmission (it also does not give the HIV prevalence rate among TB patients, which is useful for planning health services).
Target-setting	Where coinfection with TB among HIV patients is high, testing TB patients for HIV is an excellent method of case-finding and critical for providing appropriate care and treatment of both infections. Targets for testing registered TB patients in well-functioning TB/HIV programmes should be near 100%. Where screening for HIV among TB patients is a new programme area or where services are weak, interim targets must be developed. The rate of progress of the programme should be faster where coinfection is higher. Targets must also be realistic, given the effort and resources available to improve screening of TB patients for HIV. For example, targets may be higher where TB sites have on-site HTC or where linkages with HTC sites are strong and return of results is consistently high.
Relevant site-level use of indicator	This indicator can be calculated for an individual site and compared with the national or regional average to assess performance.
Measurement tools	TB registers at facilities and quarterly case-finding reports. Countries may also wish to record this during quarterly TB treatment outcome analysis to include late HIV tests.
Additional information	UNAIDS, PEPFAR, WHO*(20)* (Indicator C.1.1) proposed PEPFAR indicator

3. General health-care services

E3. Percentage of people tested through PITC	
Purpose	This indicator measures the contribution of PITC approaches in service delivery to the scale up of HTC services. PITC is an important testing approach to measure because it increases access to HTC, thereby promoting earlier diagnosis of HIV infection, maximizing the potential benefits of life-extending treatment and care, and equipping HIV-positive individuals with information to prevent transmission to others.
Applicability	Generalized epidemics and hyperendemic settings, in the early stages of PITC scale-up
Data collection frequency	Data should be collected routinely, collated quarterly and calculated annually.
Measurement	**Numerator:** The number of people tested reported from sites providing PITC **Denominator:** Total number of people tested
Method of measurement	HTC reporting units are categorized as PITC or non-PITC sites in the national inventory of HTC sites. HTC service delivery points include fixed health-care facilities such as hospitals, public or private clinics, inpatient or outpatient wards, CITC, ANC, labour and delivery, PMTCT or TB sites, stand-alone sites such as free-standing HTC sites not associated with medical institutions, and mobile testing sites such as outreach, home-based services and workplace testing events. PITC sites are defined as those where a majority of testing is initiated by providers during medical encounters (e.g. ANC, STI clinics, TB centres, inpatient or outpatient departments, etc.). Patient registers for HTC sites are summed up and reported centrally. Numbers of people tested are tallied separately for PITC sites and non-PITC sites. In some countries, HTC sites provide both PITC and CITC services, so the categorization of sites is not meaningful for some sites or the measure may be fraught with a small degree of misclassification. Furthermore, definitions/interpretation of PITC and CITC may differ in different settings. To obtain more precise measures for this indicator in these settings, HTC client registers would be required, which separately note PITC and CITC services provided at an individual client/patient level.

E3. Percentage of people tested through PITC in health-care settings	
Disaggregation of indicator	Tests can be broken down by geographical area or public, private, NGO sector, etc.
Interpretation	This indicator measures whether the number and proportion of people tested through PITC is increasing over time. This indicator is useful when PITC services are in the early phase of implementation to assess whether PITC is becoming a regular practice among providers. **Weakness:** Interpretation of what constitutes PITC and CITC may vary between sites, countries, etc. It may not be useful for countries with low-level or concentrated epidemics, as many will not have PITC policies. It may not be useful at the international level for distinguishing performance because of varying definitions across countries for PITC and CITC.
Target-setting	The appropriate target should be based on a calculation of the number of people who attend medical services where PITC is offered in the country. For example, if PITC is recommended for ANC attendees, STI clinic attendees, TB patients and district hospital inpatients, a tally of the total patient volume for these services at all sites in the country (e.g. 100 000) will be the maximum number of people tested through PITC. As PITC is scaled up, these numerical targets can reflect the increase in resources put into implementing PITC at these types of sites (e.g. Year 1 – 10 000; Year 3 – 30 000; Year 5 – 50 000). To determine an end-line target for the percentage of all people tested which should be provided through PITC, it may be helpful to use the following formula for calculation: **Numerator:** maximum number of people tested through PITC (e.g. 100 000) **Denominator:** the historical volume of people tested through CITC in a country (e.g. 15 000) + the maximum number of people tested through PITC (e.g. 100 000) Using the above example figures, the end-line target would be 100 000/(100 000 +15 000) = 86%. This calculation provides a point of reference for the ideal scenario of PITC implementation. Then the interim target percentages would be set with the absolute targeted number of people tested through PITC used as the numerator (e.g. Year 1: 10 000/25 000= 40%; Year 3: 30 000/45 000 = 66%; Year 5: 50 000/65 000 = 76%).
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

F. Re-testing

F1. Percentage of individuals aged 15+ years who receive HTC and who report ever having been *previously* tested for HIV	
Purpose	This indicator is intended to measure the proportion of individuals aged 15 + years who have previously received HTC services and received their results to enable adjustments to be made to avoid double-counting when testing statistics are aggregated, and to have an indication of the level of re-testing.
Applicability	All epidemic types
Data collection frequency	Data should be collected routinely, collated quarterly and calculated annually.
Measurement	**Numerator:** The number of individuals aged 15+ years who received HTC and received their results in the past 12 months, and who report ever having been previously tested for HIV and received their results **Denominator:** Total number of individuals aged 15+ years who received HTC and received their results in the past 12 months
Method of measurement	Data for this indicator can be collected using national programme records aggregated from facility and community registers and other programme monitoring tools. All individuals who received HTC and received their test results should be counted in this indicator, including pregnant women. A change could be made to the registers and reporting forms to include an additional column for "re-test", which can be further split by <12 months, >12 months, so that this indicator is captured. Countries interested in monitoring the number of pregnant women who seroconvert during pregnancy should refer to the PMTCT re-testing indicator.
Disaggregation of indicator	Previous test less than 12 months before current test Previous test 12 months or more before current test

