



MONITORING AND EVALUATION TOOLKIT

HIV/AIDS, TUBERCULOSIS AND MALARIA

Second Edition
January 2006

Monitoring and Evaluation Toolkit: HIV/AIDS, Tuberculosis, and Malaria

ISBN 92-9224-029-3

<p>This document was based on a collaboration between WHO, UNAIDS, The Global Fund to Fight AIDS, Tuberculosis & Malaria, USAID, US Department of State, OGAC, CDC, UNICEF, MEASURE Evaluation and the World Bank.</p>
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List of terms and abbreviations used

AIS	AIDS Indicator Survey
ARV	Antiretroviral therapy
BSS	Behavioral surveillance survey
CBO	Community Based Organisations
CDC	Centers for Disease Control and Prevention, DHSS (USA)
CPT	Co-trimoxazole prophylactic treatment
CSW	Commercial sex worker
CTBC	Community tuberculosis care
DHS	Demographic health survey
DOTS	The internationally recommended strategy for TB control
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HBC	High-burden country (used in reference to tuberculosis disease burden)
H(M)IS	Health (Management) Information System
IDU	Injecting drug user
IEC	Information, education, communication
IPT	Intermittent preventive treatment
IRS	Indoor residual spraying
ITN	Insecticide-treated (bed) net
KAP	Knowledge, Attitude and Practice
LLIN	Long-lasting insecticide treated net
M&E	Monitoring and evaluation
MARP	Most-at-risk population (female sex workers, clients of female sex workers, injecting drug users and men who have sex with men)
MDG	Millennium Development Goal
MDR-TB	Multidrug-resistant tuberculosis
METAT	Monitoring and Evaluation Technical Assistance and Training
MICS	Multiple Indicator Cluster Surveys
MIS	Malaria Indicator Survey
MSM	Men who have sex with men
NAC	National AIDS Council
NGO	Non-governmental organization
NTP	National Tuberculosis Program
OGAC	The President's Emergency Plan for AIDS Relief: Office of the Global AIDS Coordinator
OVC	Orphans and vulnerable children
PEPFAR	President's Emergency Plan for AIDS Relief (USA)
PLWHA	People living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission (of HIV)
PPM	Public-private mix
RBM	Roll Back Malaria
SDA	Service delivery area
SSA	Sub-Saharan Africa
STB	StopTB (Tuberculosis)
STI	Sexually transmitted infections
SW	Sex Workers
TB	Tuberculosis
UNGASS	UN General Assembly Special Session
UNDP	United Nations Development Programme

I. How to use the M&E Toolkit

Why this toolkit?

With the global momentum to scale up the response to the three main infectious diseases, HIV/AIDS, tuberculosis (TB) and malaria, public health practitioners need to provide various levels of accountability for their activities to several constituencies. It is becoming increasingly important for countries to be able to report accurate, timely and comparable data to national authorities and donors in order to secure continued funding for expanding health programs. Most importantly, they need to be able to utilize this information locally to strengthen evolving programs. It is particularly important for national program implementers and managers to have access to the quality information they need to make adjustments and programmatic and technical decisions.

Existing M&E guidelines and materials have been developed through the collaborative work of many partnership constituents, such as UNAIDS, WHO, UNICEF, the President's Emergency Plan for AIDS Relief: Office of the Global AIDS Coordinator (OGAC), USAID and HHS/CDC, other bilateral agencies, non-governmental organizations (NGOs) including MEASURE Evaluation and Family Health International (FHI), and global disease partnerships such as HIV/AIDS 3 by 5 Initiative, Stop TB and Roll Back Malaria. In addition, country M&E officers have been deployed by many agencies, for example UNAIDS and the Emergency Plan. They have an important role to work with country M&E systems to harmonize reporting around common measures and ensure different stakeholders coordinate closely to develop M&E systems.

Developed with the support of international technical agencies and M&E experts, the purpose of the M&E Toolkit is to gather a selection of standard indicators and provide users with references to key materials and resources.

The M&E Toolkit aims to assist countries in achieving the following:

- Coordinate reporting in line with international partners and national systems, thereby encouraging the use of existing, widely agreed and accurate measures
- Select simple indicators, measure, report, and use good quality health and health-related information in a manner that meets both donor and country needs
- Clearly define the standard services that are delivered by a program, and establish both routine and longer term measures of progress
- Formulate a participatory national M&E strategy by providing an overview of key issues to consider
- Evaluate, review and improve M&E systems over time as the scale up of interventions to prevent and reduce morbidity and mortality associated with HIV/AIDS, TB and malaria occurs

The M&E Toolkit focuses mainly on the routine high level reporting of a restricted set of measures of progress (**programmatic and outcome/impact indicators**). Indicators for “supportive environments” are presented in an attempt to address each disease within a broader context. However, most indicators are focused on the health sector.

Who is it for?

This information package aims to provide those working at the country level on M&E systems linked to expanded HIV/AIDS, TB and/or malaria programs with rapid access to key resources and standard guidelines. Users include national disease program managers and project leaders, donor agencies, technical and implementing agencies and NGOs so as to better harmonize information demands. While the guide is written with this specific audience in mind, it does not intend to exclude the wider cadre of individuals and groups working in these disease areas including, for example, professionals working in education, gender issues, and legal reform.

What are its contents?

The M&E Toolkit is meant to provide a framework in which to present a selection of standard and essential indicators in the areas of HIV/AIDS, TB, and malaria:

1. General M&E concepts, guidelines, and responses to frequently asked questions are outlined in the first part of the document.

2. The second half of the toolkit is divided into disease-specific sections, with summary tables of selected programmatic indicators organized by service delivery areas. Outcome and impact measures are also shown in a second summary table and approaches to measurement are presented. Further resources and links to more specialized indicator manuals related to that disease are discussed in each section.
3. The Annexes to the M&E toolkit provide an overview of indicator definitions, measurement, and reporting.

How do you use this toolkit?

The indicators presented have been developed for reporting at the national level, although many of them can also be used at various levels. National level users should design or modify their health information collection system keeping in mind that different types of data need to be collected for use at each level.

Users should aim to simplify their monitoring and evaluation and reporting, and aim to report internationally only a restricted set of indicators. The M&E Toolkit is not meant to contain a comprehensive list of indicators, but rather is limited to a selection of standard indicators that are likely to be part of routine data collection in disease programs, and useful for international reporting. As noted above, this toolkit is a work in progress, and modifications will be made periodically to assure that user needs are met and technical developments incorporated.

How was the toolkit developed?

The M&E Toolkit is the outcome of a collaborative process of international partners, bilateral agencies and NGOs. Harmonization and wider partner buy-in is seen as important for coordination of reporting from international to national and local levels, particularly as resources for these activities are frequently limited. The toolkit aims to encourage the use of common measures in order to minimize parallel reporting systems.

The indicators in this toolkit were selected in consultation with technical M&E experts in each of the three diseases and with donors such as the Global Fund. Consultations were held with staff from the HIV/AIDS, TB, and malaria departments at WHO. Additionally, inputs from other members of the UN (particularly from UNAIDS and UNICEF) as well as the World Bank, Measure Evaluation and the Emergency Plan: OGAC, USAID, and the HHS/CDC were sought in order to ensure that the recommended indicators were in-line with those used across organizations. It is important to note that generally no new indicators have been developed for the purposes of this toolkit, but rather, existing indicators which are already being used are presented. This toolkit therefore builds upon already existing and accepted indicators used in a wide range of programs.

To make specific suggestions regarding improvements to the toolkit, users are encouraged to write to: toolkit@who.int

Recent update

This new edition of the M&E Toolkit is *not* a new reporting framework but rather a fine tuning and enhancement of the previous M&E Toolkit.

The toolkit uses the same measurement framework as developed in the first edition of the toolkit. M&E reporting based on the first edition can continue to be used (and results reported, for example to the Global Fund). This update represents developments in M&E which may improve measurement.

New technologies and developments have resulted in the need to revise and update the indicators presented in the first edition (published in June 2004). This updated edition of the toolkit has been revised according to the latest technical resources of the three diseases. Resources relating to impact and measurement approaches have been expanded, based on feedback from users. Since it is recognized that the three diseases are classified by different indicators, and that the aim is to provide a common framework, both versions of the toolkit attempt to move closer to an internationally agreed upon M&E system of indicators. The toolkit includes the following updates:

- Refinement and update of indicators and service delivery areas for the three diseases.
- Expansion of impact measures for the three diseases (which was limited in the first toolkit).
- Collaborative HIV/TB activities incorporated into HIV and TB components.
- Inclusion of a transversal “Health Systems Strengthening” section and relevant service delivery areas and indicators. Health System Strengthening service delivery areas and indicators can be included in each disease component. The details and rules for each round of Global Fund funding should be consulted to assess the best strategy.

- Additional information on data collection methods and evaluation (including measuring quality, limited in the first toolkit).
- Additional information on the M&E toolkit and Global Fund reporting, including the “top 10” indicators for Global Fund programmatic and outcome/impact reporting.

The Monitoring and Evaluation Toolkit is available electronically at <http://www.theglobalfund.org> .

II. Basic Elements of M&E

Establishing and strengthening a M&E program

While significant progress has been made in country M&E, much disease-specific M&E has been done in a vertical, isolated fashion that is often not linked or triangulated with other sources. Extensive evaluation of a donor-sponsored project may have been carried out in an important area of programming, without the results ever being shared in the field. In short, the utility of much of the disease-related measurement efforts in a country may be lost because there is often no coherent M&E system for users that can capture information on multiple diseases at different levels.

1. Harmonizing country reporting, data standards and reporting systems

There is a danger that separate disease and donor driven M&E systems do not have common data standards, compatible IT systems or reporting platforms. Coordination of the overall M&E system across country and donor requirements (e.g. the Emergency Plan, the Global Fund and World Bank) is an important first step in building a common M&E system which can meet a variety of needs. In addition, many countries rely on surveys such as the Demographic and Health Surveys (DHS) or AIDS Indicator Surveys (AIS), Multiple Indicator Cluster Surveys (MICS) and/or Behavioral Surveillance Surveys (BSS) that are funded through external donors. This produces data that may be valuable in the broader M&E context, but may not be well integrated with traditional sources of health information, such as national health information and surveillance systems.

This toolkit aims to provide common indicators in support of implementing the “Three Ones” (described below). Although developed for AIDS, the principles have general relevance for M&E. By bringing together indicators for the three diseases, the aim is to extend the “Three Ones” beyond HIV to all three diseases.

The “Three Ones”

On 25 April 2004, the representatives of major donor organizations and of many developing countries adopted three principles as the overarching framework to better coordinate the scale-up of National AIDS Programs and related responses to the HIV/AIDS epidemic. The “Three Ones” are:

- **One** agreed HIV/AIDS *action framework* that provides the basis for coordinating the work of all partners;
- **One** national AIDS *coordinating authority*, with a broad-based multi-sector mandate; and
- **One** agreed-upon country-level *monitoring and evaluation system*.

The importance of creating, implementing and strengthening a unified and coherent M&E system at the country level cannot be overemphasized. A strong unified M&E system ensures that: 1) relevant, timely and accurate data are made available to national program leaders and managers at each level of the program and health care system; 2) selected quality data can be reported to national leaders; and 3) the national program is able to meet donor and international reporting requirements under a unified global effort to contain the HIV/AIDS pandemic.

A common, comprehensive and coherent M&E system has several advantages. It contributes to more efficient use of data and resources by ensuring, for example, that indicators and sampling methodologies are comparable over time and by reducing duplication of effort. As data collection resources are limited, this is an important asset as countries may pool donor funds in order to produce a limited number of large-scale, high quality studies rather than a myriad of ad hoc assessments that are not comparable. Data generated by a comprehensive M&E system ought to serve the needs of many constituents, including program or project managers, researchers and donors, eliminating the need for each to repeat baseline surveys or evaluation studies when they might easily use existing data. It is equally important that the basic data is made available as transparently as possible and placed in the public domain.

2. What is the difference between national and sub-national M&E?

From the point of view of the national program, a coherent M&E system helps ensure that donor-funded M&E efforts best contribute to national needs. These needs go beyond disease-focused M&E, to strengthen the overall health information system. A further advantage is that it encourages coordination and communication between different groups involved in the national response to HIV/AIDS, TB, and malaria. These may include ministries working on social welfare or child welfare and the ministries of statistics and planning. Agreement among the major donor, technical and implementing agencies on the basic core M&E framework will reduce the burden of requests for data from different agencies.

Shared planning, execution, analysis and dissemination of data collection can reduce overlap in programming and increase cooperation between different groups, many of whom may work more efficiently together than in isolation.

In view of scarce M&E resources at sub-national level, emphasis is placed on monitoring program inputs and outputs and assessing whether or not implementation progresses according to a sub-national plan. A facility assessment as part of routine supervision serves to provide information on the quality of care or the availability and utilization of services. At all levels, both monitoring and evaluation are required.

Sub-national data is extremely relevant for national level M&E provided that national guidelines are followed to make aggregation possible. Information gathered from the sub-national level is helpful in guiding policy discussions and in validating results at higher levels. In some cases, data from the sub-national level provides a better indication of trends and issues of equity than from a country-level perspective.

Building or strengthening **Health Management Information Systems (HMIS)** is a pre-requisite for proper monitoring of the three diseases and the response to them. Increased funding in the three disease areas creates an opportunity to strengthen not only program or project specific health information, but also the health information and surveillance systems as a whole. HIV/AIDS, TB and malaria have different strengths related to data collection, dissemination, and use; opportunities exist for the three diseases to leverage each other's strengths.

An effective HMIS provides a solid basis for evaluations of large-scale programs, ultimately leading to improved planning and decision-making. Based on these findings, urgent decisions such as how to allocate new resources to achieve the best overall results will become easier to make.

3. What are the features of a good M&E system?

Countries have different M&E needs, dictated in part by the state of their HIV/AIDS, TB, and/or malaria disease burdens and country health structure. Yet successful M&E systems will share common elements, as demonstrated by successful programs in several countries. A list of some of these elements is given in Table 1.

Table 1: Features of a good M&E system

M&E UNIT	<ul style="list-style-type: none"> • An established M&E unit within the Ministry of Health with designated technical and data management staff. This unit should, among other things, coordinate M&E efforts across the three disease areas, irrespective of where individual disease-specific M&E is managed, and be integrated within the broader statistical needs of the country. • Guidelines and guidance to sub national districts, regions and provinces for M&E. • Guidelines for linking M&E to other sectors such as education, labor, and military. • A budget for M&E that is between five to ten percent of the combined national HIV/AIDS, TB, and malaria budgets from all sources. On average, seven percent should be used as the reference. • A significant national contribution to the national M&E budget (not total reliance on external funding resources). • A formalized M&E link, particularly with appropriate line Ministries, NGOs and donors, and national research institutions aimed at enhancing operations research efforts. • A multi-sectoral working group to provide input and achieve consensus on indicator selection and various aspects of M&E design and implementation. • Expertise in the M&E unit or affiliated with the unit to cover: epidemiology, behavioral/social science, data processing and statistical, data dissemination, resource tracking (both financial and commodity resources).
CLEAR GOALS	<ul style="list-style-type: none"> • Well-defined national program or project plans with clear goals, targets and operational plans. National M&E plans should be revised every 3-5 years, and M&E operational plans updated yearly. • Regular reviews/evaluations of the progress of the implementation of the national program or project plans against targets. • Coordination of national and donor M&E needs.
INDICATORS	<ul style="list-style-type: none"> • A set of priority indicators and additional indicators at different levels of M&E. • Consistent indicators that are comparable over time and with clear targets. • Selection of a number of key indicators that are comparable with other countries.



DATA COLLECTION & ANALYSIS	<ul style="list-style-type: none"> • An overall national level data collection and analysis plan, including data quality assurance. • A plan to collect data and periodically analyze indicators and associated data sets at different jurisdictional levels of M&E (including geographical). • Second generation surveillance, where behavioral data are linked to disease surveillance data.
DATA DISSEMINATION	<ul style="list-style-type: none"> • An overall national level data dissemination plan, with basic data sets freely and transparently available in a timely manner. Transparency is essential for real accountability. • A well-disseminated, informative annual report. • Annual meetings to disseminate and discuss M&E and research findings with policy makers, planners and implementers. • A clearinghouse for generation and dissemination of findings. • A centralized database or library of all HIV/AIDS, TB, and malaria-related data collection, including ongoing research which is transparently and publicly available. • Coordination of national and donor M&E dissemination needs.
SPECIAL STUDIES	<ul style="list-style-type: none"> • Select priority outcome/evaluation studies. • Include qualitative studies as needed. • Include operational research studies.

4. What is the difference between program and project M&E?

For the purposes of the Toolkit, *program* refers to an overarching national or sub-national response to the disease. Within a national program, there are typically a number of different areas of programming. For example, the HIV/AIDS program has a number of “sub-programs or projects” such as blood safety, sexually transmitted infection (STI) control, or HIV prevention for young people.

Project refers to a time-limited set of activities and objectives supported by resources that aim at a specific population defined geographically or otherwise. It should be noted that projects and programs can also be defined by timeframes – projects are usually short term where as programs are usually longer term in scope.

In view of its wider scope (thematic, geographic, target population), *program* monitoring tends to be more complex than *project* monitoring and therefore requires strong coordination among all implementing agencies. For impact and outcome evaluations to be conducted, the design of the program/project must include its own baseline and follow-up assessments measuring not only specific outcomes but also the level of exposure to the program/project and its activities.

III. General concepts in M&E

1. What is the difference between monitoring and evaluation?

Monitoring is the *routine* tracking of the key elements of program/project performance (usually inputs and outputs) through record-keeping, regular reporting and surveillance systems, as well as health facility observation and surveys. Monitoring helps program or project managers determine which areas require greater effort and identify areas which might contribute to an improved response. In a well-designed monitoring and evaluation system, monitoring contributes greatly towards evaluation. Indicators selected for monitoring will be different, depending on the reporting level within the health system. It is very important to select a limited number of indicators that will actually be used by program implementers and managers. There is a tendency to collect information on many indicators and report this information to levels where it will not and cannot be used for effective decision-making. In addition, monitoring is used for measuring trends over time, thus the methods used need to be consistent and rigorous to ensure an appropriate comparison. More information is needed for project management than is needed at national or international levels. The number of indicators reported should decrease substantially from the sub-national to the national and international levels.

In contrast, **evaluation** is the *episodic* assessment of the change in targeted results related to the program or project intervention. In other words, evaluation attempts to *link* a particular output or outcome directly to an intervention after a period of time has passed. Evaluation thus helps program or project managers determine the value or worth of a specific program or project. Cost-effectiveness and cost-benefit evaluations are useful in determining the added value of a particular program or project. In addition, evaluation should also relate the outputs of a project/program to wider national trends in behavior and other outcomes, and the impact of diseases. This type of evaluation is important even if the project/program is only one part of a collective effort to impact the disease.

The objectives and the methodology used in monitoring and evaluation are different. In general, evaluations are more difficult in view of the methodological rigor needed: without such rigor, wrong conclusions on the value of a program or project can be drawn. They are also more costly, especially outcome and impact evaluations which often require population-based surveys or other rigorous research designs. However, evaluation should leverage data and surveys that are nationally available and regularly undertaken, e.g. DHS surveys, vital registration or sentinel site disease data.

2. Generalized Monitoring and Evaluation framework

There are varying frameworks applied to the selection of M&E indicators. Indicators are used at different levels to measure what goes into a program or project and what comes out of it. Over the past few years, one largely agreed upon framework has commonly been used, the input-process-output-outcome-impact framework. For a program or project to achieve its goals, **inputs** such as money and staff time must result in **outputs** such as new or improved services, trained staff, persons reached with services, etc. These outputs are the result of specific **processes**, such as training for staff, that should be included as key **activities** aimed at achieving the outputs. If these outputs are well designed and reach the populations for which they were intended, the program or project is likely to have positive short-term **effects** or **outcomes**, for example increased condom use with casual partners, increased use of insecticide-treated nets (ITNs), adherence to TB drugs, or later age at first sex among young people. These positive short-term outcomes should lead to changes in the longer-term **impact** of programs, measured in fewer new cases of HIV/AIDS, TB, or malaria and related burden of disease among those infected and affected (such as orphans and vulnerable children or widows). In the case of HIV, a desired impact among those infected includes quality of life and life expectancy. For additional information on M&E frameworks, readers can visit the following sites:

UNDP: http://www.undp.org/gef/undp-gef_monitoring_evaluation

MEASURE: <http://www.cpc.unc.edu/measure>

USG: <http://www.globalHIVevaluation.org>

UNAIDS: <http://www.unaids.org/en/default.asp>

Assessing the impact of a program requires extensive investment in monitoring and evaluation efforts, and it is often difficult to ascertain the extent to which individual programs, or individual program components, contribute to overall reduction in cases and increased survival. In order to establish a cause-effect relationship for a given intervention, studies with experimental or quasi-experimental designs may be necessary to demonstrate the impact. Monitoring of output or outcome indicators can also identify such relationships and give a general indication of programs progress according to agreed upon goals and targets. National surveys and datasets should also be leveraged in evaluation.

Different types of indicators are not equal but *linked* to each other to reach the intended goals and objectives of a specific program. Inputs such as money and staff time result in outputs such as delivery systems for drugs or other essential commodities, new or improved services, trained staff, informational materials, etc. If these outputs are well designed and reach the populations for which they were intended, the program is likely to have positive outcomes – depending on the context in which it operates. These positive outcomes should lead to changes in the longer-term impact of programs on target populations or systems.