F1. Percentage of individuals aged 15+ years who receive HTC and who report ever having been *previously* tested for HIV	
Interpretation	This indicator enables countries to monitor trends in re-testing for HIV. This indicator is not intended to discourage re-testing, which is appropriate for some subpopulations and in specific circumstances. There is a need to reduce unnecessary re-testing among persons who have previously been tested, know their HIV test result, and do not report recent HIV exposure. Targeted re-testing is important for identifying persons who may have acute HIV infection, or who may have ongoing risk behaviour or recent HIV exposure. *Re-testing* refers to a situation where additional testing is performed for an individual after a defined period of time for explicit reasons, such as a specific incident of possible exposure within the past three months. Re-testing is always performed on a new specimen and may or may not use the same assays (tests) as the one at the initial test visit. *Repeat testing* refers to a situation where additional testing is performed for an individual immediately following a first test during the same testing visit due to inconclusive or discordant test results. In repeat testing, the same assays are used and, where possible, the same specimen. Please refer to the WHO document *Delivering HIV test results and messages for re-testing and counselling in adults* for further guidance on re-testing:*(21)* **Weakness:** Some sites may have the capacity to link unique client ID numbers to verify that an individual has previously taken an HIV test and received their results in the past 12 months. If not, this indicator relies on self-reported data.
Target-setting	Target-setting for the proportion of individuals who have previously tested and received their results should reflect trends in the overall uptake of HIV testing, as well as national policies and recommendations about the frequency of re-testing in the population. Although efforts should be made to increase the proportion of first-time testers (resulting in a lower target for the proportion of those who previously tested and received their results), it is important that persons in need of re-testing access these services.
Relevant site-level indicator	This indicator can be calculated for an individual site and compared with the national or regional average to assess performance and identify strategies to strengthen gaps in programme services. Further breakdown by age and gender could reveal groups that are not being reached by HTC.
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

G. Couples and partner HTC

G1a . Percentage of individuals aged 15+ years who received couples/partner HTC and learned the results of their HIV test together with their partner(s) in the past 12 months	
Purpose	The goal of this indicator is to monitor trends in the uptake of couples/partner HTC services by individuals over time within a country. Many HIV programmes have introduced couples and partner testing. However, there is insufficient information about whether individuals receive couples/partner HTC, and receive their HIV test results together with their partner(s) and disclose their results to each other. Evidence suggests that it is important for both partners to share their HIV test results with one another and make decisions about their future together based on these test results, in order to maximize prevention, care and treatment benefits. Therefore, it is important to capture not only "partner testing", but also to indicate whether or not partners were tested and counselled together, and whether mutual disclosure of HIV status occurred in the presence of a trained HTC provider.
Applicability	All epidemic types. In generalized epidemics, it is strongly recommended that a couples-centred HTC approach be integrated into all HTC settings, as appropriate.
Data collection frequency	Data should be collected routinely, collated quarterly and calculated annually.
Measurement	**Numerator:** The number of individuals aged 15+ years who received couples/partner HIV testing and counselling and who learned the results of their HIV test with their partner(s) in the past 12 months **Denominator:** Total number of individuals aged 15+ years who received HIV testing and counselling in the past 12 months and received their test results

G1a . Percentage of individuals aged 15+ years who received couples/partner HTC and learned the results of their HIV test together with their partner(s) in the past 12 months	
Method of measurement	Data from the numerator should be generated by counting the total number of individuals who received couples HTC and learned the results of their HIV test together with their partner(s), at any HTC service delivery point. This can be collected from data aggregated from registers. HTC service delivery points include fixed health-care facilities such as hospitals, public or private clinics, inpatient or outpatient departments, CITC, ANC, labour and delivery, PMTCT or TB sites, stand-alone sites such as free-standing HTC sites not associated with medical institutions, and mobile testing sites such as outreach, home-based services and workplace testing events. HTC describes services where individuals, couples or family members learn their HIV status in the presence of a trained HTC provider, and receive appropriate counselling based on their test results. Couples and partners attending HTC sites together should be offered the opportunity to receive this service together. In these cases, couples/partners receive pre-test counselling, HIV testing and post-test counselling together, and they learn their HIV test results together. Mutual disclosure of HIV status is part of this couples/partner HTC service. When this occurs, individuals who receive couples/partner HIV testing and counselling and learn the results of their HIV tests together with their partner(s) should be counted in this indicator. Couples/partner HTC is voluntary, and all partners should consent to sharing their results. Mutual disclosure of HIV status is consensual, and should be encouraged for couples **as appropriate.** Individuals with multiple partners may also count towards this indicator, in cases where the various partners receive HTC, and mutual knowledge of HIV status occurs among all partners. **Definitions:** **Couple** – refers to two individuals (i.e. partners) who are in a relationship together. This may be a sexual relationship, or they may intend to be in a sexual relationship (i.e. pre-sexual). This is not limited to legally recognized couples, but is extended to casual and informal couples as well. **Partner** – each individual in a couple is regarded as the "partner" of the other. Thus, the term "couples HTC" and "partner HTC" may be used interchangeably.
Disaggregation of indicator	In order to monitor trends in serodiscordance, countries may choose to carry out a sub-analysis and disaggregate the number of couples/partners who receive HTC services by test results: • Serodiscordant • Concordant positive • Concordant negative Note that if disaggregation by test results is done for this indicator, the denominator changes to the number of couples receiving HTC and results together, not the number of individuals (as it is for the main non-disaggregated indicator).
Interpretation	This indicator allows countries to monitor trends in the uptake of couples/partner HTC and mutual disclosure of HIV status. This intervention is a critical component of HIV prevention efforts. **Weakness:** The indicator does not monitor partner reduction or change in partners. If an individual receives HTC with a partner one month and changes partners the following month, s/he should be retested with the new partner. In this situation, an individual may contribute more than once to this indicator if s/he is retested with each new partner. Not all sites collect information on couples/partner HTC or mutual disclosure of HIV status or routinely aggregate and report the data. Measuring this indicator may require additional investment and resources to revise data collection tools and summary reporting forms.
Target-setting	Individual sites will need to define targets since the number of couples or partners is difficult to estimate for a given population and may be different for different sites.
Relevant site-level indicator	Sites may use these data to investigate barriers to uptake of HIV testing, counselling and mutual disclosure of HIV results among couples/partners, and to strengthen promotional efforts to reach couples/partners and encourage uptake of these services.
Additional information	New indicator requiring field-testing, proposed PEPFAR indicator