The use of **standard indicators** provides the National Program with valuable measures of the same indicator in different populations, permitting analysis of trends (triangulation). This helps to direct resources to regions or sub-populations with greater needs and to identify areas for intensification or reduction of effort at the national level, ultimately improving the overall effectiveness of the national response. Over time, the use of standard indicators also ensures comparability of information across countries. When data from different sources are combined for analysis, this “triangulation” of data allows national, regional, or local evaluation of program efforts.

A note on target populations and denominators: In many cases, it may be difficult to determine the denominator, or population, to use when assessing, for example, coverage. We have therefore focused on **numerators**, or the subset of the population that is affected or benefits from interventions. Denominators should also be included where possible (if percentages are given, **numerators should also always be reported** to allow assessment of coverage over time and across populations). The publications *Estimating the Size of Populations at Risk for HIV (UNAIDS/IMPACT/FHI, 2002)* and *Guidelines for Sampling Orphans and other Vulnerable Children (UNICEF, 2003)*, as well as the *Guide to Monitoring and Evaluation National HIV Prevention Programs for Most-at-risk Population in Low Level and Concentrated Settings* (currently under review), may help readers in addressing the challenges faced in determining denominators when working with hidden populations or low and concentrated epidemics.

In this toolkit, the term target population refers to the group of people who are in need of an intervention. The target population can be the total population or a smaller, specific group such as young people. In designing interventions, efforts should be made to clearly define the target population. The description of services provided should specify which populations and geographic areas are covered. Definition of these is usually based on knowing whom diseases affect most, directly and indirectly. For example, the definition of a target population for HIV/AIDS interventions is often based on the epidemic state. In generalized epidemics where HIV prevalence is consistently over one per cent in pregnant women, the target population could very well be the general population. However, in concentrated and low-level epidemics where HIV prevalence is concentrated within groups with specific risk behaviors, the target group may be defined as a sub-group of the general population that shares these same behaviors – for example, men who have sex with men (MSM), people who use intravenous drugs (IDUs), or commercial sex workers (CSWs). For malaria in high endemic areas such as in Sub-Saharan Africa, important target groups are pregnant women and children under the age of five.

Finally, it is very important to **clearly define the services provided** to a population: these services are defined in terms of standard service delivery areas (SDAs) in this toolkit. The package of services needs to be specified carefully by target population group.

Methods of data collection

Methods of data collection are provided in the disease specific sections, an overview is given here. The frequency of reporting will depend on the level of the indicators within the M&E conceptual framework – taking into account both a reasonable time-frame for an expected change and program capacity for M&E. It is particularly important to include routine data collection which is monitored regularly (quarterly, six months, annually) and plan at an early stage for longer term 1-3 year monitoring and evaluation surveys with clear baselines. The following reporting schedules are suggested:

Table 2: Suggested reporting schedules

Level of indicator	Recommended frequency of reporting	Examples of data collection methods used
Input/Process	Continuously	<ul style="list-style-type: none"> • Health services statistics • Health facility surveys • Program monitoring
Output	Quarterly, semi-annually, or annually	<ul style="list-style-type: none"> • Health services statistics • Health facility surveys • Program monitoring
Outcome	1 to 3 years	<ul style="list-style-type: none"> • Population-based surveys • Health facility surveys • Special studies
Impact	2 to 5 years	<ul style="list-style-type: none"> • Surveillance • Population-based surveys • Special studies

Table 3: Measurement tools

Measurement tools	Main characteristics	Examples of measurement methods used
Health services statistics	Routine data collection at health facilities. Program monitoring.	<ul style="list-style-type: none"> • Data registered from various health facility registers
Health facility survey	Survey targeting health facilities to gather information on the availability of human resources, equipment, commodities and drugs and the type of services delivered.	<ul style="list-style-type: none"> • Site based facility surveys (e.g. HIV/AIDS Service Provision Assessment) • SAMS (Service Availability Mapping Surveys)
Qualitative methods	Determine “what exists” and “why it exists” rather than “how much of it is there”. Through allowing the people to voice their opinions, views and experiences in the way they want, qualitative methods aim at understanding reality as it is defined by the group to be studied without imposing a pre/formulated questionnaire or structure (always developed by the researchers) on the population (<i>Maier B. Gorgen, R et al 1995</i>).	<ul style="list-style-type: none"> • In-depth Interview (individuals, focus groups, key informants) • Direct observation • Interactive or projective technique (comments on posters, open-ended story/comment on story, role-play)
Operational research	Operational research (OR), also called targeted evaluation, complements M&E systems. The main objective of OR is to provide program managers with the required information to develop, improve or scale-up programs. If evaluation focuses on whether a change in results can be attributed to a program, OR focuses on whether the program is the right, or best, program to achieve the desired results. It can be thought of as a practical, systematic process for identifying and solving program-related problems.	<ul style="list-style-type: none"> • Examples of OR: <ul style="list-style-type: none"> • Adherence • Equitable access • Costs • Linking prevention-treatment • Different models of intervention
Sentinel site surveillance	Collect prevalence information from populations that are more or less representative of the general population (such as pregnant women) or / as well as populations considered to be at high risk of infection and transmission. Can be linked or unlinked anonymous testing, with or without informed consent.	<ul style="list-style-type: none"> • HIV sero surveillance in pregnant women or in identified groups at high risk
Population-based surveys	A survey based on sampling of the target or general population, generally aiming to represent the characteristics, behaviors and practices of that population. It requires sufficient sample size to represent the larger population and to be analyzed in sub-groups, by age, sex, region and target populations.	<ul style="list-style-type: none"> • MICS, DHS and DHS+, AIS, BSS, PLACE, SAWY

Much of the information contained in this toolkit is centered on the collection of *quantitative* data. It is important to emphasize however, the value and use of *qualitative* data in complementing, validating and providing a richer understanding of quantitative findings. Although qualitative approaches are not intended to be generalized to broader populations, and cannot measure trends, such data does put quantitative data into context and allows for a more expansive interpretation of quantitative indicators. Qualitative data is also useful in addressing contextual responses to behavior change, information that can prove valuable in designing more effective communication campaigns, giving voice to the poor and vulnerable populations and providing better services to target groups.

Various methodologies are used in the collection of qualitative data including, among others, patient satisfaction surveys, desk reviews, patient/staff observation, mapping exercises, key informant interviews, focus groups, participatory rural appraisals, and rapid ethnographic studies. For more information on these methodologies, refer to: <http://www.fhi.org/en/hiv aids/pub/archive/evalchap/inex.htm>.

Ideally, a mixed qualitative and quantitative approach should be utilized when collecting and analyzing information. The mixed methodological approach will contribute to a more substantial understanding of program progress, ensure triangulation of data sources and reduce biases in the data.

Technical assistance

A significant development in the areas of technical assistance has been the deployment of country M&E staff by some agencies such as UNAIDS and the Emergency Plan. They have an important role in coordinating M&E efforts among partners and countries. Information on technical assistance with links and resources is provided in the individual disease component sections (HIV/AIDS, TB/HIV, TB, Malaria, Health Systems Strengthening).

In 2005, the UNAIDS Monitoring and Evaluation Technical Assistance System (METAT) was established and supported by a number of partners including the Global Fund, the Emergency Plan and WHO. METAT aims to broker requests for M&E technical assistance from countries and programs with the supply of expertise from technical partners. The main purpose of the system is to take requests and distribute them to relevant partners and track M&E technical assistance and the outcome of such requests. This aims to broker the request for technical assistance with local needs. With the “Task List/Work Order” feature, users are able to follow the course and deal with requests from the initial phase to the last step, i.e., when the request has been responded to appropriately. An analysis of the type of technical requests received through METAT is done on a regular basis to identify gaps and proactive solutions. This system is in its early stages of implementation.

To join METAT as a member or for more information on the system, please contact UNAIDS Secretariat at helpME@unaids.org. The service is also being extended to M&E technical assistance in relation to malaria and TB through the relevant partners for each disease.

Technical assistance and links to technical resources and websites for each disease are presented in the disease specific sections.

IV. Frequently asked questions

Operational questions

1. How to select indicators from the core list provided in this toolkit?

In deciding on a set of indicators, countries are *not* limited to the core list presented in this toolkit and should report *only on a limited set of indicators* from this toolkit. The choice of indicators should be driven by the goals and objectives of the national program or project. Where indicators fit needs, national programs are encouraged to use the core indicators proposed in this toolkit to ensure standardization of information over time. The core indicators have been tried and tested and have proved to provide useful and reliable information. Countries should aim to simplify M&E and report a limited and standardized set of indicators internationally.

The following guiding principles help in choosing the most appropriate set of indicators and associated data collection instruments:

- Use a conceptual framework for M&E for proper interpretation of the results.
- Ensure that the indicators are linked to the goals and objectives, and that they are able to measure change over the program time period.
- Ensure that standard indicators are used to the extent possible for comparability over time or between population groups.
- Ensure that indicators relate to defined services which are delivered by the program. Attempt to define the standard package of services provided by the program and the groups targeted.
- Consider the cost and feasibility of data collection and analysis.
- For HIV/AIDS, take into account the stage of the epidemic.
- **Keep the number of indicators to the minimum needed**, with specific reference to the level of the system that requires and will use indicators to make programming and management decisions.

Additional indicators can always be identified later or may be collected for project management. For international reporting, a small set of indicators which are standard and comparable internationally is recommended. They do not need to capture the initial stages of the framework, e.g. inputs and process, but do need to focus on the outputs and outcomes of services delivered.

2. Does planning of data collection require different strategies for different indicators?

The cost, difficulty, and capacity required for collecting information usually increase as indicators shift from input to output, outcome and impact. It should be possible to collect data for *input* and *output* indicators centrally from routine health information systems, provided that such systems exist and are functional. Program planners should take strategic advantage of the increased attention to HIV/AIDS, TB, and malaria programs and request funding for strengthening national health information and surveillance systems that can be used to report on all these as well as other disease-specific programs.

In addition, if projects are setting up their own M&E components, **one of the first steps should initially be to coordinate with other projects in the country** (e.g. PEPFAR, World Bank, the Global Fund, major NGOs and government activities) in order to reduce overlap and use common data standards, software, systems, and indicators where possible.

Data for many *outcome* and *impact* indicators are collected through more costly and difficult population-based or health facility surveys, requiring some expertise in research methods. Outcome measurement is usually more difficult in view of the sensitivity and specificity of each indicator. However, programs can often leverage ongoing surveys and baselines already undertaken in the country.

3. How can we capitalize on existing data collection efforts?

In devising their data collection plans, countries should take into account to the extent possible:

- The existence of data already collected by agencies not directly involved in one of the three specific diseases, but that can help in monitoring;
- The timing of costly population-based surveys such as DHS in which modules can be included to obtain data on a number of indicators relevant to the three diseases; and

- The activities of other major programs in the country (e.g. PEPFAR, World Bank, Global Fund, major NGOs and government activities) to reduce overlap and use common data standards, software, systems, and indicators where possible.

4. What resources should be allocated to M&E from the total national program budget?

Ensuring that resources are well used requires a coherent M&E system. It is therefore recommended that about 5-10 percent of the national program budget is used for M&E; 7% is generally accepted. The same rule should be applied at sub-national level. This percentage should be based on the total of all resources, including external donor and national funding together. Between 3 percent and 5 percent of regional and district (where appropriate) financial resources should be devoted to M&E activities at regional and district levels.

Funders are increasingly realizing that project funds should be allocated to the development of an M&E system so that information related to the project can be collected, reported, and used. As a result, additional resources have become available as part of larger grants. This allows for the development of coherent systems rather than ad hoc efforts. These should provide standard indicators so that data for a number of projects, departments and donors can be provided. Resources from any one donor should be used to fill gaps in the M&E system in a coordinated way.

5. What is the best way to optimize the use of M&E funds?

The following recommendations help ensure that M&E funds are properly invested:

- Develop coordinated systems rather than implement ad hoc data collection efforts. The initial investment cost is to be seen in light of the incremental benefit of more regular or more extensive data collection, ultimately resulting in a less costly exercise.
- Consider both short and long-term needs to ensure smooth continuity of national programs.
- Mobilize key M&E players at country level through a M&E support group to avoid duplication of efforts.
- Use commonly agreed upon M&E frameworks for comparability purposes.
- Ensure that large surveys collect data that will address relevant indicators.

6. How to optimize the use of data?

The ultimate goal of data collection is to ensure that data are fed back into the decision-making process. Data are powerful tools for advocacy, generating resources, accountability, program design and improvement, and attributing changes to specific interventions and programming (or reorientation of programs). Based on lessons learnt over the past years, the following steps help optimize the use of data:

- Produce quality data. This requires serious investment throughout the data collection process.
- Assess how data will be used, and make it as transparent and widely available as possible.
- Identify the different end-users, and present and package the data according to their needs, focusing on a minimal number of indicators at each level.
- Set up mechanisms for an efficient data-use system, including feedback through supervision at all levels, and assurances that data at a given level is relevant and actionable at that level.
- Ensure ownership throughout the data collection exercise, which means that national and local M&E capacities must be strengthened to guarantee uniform and quality data within a sustainable framework.
- Ensure that an M&E support group with strong presence of key stakeholders such as the government, donor agencies, NGOs, civil society and academic institutions is established to guide the government throughout the development and implementation of national M&E strategies. This will improve the credibility of the data generated by the government.
- Allocate sufficient resources for the development and implementation of a data-use plan.
- Ensure that data are used as widely as possible and made transparently available in the public domain.

7. How can we avoid donor demands driving health information investments?

To ensure that donor demands do not drive health information investments – with the risk of having different competing demands – the following steps are recommended:

- Establish a platform under country leadership with strong donor involvement, such as M&E country coordinating committee with high level support.
- Advocate for building a health information system that provides quality and timely information.

- Use – to the extent possible – commonly agreed upon M&E frameworks and standard indicators.
- In cases where two or more donors have multiple demands, a consensus should be reached through in-country coordination mechanisms.
- Before establishing M&E systems, check with other projects/programs and national focal points in the country to reduce parallel systems and reporting.

8. What are the key lessons learnt from successful M&E systems?

Most importantly, data should be used -for management and funding decisions- to sustain any M&E reporting system. Below is an illustrative list of key lessons:

- M&E systems must be as simple as possible. Most programs and projects collect far more data than they use. The more complex a M&E system, the more likely it will fail. It is important that data is used as a basis for ongoing decision making.
- M&E systems must include a standardized core set of tools to collect and analyze data. If each implementing partner uses different systems or tools, the data cannot be analyzed or summarized effectively. The need for a standardized core set of tools does not preclude individual implementing partners from collecting additional situation-specific M&E data.
- Good M&E requires both internal self-assessment and external verification. Thus, while implementing partners should collect and verify their own internal data, an external agency should verify the completeness and accuracy of the data collected by those implementing partners. Supervisory visits should be based on the analysis of internal self-assessment and externally verified primary data.
- A specialized entity is required to collect, verify, enter and analyze primary M&E data from each partner. Without such an entity, reliable data collection, verification and analysis are unlikely to occur as Ministries and other public agencies are seldom equipped to manage such a process. Increased resources devoted to HIV/AIDS, TB and malaria should be used to build local capacity within such a national organization.
- M&E must be built into the design of a program and must be operational when grant implementation begins, not added later. It is much harder and less effective to “retrofit” M&E after grant implementation is underway.
- Sub national data are important for the national level data collection as they can be aggregated up to this level. However, sub national data are more relevant to program managers in making day to day decisions.
- Data should be made available as widely and transparently as possible, and wherever possible placed in the public domain. M&E is about promoting the use of data.

No matter how sound an M&E system may be, it will fail without widespread stakeholders “buy-in.” Thus, a large-scale, participatory process in the development and implementation of M&E strategies is essential to build ownership and “buy-in” from the start.

Common questions on the toolkit and Global Fund reporting

1. How is the M&E toolkit used by the Global Fund?

The Global Fund raises money, allocates funds to programs, and shows these funds help fight HIV/AIDS, tuberculosis and malaria. In brief, it aims to “**raise funds, spend them and help prove their contribution to fight the diseases**” in partnership with other international and national organizations, and crucially with the projects which implement the grants.

The Global Fund is a **financing mechanism** rather than a technical agency. The Global Fund does not develop new or its own indicators, but builds on indicators already used by partners and countries (agreed in this toolkit). It has therefore brought together technical agencies to agree on a core set of indicators across the three diseases which are presented in this toolkit. Standardization is important, to simplify monitoring and evaluation efforts. Furthermore, it allows the Global Fund to describe progress and coverage across its whole portfolio of grants for very varied projects and settings.

Performance-based Funding is central to the Global Fund mechanism, to ensure raising, spending and proving the contribution of funds are closely related. Funds are released when progress against agreed targets is met. This requires that:

- Overall **goals** are clearly formulated
- Services are clearly defined, grouped into **service delivery areas**, and related to goals

- **Indicators are chosen, targets set** and progress reported regularly

The Global Fund relies on a **minimal set of indicators** which are agreed by a wide range of partners and used in countries as captured in this toolkit. Reporting should draw as much as possible from existing M&E systems and not provide an additional reporting burden. The Global Fund wants to increase the coverage of quality services, and therefore for each service it is important to report regularly on people reached, service points supported and people trained in providing the service.

Routine reporting	Medium-term reporting (one to five years)
<ul style="list-style-type: none"> • People reached by services (numerators) • Number of service points supported • Number of providers trained in service 	<ul style="list-style-type: none"> • Impact on the three diseases • Behavior changes • Percentage of target groups reached by services (numerators and denominators)

In addition, over the medium term (1-5 years), the Global Fund wants to ensure that **evaluation** of the impact on the three diseases, changes in behaviors, and the percentage of target groups reached (numerators and denominators) are measured. These are seen as the outcome of collective efforts, should leverage national data sources, and are not necessarily directly attributable to the specific program.

Performance will be based on how well different indicators can be measured, documented and verified against agreed targets to achieve the goals of the proposal. There are therefore very strong incentives to have clear, simple, measurable and well communicated results on a regular basis. Wider measures of progress should also be reported, but **core performance will rely on a few clear and meaningful targets**.

Performance-based Funding helps ensure that money is well spent relative to project goals, and ultimately services are provided to those affected by disease. Funds raised do not belong to the Global Fund nor to the programs supported, but to the people who need services with urgency. Performance-based Funding also develops an evidence base and platform to advocate sustained and dependable funding.

<p>Performance-based Funding framework</p> <p>The Global Fund's system for Performance-based Funding aims to:</p> <ul style="list-style-type: none"> • Ensure money is spent on services for people in need • Relate disbursements to achievement of targets • Provide incentives to focus on results and timely implementation • Free up committed resources from non-performing programs for re-allocation to programs where results can be achieved

2. At what stages do grants report on results?

The Global Fund has developed a set of tools in collaboration with technical partners to facilitate grant management and Performance-based Funding throughout the lifecycle of a grant. These tools track relevant performance targets and achievements by using a clear set of indicators and targets taken from the original proposal and built into the Grant Agreement. They ensure reported data are used, and used for decisions at each stage.

The information collected is used at three main stages of performance evaluation:

- **Regular Disbursements (6 monthly as the default):** Agreement on a few indicators of progress is used for regular Financial Release on a quarterly or 6 monthly basis. Finances are released based on disbursement requests accompanied by progress updates of results against targets with an explanation or self assessment from the program. Grants do not need to set targets and report results for every indicator in every reporting period. Reporting periods should be aligned with the National information system. Grantees need to explain reasons for deviation of results from targets.
- **Annual reviews (every 12 months):** These collect the results for all indicators for the year and include a self-assessment of progress, barriers, successes and failures. The Global Fund uses these updates to report on progress in program implementation across its portfolio, and as a key source of contextual information to interpret the minimal performance focus of results against targets. The Global Fund does not request a specific report and can use existing annual reviews or yearly program reports.

- Phase 2 evaluation (from 18 to 20 months):** Funding is committed for a first period of two years. After 18 months the program makes a submission for Phase 2 funding to cover up to an additional three years (a total of 5 years of funding). An overall review of performance is used as a basis for the Secretariat of the Global Fund to recommend further funding into Phase 2. This includes a comprehensive report on results against targets, against the goals of the proposal, and of the delivery of key services relevant to fighting the three diseases. Self assessment by the program is an important element, including the possibility to suggest changes in the program from experience. Although targets should not be changed, explanations of deviance of results from targets are taken into account in rating performance. A **Grant Scorecard** is prepared combining the aggregate results with independent verification and assessment of data on the grant's performance. The Grant Scorecard becomes the basis for the Phase 2 funding decisions taken by the Board.

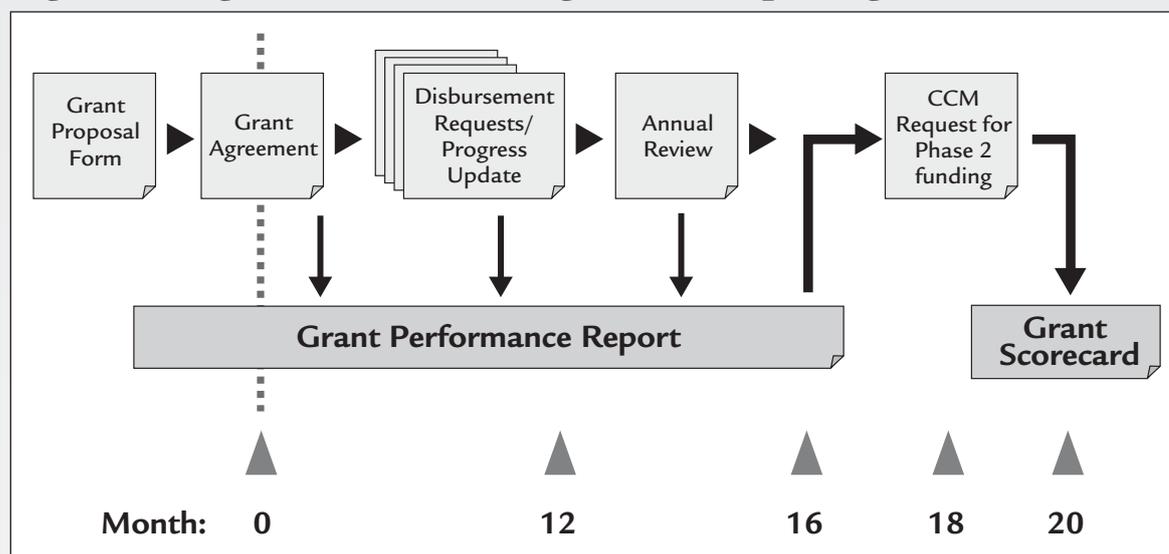
While Performance-based Funding of grants reaches a critical milestone at the Phase 2 funding stage, the measurement and evaluation system starts at the beginning of a grant when indicators and targets are agreed by recipients and the Global Fund and made part of the first grant agreement.

Targets are tracked at every stage in the process (as shown in the figure below): defined in the grant proposal, incorporated into the grant agreement (in M&E grant attachment), progress reported before each disbursement (progress update), in annual reviews, and consolidated in the CCM request for continued funding for Phase 2, and beyond into Phase 2 reporting. Performance-based Funding occurs continuously throughout the grant's life.

It is important to note that the aim of Performance-based Funding is to use reported results actively, as the basis for self assessment and decisions in programs and at the Global Fund. Results against targets are only the basis of a performance rating. As important are the self assessment and explanation of progress by the program, and corrective measures proposed to ensure rapid learning and scale up of programs. Overall performance incorporates both the hard quantitative elements of results against targets and the qualitative assessment of progress and important contextual factors.

Finally, **country ownership** provides the basis for Performance-based Funding. Targets should be derived from country proposals, and agreed by both sides in the Grant Agreement.

Figure 1: Stages of a Global Fund grant and reporting on results



3. How to use the toolkit for a Global Fund grant?

The M&E toolkit should be used to guide the proposal application, finalize the M&E grant attachment where indicators and targets are incorporated, and to guide reporting throughout the grant lifecycle. There should be an M&E plan which can, if relevant, be a plan which already exists in the country. The toolkit is then used to choose the limited set of indicators to be used from the more extensive M&E plan and system and those for which targets are set as a basis of reporting to the Global Fund. It is important to distinguish between levels of M&E, the more **extensive set of indicators needed to manage a program**, and the **few indicators needed for donor and international reporting**.

The Global Fund aims to reach people with quality services to impact the control of three diseases. As the program becomes established, reporting shifts to information regarding increased number of people reached, and then outcome and impact indicators. The Global Fund aims to simplify reporting focusing on:

- **Capacity building (from grant start):** people trained and service points supported
- **People reached by services (within 12 months):** for prevention, treatment, care
- **Fighting the diseases (1 to 5 years):** behavioral change and disease impacts

The Global Fund recognizes that this requires strengthening of health systems, and therefore the toolkit also includes indicators and service delivery areas related to the strengthening of health systems. These can be included in disease components for HIV/AIDS, TB and Malaria directly.

A central aim is to increase coverage of prevention, treatment and care of HIV/AIDS, TB and malaria and to be able to measure the coverage. To show this internationally across many countries and programs, a few high level standard indicators that are provided by grant recipients of people reached by services, are highly valued.

In addition, changes to population behaviors and disease impacts are reported over time, in collaboration with country partners. Alongside traditional stages of M&E, increased delivery of services is emphasized (training, service delivery points supported and people reached) to evaluate whether more people are being reached by more quality services. The following table is a tentative approach to link the international framework with the different levels of reporting to the Global Fund.

Table 4: Tentative approach to link the international framework with the different levels of reporting to the Global Fund

International Framework	Global Fund reporting Framework	Examples of Areas
Input indicators	Capacity building (people trained, service points supported)	<ul style="list-style-type: none"> • Human Resources • Policy formulation • Financial inputs • Infrastructure building and rehabilitation
Process indicators		<ul style="list-style-type: none"> • People trained • Drugs procured • Basic needs and commodities procured • Coordination ensured
Output indicators		<ul style="list-style-type: none"> • Service delivery points supported (Number of service points supported)
	People reached by services (and services delivered)	<ul style="list-style-type: none"> • People benefiting from interventions (Number of people reached by the services)
Outcome/ Impact indicators	Fighting the three diseases (behavior change and impact)	<ul style="list-style-type: none"> • Change of behavior, reduced morbidity and mortality

4. How to simplify M&E and reporting to the Global Fund?

At the country level, there are various systems for data collection and mechanisms to distribute resource flows that feed into the day to day management of grants. The Global Fund focuses only on a small set of indicators (the “tip of the iceberg”) to ensure that grant programs reach more people with the vital services they need.

Grants should only report on a **few indicators for defined service delivery areas in line with achieving its goals and objectives**. In general, a grant should report on a very few indicators per service delivery area (to show people reached by services, service points supported, and people trained). Performance-based Funding is usually undertaken with a focus on 5-10 key indicators per grant, with 15 reported in total.

In addition, grants should **leverage existing national M&E systems** in countries. These systems are fundamental for reporting to the Global Fund. There is a clear distinction to be made between the information that will be collected for program management and M&E purposes at the country level (many more indicators) and what is submitted to the Global Fund to assess programmatic performance (focused on 5-10 key indicators, with 15 indicators reported in

total). The indicators reported to the Global Fund should be a simplified set from the overall M&E plan. The reporting to the Global Fund needs to capture a small subset of information. However, in order to provide that information, the country needs to have a strong base on which data can be captured. Core performance will be based on how well different indicators can be measured, documented and verified against agreed targets for each service delivery area.

Not only does performance evaluation serve to ensure that funds are allocated correctly, but it also provides a **platform for programs to communicate evidence of progress internally and externally, and make the case for sustained funding.**

The M&E plan should build on existing national programs and policies wherever possible. The M&E plan is a central part of grant applications, the grant agreement signed by both sides, and the basis for ongoing “Performance-based Funding”. Whenever an M&E plan exists for a national program, the M&E reporting framework for the Global Fund should be drawn from it. Many of the indicators covered in the toolkit are therefore only the “tip of the iceberg” of the full monitoring and evaluation plan and they need to be interpreted in this wider context.

5. How to choose indicators and targets to report to the Global Fund?

Programs or projects should have clear defined goals and objectives. This is the starting point of reporting to the Global Fund. To achieve these, service delivery areas should be defined, from which indicators are selected. These indicators need to be reliable and measurable on a regular basis. The consistency of goals and services delivered is important so as to be able to evaluate over the medium term, progress in fighting the three diseases in terms of impact and behavior change.

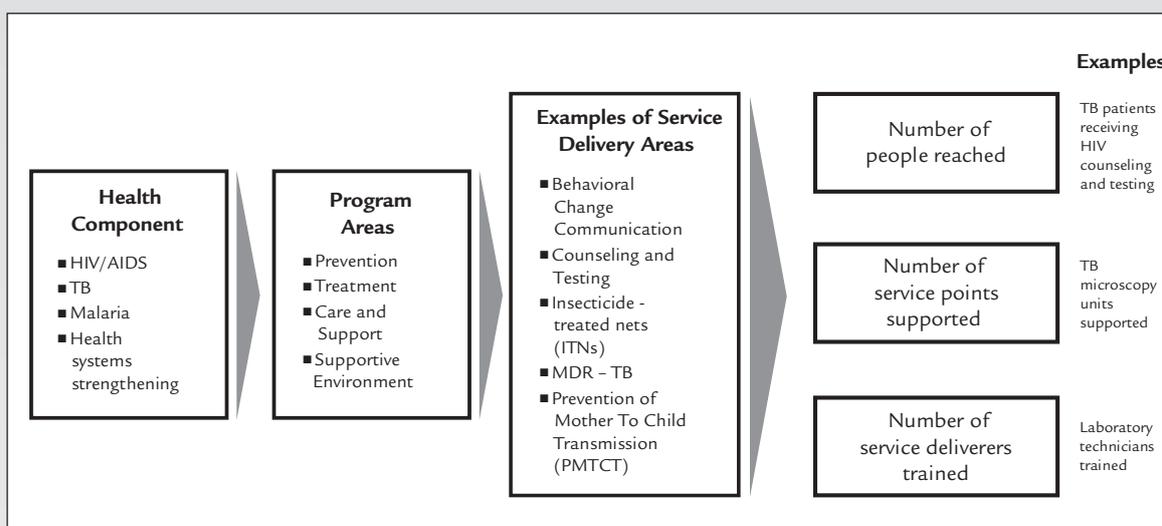
Overall Goals are broad and overarching, for example “*reduced HIV-related mortality*”, “*reduced burden of tuberculosis*”, “*reduced transmission of malaria*”. For each goal, **impact indicators** must be chosen.

Objectives need to be clearly described for each goal. An objective describes the intention of the programs for which funding is sought and provides a framework under which services are delivered. Examples of objectives include “*improving survival rates in people with advanced HIV infection in four provinces*”, “*to reduce transmission of tuberculosis among prisoners in the ten largest prisons*”, “*to reduce malaria-related morbidity among pregnant women in seven rural districts*”.

The next step, and the core of regular Performance-based Funding is to identify key **services to be delivered**, and provide, for each of them, **indicators with targets** that can be measured and can show regular programmatic progress. Under each objective, indicators are therefore grouped under their respective **Service Delivery Areas** (a service delivery area corresponds to a specific service that is provided).

A program has one or two goals. Each goal has an objective, each objective includes several Service Delivery Areas, and each SDA is evaluated on one or more indicators.

Figure 2: The relationship between disease components, service delivery areas and indicators



The Global Fund puts particular value on reporting of a set of “top ten” indicators measuring people reached with services that it can report on internationally and regularly across the entire portfolio. These are standard services which can be reported on at the international level. They are for frequent routine reporting, for regular disbursements of money. **These indicators should be incorporated into grant reporting wherever the services are provided.**

Table 5: Top Ten Indicators for routine Global Fund reporting

	Top Ten Indicators for routine Global Fund reporting	Disease
1	Number of people with advanced HIV infection currently receiving anti-retroviral combination therapy (ARV)	HIV
2	Number of a. new smear positive TB cases detected , b. new smear positive TB cases that successfully complete treatment and c. TB cases enrolled to begin second line treatment for multi-drug-resistant TB	TB
3	Number of ITNs (including retreatment kits for existing nets) distributed to people at risk (or, where appropriate, number of houses receiving indoor residual spraying according to national policy)	Malaria
4	Number of people with uncomplicated or severe malaria receiving anti-malarial treatment as per national guidelines (specify ACT/non-ACT)	Malaria
5	Number of people counseled and tested for HIV including provision of test results	HIV
6	Number of HIV-positive pregnant women receiving a complete course of anti-retroviral prophylaxis to reduce mother to child transmission (PMTCT)	HIV
7	Number of condoms distributed to people	HIV
8	Number of people benefiting from community-based programs (specify, a. Prevention b. Orphan support c. Care and support)	HIV/TB/Malaria
9	Number of cases treated for infections associated with HIV (specify, a. Preventive therapy for TB/HIV, b. STIs with counseling)	HIV/TB
10	Number of service deliverers trained according to documented guidelines (specify a. Health services b. Peer and community programs)	HIV/TB/Malaria

In the **medium to long-term (1-5 years)**, **outcome and impact indicators** that show decreases in disease incidence or prevalence and behavior change should be selected. Please note that **planning for these indicators should begin at the start of the grant**, and that they require clear baseline values. These indicators are usually more difficult and costly to collect and correspond to the contribution of all stakeholder efforts and programs in-country. Existing surveys should be leveraged, and data analyzed as part of a national collective effort. Programs should draw as far as possible from existing surveillance information, including impact and evaluation studies implemented in-country. If these surveys do not exist the Global Fund encourages the country to develop and implement such studies in partnership with other

technical partners in-country. Global Fund program funds should be used to fill in gaps, and investments in both monitoring and evaluation are strongly encouraged.

Table 6: Top Ten Indicators for medium term outcome and impact

	Top Ten Outcome and Impact Indicators	Disease	Source
1	Percentage of young women and men aged 15-24 who are HIV infected (HIV prevalence) (applicable to most-at-risk populations in concentrated/lower epidemics)	HIV	UNGASS
2	Percentage of adults and children with HIV still alive 12 months after initiation of anti-retroviral therapy (extend to 2, 3, 5 years as program matures) (Reduced mortality)	HIV	UNGASS
3	Percentage of infants born to HIV infected mothers who are HIV infected (Reduced mother to child HIV transmission)	HIV	UNGASS
4	Percentage of young people aged 15-24 who had sex with more than one partner in the last year (Multiple Partners)	HIV	WHO/ UNAIDS
5	Percentage of 15-19 year olds who never had sex (Primary abstinence) and percentage of 15-24 year olds who never had sex in last year of those who ever had sex (Secondary abstinence)	HIV	WHO/ UNAIDS
6	Percentage of young people aged 15-24 reporting the consistent use of condoms with non-regular partners	HIV	WHO/ UNAIDS
7	TB case detection rate and treatment success rate	TB	WHO StopTB
8	Estimated number of all active TB cases per 100,000 population (TB prevalence rate)	TB	WHO StopTB
9	Death rates associated with malaria: all cause under-5 mortality in highly endemic areas	Malaria	WHO RBM
10	Incidence of clinical malaria cases (estimated and/or reported)	Malaria	WHO RBM

Baselines are determined and targets are set for successive regular measurement over five years. The timing of the measurement of these regular targets should, as far as possible, be aligned with existing data collection and reporting systems. Please note that all indicators do not need to be reported on for each disbursement period, but results should be consolidated on a yearly basis in the annual review. These targets are generally the aims of a variety of activities, national programs and collaborators working together, not just an individual project.

It is important to remember:

- To extract indicators from existing M&E plans, in line with national strategies, wherever possible.
- Select simple indicators (which have already been tested) with existing tools to collect them.
- Ensure a good balance between periodic surveys and routine health statistics data. Surveys can complement information gaps in HMIS, in particular for outcome and impact indicators. However, the surveys generally do not provide results as regularly as routine systems to report on six monthly disbursements.
- **Set baselines for each main indicator.** Results reported should be cumulative over each phase of funding, and generally should exclude baselines. The exception is if people are carried forward into the program, e.g. people on an ARV pilot program are treated under the grant.
- If results are in **percentages, there is a need to provide numerators and denominators.**
- Avoid double-counting the same individual within one program/service area during each reporting period. However, it is acceptable to count the same person in multiple program/service areas (for example ARV and Palliative Care).
- Training refers to either new training or retraining of individuals and assumes that it is conducted according to national or international standards when these exist. It is very important that the recognized standards of training are recorded (including objectives, duration, follow-up), and that follow up is undertaken to ensure that these individuals become active and practice service delivery.

V. Component-specific reporting framework

This section of the toolkit presents selected (1) programmatic and (2) outcome and impact indicators for HIV/AIDS, TB, and malaria. In addition, indicators for Health Systems Strengthening are provided. Summary tables show an overview of selected indicators, the annexes provide more detailed supporting descriptions. These indicators have been developed, discussed and agreed upon by a wide range of international and national experts and donors. They have been developed for the specific purpose of minimizing information demands on countries. The indicator development process was guided by six major principles:

- Building on existing indicators
- Minimizing the number of indicators to be collected
- Selection of indicators that are collected regularly through health information systems or acknowledged population-based surveys (MICS, DHS, DHS+)
- Coordinating national and donor M&E needs
- Harmonizing with other international frameworks such as UNGASS and the Millennium Development Goals (MDGs)
- Covering a wide range of program areas and sectors related to HIV/AIDS, TB, and malaria

For each disease, general program areas have been defined. In the case of HIV/AIDS, for example, these include prevention, treatment, care and support, and supportive environments. The **Toolkit Annexes** give information regarding:

- Rationale for use
- Definition, including numerator and denominator
- Measurement – i.e. details on instrument and process, comprising:
 - o Measurement tools: health services statistics, health facility surveys, qualitative methods, sentinel sites surveillance, population-based surveys
 - o Recommended periodicity of data collection
- Resources – i.e. reference groups, technical assistance sources, guidelines

Remember

- **Tables presented for each component do not aim to provide a comprehensive overview of all indicators.** Rather, they aim to provide users with a set of the most common indicators used for specific activity areas. For a complete listing of all existing indicators, readers are referred to the guidelines section for each component. These sections list all available M&E guides including program indicators.
- Generic input and output process indicators that refer to counts (such as number of people trained) are usually not defined in the Toolkit Annex.¹ Grants can include the number of people trained and service points supported as generic indicators with the relevant programmatic definitions, e.g. of clear training standards.
- In order to facilitate the referencing of indicators from the summary tables to the related annexes, indicators have been named according to their activity area (i.e., prevention, care and support, treatment and outcome indicator) and a number (i.e., 1, 2, 3, etc.). Therefore, the first prevention indicator is named PI (prevention indicator) 1, and so on. The references do not relate to any categorization of the same indicators in other publications.
- **Health Systems Strengthening (HSS) is included as a separate section in this toolkit. However any HSS service delivery area can also be built into disease specific grants. The details and rules for each round of Global Fund funding should be consulted to assess the best strategy.**

¹ These are generally common from a medical/public health perspective across the three disease areas and are therefore not specified for each. While there are some differences across the three diseases, these indicators generally take on the following forms: (1) **Generic input indicator:** Existence of national policies, guidelines, or strategies. This is a “yes” / “no” question. Reporting of overall budget allocation is included as an input. (2) **Generic output indicator:** Number of persons trained, number of drugs shipped/ordered, etc.

VI. HIV/AIDS

This section of the toolkit provides an overview of indicators at the output, outcome and impact levels and general M&E resources for HIV/AIDS. Most indicators listed are extracted from international M&E guidelines which have been developed jointly by key international partners to avoid duplication of efforts and to minimize country burden. For this reason, although some indicators may inevitably be revised over time, the use of the agreed upon indicators is strongly encouraged where appropriate.

Most of the HIV/AIDS indicators are *applicable* to most settings, the main exception being indicators covering injecting drug users (IDUs) and HIV prevalence. The IDU indicator is applicable to countries where injecting drug use is an established, significant mode of HIV transmission. Likewise, the indicator for orphans and vulnerable children (OVCs) will be less relevant in low level/concentrated epidemics. Countries with low HIV prevalence or concentrated epidemics should report on an alternative indicator of HIV prevalence among high-risk behavior groups, as well as prevalence among young people obtained from antenatal clinic sentinel surveillance.

Details of the most recent indicators for the different programs or initiatives can be found in the original sources referenced at the end of this section. The field has been moving rapidly but key partners have reached consensus on a number of indicators for the various programs or initiatives. The recent scaling-up of ARV therapy, under the 3 by 5 Initiative of WHO, the Emergency Plan, World Bank, the Global Fund and other partners, has led to a number of international M&E guidelines addressing prevention, care and treatment. Additional and alternative indicators may be found in other documents referred to in the section entitled "Guidelines and essential references".

A number of high level goals have been defined as part of the Millennium Development Goals (MDGs), UNGASS targets, and G8 leaders' commitment:

Key HIV/AIDS Goals and Targets

Millennium Development Goals (MDGs):

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

UNGASS targets – Universal access to ARV programs by year 2010:

- By 2010, 95% of young women and men aged 15-24 both correctly identify ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission
- By 2010, 25% reduction globally of young women and men aged 15-24 who are HIV infected
- By 2010, 50% reduction of infants born to HIV infected mothers who are infected

G8 leaders' commitment:

"To provide as close as possible universal access to treatment for AIDS by 2010"

WHO, together with UNAIDS, have defined a package of interventions for HIV/AIDS. Some or all of these interventions can be applied to the different target groups under consideration in the programs:

- General population
- Population sub-groups (youth, women, men, pregnant women, others)
- Most-at-risk population (MARP) – (IDU, MSM, CSWs and their clients)
- Orphans and Vulnerable Children (OVCs)

Each country/program defines the specific package that is to be applied for the target population.

Measurement tools and data sources

The primary measurement tools are:

- Health facility-based statistics
- Community-based program reports
- Surveillance studies

- National representatives, population/based sample surveys such as Demographic and Health Survey (DHS and DHS+, AIS, Multiple Indicator Cluster Surveys (MICS))
- Schools, health facility and workplace surveys
- Specially designed surveys and questionnaires, including surveys of specific groups (e.g., targeted surveys of most-at-risk populations and specific service coverage surveys (SAM and the National Composite Policy Index questionnaire)).

Existing monitoring resources, including records and program reviews from health facilities and schools, as well as specific information from HIV&AIDS and sexually transmitted infections (STI) surveillance activities and control programs, should supplement the primary measurement tools. Civil society is also a valuable source of data for many indicators, especially those that relate to interventions where non-government, faith-based and community-based organizations play an active role, including work with young people, most-at-risk populations and pregnant women.²

Ensuring Quality Services

The quality of activities and services being implemented are crucial to achieve desired results. If interventions being implemented are of poor quality, the results of the activities will not be optimal even if the intervention was able to attain high coverage. Thus it is important to monitor the *quality* of activities and services to ensure effective progress. These should be built into any M&E plan in support of the output indicators reported.