G1b. Percentage of pregnant women attending ANC services whose male partner was tested for HIV (UA #19 %WHO/IATT PMTCT M&E indicator)	
What it measures	The percentage of pregnant women attending ANC services whose male partner was tested during the female partner's pregnancy in the past 12 months
Rationale	Male involvement is a critical element in providing family-focused services to HIV-infected pregnant women, their infants and family members. It is also important for the prevention of HIV infection and can help couples who are seronegative to remain seronegative. Partner testing is the first step in involving the male partner, regardless of the couple's HIV status.
Numerator	Number of pregnant women attending ANC services whose male partner was tested in the past 12 months
Denominator	Estimated number of pregnant women in the past 12 months
Epidemic type	Generalized. Where applicable, countries with low-level and concentrated epidemics can modify the indicator according to targeted subpopulations, e.g. partners of IDU or SW.
Frequency	Annually or more frequently, depending on a country's monitoring needs
How to measure and measurement tools	The numerator can be calculated from national programme records compiled from facility registers. Male partners can be tested with the woman at the first ANC visit or at a follow-up visit or tested alone on a separate visit, such as a day reserved for male partner testing. Data can be aggregated from the ANC or testing and counselling register, depending on the context. All public, private and NGO-run health facilities that provide ANC services should be included. The denominator can be calculated from the population estimate of the number of pregnant women giving birth in the past 12 months, which can be obtained from the central statistics office or the United Nations Population Division. If feasible, programmes may consider collecting data on whether or not the male and female partner disclosed their HIV status to each other in the presence of a clinic staff member.
Strengths and weaknesses	This indicator allows countries to monitor efforts to increase testing of male partners of pregnant women attending ANC services. It is not a measure of whether the male partner received his result or any follow-up services. Male partners of non-ANC clients (e.g. prenuptial testing and counselling) who are tested are not captured by this indicator. Thus, this indicator is not representative of the male population; rather, only pregnant women who attend ANC and whose male partners are tested. The indicator does not take into account ANC clients who have more than one partner or change partners over time. Nor does it include partners who were tested for HIV at health facilities other than ANC clinics and those that are not linked to ANC, such as general clinics that offer CITC or PITC. Not all sites collect the results of male partner testing or routinely aggregate and report the data. Measuring this indicator may require additional investment and resources to revise data collection tools and summary reporting forms.
Additional considerations for countries	Testing male partners is important for increasing male involvement and preventing infection during pregnancy, and is also an entry point for the man to family-focused care. Male involvement is a critical element in providing family-focused services to pregnant women, their infants and family members. It is also a key component of the prevention of HIV transmission. While this indicator specifically measures male partner testing, programmes should consider and document the potential prevention impact of providing counselling, testing and disclosure services for couples at ANC and PMTCT sites. Through couples' HIV counselling and disclosure, providers can identify couples who are seronegative and support them to remain seronegative. Additionally, providers can identify serodiscordant couples (where one partner is HIV positive and the other partner is HIV negative) and support them to reduce transmission to the HIV-negative partner and, subsequently, their baby. Health providers should ensure and document that appropriate follow-up services are provided to male partners who are HIV-infected, as part of a comprehensive care and treatment programme. For couples who are seropositive, appropriate follow-up services and referrals to HIV care and treatment centres should be offered to both the male and female partners.
Additional information	proposed PEPFAR indicator

H. Infant testing

H1a. Percentage of infants born to HIV-infected women who receive an HIV test within the first 12 months of life (disaggregated by type/timing of testing [virological testing within 2 months, virological testing between 2 and 12 months, or antibody testing between 9 and 12 months]) (UA# I15) WHO PMTCT M&E guide additional indicator *For UA reporting 2011*	
Rationale	Infants infected with HIV during pregnancy, delivery or the early postpartum period often die before they are recognized as having HIV infection. WHO recommends that national programmes provide virological testing for infants at 6 weeks or as soon as possible thereafter to guide clinical decision-making at the earliest possible stage. Where virological testing is unavailable, initial antibody testing at 9–12 months is recommended.
What it measures	The extent to which infants born to HIV-infected women are tested to determine their HIV status within the first 12 months of life, disaggregated by: (a) early virological testing within 2 months; or (b) virological testing between 2 and 12 months and initial antibody testing between 9 and 12 months.
Numerator	Number of infants who received an HIV test within 12 months of birth, in the past 12 months
Denominator	Estimated number of HIV-infected pregnant women who gave birth in the past 12 months. This is a proxy measure of the number of infants born to HIV-infected women.
How to measure and measurement tools	The numerator is calculated from national programme records compiled from data collected in registers at facilities. The number of infants who were tested (not the number of tests performed) should be counted, as many infants may be tested several times. Data should be aggregated from the appropriate facility registers. The register used depends on the country context. For example, where HIV-exposed infants are followed up in HIV care and treatment settings, countries may aggregate information from those sites; where HIV-exposed infants are tested in child health settings, countries may also aggregate and report information from those sites. When possible, double-counting should be minimized when aggregating data to produce national data. The number of infants receiving more than one virological test in the first 12 months of life may be high and the quality of the indicator will be affected by a country's ability to identify these multiple tests and count an infant only once. All public, private and NGO-run health facilities that provide HIV testing for HIV-exposed infants should be included. Two methods can be used to estimate the denominator: (a) a projection model such as that provided by the Spectrum software: use the output "number of pregnant women needing prevention of mother-to-child transmission of HIV" as a proxy, or (b) multiply the number of women who gave birth in the past 12 months (which can be obtained from the central statistics office or the United Nations Population Division or pregnancy registration systems with complete data) by the most recent national estimate of HIV prevalence in pregnant women (which can be derived from HIV sentinel surveillance in ANC clinics), if Spectrum projections are unavailable. If there are data on the number of live births, they should be adjusted to derive a better proxy.
Disaggregation of indicator	**Type/Timing of first test:** - infants who received virological testing in the first 2 months of life; and - infants who were tested virologically for the first time between 2 and 12 months of age or who had an antibody test for the first time between 9 and 12 months of age. **Test results: HIV positive or HIV negative**
Strengths and weaknesses	This indicator allows countries to monitor progress in providing early HIV testing to HIV-exposed infants, which is critical for appropriate follow-up care and treatment. Ideally, the indicator captures infants born to women with known HIV infection, but it may not be feasible in some settings to exclude infants who were tested for HIV by virological or antibody testing by provider-initiated testing in paediatric wards, malnutrition centres and other sites where infants may be identified as HIV-exposed or -infected. The indicator does not capture the number of children with a definitive diagnosis (i.e. of HIV infection or HIV-negative serological status) or measure whether appropriate follow-up services were provided to the child on the basis of an interpretation of the test results. Furthermore, it does not measure the quality of testing or the system in place for testing. A low value could, however, signal system weaknesses, including poor national management of supplies of HIV test kits, poor data collection or poor management of testing samples.

H1a. Percentage of infants born to HIV-infected women who receive an HIV test within the first 12 months of life (disaggregated by type/timing of testing [virological testing within 2 months, virological testing between 2 and 12 months, or antibody testing between 9 and 12 months]) (UA# I15) WHO PMTCT M&E guide additional indicator *For UA reporting 2011*	
Additional considerations for countries	While early virological testing is critical for identifying infected infants, it is important that countries improve the quality of follow up of HIV-exposed infants and train health providers to recognize the signs and symptoms of early HIV infection in HIV-exposed infants, particularly where access to virological testing is limited. In countries that have scaled up provider-initiated testing of infants with unknown HIV exposure status in malnutrition centres, paediatric wards, vaccination or maternal and child health clinics, consideration should be given to separately measuring the numbers of infants in whom an HIV test was performed through this mechanism. Inappropriate management of supplies can negatively affect the value of the indicator and significantly reduce access to HIV testing for infants born to HIV-infected women. Countries should ensure that appropriate systems and tools, particularly for logistics management and information systems, are in place to procure, distribute and manage supplies at facility, district and central levels.
Data utilization	If coverage is low, explore the reasons for this. Special attention should be paid to disaggregated categories, particularly the percentage of exposed infants receiving a virological test within 2 months of birth. If disaggregated data are available, review the data and identify specific bottlenecks that need to be overcome to increase the coverage among infants.
Data quality control and notes for the reporting tool	• **Double reporting:** Although exposed infants can be tested multiple times, we are interested in capturing the number of infants tested, and whether they received an HIV test within the first 12 months and, if so, whether it was a virological test within the first 2 months(approximate range acceptable 4–8 weeks) or later within the 12 months. • **Test results: In the comments section, please report data by serostatus (number HIV positive, HIV negative) if available.** • **Please provide any relevant information that would allow us to better interpret the data reported**
Additional information	proposed PEPFAR indicator