Although many of the indicators listed in the toolkit ultimately count the number of facilities providing services or the number of people reached, the quality component of these indicators should be carefully documented with reference to national and international standards of service delivery. For example, the number of people trained on ARV does not aim to solely capture everyone trained on ARV, regardless of the content of the training; the intent is to capture the number of people who are trained according to a *specific criteria* or meeting an acceptable standard. Likewise, the number of facilities providing a particular service tries to capture the facilities which have systems and items meeting a *certain criteria*. In line with the “Three Ones,” it may be useful for countries to introduce an accreditation process for facilities³ or a certification process for those trained in certain service delivery areas⁴ in order to have a standardized way of ensuring that quality of services are provided.

Changes from the first version of the M&E Toolkit: The same measurement framework is used, which is compatible with reporting outlined in the initial toolkit. Significant changes are: TB/HIV is included in both the HIV and the TB section, community outreach activities are expanded and MARP prevention is included in the HIV section. Where specific services are provided to MARP or population subgroups (e.g. Counseling and Testing), they should be specified under these services with an indicator related to the specific groups. Youth education is now included in Behavior Change Communication. From experience, precise services were often not well defined, when youth and MARP were taken as separate SDAs rather than captured with precise indicators for standard service delivery areas.

² Text extracted from UNGASS Guidelines on Construction of Core indicators, 2006.

³ WHO is currently in the process of producing a guide for an HIV care accreditation program which will provide an overview of the various components and minimum requirements of an accreditation program as well as how to set up such a program. In conjunction, WHO will also produce an operational guide for accreditation processes.

⁴ WHO is currently in the process of developing certification tools and procedures for the IMAI (integrated management of Adult and Adolescent Illnesses) Basic ART guide as well as for PMTCT training materials.

Table 7: Selected Programmatic Indicators for HIV/AIDS

Most of these indicators can be collected through monthly health statistics and the annual program review. However, some may be best collected through surveys, such as school based surveys. Generic indicators measuring *number of people trained* and *service points supported* can be used for service delivery areas where these are not specifically defined.

	Service Delivery Area	Output Indicators	Examples of Outcome Indicators
Prevention	Behavioral Change Communication – Mass media	<ul style="list-style-type: none"> HIV/AIDS information, education, communication (IEC) material broadcasted or distributed (radio & television programs / newspapers) (number) 	<ul style="list-style-type: none"> People (by age and sex) who had sex with more than one partner in the last year (percentage) (Multiple Partners) (HIV-OI 1) (can be applied for MARP or population sub-groups) IDU who have adopted behaviors that reduce transmission of HIV (percentage) UNGASS (HIV-OI 5) <p><i>See Table 8 for further behavior indicators</i></p>
	Behavioral Change communication – community outreach	<ul style="list-style-type: none"> Young people reached by life-based HIV/AIDS education in schools (number and percentage) Schools with at least one teacher who has been trained in participatory life skills-based HIV/AIDS education and who taught it during the last academic year (number and percentage) UNGASS (HIV-PI 1) Young people reached by HIV/AIDS education in out-of-school settings (number and percentage) Young people 15-24 who both correctly identify ways of preventing the sexual transmission of HIV and who reject the major misconceptions about HIV transmission (percentage) UNGASS (HIV-PI 3) Individuals (i.e., peer educators) trained (specify if trained for specific MARP sub-groups) (number) People reached by BCC prevention outreach and peer education (number) UNGASS (can be applied for MARP or population sub-groups) IDUs reached by HIV/AIDS prevention programs* (number and percentage) (HIV-PI 2) MSM reached by HIV/AIDS prevention programs* (number and percentage) (HIV-PI 2) Sex workers & clients reached by HIV/AIDS prevention programs* (number and percentage) (HIV-PI 2) 	
	Condom distribution	<ul style="list-style-type: none"> Condoms sold through the private sector (number) Condoms distributed for free (number) Retail outlets and service delivery points with condoms in stock (number) (HIV-PI 4) (can specify between public and private) Key intervention areas covered with targeted condom outlets (areas with concentration of MARP) (number) 	<ul style="list-style-type: none"> Young people reporting the use of condoms the last time they had sex with a non-regular sexual partner (percentage) Young people aged 15-24 reporting the consistent use of a condom with non-regular sexual partners in the last year (percentage) (HIV-OI 4) <p><i>See Table 8 for further behavior indicators</i></p>
	Testing and Counseling	<ul style="list-style-type: none"> People who receive HIV testing and counseling (including provision of test result) (number) (HIV-PI 5) Service outlets providing counseling and testing according to national standards (number) MARP who received HIV testing in the last 12 months and who know the results (number and percentage) UNGASS PLWHA who have tested positive who have received counseling for positive prevention (number and percentage) 	



	Service Delivery Area	Output Indicators	Examples of Outcome Indicators
	PMTCT	<ul style="list-style-type: none"> Health facilities providing the minimum package of PMTCT services (number and percentage) (HIV-PI 6) HIV-positive pregnant women receiving a complete course of antiretroviral prophylaxis to reduce the risk of mother-to-child transmission (number and percentage) UNGASS (HIV-PI 7) HIV-exposed infants seen within 2 months of birth for check-up (number and percentage) HIV-exposed infants and children receiving co-trimoxazole prophylaxis treatment (number and percentage) 	
	Post-exposure prophylaxis	<ul style="list-style-type: none"> People receiving post-exposure prophylaxis (number) 	
	STI diagnosis and treatment	<ul style="list-style-type: none"> Patients with STIs at health care facilities who are appropriately diagnosed, treated and counseled (can be applied for MARP or population sub-groups) (number and percentage) (HIV-PI 8) 	
	Blood safety and universal precaution	<ul style="list-style-type: none"> Districts with access to donor recruitment and blood transfusion (number and percentage) (HIV-PI 9) Transfused blood units screened for HIV according to national guidelines (number and percentage) UNGASS (HIV-PI 10) 	
Treatment	Antiretroviral treatment and monitoring	<ul style="list-style-type: none"> People with advanced HIV infection receiving antiretroviral combination therapy (number and percentage) UNGASS (HIV-TI 1) Health facilities that have the capacity and conditions to provide advanced HIV/AIDS clinical care and psychosocial support services, including providing and monitoring ARV (number and percentage) (HIV-TI 2) 	<ul style="list-style-type: none"> Adults and children who are still on treatment after 6 months, 1, 2, 3, 5 years from the initiation of treatment (percentage)
	Prophylaxis and treatment for opportunistic infections	<ul style="list-style-type: none"> PLWHA receiving diagnosis and treatment for opportunistic infections (number and percentage) 	
Care and Support	Care and support for the chronically ill	<ul style="list-style-type: none"> Adults aged 18-59 years who have been chronically ill for 3 or more months in the past 12 months due to HIV/AIDS, whose households received basic external support in caring for chronically ill adults (number and percentage) Community organizations that received support to assist PLWHA (number) 	
	Support for orphans and vulnerable children	<ul style="list-style-type: none"> Orphans and other children made vulnerable by HIV/AIDS (OVC) whose households received free basic external support in caring for the child (number and percentage) UNGASS (HIV-CS 1) Community organizations that received support to assist OVC (number) 	<ul style="list-style-type: none"> Orphaned children compared to non-orphaned children aged 10-14 who are currently attending school (percentage) (HIV-OI 6)



	Service Delivery Area	Output Indicators	Examples of Outcome Indicators
TB/HIV collaborative activities	Intensified case-finding among PLWHA	<ul style="list-style-type: none"> PLWHA receiving HIV testing and counseling or HIV treatment and care services who were screened for TB symptoms** (number and percentage) (TB/HIV 1) 	
	Prevention of TB disease in PLWHA	<ul style="list-style-type: none"> Newly diagnosed HIV positive clients given treatment for latent TB infection (number and percentage) (TB/HIV 3) 	
	Prevention of HIV in TB patients	<ul style="list-style-type: none"> Registered TB patients who receive HIV counseling and testing*** (number and percentage) (TB/HIV 4) 	
	Prevention of opportunistic infections in PLWHA with TB	<ul style="list-style-type: none"> HIV positive TB patients who receive co-trimoxazole preventive therapy (number and percentage) (TB/HIV 6) 	
	HIV care and support for HIV-positive TB patients	<ul style="list-style-type: none"> HIV-positive TB patients referred to HIV care and support services during TB treatment (number and percentage) (TB/HIV 7) 	
	Provision of antiretroviral treatment for TB patients during TB treatment	<ul style="list-style-type: none"> HIV positive registered TB patients who have begun or are continuing ARV, during or at the end of TB treatment (number and percentage) (TB/HIV 8) 	

Supportive environment	Policy development including workplace policy	<ul style="list-style-type: none"> Large enterprises / companies that have HIV/AIDS workplace policies and programs (number and percentage) UNGASS (HIV-SE 1) Local organizations provided with technical assistance for HIV-related policy development (number) 	
	Strengthening of civil society and institutional capacity building	<ul style="list-style-type: none"> NGOs providing HIV/AIDS prevention, treatment, care and support services according to national guidelines (number) NGOs actively involved in planning, budgeting, monitoring and evaluation of HIV and HIV/TB activities (number) National Composite Policy Index (UNGASS) 	
	Stigma reduction in all settings	<ul style="list-style-type: none"> Policy makers attending sensitization workshops on HIV/AIDS and HIV/TB (number) 	

* For each of these sub-groups, the prevention package to apply must be clearly defined: outreach and peer education, exposure to targeted mass media, STI screening and/or treatment, HIV counseling and testing, substitution therapy and safer injection practice for IDUs, or others.

** For this indicator, the number of new cases of TB diagnosed should also be reported. (TB/HIV 2)

*** For this indicator, the number of registered TB patients who were found to be HIV positive should also be reported. (TB/HIV 5)

Detailed descriptions of the indicators listed above are provided in Annex A of the Toolkit Annexes and the defining guidelines are listed in the following section under “Guidelines and essential references”. It should be noted that the indicators presented above and in the annex are not comprehensive, and readers should refer to the individual indicator guidelines for a more complete listing of all core and additional indicators in this area.

Table 8: Selected HIV /AIDS Impact and Outcome Indicators

	Impact Indicators	Reporting schedule	Measurement	Reference
Impact Indicators	• Young women and men aged 15-24 who are HIV infected (percentage) (HIV prevalence) (applicable to most-at-risk populations in concentrated/lower epidemics)	Annual	HIV sentinel surveillance and population-based survey	UNGASS
	• Adults aged 15-49 who are HIV infected (percentage)	Annual	HIV sentinel surveillance and population-based survey	WHO/UNAIDS
	• Adults and children with HIV still alive 12 months after initiation of antiretroviral therapy (extend to 2, 3, 5 years as program matures) (percentage) (Reduced mortality)	Annual	Program monitoring	UNGASS
	• Infants born to HIV infected mothers who are HIV infected (percentage) (Reduced mother to child HIV transmission)	Annual	Estimate based on program coverage	UNGASS
	• HIV seroprevalence among all newly registered TB patients (percentage) (TB/HIV 9)	Annual	Routine HIV testing, sentinel surveillance, periodic special survey	WHO TB/HIV

	Outcome Indicators	Reporting schedule	Measurement	Reference
Outcome Indicators*	• Multiple partners: Young people aged 15-24 who had sex with more than one partner in the last year (percentage) (HIV-OI 1) (applicable for MARP or population subgroups)	Every 2-3 years	Population-based survey	WHO/UNAIDS
	• Primary abstinence: Young people aged 15-19 who have never had sex (percentage) (HIV-OI 2)	Every 2-3 years	Population-based survey	WHO/UNAIDS
	• Secondary abstinence: Young people aged 15-24 who never had sex in the last year of those who ever had sex (percentage) (HIV-OI 3)	Every 2-3 years	Population-based survey	WHO/UNAIDS
	• Consistent condom use: Young people aged 15-24 reporting the consistent use of a condom with non-regular sexual partners in the last year (percentage) (HIV-OI 4)	Every 2-3 years	Population-based survey	WHO/UNAIDS
	• Young women and men who had sex before the age of 15 (age can be adapted - see guidelines) (percentage)	Every 2-3 years	Population-based survey	UNGASS
	• Adults and children who are still on treatment after 6 months, 1, 2, 3, 5 years from the initiation of treatment (percentage)	Annual	Program monitoring	WHO/UNAIDS
	• Injecting drug users who have adopted behaviors that reduce transmission of HIV. (i.e. who both avoid sharing non sterile injecting equipment and use condoms,) in the last 12 months (for countries where injecting drug use is an established mode of transmission) (percentage) (HIV-OI 5)	Every 2-3 years	Special survey	UNGASS
	• Orphaned children compared to non-orphaned children aged 10-14 who are currently attending school (percentage) (HIV-OI 6)	Every 2-3 years	Population-based survey	UNAIDS/UNICEF
	• Young people aged 15-24 reporting the use of a condom the last time they had sex with a non-regular sexual partner (percentage)	Every 2-3 years	Population-based survey	Adapted from UNAIDS Youth Guide, 2004



	Outcome Indicators	Reporting schedule	Measurement	Reference
Outcome Indicators*	• People expressing accepting attitudes towards PLWHA, of all people surveyed aged 15-49 (percentage)	Every 2-3 years	Population-based survey	WHO/UNAIDS
	• Female sex workers reporting the use of a condom with every client in the last month (percentage)	Every 2-3 years	Special survey	UNGASS
	• Men who have had sex with a female sex worker in the last year (percentage)	Every 2-3 years	Special survey	UNGASS
	• Men reporting the use of condom the last time they had anal sex with a male partner in the last 6 months (percentage)	Every 2-3 years	Special survey	UNGASS

* HIV sexual behavior indicators should be analyzed together to assess behavior change (as important interactions can occur). Non-regular sexual partners: cohabitation may not be a good measure of non-regular partners in youth..

The following table provides a summary of some of the measurement tools available to support the reporting of indicators. It shows the indicator area, data available, limitations and recommendations. Wherever possible such existing sources of data should be leveraged and used in reporting.

Table 9: Example of data measurement tools:

Area	Data Available	Limitations	Recommendations
Impact related to HIV prevalence	<ul style="list-style-type: none"> HIV sentinel site surveillance Population-based surveys which collect specimens for HIV testing 	<ul style="list-style-type: none"> Difficulty to accurately measure or estimate risk population size Sample biases in both approaches 	<ul style="list-style-type: none"> Prevalence estimates should have ranges Use WHO/UNAIDS guidelines for conducting HIV sentinel serosurveys and for measuring national HIV prevalence in population-based surveys
Impact related to survival on ARV	<ul style="list-style-type: none"> Patient records from facilities aggregated 	<ul style="list-style-type: none"> Tracking clients lost to follow-up is not easy Records do not usually include mobile populations Cohort analyses can be complex 	<ul style="list-style-type: none"> Set-up a standardized patient monitoring and reporting system according to WHO recommendations
Knowledge and Behavior among general population	<ul style="list-style-type: none"> Population-based surveys (BSS, KAP, DHS, MICS) 	<ul style="list-style-type: none"> Self reporting biases Household surveys tend to under-sample MARP Conducted only every several years 	<ul style="list-style-type: none"> Review timing of DHS and MICS scheduled in a country to plan when survey results will be available
Knowledge and Behavior among MARP	<ul style="list-style-type: none"> Special surveys of MARP in country 	<ul style="list-style-type: none"> Difficult to find a representative sample Response biases 	<ul style="list-style-type: none"> Plan for surveys targeting MARPs, especially in concentrated epidemics Refer to M&E guide on MARP
National Commitment, policies and strategies	<ul style="list-style-type: none"> Questionnaire Key informant survey 	<ul style="list-style-type: none"> Quality is not always captured 	<ul style="list-style-type: none"> For composite indicators / indexes, adapt standardized questions
People trained in various areas related to HIV prevention, treatment and care and support	<ul style="list-style-type: none"> Training records Certification records 	<ul style="list-style-type: none"> Training is not always standardized Those attending training may not be delivering the services 	<ul style="list-style-type: none"> Countries may want to implement certification processes to ensure that those trained meet national minimum standards set on the training topic



Area	Data Available	Limitations	Recommendations
Coverage of various service provision (e.g. districts with services, number of facilities with services)	<ul style="list-style-type: none"> Ministry of Health reports Program reports Health facility surveys Facility accreditation records NGO records 	<ul style="list-style-type: none"> Range in quality of services provided – some may be below standards May be difficult to capture services provision outside of the public sector 	<ul style="list-style-type: none"> Adapt standardized definition of indicators which list criteria for health facilities to be considered suitable to provide a particular service Set-up a system in place to keep track of various providers of services within a district or country
Number of people reached by services	<ul style="list-style-type: none"> Routine health information system Client records / registers NGO records 	<ul style="list-style-type: none"> May be difficult to capture service provision outside of the public sector Client registers or a system to maintain records must exist 	<ul style="list-style-type: none"> Try to standardize data collection for various services so that information could be collated easily
TB/HIV services	<ul style="list-style-type: none"> Client records / registers 	<ul style="list-style-type: none"> Current TB and HIV related registers may not capture this information 	<ul style="list-style-type: none"> Registers may need to be modified to capture this information; if necessary, modify registers according to WHO recommendations
Cross-cutting indicator services where data is not easily extracted from existing registers	<ul style="list-style-type: none"> Client records / registers / special studies 	<ul style="list-style-type: none"> Existing registers and reporting forms may not capture some of this information 	<ul style="list-style-type: none"> Current practices and data collection forms should be reviewed to see how this information could be captured Referral links may need to be systematized and strengthened
Information on community-level programs and activities	<ul style="list-style-type: none"> Record-keeping forms Special surveys 	<ul style="list-style-type: none"> May be difficult to capture service provision outside of the public sector Where multiple organizations are operating, different record keeping systems may be in place 	<ul style="list-style-type: none"> Set-up a system in place to keep track of various providers of services within a district or country Partners working in communities may want to coordinate some basic data elements to be collected so that information can be collated and reported
Indicators related to Most-at-risk Populations – e.g. SW, IDU, migrant population, etc.	<ul style="list-style-type: none"> Special surveys and studies NGO records 	<ul style="list-style-type: none"> Difficult to accurately measure the size of at-risk populations Due to their mobile nature, there is a need to be careful with duplication in counting and whether trends can be captured over time 	<ul style="list-style-type: none"> Refer to recommendation in international guide on M&E of most-at-risk populations Align reporting requirements among those working with specific populations and GFATM reporting needs

General resources

At WHO, the HIV/AIDS department (<http://www.who.int/hiv/en>) can provide a wide range of assistance, including the latest publications related to M&E in the health sector. In addition to guidelines and general resources in the area, the web site of the WHO HIV/AIDS department provides the latest information on WHO's 3 by 5 Initiative, including the most facts and figures.

Since the creation of the UNAIDS Secretariat, a number of M&E structures and resource groups – mainly at the global level – were established to improve coordination among key M&E players.

The M&E structures include:

- The UNAIDS Monitoring and Evaluation Unit – composed of UNAIDS Secretariat staff – assists in the development of generic M&E systems for strategic information sharing.
- The Strategic Information and Research Unit (SIR) of the HIV Department at WHO – that develops normative guidelines and provides country support in the areas of monitoring & evaluation, operational research, drug resistance, and policy.

The M&E resource groups include:

- The UNAIDS Monitoring and Evaluation Reference Group (MERG) – composed of co-sponsors/Secretariat M&E focal points, bilateral agencies, research institutes, and individual experts – assists in harmonizing M&E approaches and improving methods.
- The UNAIDS Estimates, Modeling and Projections Reference Group and UNAIDS/WHO working group on surveillance and estimates for HIV transmission and mortality.
- The Global Monitoring and Evaluation Support Team (GAMET) – composed of World Bank personnel and staff seconded from technical agencies – focuses on M&E country support in World Bank-supported countries.
- The Taskforce on M&E of HIV/AIDS – composed of representatives of WHO Departments involved with M&E, UNAIDS, and the Global Fund – periodically discusses and reviews issues related to the monitoring of HIV treatment and prevention scale up.

Members of the various resource groups have contributed to the development of the indicators presented in the toolkit.

At country level, UNAIDS Secretariat and partners have been encouraging national authorities to set up a national level M&E reference/support group to provide advice on national M&E strategies, and to assist in mobilizing resources for M&E and optimizing the use of data. Where those groups exist, coordination among partners has improved tremendously.

Technical assistance

At UNAIDS, the Monitoring and Evaluation Unit is setting up a global system for technical assistance: the Monitoring and Evaluation Assistance System (METAT). Additional assistance can also be sought from the Evaluation Unit at the UNAIDS Secretariat for specific questions on the UNGASS Declaration of Commitment (UNGASS DoC) indicators at UNGASSindicators@unaids.org, or at M-E@unaids.org for general M&E questions.

Technical support to governments is available through the Strategic Information and Research (SIR) Unit of WHO's HIV/AIDS department (<http://www.who.int/hiv/strategic/en>) and M&E technical support groups in some countries. For specific questions related to the M&E of HIV/AIDS, in particular related to the scaling-up of ARV treatment assistance can be sought at hivmoniteva@who.int.

Other sources of support for all the diseases include: the Emergency Plan: USAID, CDC, Measure Evaluation, Partners for Health Reform Plus (USA), Institute for Health Systems Development (UK). Further support for HIV/AIDS includes Measure DHS, Family Health International, and The Synergy Project. Many countries now have UNAIDS M&E Field Officers or US Government Strategic Information and Monitoring and Evaluation Field Officers (see website www.globalHIVEvaluation.org).

Software products

UNAIDS has developed a useful tool for countries – the *Country Response Information System* (CRIS) – that has the potential to house all national data obtained on core and additional indicators and generate reports on the indicators. The CRIS includes two additional functions: resource tracking and research inventory.

To learn more about the process of indicator development and the suggested actions to implement the UNGASS DoC M&E framework, readers are encouraged to consult the *Guidelines on Construction of Core Indicators* that exist in four languages (English, French, Spanish and Russian) and which can be downloaded from the UNAIDS web site. More information on the CRIS, can also be found on the UNAIDS web site.