Early infant diagnosis

H2a. Percentage of health facilities that provide virological testing services (e.g. polymerase chain reaction) for the diagnosis of HIV in infants on site or through dried blood spots (DBS)	
What it measures	The extent to which countries have scaled up and increased access to early diagnosis of HIV in infants born to HIV-infected women
Rationale	Early diagnosis of HIV by on-site virological testing or through DBS is critical for identifying HIV-infected infants for immediate referral to care and treatment, and to facilitate decision-making by health providers.
Numerator	Number of health facilities that provide virological testing for HIV-exposed infants by on-site testing or through DBS
Denominator	Total number of health facilities that provide follow up for HIV-exposed infants
Epidemic type	Generalized or low-level and concentrated epidemics if resources are available and the country has a policy to scale up virological testing
Frequency	Annually or more frequently, depending on a country's monitoring needs

H2a. Percentage of health facilities that provide virological testing services (e.g. polymerase chain reaction) for the diagnosis of HIV in infants on site or through dried blood spots (DBS)	
How to measure and measurement tools	The numerator could be calculated by one of three methods, depending on the availability of information at central institutions: (a) national programme records of lists of facilities that perform virological testing on site or through DBS; (b) lists of distribution of DBS kits by site, in central medical stores, private or NGO-run medical stores responsible for national distribution or national reference laboratory; and (c) facility survey or questionnaire about whether the site is providing virological testing on site or through DBS. In many countries, virological testing is performed only at a national reference laboratory or sent out of the country due to the cost of buying virological testing machines. Thus, the "provision" of virological testing includes on-site testing as well as transport of DBS filter papers to a virological testing laboratory. Sites that refer a mother and her infant to a site that provides virological testing on site or through DBS are not included in the numerator. The denominator comprises all health facilities at any level that provide follow up for HIV-exposed infants, including maternal and child health clinics, sites where a unit for PMTCT is responsible for the follow up of HIV-exposed infants, nutritional centres, district hospitals, and care and treatment sites. All public, private and NGO-run health facilities that provide follow up for HIV-exposed infants should be included.
Strengths and weaknesses	This indicator is a measure only of the provision of virological testing on site or through DBS. It is not a measure of the quality of virological testing or the system (e.g. delays in reporting of results and stock-outs of DBS or virological testing reagents).
Additional considerations for countries	In addition to monitoring the expansion of virological testing capacity at health facilities, countries may wish to periodically monitor bottlenecks in the system, including national, district or facility stock-outs or false stock-outs of testing materials; the time required for reporting test results; human resource availability and training; and tools for tracking samples and appropriate receipt of results.

H2b. Percentage of infants born to HIV-infected women receiving a virological test for HIV within 2 months of birth (new UNGASS indicator)	
What it measures	The extent to which infants born to HIV-infected women are tested within the first 2 months of life to determine their HIV status and eligibility for ART, disaggregated by test results
Rationale	Infants infected with HIV during pregnancy, delivery or the early postpartum period often die before they are recognized as having HIV infection. WHO recommends that national programmes establish the capacity to provide early virological testing of infants for HIV at 6 weeks, or as soon as possible thereafter to guide clinical decision-making at the earliest possible stage. HIV disease progression is rapid in children; they need to be put on treatment as early as possible because without early treatment almost 50% of HIV-infected children would die by the second year of life.
Numerator	Number of infants who received an HIV test within 2 months of birth, during the reporting period, disaggregated by test results which would include: positive, negative, indeterminate and rejected for testing by the laboratory Infants tested should be counted only once. The numerator should include only **the most recent test** result for an infant tested in the first 2 months of life.
Denominator	Number of HIV-infected pregnant women giving birth in the past 12 months. This is a proxy measure for the number of infants born to HIV-infected women.
Epidemic type	All types
Frequency	Annual or more frequently, depending on a country's monitoring needs

H2b. Percentage of infants born to HIV-infected women receiving a virological test for HIV within 2 months of birth (new UNGASS indicator)	
How to measure and measurement tools	**Numerator:** To be collected from databases held at early infant diagnosis (EID) laboratories The numerator should represent the number of *infants* who received virological testing within 2 months of birth; it should not represent the number of samples tested at the laboratory. Data should be aggregated from the laboratory databases. Where possible, double-counting should be minimized when aggregating data to produce national-level data. It is expected that the number of infants receiving more than one virological test in the first 2 months of life will be low. Efforts should be made to include all public, private and NGO-run health facilities that provide HIV testing for HIV-exposed infants. **Denominator:** Two methods can be used to estimate the denominator: a) Using a projection model such as the one provided by the Spectrum software – use the output *"the number of pregnant women needing PMTCT"* as a proxy, or; b) Multiplying the total number of women who gave birth in the past 12 months, (which can be obtained from central statistics office estimates of births or the UN Population Division estimates) by the most recent national estimate of HIV prevalence in pregnant women[1] (which can be derived from HIV sentinel surveillance in ANC clinics), if Spectrum projections are unavailable. If data exist on the number of live births, data should be adjusted to derive a better proxy. Disaggregation by test results: test results should be disaggregated as a number OR as a percentage of total samples received at the laboratory from infants aged 2 months or less. **It cannot** be stated as a percentage using the denominator number of HIV-infected pregnant women giving birth during the reporting period.
Strengths and weaknesses	This indicator allows countries to monitor progress in providing early HIV virological testing to HIV-exposed infants aged 2 months or less, which is critical for appropriate follow-up care and treatment. By limiting the age to 2 months of life or less, the chance of performing repeat tests for the same infant which can lead to double-counting is also eliminated. Viewing changes in this indicator over time can provide actionable indications related to coverage of PMTCT with ARVs, and the relationship between PMTCT coverage and EID coverage. The only three fields needed for this indicator: date of sample collection, age at collection (actual or calculated based upon the date of birth) and result are systematically entered into central EID testing databases at testing laboratories. Due to the small number of testing laboratories and the electronic format of testing databases, this indicator does not have a heavy collection burden. Data quality at the laboratories is generally high, resulting in a robust indicator. The indicator does not capture the number of children with a definitive diagnosis (i.e. of HIV infection), or measure whether appropriate follow-up services were provided to the child based on the interpretation of test results. It also does not measure the quality of testing or the system in place for testing. A low value of the indicator could, however, signal systemic weaknesses, including poor country-level management of supplies of HIV virological test kits, poor data collection and mismanagement of testing samples. Disaggregation by test results **cannot** be used as a proxy for overall MTCT transmission rates. If either the EID coverage of national need or the EID coverage *in the first 2 months of life* is very low, low positivity rates *among infants tested* will not necessarily mean programme success, as many other infants who are likely to be positive are not represented in this sample.
Additional considerations for countries	While early virological testing is a critical intervention for identifying infected infants, it is also important for countries to strengthen the quality of follow up for HIV-exposed infants and to train health providers to recognize the signs and symptoms of early HIV infection among exposed infants, particularly where access to virological testing is limited. Inappropriate management of supplies can negatively affect the value of the indicator and significantly reduce access to HIV testing for infants born to HIV-infected women. Countries should ensure that appropriate systems and tools, particularly tools for Logistics Management and Information Systems (LMIS), are in place to procure, distribute and manage supplies at facility, district and central levels.