Guidelines and essential references

The major sources for guidelines cited below are UNAIDS, WHO, UNICEF, Emergency Plan, USAID, CDC, MEASURE Evaluation and FHI, and some of their partners.

Upcoming M&E Guidelines from WHO and partners, in addition to those below, will address Testing and Counseling (voluntary), Most-At-Risk-Populations (MARP) and monitoring tools related to home-based care as well as paediatric considerations for some of the existing guides and indicators will be proposed.

Versions of the various guidelines may be found on the Internet in the UNAIDS M&E library at:

http://www.unaids.org/EN/in+focus/monitoringevaluation/m_e+library.asp

Alternatively, readers may also want to access the following partner sites for more detailed information in specific areas:

<http://www.who.int>

<http://www.unicef.org>

<http://www.child.orgp>

<http://www.cpc.unc.edu/measure>

<http://www.fhi.org>

<http://www.cdc.gov>

<http://www.globalHIVevaluation.org>

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WHO (2003). Monitoring and evaluating of national ARV programs in the rapid scale-up to 3 by 5. WHO, Geneva. <http://www.who.int/3by5/publications/documents/artindicators/en>

WHO/UNAIDS (2004). *National AIDS Programs: A guide to monitoring and evaluating HIV/AIDS care and support*. WHO, Geneva. <http://www.who.int/hiv/pub/epidemiology/pubnapcs/en>

WHO/UNAIDS (2000). *Second Generation Surveillance for HIV: The Next Decade*. UNAIDS, Geneva. http://www.who.int/hiv/pub/surveillance/en/cds_edc_2000_5.pdf

WHO/UNAIDS/Measure DHS/The World Bank/ UNICEF/UNESCO/FHI/USAID. (2004) Guide to Monitoring and Evaluating National HIV/AIDS Prevention Programs for Young People (10 to 24 years old). WHO, Geneva. http://www.who.int/hiv/pub/me/en/me_prev_intro.pdf

WHO/UNAIDS/USAID/UNICEF/CDC/UNFPA (2004). National Guide to Monitoring and Evaluating Programs for the Prevention of HIV in Infants and Young Children. WHO, Geneva.

WHO/UNAIDS/GFATM/USAID/MEASURE Evaluation/FHI (2005). National AIDS Programs- A guide to indicators for monitoring and evaluation national antiretroviral programs. WHO, Geneva. http://www.who.int/hiv/pub/prev_care/youngchildren/en/

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UNAIDS/USAID/UNICEF/CDC/WHO Draft to be published in 2006. Guide to Monitoring and Evaluating HIV prevention programs for Most-at-risk Populations in low-level and concentrated settings.

WHO (2004). Guide to monitoring and evaluation for collaborative TB/HIV activities. (WHO/HTM/TB/2004.342) http://www.who.int/hiv/pub/prev_care/tb_hiv/en/

VII. Tuberculosis (TB)

One of the critical steps in designing and carrying out monitoring and evaluation of a TB program is the selection of appropriate indicators. In addition to the well articulated objectives that define quantity, quality and time, the choice of indicators for monitoring and evaluation requires careful thought and consideration of conceptual and pragmatic matters. A balance of input, process, output and outcome indicators is necessary to explain success and gaps in program implementation.

Table 11 shows the main impact and outcome indicators for TB control in general. The indicators noted here are general in nature and appropriate for monitoring TB control, particularly through national TB control programs. Examples of indicators to monitor and evaluate more specific TB control interventions (such as public private mix, community TB care, lab strengthening or DOTS Plus for multidrug-resistant tuberculosis (MDR-TB) in appropriate settings are included in the table 10). Please note that this is not an exhaustive list and readers are encouraged to consult the listed references (such as the *Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programmes and Planning Frameworks*) and relevant literature for further information.

1. Suggestions on how to monitor any TB-related activities funded by a Global Fund grant

- The two standard indicators for which the Global Fund reports across all grants are the number of smear-positive TB cases detected, and the number of TB cases successfully treated. These are the numerators of standard TB indicators. The Global Fund also reports on the number of MDR-TB cases on treatment. Wherever possible these should be included in grant reporting.
- It is not sufficient (and perhaps not relevant) to report on DOTS “population coverage” as an indicator for Global Fund purposes. DOTS population coverage is a rough, administrative benchmark that measures the extent of a country’s population covered by DOTS. It might be irrelevant in areas where DOTS population coverage is already 100%. The Global Fund requires more specific information to monitor progress. Therefore, it is necessary to report on progress in the individual technical components that are part of the DOTS strategy. For example, report on the increase in the number of facilities offering services consistent with DOTS, the increase in the number of laboratories having facilities and trained staff to do microscopy or the increase in the number of smear-positive cases identified.
- In a sub-national context, it is not appropriate and not particularly useful to report on progress in case detection rate based on an estimate of the expected number of cases. The expected number of TB cases may vary greatly in different geographical areas and sub-populations of your country, and statistically speaking, it is not appropriate to use locally an estimated number of cases that applies to national level. If aiming to improve case detection, plan to show an increase in the number of cases diagnosed and, if possible, show an increase in relation to the number of TB suspects identified (via health facility records, or via the laboratory register), or the number of out-patient visits, or simply the population affected by the project.
- While the Global Fund does not seek to change the routine data flow in countries receiving grants, data routinely collected at higher levels may not address questions that need to be answered in evaluating a particular activity. For instance, if planning to implement a pilot project of collaboration between private practitioners and public TB services, and proposing to increase the number of TB suspects identified and referred by private practitioners, then information about referral should be recorded systematically in TB registers used in the pilot project areas. This need not change the usual reporting of data for program monitoring but the new data from project areas should be available for analysis and would be an expected part of a monitoring plan for a Global Fund grant.
- Monitoring TB programs over the lifetime of the Global Fund grant requires tracking inputs (especially in the early stages of a grant) and outputs to outcomes, and ultimately to impact. In the TB world, “impact” refers to changing the epidemiological situation, in line with the Millennium Development Goals. Be aware, however, that impact is typically not demonstrated by routinely collected data alone, and typically not within a timeframe of 4-5 years. If the activities are ambitious and broad in geographical scope, it may be appropriate to assess impact. Consider conducting special studies/surveys (disease prevalence and tuberculin surveys) to measure impact or to establish a baseline for measuring impact. Refer to general guidance found in the *Compendium of Indicators* and/or discuss this with the local WHO office or other technical partners in TB control. It is also important to ensure that there is sufficient funding and time to conduct special studies. On the other hand, it may be appropriate to commit to monitoring only proxies to impact (programmatic or process outcomes, typically success rate and national case detection rate).
- TB control programs in prisons should report on treatment success (and failure, default and death rate) and the proportion of TB cases registered as re-treatment cases. In addition, measures of case finding should be reported depending on the type of the project. For example, screening projects should use a measure of prevalence of TB in prisoners screened (absolute number and rate per 100,000 screened) while on-going clinical services should report on cases identified each year (absolute number and rate per 100,000 prison population).

Millennium Development Goal, Target and Indicators relevant to TB

Millennium Development Goal 6: Combat HIV/AIDS, malaria and other diseases

Target 8: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Indicator 23: Prevalence and death rates associated with tuberculosis

Indicator 24: Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy)

Stop TB Partnership Targets

By 2005: at least 70% of people with infectious TB will be diagnosed (i.e. under the DOTS strategy), and at least 85% cured.

By 2015: The global burden of TB disease (prevalence and deaths) will be reduced by 50% relative to 1990 levels. Specifically, this means reducing prevalence to 155 per 100,000 and deaths to 14 per 100,000 per year by 2015.

Changes from the first version of the Toolkit: The same measurement framework is used. The significant changes are: TB/HIV is included in the TB section. Service delivery areas from the first toolkit can be used as the basis for reporting, but additional service delivery areas have been added following developments in the field, e.g. public private mix and supportive environment. These should only be used if grants are undertaking these additional activities.

Table 10: Selected Programmatic Indicators for Tuberculosis

Source of information for the indicators selected: Guide to monitoring and evaluation for collaborative TB/HIV activities Compendium of indicators, Guidelines on implementing Public private mix for DOTS (see full description in the Annex).

	Service Delivery Area	Output Indicators	Examples of Outcome Indicators
Tuberculosis	Identification of infectious cases	<ul style="list-style-type: none"> The numerator (number) of the outcome indicator can be used for routine reporting (number of new smear-positive cases detected) 	<ul style="list-style-type: none"> New smear-positive TB cases detected (diagnosed and reported to the national health authority), among the new smear-positive TB cases estimated to occur countrywide each year (number and percentage) (TB 1)
	Timely detection and quality treatment of cases	<ul style="list-style-type: none"> New smear-positive TB cases that successfully complete treatment among the new smear-positive TB cases registered during a specified time period (number and percentage) (TB 3) Population covered by DOTS (number and percentage) (TB 2) 	<ul style="list-style-type: none"> New smear-positive TB cases that successfully complete treatment, among the new smear-positive TB cases registered during a specified time period (number and percentage) (TB 3) See additional TB outcome indicators in table 11.
	MDR-TB	<ul style="list-style-type: none"> TB cases enrolled to begin second line treatment, among TB cases identified as MDR-TB cases during a specified time period (number and percentage) TB cases that receive drug susceptibility testing, among TB cases suspected of MDR-TB during a specified time period (number and percentage) 	



	Service Delivery Area	Output Indicators	Examples of Outcome Indicators
Tuberculosis	PPM (Public Private Mix)	<ul style="list-style-type: none"> Sputum smear-positive TB cases that originated from non-National Program Tuberculosis providers, among all TB cases diagnosed during a specified period of time (number and percentage) in the intervention areas Reporting units (such as districts) that have implemented PPM strategy (number and percentage) Health units (clinics, hospitals, institutions etc.) outside the national TB program (NTP) that are participating in some aspect of DOTS implementation (referral, diagnosis, treatment, reporting of TB cases), among all non-NTP health units (number and percentage) in the intervention areas 	
TB/HIV Collaborative Activities	Intensified case-finding among PLWHA	<ul style="list-style-type: none"> PLWHA receiving HIV testing and counseling or HIV treatment and care services who were screened for TB symptoms (number and percentage)* (TB/HIV 1) 	
	Prevention of TB disease in PLWHA	<ul style="list-style-type: none"> Newly diagnosed HIV positive clients given treatment for latent TB infection (number and percentage) (TB/HIV 3) 	
	Prevention of HIV in TB patients	<ul style="list-style-type: none"> Registered TB patients who receive HIV counseling and testing (number and percentage)** (TB/HIV 4) 	
	Prevention of opportunistic infections in PLWHA with TB	<ul style="list-style-type: none"> HIV positive TB patients who receive co-trimoxazole preventive therapy (number and percentage) (TB/HIV 6) 	
	HIV care and support for HIV positive TB patients	<ul style="list-style-type: none"> HIV-positive TB patients referred to HIV care and support services during TB treatment (number and percentage) (TB/HIV 7) 	
	Provision of antiretroviral treatment for TB patients during TB treatment	<ul style="list-style-type: none"> HIV positive registered TB patients who have begun, or are continuing, ARV during or at the end of TB treatment (number and percentage) (TB/HIV 8) 	
Supportive Environment	Laboratory	<ul style="list-style-type: none"> TB microscopy units that cover a population size within the recommended range, among all TB microscopy units (number and percentage) TB microscopy units for which slide re-checking results are available for a specified time period, among all TB microscopy units (number and percentage) 	
	Human resources	<ul style="list-style-type: none"> TB microscopy units with at least one laboratory technician trained in staining acid-fast bacilli (AFB) in the past 3 years, among all TB microscopy units (number and percentage) TB treatment facilities with at least one health care professional trained in TB case detection and treatment within the past 3 years, among all TB treatment facilities (number and percentage) Facilities with adequate staffing per level to enable implementation of DOTS (number and percentage) 	
	Community TB care (CTBC)	<ul style="list-style-type: none"> Reporting units implementing CTBC activities, among all reporting units (number and percentage) 	<ul style="list-style-type: none"> Treatment success rate for new smear positive cases in areas implementing CTBC (relative to success rates elsewhere)
<p>* The number of new cases of TB diagnosed should also be reported. (TB/HIV 2)</p> <p>** For this indicator, the number of registered TB patients who were found to be HIV positive should also be reported. (TB/HIV 5)</p>			

The following table provides TB impact and outcome indicators for use in reporting on TB programs:

Table 11: Selected TB Impact and Outcome Indicators

	Indicator	Target	Measurement	Reference
Impact indicators	TB prevalence rate. Estimated number of all active TB cases per 100,000 population at a given point in time	Halving of prevalence by 2015, relative to 1990	Measured by special surveys	JAMA article, WHO Global TB Control (especially page 54)
	TB incidence rate. Estimated number of TB cases occurring per year, per 100,000 population (can be used for specific population sub-groups, e.g. annual incidence of TB in the prison system)		Measured by special surveys	JAMA article, WHO Global TB Control (especially page 54)
	TB mortality rate. Estimated number of deaths due to TB (all cases) per year, per 100,000 population	Halving of mortality by 2015, relative to 1990	Measured by special surveys	JAMA article, WHO Global TB Control (especially page 54)
Outcome indicators	Case detection. New smear-positive TB cases detected (diagnosed and reported to the national health authority), among the new smear-positive TB cases estimated to occur countrywide each year (number and percentage) (TB 1)	70% under DOTS, nationally by 2005	Annually and nationally via routine health information system PLUS estimates produced by WHO	WHO Global TB Control and Compendium of Indicators
	Treatment success rate. New smear positive TB cases that successfully complete their treatment among the new smear-positive TB cases registered during a specified time period. Successful completion entails clinical success with or without bacteriological evidence of cure (number and percentage) (TB 3)	85% under DOTS nationally for the cohort of new smear-positive patients by 2005	Quarterly, routine health information system. Evaluated by cohort, ideally for all types of new and re-treatment cases.	Compendium of Indicators
	Smear conversion rate. New smear positive TB cases that convert to smear-negative at the end of the initial phase of treatment, among new smear-positive TB cases registered during a specific time period (can also apply to any treatment cohort of cases) (number and percentage) (TB 4)	No international target. As a proxy (but not a replacement for) the treatment success indicator, above, the 85% level is nevertheless a general target	Quarterly, routine health information system.	Compendium of Indicators

General resources

- Tuberculosis Monitoring and Evaluation team of Stop TB Department of WHO: building capacity at country level for monitoring, evaluation and evidence-based planning, conducting global surveillance of epidemiological and financial trends in TB control.
- Stop TB Partnership Working Groups: The following implementation working groups provide a focus for coordinated action and support monitoring and evaluation of country-level activities related to:
 - DOTS expansion, including sub-groups on laboratories, public-private mix and childhood TB
 - TB/HIV
 - DOTS Plus for MDR-TB
 - Advocacy, communication and social mobilization

- Global Working Group on Indicators – a partnership between the World Health Organization, World Bank, U.S. Centers for Disease Control and Prevention, International Union Against Tuberculosis and Lung Disease (the Union), KNCV Tuberculosis Foundation, U.S. Agency for International Development (USAID) and Measure. Contact: cvincent@usaid.gov .

Technical assistance

- International Union Against TB and Lung Diseases (the Union): www.iatld.org
- KNCV Tuberculosis Foundation: www.tuberculose.nl
- U.S. Centers for Disease Control: <http://www.cdc.gov> (tbinfo@cdc.gov)
- World Health Organization: <http://www.who.int/tb/en> (dyec@who.int)
- World Bank: www.worldbank.org (hsawert@worldbank.org)

Software products

Various software applications are available to assist TB control programs in managing and analyzing routinely collected TB data.

Systems for managing routinely collected electronic patient-based records are available from WHO EMR (baghdadis@emro.who.int), US CDC (ccw2@cdc.gov), and WHO Geneva (bleedd@who.int).

Systems for managing routinely collected aggregated data (e.g. quarterly reports on cases registered, treatment outcomes, etc) are available from WHO SEAR (choudhurah@searo.who.int) and WHO Geneva ([hosseinism@who.int](mailto:hosseini@who.int)).

WHO HealthMapper can be used to map data imported from the systems noted above. (http://www.who.int/health_mapping/tools/healthmapper/en/).

In addition, EpiData is software that may be useful in rapidly designing a questionnaire and data entry tool for non-routine data collection <http://www.epidata.dk>.

Guidelines and essential references

Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2005. Geneva, World Health Organization (WHO/HTM/TB/2005.349).

<http://www.who.int/gtb/publications/globrep/index.html>

Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programmes. World Health Organization, Geneva. (WHO/HTM/TB/2004.344).

World Health Organization (2002). An expanded DOTS framework for effective tuberculosis control.

<http://www.who.int/tb/dots/framework/en/index.html>

World Health Organization (2003). Management of Tuberculosis Training for health facility staff.

http://www.who.int/tb/publications/who_cds_tb_2003_314/en/index.html.pdf

World Health Organization (1998). Laboratory services in tuberculosis control.

[http://whqlibdoc.who.int/hq/1998/WHO_TB_98.258_\(part1\).pdf](http://whqlibdoc.who.int/hq/1998/WHO_TB_98.258_(part1).pdf)

Guidelines on implementing Public-Private Mix for DOTS: engaging all health care providers to improve access, equity and quality of care in TB control. <http://www.who.int/tb/dots/ppm/en/index.html>

World Health Organization (2001). The Use of Indicators for communicable disease control at district level.

http://whqlibdoc.who.int/hq/2001/WHO_CDS_TB_2001.289.pdf

World Health Organization (2001). Good practice in legislation and regulations for TB control: An indicator of political will. http://whqlibdoc.who.int/hq/2001/WHO_CDS_TB_2001_290.pdf

Christopher Dye, DPhil; Catherine J. Watt, DPhil; Daniel M. Bleed, MD; S. Mehran Hosseini, MD; Mario C. Raviglione, MD. Evolution of Tuberculosis Control and Prospects for Reducing Tuberculosis Incidence, Prevalence, and Deaths Globally. *JAMA* 2005; 293: 2767-2775.

Planning Frameworks <http://www.who.int/entity/tb/dots/framework/en/index.html>

Human resource development
Laboratory services
Drug resistance surveillance and management of MDR TB
Public private mix of TB services
Advocacy, communication, and social mobilization
Community TB care
Planning and budgeting
Country coordinating mechanism

VIII. TB/HIV

Until recently TB/HIV was treated as a separate component in proposals to the Global Fund. Now TB/HIV has been embedded in both HIV and TB components because of the close interaction between these two diseases and the potential benefits of TB and HIV programs working together to address the dual epidemics of TB and HIV. The guidance for the 5th round of Global Fund proposals recommends that “where HIV/AIDS is driving the TB epidemic, HIV/AIDS components should include collaborative TB/HIV activities” and “where HIV/AIDS is driving the TB epidemic, TB components should include collaborative TB/HIV activities” (*Global fund proposal guidelines*). TB/HIV activities may therefore appear in either the TB or the HIV components, or both. For this reason the core indicators for monitoring and evaluating collaborative TB/HIV activities appear in both the TB and the HIV sections of this toolkit.

Monitoring and evaluation of collaborative TB/HIV activities may be more complicated than other program activities as information often has to move from one program to the other. Interventions to reduce the burden of TB (e.g. TB screening among PLWHA) need to be captured by the HIV program and interventions to reduce the burden of HIV will be captured by the TB program (e.g. proportion of HIV positive TB patients given ARV). TB and HIV programs will have to work together to collect, analyze and report on the data related to TB/HIV activities. Most indicators will be captured routinely in either TB or HIV care and treatment registers at facility or district level and reported quarterly. The HIV department at WHO has issued guidance on the recording and reporting forms that are necessary to monitor and evaluate HIV care including ARV which include the data necessary to report on the recommended indicators for TB/HIV. The Stop TB department in WHO is revising the existing TB recording and reporting forms to ensure that they are able to capture the information required to monitor and evaluate TB/HIV activities.

The summary table for TB/HIV indicators can be found in the respective TB and HIV sections under TB/HIV collaborative activities in Tables 7 and 10 respectively.

General resources

- Stop TB Partnership Working Groups: Three operational working groups provide a focus for coordinated action and support monitoring and evaluation of country-level activities related to:
 - DOTS expansion, including sub-groups on laboratories and public-private mix
 - TB/HIV
 - MDR-TB

Information and contact: <http://www.stoptb.org> or info@stoptb.org

- Global Working Group on Indicators – a partnership between the World Health Organization, World Bank, U.S. Centers for Disease Control and Prevention, International Union Against Tuberculosis and Lung Disease (IUATLD), KNCV Tuberculosis Foundation, U.S. Agency for International Development (USAID) and Measure.

Contact: cvincent@usaid.gov

Technical assistance

- International Union Against TB and Lung Diseases (the Union): <http://www.iuatld.org>
- KNCV Tuberculosis Foundation: <http://www.tuberculose.nl>
- U.S. Centers for Disease Control: <http://www.cdc.gov>
- World Health Organization: <http://www.who.int/en> (dyec@who.int)
- World Bank: <http://www.worldbank.org> (hsawert@worldbank.org)

Guidelines and essential references

World Health Organization. Interim policy on collaborative TB/HIV activities. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1) http://whqlibdoc.who.int/hq/2004/WHO_HTM_TB_2004.330.pdf

World Health Organization (2004). Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342) http://whqlibdoc.who.int/hq/2004/WHO_HTM_TB_2004.342.pdf

World Health Organization (2003). Guidelines for implementing collaborative TB and HIV program activities.
http://www.who.int/docstore/gtb/publications/tb_hiv/2003_319/tbhiv_guidelines.pdf

Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programmes. Geneva, World Health Organization (WHO/HTM/TB/2004.344) <http://www.who.int/tb/publications/2004/en/index.html>

World Health Organization (2005). Interim Patient Monitoring Guidelines for HIV care and ARV.
http://www.who.int/tb/publications/tbhiv_interim_policy/en/index.html

IX. Malaria

This section provides a general framework for monitoring and evaluation of interventions against malaria and service delivery areas within malaria control programs. Box 1 presents the key internationally agreed malaria control goals and targets.