[1] National estimates of HIV-infected pregnant women should be derived by adjusting surveillance data from sentinel sites at antenatal clinics and other sources, taking into consideration characteristics such as age distribution, and rural and urban patterns of HIV prevalence.

Appendix 2: Minimum data elements to be collected and reported for HIV testing and counselling (HTC) programmes

This appendix provides the rationale for the minimum data elements to be included in different data collection tools of an effective HTC M&E system.

National inventory of all HTC sites

These elements should be reported by/collected from each provider unit (includes public, private and civil society sector sites):[1]

- A serial number for each site
- Name of the site
- Location information (e.g. state/province, district, city, etc.)
- Whether it is a public, private or NGO/civil society site
- Whether testing is free or requires a fee for service
- Whether test results are offered on the same day (i.e. use of rapid tests)
- Whether the site offers services primarily for MARP groups (specified by MARP group)
- Whether the site offers PITC, CITC services or both
- If it offers PITC, to which populations is it offered at the site: ANC, STI, TB, inpatient, clinic providing services to a MARP group, other, etc.
- Whether services are provided at fixed sites, mobile sites, events or through household outreach, or a combination of these
- Whether it is able to provide virological testing (e.g. PCR) for infant diagnosis on site or through DBS.

The information about each site should be collected when the site begins service and updated as and when services change.

This type of inventory is critical for national programmes to track the availability of testing services at different types of sites and in different geographical areas, as well as maintain a national overview of the HTC programme. These data are also useful for comparing the levels of quality, coverage and referral success by types of sites (e.g. by geographical unit, by public or private sector, or by those providing specialized services for MARPs). By categorizing reporting units through a national inventory, these types of analyses of the data can be made with minimal burden on reporting units.

1 A provider unit is defined as one which draws specimens and provides counselling to clients. In large health facilities, it is considered one provider unit if there is a single laboratory unit processing specimens from multiple points where counselling is provided. For example, a district hospital may have an HTC site which provides walk-in CITC services as well as does the testing for other units in the facility which function as PITC services. If a stand-alone CITC exists within a larger health facility and maintains a separate laboratory and counselling staff, then it should be considered a provider unit by itself.

Example:

Site ID:_____ **Name of site:**_____

Province:_____ **District/Municipality:**_____

Type of site: ❑ **Public** ❑ **Private** ❑ **NGO**

Free testing? ❑ **Yes** ❑ **No**

Rapid testing? ❑ **Yes** ❑ **No**

Services specific to MARP: ❑ **SW** ❑ **MSM** ❑ **IDU** ❑ **Not specific to MARP**

Offers PITC: ❑ **ANC** ❑ **TB** ❑ **STI** ❑ **Outpatient** ❑ **Inpatient** ❑ **Other** ❑ **No PITC**

Mode of service delivery: ❑ **Fixed site** ❑ **Mobile site** ❑ **Testing events** ❑ **Household** ❑ **Other**

Offers virological testing for infants (i.e. PCR) on site or through DBS? ❑ **Yes** ❑ **No**

HTC client/patient register

Basic elements collected for each HTC client/patient are listed below:

- ID number
- Test recommended
- Age or age category (<15, 15–24, 25–49, >49 years)
- Sex
- Accepted HIV test (if at a site providing PITC)
- Test date
- Test result
- Result received

In addition to these essential data elements, programmes can consider several additional key data elements depending on the country setting:

- *Categorization by risk group* (i.e. SW, MSM/transgender or IDU) – ***This information is necessary to collect indicator #4*** and is particularly important for countries with concentrated or low-level epidemics, and where HTC sites serve both MARP and non-MARP clients. These categories should be applied hierarchically, i.e. persons with a history of multiple risk behaviours should be categorized according to the risk behaviour associated with the highest probability of transmission per contact:
  - » injection drug use
  - » sex between men
  - » sex work (sold)
  - » sex work (bought)
  - » regular partner of someone with risk behaviour (as defined by previous categories).

Assignment of risk groups should be based on information on risk behaviour gathered during routine prevention counselling for each client.

- **Previous test** – Inclusion of this information on the patient/client register is one way to address the issue of re-testing[2] and to avoid double-counting. Accounting for re-testers is an issue for several of the indicators. There are three options for capturing these data:
  - » A check box to indicate that the client/patient has already been tested;
  - » A categorical variable to indicate the timing of the previous test (<12 months, >23 months);
  - » The date of the last test (if individual client data are entered into the computer, this form allows greater flexibility in analysis).

- **Whether the client received individual versus couples counselling** – This additional data element can be used as a proxy for categorizing tests that involve partner disclosure or partner notification.

Examples of use of data elements in the client/patient register to calculate indicators

	Data elements required in client/patient register								
Indicator	Age	Sex	Accepted HIV testing	Test date	Test result	Result received	Post-test counselling given	Categorization of risk (i.e. SW, MSM, IDU)	Previous test
Percentage of men and women aged 15+ years who received an HIV test in the past 12 months and received their test result	X	D	X	X		X	X		X
Percentage of MARPs (SW, IDU or MSM) who received an HIV test in the past 12 months and received their test results			X	X		X	X	X	X
Ratio of number of new patients receiving care/pre-ART or ART services: number of new people who test positive for HIV	D	D		X	X	X	X	D	X
Percentage of pregnant women who have been tested in the past 12 months and received their test results			X	X		X	X		X
Percentage of TB clients who had an HIV test result recorded in the TB register			X	X		X	X		X
Percentage of HIV tests provided through PITC	D	D	X	X	D				

Note: Indicators 1 and 2 do not come from routine monitoring data, i.e. are not based on client/patient registers
X = data element required on register
D = data element needed if a common disaggregation of indicator is adopted

Quarterly reporting format

Each unit providing PITC services should report separate utilization data by type of service (CITC vs PITC) and within the PITC service by population, e.g. general medical clinic, ANC clinic, TB centre. Country programmes that wish to analyse their data by mode of service delivery (e.g. fixed site, mobile site, outreach or testing events) should require their provider units to further separate the data by mode of service delivery.