Box 1: Key Malaria Control Goals and Targets

Global RBM Partnership Plan

- To halve Malaria-associated mortality by 2010 and again by 2015.

Millennium Development Goals

Target 8: to have halted by 2015 and begun to reverse the incidence of Malaria and other major diseases.

Indicator 21. Prevalence and death rates associated with Malaria (WHO).

Indicator 22. Proportion of population in Malaria-risk areas using effective Malaria prevention and treatment measures (UNICEF/WHO).

Abuja coverage targets, from the African Summit on Roll Back Malaria,

April 2000 (8), by 2005

- At least 60% of those suffering from Malaria should be able to access and use correct, affordable and appropriate treatment within 24 hours of the onset of symptoms.
- At least 60% of those at risk of Malaria, particularly pregnant women and children under 5 years of age, should benefit from suitable personal and community protective measures such as ITNs.
- At least 60% of all pregnant women who are at risk of Malaria, especially those in their first pregnancies, should receive IPT.

World Health Assembly 2005

- To establish national policies and operational plans to ensure that at least 80% of those at risk of, or suffering from malaria, benefit from major preventive and curative interventions by 2010 in accordance with WHO technical recommendations so as to ensure a reduction in the burden of malaria of at least 50% by 2010 and 75% by 2015.

The section also includes an overview of the indicators used for monitoring and evaluation of malaria prevention and control activities, information on data already being collected as well as potential sources of good quality data for these indicators, and selected issues related to the interpretation of available data. Given the differences in malaria epidemiology, intervention strategies and the design and quality of HIS, appropriate Roll Back Malaria (RBM) indicators also differ somewhat between regions. The major distinction is between areas where malaria is highly endemic and transmission is stable, which represents most of Africa south of the Sahara and a few similar environments in other parts of the world such as Papua New Guinea, and the rest of the world at risk of malaria, where malaria transmission is more unstable and more focal in nature. Thus, the applicability of prevention-related indicators on specific settings depends on whether the actual intervention is part of the local malaria control policy (Table 12-13). Treatment-related indicators are applicable to all malaria-endemic settings; however, the main groups targeted for treatment may vary according to the local pattern of disease burden.

Changes from the first version of the toolkit: The same measurement framework is used. The following amendments have been included: supportive environment SDAs have been added, including training and monitoring insecticide resistance. SDAs from the first toolkit can be used for reporting, but this version provides further precision. Improved impact and measurement methods are provided.

Table 12: Selected Programmatic Indicators for Malaria

	Service Delivery Area	Output Indicators	Examples of Outcome / Impact Indicators
Prevention	Insecticide-treated nets (ITNs)	<ul style="list-style-type: none"> ITNs (including retreatment kits) distributed to people (number) (MALARIA-PI 1) 	<ul style="list-style-type: none"> Households owning at least one ITN (percentage) (MALARIA-PI 2) Children under 5 who slept under an ITN the previous night (percentage) (MALARIA-PI 3)
	Malaria prevention during pregnancy	<ul style="list-style-type: none"> ITNs (including retreatment kits) distributed to pregnant women (number) Pregnant women receiving correct IPT (number) 	<ul style="list-style-type: none"> Pregnant women who slept under an ITN the previous night (percentage) (MALARIA-PI 4) Pregnant women in stable endemic areas receiving intermittent preventive therapy (IPT) (percentage) (MALARIA-PI 5)
	Vector control (other than ITNs)	<ul style="list-style-type: none"> Specific geographical areas (districts, regions etc.) with IVM measures implemented* (number) (MALARIA-PI 8) Volumes of insecticide used for indoor residual spraying per house sprayed 	<ul style="list-style-type: none"> Houses in areas at risk of malaria transmission that were sprayed with insecticide in the past 12 months as proportion of houses targeted (percentage) (MALARIA-PI 6)
	BCC community outreach*	<ul style="list-style-type: none"> People reached by BCC community outreach activities (can be for specific groups) (number and percentage) 	<ul style="list-style-type: none"> People (can be for specific groups) who know the cause, symptoms, preventive measures and treatment of malaria (number and percentage)
Treatment	Prompt, effective anti-malarial treatment	<ul style="list-style-type: none"> People receiving anti-malaria treatment (as per national policy) (number) Health facilities with no reported stock outs lasting >1 week of nationally recommended anti-malarial drugs at any time during the past 3 months (percentage) (MALARIA-TI 3) 	<ul style="list-style-type: none"> Children under 5 years of age (and other target groups) with fever who received antimalarial treatment according to national policy within 24 hours of onset of fever (percentage) (MALARIA-TI 2) Patients admitted with severe malaria receiving correct treatment at health facilities (percentage) (MALARIA-TI 4)
	Home based management of malaria*	<ul style="list-style-type: none"> People reached through home based management (can be for specific groups) (number) 	<ul style="list-style-type: none"> Children under 5 years of age (and other target groups) with fever who received antimalarial treatment through home based management within 24 hours of onset of fever (percentage)
	Diagnosis	<ul style="list-style-type: none"> Malaria microscopy slides taken (number) Rapid diagnostic tests (RDTs) taken (number) 	<ul style="list-style-type: none"> Malaria cases that are laboratory-confirmed (percentage) Facilities with malaria diagnostic equipment (percentage)
Supportive environment	Monitoring drug resistance	<ul style="list-style-type: none"> Functional sentinel sites for monitoring antimalarial drug resistance (number) Studies of drug efficacy completed according to WHO protocol (number) 	
	Monitoring insecticide resistance	<ul style="list-style-type: none"> Functional sentinel sites for monitoring insecticide resistance (number) 	
	Coordination and partnership development (national, community, public-private)*	<ul style="list-style-type: none"> Networks/partnerships involved (number) Community groups taking action on malaria (number) 	

* These service delivery areas/indicators are included due to their frequent use in Global Fund grants.

The table above shows the programmatic results in malaria programs related to the most important strategies for prevention, treatment and supportive environment. The following table shows the most relevant outcome and impact indicators in highly endemic areas and in unstable malaria areas as well as the sources of information (in order to measure the contribution of programs to the health impact in populations).

Table 13. Examples of appropriate Roll Back Malaria Impact and Outcome Indicators, by type of malaria endemicity

	Indicator	Highly* endemic Malaria	Unstable* Malaria	Measurement	Remarks
Impact Indicators	Death rates associated with malaria: all-cause under-5 mortality rate in highly endemic areas (MALARIA-II 1)	✓		Retrospective, ideally every 5 years using national household surveys (DHS, MICS, MIS)	To be interpreted alongside trends in intervention coverage. Demonstration of impact could lag up to 5 years because reported mortality reflects the average rate over the 5 years preceding the survey.
	Incidence of clinical malaria cases (estimated and/or reported) (MALARIA-II 2)	✓	✓	Epidemiological estimation model and/or cases in HIS adjusted for completeness of HIS reporting	Epidemiological model uses local parasite infection prevalence and coverage of ITNs and IRS as input parameters which will determine the trend over time.
	Anaemia prevalence in children under 5 years of age	✓		Community-based surveys every 2-3 years (DHS, MICS, MIS)	Haemoglobin below 11g/dl or 8 g/dl. Impact likely to be detectable within 1-2 years.
	Prevalence of malaria parasite infection (MALARIA-II 3)	✓	✓	Cross-sectional, ideally measured every 2-3 years using household surveys (MIS or similar survey)	To be surveyed during the transmission season; impact likely to be detectable within 1-2 years.
	Laboratory-confirmed malaria cases seen in health facilities		✓	Continuous and immediate using the Health Information System (HIS)	To be interpreted alongside regularly updated estimates of HIS reporting completeness.
	Laboratory-confirmed malaria deaths seen in health facilities		✓		
	Malaria-attributed deaths in sentinel demographic surveillance sites	✓	✓	Continuous and immediate	Observed trend might underestimate actual impact due to limited sensitivity and specificity of verbal autopsy.
Outcome Indicators	% of U5 children (and other target groups) with malaria/fever receiving appropriate treatment within 24 hours (community/health facility)	✓	✓	Community-based surveys	
	% of U5 children (and other target group) with uncomplicated malaria correctly managed at health facilities	✓	✓	Health facility survey	
	% of U5 children (and other target groups) admitted with severe malaria and correctly managed at health facilities	✓	✓	Health facility survey	
	% of children U5 sleeping under an ITN	✓	✓	Community-based surveys	
	% of households with at least one ITN	✓	✓	Community-based surveys	
	% of pregnant women (and other target groups) sleeping under an ITN	✓	✓	Community-based surveys	
	% of pregnant women on Intermittent preventive treatment (IPT) according to national policy	✓		Community-based surveys and/or routine HIS	
	% of households in malaria areas protected by IRS		✓	NMCP or community-based surveys	

* Setting: Malaria is highly endemic in most countries of Central, East, and West Africa; malaria is more unstable and focal in parts of southern Africa, arid areas of Africa, Ethiopian and Eritrean highlands and most areas outside of Africa. (Source: World Malaria Report 2005) – ✓ = YES

The detailed description of each of the indicators listed above is provided in Annex D. It should be noted that the indicators presented above and in the annex are not comprehensive, and readers should refer to the individual guidelines for a more complete listing of all core and additional indicators in this area.

Monitoring disease impact

Mortality

The primary impact indicator to be monitored in settings of high malaria endemicity, including all countries in sub-Saharan Africa (SSA), is all-cause under-5 mortality. This is best measured by nationally representative household surveys, such as The Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), in addition to national census data. Mortality should be reported together with the coverage of malaria interventions, in particular the use of insecticide-treated mosquito nets (ITNs), the coverage of prompt and effective antimalarial treatment by children under-5, and the use of intermittent preventive treatment (IPT) by pregnant women. These coverage indicators are measured in the same surveys. The time trends in all-cause mortality and intervention coverage together could be used to model the trend in malaria-specific mortality (and morbidity) in children under 5 years of age.

In these high endemic settings, malaria-specific mortality cannot be routinely monitored, as it is difficult to measure. Symptoms and signs (such as anaemia) are not specific and sensitive, making autopsy and verbal autopsy inaccurate; and many deaths, especially in young children, may be related to malaria concurrent with other common childhood illnesses, rather than directly and solely attributable to malaria. Moreover, a majority of deaths do not occur in hospitals and are not routinely recorded in national health information systems (HIS), and these are unlikely to be picked up in vital registration systems, which are often incomplete.

In settings of lower malaria endemicity, outside sub-Saharan Africa, vital registration and health facility records may provide a reliable indication of malaria-attributable deaths, if not fully complete then at least valid as a trend indicator.

Morbidity

In SSA, the usefulness of malaria cases recorded in HMIS as a measure of disease burden over time is very limited. On the one hand, only a minority of malaria cases reach the formal health system, leading to gross underreporting. On the other hand, presumptive diagnosis in clinics may lead to over reporting, while the high prevalence of asymptomatic parasitaemia undermines the potential benefit of confirmatory parasitological testing. Other relevant indicators of malaria-related morbidity are the prevalence of childhood anaemia and parasite infection. A standard method for estimating incident malaria cases has been developed for application to country-level data to produce national malaria case estimates.

(http://rbm.who.int/partnership/wg/wg_monitoring/docs/incidence_estimations2.pdf)

In some areas outside SSA, with good quality and good access to health services, malaria cases recorded in the HIS may indicate the time trend in malaria incidence, provided that reporting completeness is stable over time. However, nowhere in the world are malaria cases and deaths recorded in national HIS believed to cover the full burden of malaria mortality and morbidity.

Surveys measuring malaria indicators

The greatest burden of malaria and the greatest need for prevention and treatment occur in poorly accessible rural settings, where cases are often managed at home rather than in a formal health-care setting. In addition, most people do not obtain their ITNs for protection against malaria from health services, and malaria patients seen in health services might not be representative of the people at risk of malaria in the population at large. For these reasons, household surveys are the most appropriate mechanism for monitoring the coverage of ITNs and the appropriate treatment for malaria in populations at risk. There are three major survey tools relevant to RBM:



Demographic and Health Surveys (DHS)⁵ and Multiple Indicator Cluster Surveys (MICS)⁶ Nationally representative surveys of between 4,000 and 12,000 women aged 15-49 years, living in households that are sampled in a multiple-stage cluster design. Conducted in many developing countries at 5-year intervals. Because the questionnaires are standardized and structured, results are reasonably comparable between countries and over time. Indicators measured include all-cause under-5 mortality, possession and use of ITNs by children under-5 and pregnant women, use of antimalarial treatment for children under-5 with fever, and use of intermittent preventive treatment by pregnant women. Recent DHS also measured the prevalence of anaemia by haemoglobin measurement in children under 5 years of age. Results are freely available on the internet.

Malaria Indicator Survey (MIS):

To supplement the standardized data collection from DHS and MICS, in 2004 the RBM-MERG with MACRO International developed a Malaria Indicator Survey (MIS) package which may be used at a national or sub-national level. The sample size proposed for MIS is smaller than for DHS and MICS, because the primary use of MIS is to monitor intervention coverage and not child mortality. The MIS will, then, be less expensive than DHS or MICS, and could be conducted at a sub-national level if needed. A MIS could be used to design malaria surveys in countries where no other surveys are being conducted, or to fill gaps within the 5-year intervals between subsequent DHS or MICS, for a more rapid detection of progress.

For operational reasons, both DHS and MICS are conducted during the dry season and, therefore outside of the peak malaria transmission season. In contrast, the MIS can be targeted to the peak transmission and combined with measurements of haemoglobin and parasite prevalence, in areas where these are considered relevant malaria burden/impact indicators. The entire MIS package (including questionnaire, training manual, guidance on sampling and sampling sizes with costing, analysis plans) is available for use by countries in hard copy, on CD ROM and through the internet (<http://rbm.who.int/merg>, section Survey and Indicator Guidance Task Force).

A scaled-down version of MIS is also available, called the ‘lean malaria module’, which standard questions on malaria intervention coverage that could be added to other planned household surveys.

Issues related to the interpretation of available data on malaria monitoring

The table below lists a number of important limitations in the availability of data and in the interpretation of the data as related to the malaria M&E presented in this report. Based on these limitations, coordination among monitoring and evaluation stakeholders and capacity for the standardized collection of quality data should be improved.

Table 14: Selected issues related to the interpretation of available data on malaria monitoring

Area	Data available	Limitations	Recommendations
Burden and impact	Case and death reports from HIS or Integrated Disease Surveillance and Response	<ul style="list-style-type: none"> National totals may not cover all districts and all months of the year Completeness of reporting varies over time and between countries Burden in health facilities frequently does not cover the total burden in the population (especially in Africa) 	<ul style="list-style-type: none"> Besides absolute numbers of cases and deaths, African countries should focus on reporting proportions of outpatients visits, hospital admissions and hospital deaths that are caused by malaria, from sentinel HIS sites in the highest endemic areas Countries should regularly (e.g. every 2 years) evaluate the completeness of HIS reporting
	All-cause under-5 mortality (in Africa) from DHS and MICS	<ul style="list-style-type: none"> Not specific to malaria Mortality data from birth history surveys reflect the situation an average 2.5 years before the survey, delaying the detection of intervention impact 	<ul style="list-style-type: none"> Add anaemia testing and parasite prevalence testing to community-based surveys Conduct regular surveys (e.g. every 2 years) for these acutely responding indicators

⁵ DHS are organized by MACRO International, Calverton, MD, USA and are funded primarily by the United States Agency for International Development (USAID) (<http://www.measuredhs.com>).

⁶ The Multiple Indicator Cluster Surveys (MICS) are organized and supported by UNICEF (<http://www.childinfo.org>).

Area	Data available	Limitations	Recommendations
ITN coverage	DHS, MICS and other household surveys	<ul style="list-style-type: none"> Not all countries are covered MICS and DHS only every 5 years, thus available data are on average 3 years outdated In countries with only part of the population at risk of malaria, national coverage might underestimate effective coverage in populations at risk 	<ul style="list-style-type: none"> Conduct additional MIS in the interim between DHS and MICS surveys and where DHS and MICS are not conducted In areas of unstable and focal malaria risk, over-sample focal areas at malaria risk
Coverage of anti-malarial treatment	DHS, MICS and other household surveys	<ul style="list-style-type: none"> Using children under 5 years of age with fever as the denominator is not appropriate for populations outside Africa where all age groups are at similar risk of malaria, and where fewer of the fevers are actually caused by malaria Not all countries are covered MICS and DHS only every 5 years, thus available data are on average 3 years outdated 	<ul style="list-style-type: none"> Use questionnaire as recommended in MIS package Outside Africa, consider using self-reported malaria instead of fever as the denominator group in surveys Conduct MIS in the interim between DHS and MICS surveys and where DHS and MICS are not conducted
IPT coverage	DHS, MICS and other household surveys	<ul style="list-style-type: none"> Not relevant to measure in areas and years where IPT has not (yet) been implemented 	<ul style="list-style-type: none"> Include in HIS reporting and conduct facility-based surveys in selected areas where IPT has been implemented
IRS delivery and coverage	Reports from countries	<ul style="list-style-type: none"> Reporting to WHO/WHOPES incomplete Definitions of IRS coverage variable and unclear 	<ul style="list-style-type: none"> Improve reporting to WHO/WHOPES of quantities of insecticides used WHO should develop standardized definitions of “population at risk of malaria”, “the denominator for IRS coverage”, and “IRS coverage” Countries should specify the definition when reporting on IRS coverage Include questions on IRS coverage for piloting in household surveys
Drug resistance	Surveillance in sentinel sites	<ul style="list-style-type: none"> The selection of sites varies between years and few sites are sampled repeatedly over time, thus it is difficult to infer time trends as these may be confounded by geographical variation 	<ul style="list-style-type: none"> Sample selected sites repeatedly over time Properly document study protocols Include ACTs among therapies tested

General resources

In 2003, a global Monitoring and Evaluation Reference Group (MERG) was established to improve coordination among key M&E players in Roll Back Malaria (RBM). The main function of the MERG is to act as an advisory body for the RBM Secretariat, hence to give technical guidance related to monitoring progress in malaria control. The actual M&E work is being implemented by National Malaria Control Programs with support from the inter-country teams and RBM partners. General information on the activities and products of the MERG can be found at the following link: <http://rbm.who.int/merg>

Technical assistance and software products

Technical support to governments is available through a variety of sources, most notably through the RBM MERG and WHO headquarter and regional offices, as well as RBM inter-country offices.

A global moderated e-mail listserve has been established to facilitate communication of malaria monitoring and evaluation issues and ideas. This is accessible by e-mailing malariame@who.int for subscription.

Further, M&E technical support groups have been established in some countries and regions through the broader RBM partnership.

Guidelines and essential references

More information on monitoring and evaluation of malaria control activities can be found in the following documents:

Monitoring & Evaluation

- WHO/UNICEF. World Malaria Report 2005. May 2005: <http://rbm.who.int/wmr2005/>
- Roll Back Malaria. Framework for Monitoring Progress and Evaluating Outcomes and Impact. 2000. Geneva. Available online: http://rbm.who.int/cmc_upload/0/000/012/168/m_e_en.pdf
- Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing Malaria intervention coverage from household surveys. July 2004: http://rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9-20Malaria.pdf
- Roll Back Malaria. Monitoring and Evaluation Reference Group, Mortality Task Force. Meeting Minutes. 16 July 2003. Available online at WHO <http://rmb.who.int/merg>
- Roll Back Malaria. Malaria Indicator Survey (MIS): <http://rbm.who.int/merg> section 'Survey and Indicator Guidance Task Force'. Meeting Minutes. 27-28 October 2003. Available online: <http://rbm.who.int/merg>, section 'Anaemia'.
- Roll Back Malaria. Monitoring and Evaluation Reference Group, Morbidity Task Force. Meeting Minutes. 4 November 2004. Available online: <http://rbm.who.int/merg>, section 'Malaria Morbidity: Indicators and Estimates'.

Policies and guidelines

- World Health Organization, Roll Back Malaria dept. Malaria control today. Current WHO Recommendations. Working Document. Geneva, March 2005: http://www.who.int/malaria/docs/MCT_workingpaper.pdf
- WHO. Management of Severe Malaria: A practical handbook. 2nd Edition. Geneva 2000. Available online: <http://rbm.who.int/docs/hbsm.pdf>
- WHO. The Use of Anti-malarial Drugs: Report of an Informal Consultation, Geneva, 13-17 November 2000. Available online: http://rbm.who.int/cmc_upload/0/000/014/923/use_of_antimalarials.pdf
- WHO. Anti-malarial Drug Combination Therapy: Report of a WHO Technical Consultation, Geneva, 4-5 April 2001. Available online at WHO <http://www.who.int> http://www.doh.gov.za/issues/malaria/red_reference/case_management/cm29.pdf
- WHO Regional Office for the Western Pacific. Malaria Rapid Diagnosis: Making it work. Meeting Report 20-23 January 2003. Manila. Available online: <http://www.wpro.who.int/NR/rdonlyres/315060C1-B233-477A-87FF-9C4D21D2B3B3/0/RDTSMakingItWork.pdf>

Drug supply management

- WHO Roll Back Malaria dept. Access to Antimalarial Medicine: Improving the Affordability and Financing of Artemisinin-based Combination Therapies. 2003, WHO/CDS/MAL/2003.1095: http://www.who.int/malaria/cmc_upload/0/000/016/745/37268_ACT_final2.pdf
- Management Sciences for Health. Drug Management for Malaria. June 2000, revised July 2002. Rational Pharmaceutical Management Program.
- John Snow International. Logistics Indicators and Monitoring and Evaluation Tools. DELIVER Project. Available online: http://portalprd1.jsi.com/portal/page?_pageid=93,3144386,93_3144560:93_3144571&_dad=portal&_schema=PORTAL

Drug resistance

- WHO. Monitoring Anti-malarial Drug Resistance. 2002. Report of a WHO consultation, Geneva, Switzerland 3-5 December 2001. Available online: http://rbm.who.int/cmc_upload/0/000/015/800/200239.pdf

Home-based management

- World Health Organization, Roll Back Malaria Department. The Roll Back Malaria Strategy for Improving Access to Treatment Through Home Management Malaria. Geneva 2005. WHO/HTM/MAL/2005.1101: http://www.who.int/malaria/docs/RBM_Strategy_HMM_sm.pdf

- Roll Back Malaria/UNDP/World Bank/WHO TDR. Scaling up home-based management of Malaria: from research to implementation. 2004. Geneva, WHO/CDS/MAL/2004.1096. Available online: http://www.who.int/tdr/publications/publications/pdf/home_2004.pdf
- Carol Baume. A Guide to Research on Care-seeking for Childhood Malaria. Published by the Support for Analysis and Research in Africa (SARA) Project and the Basic Support for Institutionalizing Child Survival Project (BASICS II) for the United States Agency for International Development. Arlington, Virginia, April 2002.

Vector control including insecticide-treated nets (ITNs)

- Roll Back Malaria. Scaling-Up Insecticide-Treated Netting Programs in Africa: A Strategic Framework for Coordinated National Action. 2002. Geneva. Available online: http://rbm.who.int/cmc_upload/0/000/015/845/itn_programmes.pdf
- Roll Back Malaria. Insecticide-Treated Mosquito Net Interventions: A Manual for National Control Program Managers. 2003. Available online: http://rbm.who.int/cmc_upload/0/000/016/211/ITNinterventions_en.pdf
- Global insecticide use for vector-borne disease control: Second edition 2004. Zaim. M. Available online: http://whqlibdoc.who.int/hq/2004/who_CDS_WHOPEP_GCDPP_2004.9.pdf
- WHO. Space spray application of insecticides for vector and public health pest control: A practitioner's guide. Geneva, 2003 (document WHO/CDS/WHOPEP/GCDPP/2003.5. Available online: http://whqlibdoc.who.int/hq/2003/WHO_CDS.WHOPEP_GCDPP_2003.5.pdf

Malaria in pregnancy

- Roll Back Malaria. Strategic framework for malaria control during pregnancy. 1 November 2002. Available online: <http://www.who.int/malaria/malariainpregnancy.html>
- World Health Organization, Roll Back Malaria dept. Assessment of the safety of artemisinin compounds in pregnancy. 2003. WHO/CDS/MAL/2003.1094: http://www.who.int/malaria/cmc_upload/0/000/016/323/artem_pregnancy.html

Malaria epidemics

- Hook C. Field Guide for Malaria Epidemic Assessment and Reporting. Draft for field testing. World Health Organization. 2004. WHO/CDS/MAL/2004.1097. Available online: http://www.who.int/malaria/cmc_upload/0/000/016/569/FTest.pdf
- Roll Back Malaria. Prevention and Control of Malaria Epidemics: 3rd Meeting of the TSN, Geneva, 10-11 December 2001. 2002. Available online: http://rbm.who.int/cmc_upload/0/000/015/827/3epidemics_report.pdf
- Roll Back Malaria. Malaria Early Warning Systems: A Framework for Field Research in Africa. Available online: http://www.who.int/malaria/cmc_upload/0/000/014/807/mews2.pdf

Training and human resources development

- Roll Back Malaria. RBM Human Resource Needs Assessment & Planning Tool. 2003. In preparation.

X. Health Systems Strengthening

There is increasing awareness that improved performance in addressing major disease challenges is dependent on the quality, equity and efficiency of health systems. Effective health systems are a requirement to meet global and national goals and to sustain achievements in TB, malaria, HIV treatment and care, safe motherhood, and child survival.

In recognition of this, the Global Fund has committed to supporting country efforts to strengthen their health systems as a necessary condition for achieving their goals in relation to the three diseases. In order to assist grantees to develop proposals that incorporate health systems strengthening, and to permit sound monitoring of progress, the Global Fund, WHO and HMN, UNAIDS and PHR (Partners for Health Reform) have collaborated to identify a series of indicators reflective of overall health systems strengthening as well as of the specific health systems factors related to HIV/AIDS, tuberculosis and malaria control. **Health system elements can be built into disease focused grants.**

Various analytical frameworks for health systems have been proposed.⁷ Rather than adopt any particular one, we have simply identified the features which are common to them all and used these as the organizational structure upon which the indicators are built. Health system indicators were identified during the joint WHO/World Bank consultation, which are drawn upon.⁸

The indicators in table 15 include relevant health system indicators for the Global Fund's work on the three diseases. It is assumed that Global Fund inputs are both specific (disease focused) and general (health systems strengthening). For example, the GF may support training of health care workers in the prevention and management of the three diseases (on-site training, development of guidelines and manuals, refresher courses etc.) while also providing support to initial training skills development of health care workers. While it will be relatively straightforward to attribute outcomes to Global Fund inputs with regard to disease-specific support, it will be more complex in the case of general health system inputs which are likely to involve many partners and for which the outcomes will be less clearly linked to the three diseases (see Figure 3).

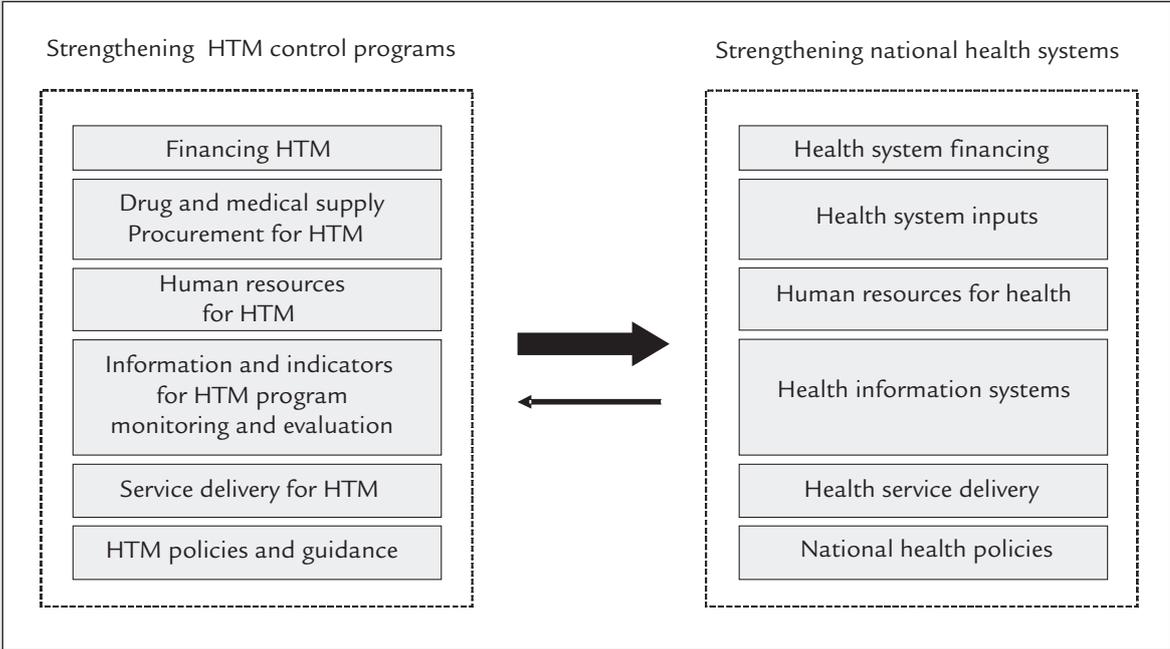
Disease specific indicators should be used alongside any health systems strengthening grant programs, for example to show increase in TB detection and cure rates, improvements in malaria treatment or in HIV counseling and testing. They should also show increases in coverage of populations at risk.

Similarly, health systems strengthening can also be included in disease specific programs, in HIV/AIDS, tuberculosis and malaria grants. This is already the case in many grants (where 50% of disease specific funds go to health systems strengthening), but the service delivery areas and indicators presented here strengthen their measurement. As a separate component health systems strengthening should show system wide benefits on coverage of target populations, client satisfaction with services, and outcome/impacts related to the three diseases.

Health Systems Strengthening service delivery areas and selected indicators can be included in disease specific grants for HIV/AIDS, TB, or Malaria. This is strongly recommended where needed. They can also be used in a stand-alone Health Systems Strengthening Grant, where applicable. The details and rules for each round of Global Fund funding should be consulted to assess the best strategy.

⁷ *Health System Metrics Monitoring the Health System in Developing Countries October 6-7 2004, Glion, Switzerland WHO and World Bank.*
⁸ *Ibid.*

Figure 3: Well integrated HIV/AIDS, Tuberculosis and Malaria (HTM) programs strengthen National Health Systems in all their functions



The indicators in this section are focused on the public health system but **we also welcome and encourage wider measurement of capacity building in non-health, community, faith based and NGO sectors**. Although few internationally agreed indicators exist, these should focus on increasing people trained, service points supported and people receiving increase in coverage of services (number and percentage reached). We welcome inclusion of such indicators.

Table 15: Selected Indicators for Health Systems Strengthening

Areas	Outputs	Outcomes	Impact
Service delivery	Health facilities in a district or a region that provide specialized services (Testing and Counseling (TC), PMTCT, ARV, STI, malaria treatment, TB treatment, TB/HIV collaborative activities, other) accordingly to national protocols and guidelines (number and percentage)	<ul style="list-style-type: none"> Population covered by key services (TC, PMTCT, ARV, malaria treatment, TB treatment) (number and percentage) Number of out-patient visits for HIV/TB/Malaria / inhabitant Percentage increase in patient satisfaction 	Disease specific outcome/impact indicators should be included (e.g. increased TB detection and cure rate, malaria mortality, see disease specific sections)
	Health facilities supervised regularly according to national guidelines (number and percentage)		
	Districts with laboratories that have complete capacity and supplies to diagnose TB, malaria and HIV (number and percentage)		
	Number of HIV tests carried out expressed as a proportion of sexually active population (specify age groups)		
Human resources	Number of health workers (by category and discriminated urban / rural and gender) per 100,000 inhabitants (by category)	<ul style="list-style-type: none"> Health care personnel trained and deployed per category according to human resource development plan (number and percentage) Percentage increase in patient satisfaction 	
	Annual output of trained health workers per 100,000 population (by category level)		
	Health workers (by category and region) who attended in-service training sessions (by type and length) according to national curriculum during the last year (breakdown by diseases if appropriate) (number and percentage)		
	Health facilities fully staffed per level of health care and per region and according to national standards (breakdown by disease program if appropriate) (number and percentage)		
Community Systems Strengthening	<ul style="list-style-type: none"> Number of sites with community coordination focal points in place Number of community workers trained for implementing community based activities Number of existing NGO workers trained in a basic package of skills Number of community based organizations with plans and regular monitoring systems 	<ul style="list-style-type: none"> Percentage of local administrative units providing basic defined package of community services (home based care, outreach prevention, orphan care, training) 	
	Health facilities or districts reporting all indicators according to national guidelines (including using the National list of indicators) (number and percentage)		
	Health facilities or districts submitting timely reports according to national guidelines (number and percentage)		
	Number of surveys that include core indicators for three diseases implemented according to National M&E plan (specify type)		
Sentinel surveillance sites performing according to national standards (number and percentage)			
Infrastructure	Health facilities with arrangements for specialized services (CT, PMTCT, ARV, STI, TB/HIV services - <i>specify which and how many</i>) (number and percentage)	<ul style="list-style-type: none"> Geographical access: Percentage of population living within reach of basic health services 	
	<ul style="list-style-type: none"> Technicians (by region) that have been trained in procurement and supply management (number and percentage) Health facilities applying national regulations regarding procurement and supply management (number and percentage) Batches of anti-TB essential drugs (specify) that have a batch certificate showing acceptable quality testing results, among all batches of drugs procured during a specified time period (number and percentage) Total number of stock out days for any anti-TB essential drugs stocked (specify), among all storage facilities during a specified time period 		<ul style="list-style-type: none"> Number and percentage of health facilities or central warehouses with no drug stock out during the last month (or defined period)

General resources

- World Health Organization. Evidence and Information for Policy Cluster (EIP). <http://www3.who.int/whosis/menu.cfm?path=evidence&language=english>
- Health Metrics Network <http://www.who.int/healthmetrics/en/>
- The Global Fund: Measuring the systems effect of the Global Fund with a focus on additionality, partnerships and sustainability. The Global Fund, Geneva, 2005
- World Bank: Health systems development: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTHSD/0,,contentMDK:20184588~menuPK:376811~pagePK:148956~piPK:216618~theSitePK:376793,00.html>
- Management sciences for health <http://www.msh.org/>
- Quality Assurance Project <http://www.qaproject.org/>

Technical assistance

- World Health Organization: Evidence and Information for Policy Cluster <http://www3.who.int/whosis/menu.cfm?path=evidence&language=english>
- World Bank: <http://www.worldbank.org>
- TCNetwork <http://www.tcnetwork.net/index.cfm>

Documents and Guidelines

Financing

- National health accounts: <http://www.who.int/nha/en/>
- Jean-Pierre Poullier, Patricia Hernandez, Kei Kawabata, National health accounts: Concepts, data sources and methodology WHO/EIP/02.47. World Health Organization Geneva
http://www.who.int/nha/docs/en/NHA_concepts_datasources_methodology.pdf
- WHO Health financing policy: http://www.who.int/health_financing/en/
- Technical brief for policy makers. Number 2. 2005. Designing health financing systems to reduce catastrophic health expenditure <http://www.who.int/hinari/en/>

Human Resources

- WHO Human Resources website <http://www.who.int/hrh/en/>
- Global Health Trust <http://www.globalhealthtrust.org/>
- A guide to rapid assessment of human resources for health World Health Organization 2004
http://www.who.int/hrh/tools/en/Rapid_Assessment_guide.pdf
- Workload indicators of staffing need (WISN) A manual for implementation. WHO/HRB/98.2. World Health Organization Division of Human Resources Development and Capacity Building. Geneva, Switzerland. 1998
http://www.who.int/hrh/documents/en/workload_indicators.pdf
- World Health Organization. Scaling up HIV/AIDS care: service delivery and human resources perspectives. 2004 Geneva. http://www.who.int/hrh/documents/en/HRH_ART_paper.pdf
- World Health Organization. Discussion paper 1. Strategies for assisting health workers to modify and improve skills. WHO/EIP/OSD/2000.1 <http://www.who.int/mipfiles/2359/Disc1-AProcessofChange.pdf>
- World Health Organization. Discussion paper 2. Achieving the right balance: The role of policy-making processes in managing human resources for health problems. WHO/EIP/OSD/2000.2
http://www.who.int/hrh/documents/en/right_balance.pdf
- World Health Organization. Discussion paper 3. Determining skill mix in the health workforce: Guidelines for managers and health professionals WHO/EIP/OSD/00.11 http://www.who.int/hrh/documents/skill_mix.pdf

- World Health Organization. Human resources and national health systems. Final report (2002) WHO/EIP/OSD/03.2 http://www.who.int/hrh/documents/en/nhs_shaping_agenda.pdf
- MSH Managing Human Resources <http://erc.msh.org/mainpage.cfm?file=1.htm&module=hr&language=English>
- Global Health Trust: Joint Learning Initiative in Human Resources for Health <http://www.globalhealthtrust.org/>

Information systems and operational research

- Health metrics network <http://www.who.int/healthmetrics/en/>
- Issues in health information 2. Information Needs for HIV/AIDS, Tuberculosis and Malaria Programmes http://www.who.int/healthmetrics/library/issue_2_05apr.doc
- Issues in health information 5: Household and Facility Surveys http://www.who.int/healthmetrics/library/issue_5_05apr.doc
- Health InterNetwork Access to Research Initiative (HINARI) <http://www.who.int/hinari/en/>

Service delivery

- Quality and accreditation in health care services: A global review. WHO/EIP/OSD/2003.1 World Health Organization. Geneva 2003 http://www.who.int/hrh/documents/en/quality_accreditation.pdf
- The Manager's Electronic Resource Centre: <http://erc.msh.org/>
- John Snow INC Health Services Assessment <http://www.jsi.com/JSIInternet/Projects/ListProjects.cfm?Select=Expertise&ID=4&ShowProjects=No>
- Measure Program (USAID) <http://www.measureprogram.org/>

Core health indicators, survey and tools

- WHO Statistical Information System (WHOSIS) Evidence and Information for Health Policy <http://www3.who.int/whosis/menu.cfm?path=evidence,whosis&language=english>
- WHO Evidence and Information for Policy <http://www3.who.int/whosis/menu.cfm?path=evidence&language=english>
- World Bank: Survey Tools for Using Household Survey Data. <http://www.worldbank.org/html/prdph/lsmstools/index.htm>

Monitoring and Evaluation Toolkit: HIV/AIDS, Tuberculosis, and Malaria
Annexes: Selected indicators for HIV/AIDS, tuberculosis and malaria

ISBN 92-9224-029-3

<p>This document was based on a collaboration between WHO, UNAIDS, The Global Fund to Fight AIDS, Tuberculosis & Malaria, USAID, US Department of State, OGAC, CDC, UNICEF, MEASURE Evaluation and the World Bank.</p>
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MONITORING AND EVALUATION TOOLKIT

HIV/AIDS, TUBERCULOSIS AND MALARIA

Annexes:
Selected indicators for HIV/AIDS,
tuberculosis and malaria

Second Edition
January 2006

Annexes: selected Indicators for HIV/AIDS, Tuberculosis and Malaria

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Note: The indicators presented in this annex are a selection from a larger, more comprehensive list of indicators available for each disease area. Readers are encouraged to refer to the full list of indicator resources listed under the heading of “Guidelines” in each disease section (HIV/AIDS, TB/HIV, TB, Malaria and Health Systems Strengthening) of the M&E Toolkit itself to find a comprehensive overview of ALL core and additional indicators available for their use.

ANNEX A:
Description of HIV/AIDS Indicators

PREVENTION INDICATOR (HIV-PI 1):

BEHAVIOUR CHANGE COMMUNICATION Provision of life-skills-based HIV/AIDS education in schools

Percentage of schools with at least one teacher who has been trained in participatory life-skills-based HIV/AIDS education and who taught it during the last academic year.

RATIONALE

This indicator is a measure of the progress in implementing life-skills-based HIV/AIDS education in schools. It is a measure of coverage by schools – that is, estimating the proportion of schools that report having such programs. It is not a measure of the quality of such programs. For this indicator to be most meaningful, it should be combined with measures of quality.

DEFINITION OF INDICATOR

Numerator: Number of schools with at least one teacher trained in, and regularly teaching, life-skills-based HIV/AIDS education

Denominator: Number of schools

Note: The target population for this indicator is primary and secondary schools.

Principals/heads of a nationally representative sample of schools (to include both private and public schools, and primary and secondary schools) are briefed on the meaning of life-skills-based HIV/AIDS education and are then asked the following questions:

1. Does your school have at least one qualified teacher who has been trained in participatory life-skills-based HIV/AIDS education in the last five years?
2. If the answer to question 1 is “yes”: Did this person teach life-skills-based HIV/AIDS education on a regular basis in your school *throughout* the last academic year? (“*throughout*” meaning at least 5–15 hours of life-skills-based HIV/AIDS education programming per year per grade of pupil)

A **qualified teacher** is one that has participated in, and successfully completed, a training course focusing on the skills required to conduct participatory learning experiences that aim to develop knowledge, positive attitudes and skills (e.g., interpersonal communication, negotiation, decision-making and critical-thinking skills and coping strategies) that assist young people in maintaining safe lifestyles.

The criteria of **teaching on a regular basis** is grounded in research findings that show that high-quality programs can produce good outcomes with five to 15 hours of life-skills-based HIV/AIDS education programming per year per grade of pupil.

The time dimension of **the last academic year** will be, in each country, defined according to the educational calendar (usually nine to 10 months within one calendar year, designed to allow students to complete one educational level, or grade).

If the sample was selected to represent different strata, the results can be disaggregated by school type (i.e., female and male, large and small, urban and rural, private or public, and primary or secondary). Where a school is both primary and secondary, information should be collected and reported separately for each level.

In addition, primary and secondary school attendance rates for the most recent academic year available should be stated.

Resources permitting, the following additional four questions can also be included (in the case of the answer to question 1 above being “yes”):



3. How many teachers at your school have received training in participatory life-skills-based HIV/AIDS education in the last five years?
4. How many of these teachers taught life-skills-based HIV/AIDS education program in your school during the last academic year?
5. How many classes and students in each grade in your school received life-skills-based HIV/AIDS education last year?
6. How long was the program/course for each grade in hours?

With information on the overall school-age population and on the above questions, it is possible to estimate the proportion of all young people, as well as the proportion of school-going young people, who actually receive life-skills-based HIV/AIDS education.