In PITC sites, all people who come for service and meet the eligibility criteria should be offered testing. However, data on the age and sex of individuals who do not accept testing should be available and useful for further analysis of the profile of those who decline testing.

2 Another method is to collect these data from a sample of people who have been tested, e.g. through a periodic survey to determine the average frequency of testing and adjust the routine monitoring data accordingly.

A basic quarterly report from each HTC provider unit may look like this:

Site code no. :_____ **Reporting period:**_____/_____

Type of service: ❑ CITC ❑ PITC, if PITC, group: ❑ ANC ❑ Outpatient ❑ TB ❑ Inpatient

Mode of service delivery: ❑ Fixed site ❑ Mobile ❑ Outreach ❑ Event

	Number tested	Number positive	Number received results
Females			
Males			

A more detailed report that requires indicators disaggregated by age and sex, and MARP status, may look like this:

Site code no. :_____ **Reporting period:**_____/_____

Type of service: ❑ CITC ❑ PITC, if PITC, group: ❑ ANC ❑ Outpatient ❑ TB ❑ Inpatient

Mode of service delivery: ❑ Fixed site ❑ Mobile ❑ Outreach ❑ Event

	Number tested	Number positive	Number received results
SW			
MSM/transgender			
IDU			
General female <15 years			
General female 15–49 years			
General female >50 years			
General male <15 years			
General male 15–49 years			
General male >50 years			

Appendix 3: HIV testing and counselling (HTC) indicators in population-based surveys[1] *(22)* and health facility-based surveys

HTC service data should be collected routinely, and collated and aggregated regularly at the national level through a strong health management information system. Another method for collecting data to help monitor and evaluate HTC programmes includes population-based surveys. Data from such surveys can be reviewed together with data collected from programme service statistics to get a better picture of testing and counselling programmes in a country. Data from population-based surveys also have other benefits as they remove any double-counting of people tested, which is more difficult to implement with service statistics.

Why population-based surveys?

Population-based surveys are recommended for collecting utilization/coverage statistics for HTC programmes. In particular, these are needed to understand the percentage of a specified population that has been tested in the past 12 months and received the results.

Routine monitoring data on coverage from service statistics can be difficult to interpret when testing may be provided anonymously and if people go for multiple tests in a year or when the denominator or size of the specified population is difficult to determine, as is the case for some MARPs. These issues are not a problem in population-based surveys, assuming that the method of sampling used allows a representative sample of the specified population to be drawn. However, this assumption must be assessed carefully, particularly for MARP or other specified groups, for whom representative sampling is particularly challenging.

The Demographic and Health Surveys (DHS) and the AIDS Indicator Surveys (AIS) are common standardized surveys implemented in many countries; they also include information on HTC collected among the general population. MEASURE DHS, funded by the United States Agency for International Development (USAID), supports data collection and analysis activities related to these surveys.

DHS: These are nationally representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health and nutrition. They have large sample sizes (usually between 5000 and 30 000 households) and are typically conducted every five years to allow comparisons over time. Preparation to conduct a DHS usually takes six to 12 months, depending mainly on funding and contractual issues, but also on the inclusion of biomarkers and considerations such as the optimum timing of data collection vis à vis weather, elections or exigent circumstances. Data collection usually takes two to five months, while data processing, report preparation, review, formatting and printing usually require six to 12 months from the end of data collection.

AIS: These surveys were developed to provide countries with a standardized tool to obtain indicators for effective monitoring of national HIV/AIDS programmes. The design for the AIS was guided by the need to have a survey protocol that would provide, in a timely fashion and at a reasonable cost, the information required for meeting HIV/AIDS programme reporting requirements while ensuring comparability of findings across countries and over time.

In addition to general population surveys, HTC-related questions can be added to behavioural surveillance surveys (BSS) or integrated biological and behavioural surveys (IBBS) conducted among MARP or other high-risk groups.

1 Indicators are derived from WHO, UNAIDS, US Government joint indicator database: Measure DHS AIDS Indicator Survey Measurement Database. For complete information on these indicators, see: http://www.measuredhs.com/hivdata/ind_tbl.cfm

MICS: UNICEF assists countries in collecting and analyzing data to fill data gaps for monitoring the situation of children and women through its international household survey initiative, the Multiple Indicator Cluster Surveys (MICS). Since the mid-1990s, the MICS has enabled many countries to produce statistically sound and internationally comparable estimates of a range of indicators in the areas of health, education, child protection and HIV/AIDS. MICS findings have been used extensively as a basis for policy decisions and programme interventions, and for the purpose of influencing public opinion on the situation of children and women around the world. UNICEF is currently supporting the fourth round of MICS. More about MICS can be found at http://www.childinfo.org/mics.html

Appropriate methods of sampling

Population-based surveys that are appropriate for these types of coverage statistics for HTC programmes are those that utilize probability sampling techniques. For the general population, this would include multistage cluster sampling through household surveys, or random digit dial surveys (where most of the general population is accessible by phone). For MARPs, particularly those that are mobile and/or hidden, appropriate sampling methodologies include time–location cluster sampling (TLS) or respondent-driven sampling (RDS). *(23)*

Facility-based samples are not considered to be population based and may need to be interpreted with caution, particularly for measures of coverage among specific subpopulations, because they are selective of only those people who access services and do not provide a larger picture of testing behaviour representative of the whole population. Convenience sampling may be the only feasible method of sampling in some settings. However, the interpretation of convenience-based samples is problematic because the population represented by such samples is biased in an unknown way and cannot be generalized to a wider population.

Coordination with existing surveys

Because the amount of information required for M&E of HTC programmes from population-based surveys is relatively small, it does not make sense to launch population-based surveys for the sole purpose of collecting HTC M&E data. The small number of questions related to the HTC programme should be added to existing, planned surveys that are conducted for broader use. This will require the HTC programme to coordinate closely with other groups responsible for organizing population-based surveys and have a ready, short list of prioritized HTC questions that can easily be inserted into a questionnaire.

Testing and counselling indicators in standardized population-based surveys (DHS/AIS)

The following indicators are included in the generic questionnaires used as the base for the DHS and AIS in most countries:

1. *Knowledge of HIV testing site*
   - » i. Respondents are asked whether they know a place where they can get an HIV test.
   - » ii. Those who know an HIV testing site form the numerator, while the denominator is all respondents in the survey.
2. *Population receiving an HIV test*
   - » i. Respondents are asked whether they ever requested an HIV test, whether they were tested and, if so, whether they received the results.
   - » ii. Those who requested a test and received the results form the numerator, while the denominator is all respondents in the survey.
3. *Population receiving a test and receiving test results in the past 12 months*
   - » i. Respondents are asked whether they were tested in the past 12 months and, if so, whether they received the results.
   - » ii. Those who were tested and received results in the past 12 months form the numerator, while the denominator is all respondents.

4. *HIV testing behaviour among young, sexually active people in the past 12 months*
    - » i. Young (age 15–24 years), sexually active respondents are first asked if they have ever been tested for HIV. Those replying in the affirmative are asked whether they were tested in the preceding 12 months and, if so, whether they know the results of their test.
5. *Counselling and testing of pregnant women*
    - » i. Female respondents who have given birth in the two years before the survey are asked if they received HIV counselling during ANC, whether they accepted an offer of HIV testing, and whether or not they received the results.
6. *HIV prevalence by prior HIV testing*

In DHS/AIS that also include blood testing for HIV prevalence, analysis can also include HIV prevalence by prior HIV testing, i.e. whether or not HIV-positive respondents have been tested previously and whether they know their results. This serves as a proxy for knowledge of current status, although it is possible that respondents have become infected since their last HIV test.

Other types of issues to include in population-based surveys

If a population-based survey is planned, and the HTC programme has an opportunity to add several questions in addition to the basic coverage question of whether respondents have been tested in the past 12 months and received their test results, the following examples of issues should be considered:

- Place of last test – this can help determine the role of private laboratory testing in different populations.
- Reason for last test – this can help determine whether mandatory testing is a problem, and whether people are testing based on self-perception of risk, or by referral.
- Client perceptions that testing is voluntary and confidential – these data will corroborate other information about the quality of services provided, particularly if it can be traced back to a type of service or specific place of service.
- Satisfaction with last HTC experience – these data can help corroborate whether services provided are satisfactory to clients. This can be particularly helpful when traced back to the type of service or specific place of the last test.
- Knows where to go for HTC – this can help determine whether access is being promoted well, and priority populations know that services exist. This aspect can be key to interpreting data on accessibility of service.

Interpreting population-based survey data

When using population-based survey data to assess the performance of HTC programmes, a number of key issues should be kept in mind during the analysis of such data.

- » Do the geographical boundaries and population definition of the survey and the sites being assessed match? For example, if a survey of SWs is conducted, is the type of SW included in the survey the same as the group targeted for HTC by the programme? Does the survey select SWs from specific districts or towns, while the programme covers a whole state or province? Or does the survey take a sample from areas where the HTC programme does not have sites?
- » How are data pooled from multiple survey sites to form a national picture? Does the method of pooling make sense? Were sites selected purposefully or randomly? Are the data weighted to reflect the relative size of the population in different locations?

Appendix 4: Evaluation of HIV testing and counselling (HTC) programmes*(24,25)*

Regardless of whether a programme is examining a new HTC strategy (e.g. did a newly established outreach strategy lead to a greater proportion of patients or clients learning their status?), or any other newly funded programmatic endeavour, incorporating evaluation is essential to ensuring that the programme is reviewed in a methodologically or scientifically sound manner.

This appendix is intended to inform the reader of the importance of initiating and routinely conducting evaluations of HTC programmes. It is not intended to be a comprehensive guide for HTC evaluation, a topic that requires its own manual.

Process steps for evaluation

Ideally, evaluation activities are planned at the beginning of a new intervention (e.g. the start of a new HTC outreach strategy), but they can be undertaken at any point in a programme's history. Planning an intervention and designing an evaluation strategy should be done at the same time. To ensure the relevance and sustainability of evaluation activities, project designers, in collaboration with national and local stakeholders and collaborating donors, must work in a participatory manner to develop an integrated and comprehensive evaluation plan.

The basic process of evaluation should involve a few key steps:

Step1. Specify the key evaluation questions and scope. Evaluation can cover many different aspects and levels of implementation. Developing clear, focused evaluation questions will help the process stay on track. It is also critical to contextualize the evaluation questions in terms of the programme's goals and objectives and overall logic. It is not fair or productive to evaluate a programme on issues that are outside the scope of its goals and objectives, e.g. evaluating the programme's ability to achieve countrywide scale-up when the national programme was designed to focus on a few epidemiologically high-priority areas.

Step 2. Examine existing data and past evaluation studies. This step identifies existing data sources as well as other evaluative activities that may have been done in the past, are ongoing and/or may have been sponsored by other donors.

Step 3. Identify internal and external evaluation resources and capacity. This involves identifying funds and other needed resources such as personnel experienced in evaluation to assist in planning and conducting the evaluation activities, and assessing the programme's capacity to manage and link various databases and computer systems.

Step 4. Determine an appropriate evaluation design, measures and tools. Evaluation experts and programme managers clarify the priority evaluation questions, appropriate evaluation designs, outcome measures or indicators, data needs, and the methods by which this information will be collected and analysed. Practical ways for obtaining data and maintaining a data system that is sustainable and easily accessed should be discussed. An operational plan for comprehensive evaluation should be developed. This step should conclude with a revised written plan briefly outlining evaluation questions, design, data collection methods and analysis plan, and overall timeline for the comprehensive plan.

Step 5. Conduct the evaluation. Existing data may be collated and reanalysed. Additional data may be collected. The evaluation team should systematically document the methods and analysis of the data used to develop the findings. When possible, data should be triangulated and corroborated by different stakeholders. Strengths and limitations of the evaluation design and methods should be described along with presentation of the results.

Step 6. Plan to disseminate and use the evaluation findings. Although not always performed, this should be done, as this step is important to ensure that evaluation findings are used to inform programme improvement and decision-making. It involves planning how evaluation results will be used, translated into programme policy language, and disseminated to all relevant stakeholders and decision-makers. It should also involve a feedback loop to the planners of the next evaluation and a built-in feedback mechanism so that past lessons can effectively inform new efforts.

These stages represent merely the outline for developing a sound evaluation strategy. Additional resources should be referred to at the start of a new evaluation. Although programme evaluation requires some expertise, what is most important are programme management, staff and key stakeholders who are interested in examining and continuously working to meet their programme's objectives.

Role of operational research in monitoring and evaluation

Evaluation of a specific aspect of programme implementation can take the form of operational research, which is any research designed to improve the performance of programmes and policies. During the operational research, a problem with service delivery may be identified and a solution or several approaches to adjusting the programme developed. These solutions are implemented and any changes in the expected outputs or outcomes of service delivery resulting from the adjustments are measured.

Generic tools and protocols for conducting operational research for HIV programmes including HTC have been developed by WHO and its partners.(*16)* These tools can be adapted to meet the specific needs of a country conducting operational research around a specific aspect of their programme.

Potential topics for evaluation

Each country may decide the specific focus of evaluation based on its strategy, key areas of weakness identified through routine monitoring and resource availability. Some common topics for evaluation include:

Outcome evaluation

1. Is the scale and distribution of services commensurate with the need of the epidemic?
2. How successful has HTC been as an entry point to prevention, care and treatment services?
3. Are there disparities among different groups with respect to the proportion of people who are diagnosed as positive and access early treatment and care?

Process evaluation

4. What is the comparable cost efficiency of different modes of service delivery with respect to case-finding? Or covering high-priority populations?
5. What have been the key bottlenecks to scaling up service utilization? Or scaling up PITC in different settings?

Appendix 5: Sample service quality assessment tools

Countries will need to adapt or develop specific service quality assessment tools that reflect their national guideline quality standards and the modes of service delivery included in their HTC programme. However, a standardized facility-based survey protocol and tool has been used in several countries as part of the service provision assessment (SPA) supported by MEASURE DHS. This assessment covers more topics than HTC services, but can serve as a foundation for developing a country-specific HTC service quality assessment tool.

Service provision assessment (SPA) overview

These facility-based surveys offer a comprehensive overview of a country's health-care services and their capacity to provide quality care. SPA surveys examine the supply side of health care, showing the strengths and weaknesses of a country's public and private services. The SPA focuses on five key services: (1) child health; (2) maternal and newborn care; (3) family planning; (4) STIs and other infectious diseases; and (5) HIV/AIDS.

HTC indicators available in the SPA

1. Availability of HIV testing

- Percentage of facilities with an HIV testing system
  - » Percentage of facilities with HIV tests available in the facility or an affiliated laboratory
  - » Percentage of facilities with HIV tests available at an external testing site
- Percentage of facilities with laboratory capacity to perform different HIV tests (enzyme-linked immunosorbent assay [ELISA], HIV rapid test, western blot, PCR)
- Percentage of facilities with the following items available at all relevant service sites:
  - » Informed consent policy for HIV testing
  - » Register with HIV test results
  - » Record for clients who receive HIV test results.

2. HIV testing programme components. Among facilities that provide HIV testing, percentage with the minimum programme components as a proportion of all sites where HIV testing occurs. Components assessed include:

- Observed written policy for routine provision of pre- and post-test counselling for HIV testing
- At least one counsellor trained in pre- and post-test counselling who is assigned to an HIV testing site
- Observed guidelines for content of pre- and post-test counselling
- Observed guidelines or policy on confidentiality of HIV test results
- Observed up-to-date record for clients receiving pre- and post-test counselling
- Observed system linking test results with pre- and post-test counselling
- Visual and auditory privacy possible in all counselling sites.

3. Youth-friendly services. Percentage of facilities with youth-friendly testing services:

- Availability of written policies and guidelines for providing youth-friendly services
- Availability of staff with specific training in providing youth-friendly services
- Key components of youth-friendly services being offered in facility.

4. Availability of counselling services

- Percentage of interviewed staff who report that they provide counselling related to HIV testing

- ANC provider training: among interviewed ANC providers, percentage who received training on PMTCT during the past 12 months or 13–35 months preceding the survey
- How pre-test counselling is provided (individual, group, both individual and group)
- Number of group pre-test counselling sessions in the past 12 months (if group pre-test counselling is done)
- Who (staff) commonly provides HIV pre-test counselling
- Who (staff) commonly provides HIV post-test counselling
- How frequently compiled reports on clients receiving HIV pre-test counselling are reported, and to whom the reports are sent.

5. Infection control: Percentage of facilities with infection control items at the testing site (running water, soap, waste receptacle for safe waste disposal, etc.)

WHO has developed a handbook for improving quality in HTC services with a series of practical tools that help providers to scale up HTC services and make sure that services are of good quality, and are acceptable and appropriate for the populations they serve.*(15)* WHO also has a series of tools to improve and ensure the quality of HIV testing.*(17,27)*

Appendix 6: Addressing re-testing

Most indicators measuring the utilization or coverage of HTC services are more meaningful if they assess the number of individuals who have been tested rather than the number of tests performed.

There may be many reasons why an individual would be tested for HIV more than once in a year or a shorter period of time. If an individual has had a recent known exposure, many HTC programmes encourage people who tested negative to return for testing in three to six months for re-testing. *(21)* In some patient populations, re-testing is encouraged, e.g. ANC attendees in countries with generalized epidemics are encouraged to re-test in the third trimester and annual testing is recommended among members of MARP groups with high rates of incidence. For these reasons, re-testing by the same individual is common and the number of tests performed can overestimate the number of people who have been tested.

One method for measuring HTC indicators in terms of individuals who have been tested requires assigning each client or patient tested with a unique identifier to be used whenever they access testing services. However, tracking individuals in this way may be difficult and, in some cases, would create a barrier for people to access HTC.

There are several alternative approaches to measuring re-testing and untangling the number of people tested from the number of tests performed. Each method requires different levels of resources and different amounts of information that may be helpful in understanding the pattern of re-testing.

a) To collect information about prior testing on a client/patient register

- **Approach.** Data could be recorded as the specific date of the last test, or categorical variables that confirm whether this test was the first test in the calendar year, or the number of tests in the calendar year prior to the current test.
- **Pros.** These data can offer detailed or specific measures of re-testing for each client.
- **Cons.** These data may be difficult to collate when using manual systems.

b) To collect information from a sample of clients/patients undergoing HTC to understand a general pattern of re-testing behaviour

- **Approach.** Surveys could be conducted at a single or multiple HTC sites, taking a sequential sample of clients/patients receiving HTC over a short duration of time that is sufficient for obtaining a sample of several hundred. The pattern of re-testing could be generalized to all HTC patients and the volume of tests performed would be adjusted to reflect the average number of tests per client/patient per year.
- **Pros.** This method is less resource intensive as it requires collecting information from only a sample of clients/patients.
- **Cons.** Characteristics of repeat testing may vary considerably from site to site or among different populations. Developing a meaningful method for generalizing the results may require a deep understanding of the client/patient population and a more sophisticated method of sampling and analysis.

In addition to collecting data to adjust for re-testing in indicators for utilization and coverage, some programmes may be interested in measuring the rates of re-testing to evaluate the effectiveness of their promotion of appropriate re-testing, e.g. among ANC attendees or among MARPs, etc. These types of evaluations may require more specifically designed studies but could serve the purposes (i.e. adjustments for core indicators and understanding re-testing behaviour among specific groups).

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