For a guide to **quality** aspects of a life-skills-based HIV/AIDS education, refer to UNICEF website:
www.unicef.org/lifeskills/

Platform: School-based survey

Frequency: Biennial

REFERENCES

- WHO-UNAIDS (2004) *Guide to Monitoring and Evaluating National HIV/AIDS Prevention Programs for Young People*. Geneva. www.who.int/hiv/pub/epidemiologu/me_prev_yp/en

PREVENTION INDICATOR (HIV-PI 2):

BEHAVIOUR CHANGE COMMUNICATION Most-at-risk populations: prevention programs

Percentage of [most-at-risk population(s)] reached with HIV/AIDS prevention programs.

RATIONALE

Most-at-risk populations are often difficult to reach with HIV/AIDS prevention programs. However, in order to prevent the spread of HIV/AIDS among these populations as well as into the general population, it is important that they access these services. This indicator is to assess progress in implementing HIV/AIDS prevention programs for most-at-risk populations and should be calculated separately for each population that is considered most-at-risk in a given country, e.g., sex workers, injecting drug users, men who have sex with men.

Note: Countries with generalized epidemics may also have a concentrated sub-epidemic among one or more most-at-risk populations. If so, it would be valuable for them to calculate and report on this indicator for those populations.

DEFINITION OF INDICATOR

Numerator: Number of [most-at-risk population] respondents who have accessed HIV/AIDS prevention programs during the last 12 months

Denominator: Number of most-at-risk population included in the survey sample or prevalence estimation methods for the size of the most-at-risk population for the denominator (if the data is being collected through program monitoring records)

Note: Data collected for this indicator should be disaggregated by gender and age (<25/25+).

Whenever possible, data for most-at-risk populations should be collected through civil society organizations that have worked closely with this population in the field.

Access to survey respondents as well as the data collected from them must remain confidential.

MEASUREMENT

The data can be collected through special surveys and program monitoring records.

Surveys: Respondents are asked a series of questions about the exposure/use of key HIV prevention services. Depending on local contexts, the list would include (1) outreach and peer education; (2) exposure to targeted mass media; (3) STI screening and/or treatment; (4) HIV counseling and testing; (5) substitution therapy and safer injection practices for IDU.

Accessing and/or surveying most-at-risk populations can be challenging. Consequently, data obtained may not be based on a representative sample of the national most-at-risk population being surveyed. If there are concerns that the data is not based on a representative sample, these concerns should be reflected in the interpretation of the survey data. Where different sources of data exist, the best available estimate should be used. Information on the sample size, the quality/reliability of the data and any related issues should be included in the report submitted with this indicator.

Program monitoring: records of programs providing the above-mentioned services are compiled and aggregated to obtain an overall measure of the reach of prevention programs.

When the indicator is based on program data, an attempt to address the issue of double counting during the reference period should be made. There is a need to ensure that clients served (as opposed to clients-visits) for the same service or across services are counted.

Different types of services will all count the same in estimating overall service coverage.



Platform: The data can be collected through special surveys and program monitoring records

Frequency: Biennial

REFERENCES

- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting, UNGASS, Geneva*
- *WHO-UNAIDS (2005) A guide to monitoring and evaluating national HIV prevention programs for most-at-risk populations in low-level and concentrated epidemic settings (draft)*

PREVENTION INDICATOR (HIV-PI 3):

BEHAVIOR CHANGE COMMUNICATION Knowledge of HIV prevention among young people

Percentage of young people who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV.

RATIONALE

This indicator combines the measures of knowledge of HIV transmission and prevention with the prevalence of most common misconceptions about HIV.

DEFINITION OF INDICATOR

Numerator: Number of young men and young women who gave correct answers to all five questions relating to transmission of HIV and misconceptions about HIV

Denominator: All young men and young women surveyed

Note: Analysis and reporting in percentage broken down by males and females according to urban/rural residence.

MEASUREMENT

This indicator is constructed from responses to the following set of prompted questions:

1. Can the risk of HIV transmission be reduced by having sex with only one faithful, uninfected partner?
2. Can the risk of HIV transmission be reduced by using condoms?
3. Can a healthy-looking person have HIV infection?
4. Can a person get HIV infection from mosquito bites?
5. Can a person get HIV infection by sharing a meal with someone who is infected?

Items 4 and 5 may be replaced with the two most common local (national) misconceptions about HIV transmission or prevention. For example, “Can HIV in an infected man be cured if he has sex with a virgin girl?” or “Can people get HIV by getting injections with a needle that was already used by someone else?”

Items 1 and 2 measure the correct knowledge for preventing HIV transmission. Item 3 measures a common misconception that healthy-looking people do not have HIV infection. This is a widespread misconception among young people, and it can result in unprotected sex with an infected partner. Items 4 and 5 refer to two other misconceptions about HIV transmission.

Together the indicator provides program managers with a measure of the overall knowledge that young people have about avoiding HIV. Previous knowledge indicators have included abstinence as a “correct” method of prevention used in this indicator. Abstinence is an extremely important prevention option for young people.

Research in many settings shows that already sexually active people rarely use abstinence as a primary HIV-prevention method. However, young people in particular may be practicing “secondary abstinence” – that is, a prolonged voluntary period of sexual inactivity following sexual initiation. Negative responses on this item may therefore result from people believing that abstinence is not feasible, rather than from belief that abstinence does not provide effective protection. In surveys among adolescents, however, questions about abstinence continue to be important. Programs focusing on delaying age at first sex among adolescents (ages 10–19) may choose to add a knowledge indicator that includes correct responses to a question about abstinence as a prevention method in the numerator. A suggested question on abstinence might be: “Can the risk of HIV transmission be reduced by abstaining from sexual intercourse?”



This indicator should be presented as a percentage separately for men and women, disaggregated by age in the following groups: 10-14 (if available) 15-19, 20-24, 15-24, and 10-24 (again, if available). This indicator should be reported for the 15-24 age group for the Millennium Development Goal and the UNGASS HIV Goal indicators.

The indicator can also be disaggregated by question to show gaps in knowledge and prevalence of misconceptions.

Platform: Nationally representative general population survey

Frequency: Every 2-4 years

REFERENCES

- WHO-UNAIDS (2004) *Guide to Monitoring and Evaluating National HIV/AIDS Prevention Programs for Young People*. Geneva. www.who.int/hiv/pub/epidemiologu/me_prev_yp/en
- UNAIDS (2005) *Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting*, UNGASS, Geneva

PREVENTION INDICATOR (HIV-PI 4):

CONDOM DISTRIBUTION

Retail outlets and service delivery points with condoms in stock

The proportion of randomly-selected retail outlets and service delivery points that have condoms in stock at the time of a survey, of all retail outlets and service delivery points selected for survey.

RATIONALE

This indicator reflects the success of attempts to broaden the distribution of condoms so that they are more widely available to people at locations and times when people are likely to need them. It measures actual distribution of condoms at designated points at any one point in time.

DEFINITION OF INDICATOR

Numerator: Number of retail outlets and service delivery points that have condoms in stock at the time of a survey

Denominator: Total number of retail outlets and service delivery points that have been selected for the survey

Note: Sites in both urban and rural areas should be selected.

MEASUREMENT

A number of sites of different types (i.e. pharmacies, clinics, bars and clubs) are randomly selected for a retail survey from a standard checklist of venues where condoms should be accessible, including bars and nightclubs, different classes of retail shops, STI clinics and other service provision points. While the indicator gives a single summary figure, the data can also be disaggregated by outlet type.

Platform: Retail surveys (PSI protocol to evaluate social marketing programs, WHO/GPA prevention indicator 3)

Frequency: Quarterly/annually

REFERENCES

- UNAIDS/MEASURE (2000) *National AIDS Programs: A guide to monitoring and evaluation*. Geneva: UNAIDS. www.cpc.unc.edu/measure/guide/guide.html

PREVENTION INDICATOR (HIV-PI 5):

TESTING AND COUNSELING People receiving counseling and testing

The percentage of the general population receiving an HIV test, the results, and post-test counseling.

RATIONALE

HIV testing and counseling are important entry points for prevention and care needs. It is therefore important to measure the number of people who access these services, as an indicator of the number of people who could potentially benefit from prevention and care.

This indicator is designed to show how many people have been tested and received post-test counseling services.

For the program manager, this indicator would be a cascade that would be able to identify the following:

1. Number of individuals who received pre-test counseling and/or pre-test information sufficient to ensure informed consent
2. Percent of those tested who received pre-test counseling and actually tested
3. Percent of those tested who received their results
4. Percent of those tested who received post-test counseling

DEFINITION OF INDICATOR

Numerator: The number of people who have received HIV test results and post-test counseling

Denominator: Number of people surveyed or total population, depending on method of data collection

Note: Analysis and reporting by component and gender is recommended. It is suggested that data also be collected on those requesting an HIV test, receiving the test and receiving their results. It is also recommended that data be disaggregated for those under 25 as follows: 15-19 and 20-24.

MEASUREMENT

The following methodologies are recommended:

1. Household survey: By asking respondents whether they have ever been tested and if so whether they have received the results. This indicator can be captured in a nationally-representative manner.
2. Health Management Information Systems (HMIS): Ideally, information for this indicator can be collected by reviewing data collected at the local level(s) and available through the HMIS at the national level.
3. Health Facility Survey.

Where HMIS are not fully operational, the use of health facility surveys with a testing and counseling component in all relevant units/departments may be necessary.

It is necessary to stratify the indicator by how these services are delivered. Specifically, whether by integrated (i.e. testing for diagnostic purposes) or vertical (i.e. stand alone VCT) service delivery.

The denominator, total population, can be obtained from the latest census data.

Platform: UNAIDS general population survey; DHS AIDS module; FHI adult BSS; youth BSS

Frequency: Annually



REFERENCES

- UNAIDS/MEASURE (2000) *National AIDS Programs: A guide to monitoring and evaluation*. Geneva: UNAIDS.
www.cpc.unc.edu/measure/guide/guide.html
- UNAIDS-WHO (2004) *National AIDS Programs. A guide to monitoring and evaluating HIV/AIDS care and support*. Geneva: UNAIDS

PREVENTION INDICATOR (HIV-PI 6):

PREVENTION OF MOTHER TO CHILD TRANSMISSION Health facilities offering minimum package of PMTCT

The percentage of public, missionary, and workplace venues (family planning and primary health care clinics, ANC/MCH, and maternity hospitals) offering the minimum package of services to prevent HIV infection in infants and young children in the past 12 months.

RATIONALE

This indicator provides critical information on the national availability of prevention and care efforts for women and infants. It is useful to program planners in determining where services may be needed, or where facilities are providing the full spectrum of services to prevent HIV infection in women and infants.

DEFINITION OF INDICATOR

Numerator: Number of public, missionary, and workplace venues (family planning and primary health care clinics, ANC/MCH, and maternity hospitals) offering the minimum package of services to prevent HIV infection in infants and young children in the past 12 months

Denominator: All public, missionary, and workplace venues (family planning and primary health care clinics, ANC/MCH, and maternity hospitals)

Note: Analysis and reporting by type of service is recommended.

MEASUREMENT

The information required for this indicator can be collected through a variety of different methods, and depends on resource availability as well as the amount of detail sought. It focuses on the minimum package of services which is defined by the type of clinical setting (see reference below). One option is to send a questionnaire to all public, missionary and workplace health facilities offering family planning and primary health care clinics, ANC/MCH, and maternity services. Another way to collect the relevant information is by adapting other instruments that already exist.

Platform: Health facility surveys

Frequency: Every 2-3 years

REFERENCES

- UNAIDS-WHO (2004) *National guide to monitoring and evaluating programs for the prevention of HIV in infants and young children*. Geneva

PREVENTION INDICATOR (HIV-PI 7):

PREVENTION OF MOTHER TO CHILD TRANSMISSION HIV-infected pregnant women receiving a complete course of antiretroviral prophylaxis to reduce the risk of mother to child transmission (MTCT)

Percentage of HIV-positive pregnant women receiving a complete course of ARV prophylaxis to reduce MTCT in accordance with nationally approved treatment protocol (or WHO/UNAIDS standards) in last 12 months.

RATIONALE

This indicator assesses the progress in preventing mother-to-child HIV transmission through the provision of ARV prophylaxis.

DEFINITION OF INDICATOR

Numerator: Number of HIV-positive pregnant women receiving a complete course of ARV prophylaxis to reduce the likelihood of MTCT in accordance with nationally approved treatment protocol (or WHO/UNAIDS standards) in last 12 months

Denominator: Estimated number of HIV-infected pregnant women giving birth in last 12 months

Note: Breakdown by type of service is recommended and if possible by women by age group: 15-19, 20-24, 25-34, 35-49.

MEASUREMENT

The number of HIV-infected pregnant women provided with antiretroviral prophylaxis to reduce the risk of MTCT in the last 12 months is obtained from program monitoring records. Only those women who completed the full course should be included. The number of HIV-infected pregnant women to whom antiretroviral prophylaxis to reduce the risk of MTCT *could potentially have been given* is estimated by multiplying the total number of women who gave birth in the last 12 months (Central Statistics Office estimates of births) by the most recent national estimate of HIV prevalence in pregnant women (HIV sentinel surveillance antenatal clinic estimates).

Platform: Program monitoring records / Central Statistics Office estimates of births

Frequency: Every 2-3 years

REFERENCES

- UNAIDS-WHO (2004) *National guide to monitoring and evaluating programs for the prevention of HIV in infants and young children*, Geneva
- UNAIDS (2005) *Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting*, UNGASS, Geneva

PREVENTION INDICATOR (HIV-PI 8):

SEXUALLY TRANSMITTED INFECTION (STI) DIAGNOSIS AND TREATMENT STI comprehensive case management

Percentage of patients with STIs at health care facilities who are appropriately diagnosed, treated and counseled.

RATIONALE

The availability and utilization of services to treat and contain the spread of STIs can reduce the rate of HIV transmission within a population. One of the cornerstones of STI control is comprehensive case management of patients with symptomatic STIs. This composite indicator reflects the competence of health service providers to appropriately provide these services, and the quality of services provided.

DEFINITION OF INDICATOR

Numerator: Number of STI patients for whom the correct procedures were followed on: (1) history taking; (2) examination; (3) diagnosis and treatment; and (4) effective counseling on partner notification, condom use and HIV testing

Denominator: Number of STI patients for whom provider-client interactions were observed

Note: Disaggregation by gender and for patients under and over 25 years of age is recommended. Ideally, ages under 25 would be disaggregated as follows: 15-19 and 20-24.

Scores for each component of the indicator (i.e., history taking, examination, diagnosis and treatment, and counseling) must be reported as well as the overall indicator score.

MEASUREMENT

Data are collected in observations of provider-client interaction at a sample of health care facilities offering STI services. Providers are assessed on history taking, examination, proper diagnosis and treatment of patients, and effective counseling, including counseling on partner notification, condom use and HIV testing. "Appropriate" diagnosis and treatment and counseling procedures in any given country are those specified in national STI service guidelines.

Platform: Health facility survey – based on WHO/UNAIDS revised guidelines on evaluating STI services and/or MEASURE service provision assessment (SPA)

Frequency: Biennial

REFERENCES

- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting, UNGASS, Geneva*

PREVENTION INDICATOR (HIV-PI 9):

BLOOD SAFETY AND UNIVERSAL PRECAUTIONS **Districts with access to donor recruitment and blood transfusion**

Percent of districts or regions with access to blood transfusion services which do not pay blood donors, and do not recruit donors from among relatives of the patient.

RATIONALE

Many countries working to improve access to safe blood have established blood transfusion services including blood banks at the regional or district level, and are working systematically to enhance the recruitment of voluntary donors as well as reducing or eliminating reliance on blood donations from relatives and paid donors. This indicator assesses to what extent this has been implemented at the level dictated by national policy.

DEFINITION OF INDICATOR

Numerator: Number of districts or regions with access to blood transfusion services which do not pay blood donors, and do not recruit donors from among relatives of the patient

Denominator: Total number of districts or regions

MEASUREMENT

A district or region is considered to score positively on this indicator if at least 95 percent of blood transfused is supplied by a regional or provincial blood transfusion service that screens donors for risk behaviors and excludes donations from relatives and paid donors.

Platform: MEASURE Evaluation Draft Blood Safety Protocol

Frequency: Quarterly

REFERENCES

- *UNAIDS/MEASURE (2000) National AIDS Programs: A guide to monitoring and evaluation. Geneva: UNAIDS.*
www.cpc.unc.edu/measure/guide/guide.html

PREVENTION INDICATOR (HIV-PI 10):

BLOOD SAFETY AND UNIVERSAL PRECAUTIONS Transfused blood units screened for HIV

The percentage of blood units transfused in the last 12 months that have been adequately screened for HIV according to national or WHO guidelines.

RATIONALE

Blood safety programs aim to ensure that the overwhelming majority (ideally 100 percent) of blood units are screened for HIV, and those that are included in the national blood supply are indeed uninfected. This indicator gives an idea of the overall percentage of blood units that have been screened to sufficiently high standards that can be confidently declared as HIV free.

DEFINITION OF INDICATOR

Numerator: Number of blood units screened for HIV in the previous 12 months, and among those, the number screened up to WHO or national standards

Denominator: Total number of blood units transfused in the previous 12 months

Note: Breakdown by components of the indicator is recommended.

MEASUREMENT

The number of units transfused and the number screened for HIV should be available from health information systems. Quality of screening may be determined from a special study that re-tests a sample of blood previously screened, or from an assessment of the conditions under which screening occurred. In situations where this approach is not feasible, data on the percentage of facilities with good screening and transfusion records and no stockouts of test kits may be used to estimate adequately screened blood for this indicator.

Platform: MEASURE Evaluation Draft Blood Safety Protocol

Frequency: Every 2-3 years

REFERENCES

- *UNAIDS/MEASURE (2000) National AIDS Programs: A guide to monitoring and evaluation. Geneva: UNAIDS. www.cpc.unc.edu/measure/guide/guide.html*
- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting, UNGASS, Geneva*

TREATMENT INDICATOR (HIV-TI 1):

ANTIRETROVIRAL TREATMENT AND MONITORING

People with advanced HIV infection receiving antiretroviral combination therapy

Percentage of people with advanced HIV infection receiving antiretroviral combination therapy.

RATIONALE

As the HIV pandemic matures, increasing numbers of people are reaching advanced stages of HIV infection. Antiretroviral combination therapy has been shown to reduce mortality amongst those infected and efforts are being made to make it more affordable even within less-developed countries. Antiretroviral combination therapy should be provided in conjunction with broader care and support services including counseling for family caregiver.

DEFINITION OF INDICATOR

Numerator: Number of people with advanced HIV infection who receive antiretroviral combination treatment according to the nationally approved treatment protocol (or WHO/UNAIDS standards)

Denominator: Number of people with advanced HIV infection

Note: This indicator should be disaggregated by public/private services and by age group and gender. Age groups should be 0-2, 3-4, 5-9, 10-14, 15-34, 35-49, 50+.

MEASUREMENT

The numerator of this indicator consists of the number of people receiving treatment at start of year plus the number of people who commenced treatment in the last 12 months minus the number of people for whom treatment was terminated in the last 12 months (including those who died). The number of people with advanced HIV infection is assumed to be 15 percent of the total number of people currently infected (for the purposes of this indicator). The latter is estimated using the most recent national sentinel surveillance data. The start and end dates of the period for which the number of people are given antiretroviral therapy should be stated. Overlaps between reporting periods should be avoided wherever possible.

Platform: Program monitoring records

Frequency: Biennial

REFERENCES

- *UNAIDS-WHO (2004) National AIDS Programs: A guide to indicators for monitoring and evaluating national antiretroviral programs, Geneva*
- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting, UNGASS, Geneva*

TREATMENT INDICATOR (HIV-TI 2):

ANTIRETROVIRAL TREATMENT AND MONITORING Health facilities capable of providing advanced HIV clinical care and psychosocial support services for HIV-infected persons

Percentage of health facilities that have the capacity and conditions to provide advanced HIV/AIDS clinical care and psychosocial support services, including providing and monitoring antiretroviral combination therapy.

RATIONALE

This indicator measures the availability of advanced services specific to people living with HIV/AIDS. It is assumed that the services and items measured in this indicator require substantial input and personnel training beyond what is routine for most health systems.

The ability to provide advanced HIV/AIDS care is defined as:

- (a) systems and items to support the management of opportunistic infections and the provision of palliative care (symptomatic treatment) for the advanced care of people living with HIV/AIDS;
- (b) systems and items to support advanced services for the care of people living with HIV/AIDS;
- (c) systems and items to support antiretroviral combination therapy;
- (d) conditions to provide advanced inpatient care for people living with HIV/AIDS;
- (e) conditions to support home care services; and
- (f) post exposure prophylaxis.

DEFINITION OF INDICATOR

Numerator:

1. Number of facilities at which the individual items for each service or item listed above exist
2. Number of facilities at which all components for each individual service or item (a, b, c, d, e **or** f) exist
3. Number of facilities at which all components for all individual services and items (a, b, c, d, e **and** f) exist

Denominator:

For 1: the total number of health facilities surveyed

For 2 and 3: the total number of health facilities at which HIV/AIDS services in each of the areas identified in the definition are offered or relevant

MEASUREMENT

This information should be collected through a health facility survey with observation in all relevant service areas. Like core indicator 6, interviews of HIV/AIDS service providers would also be needed.

The specific items for each service should be presented individually and at a first level of aggregation (all components of each service or item). When a reasonable proportion of facilities begin to have all first-level aggregated components, a second-level aggregation can be presented when appropriate.

Platform: Health facility surveys

Frequency: Every 2-4 years

REFERENCES

- *UNAIDS (2004) National AIDS Programs. A guide to monitoring and evaluating HIV/AIDS care and support.* Geneva: UNAIDS

CARE AND SUPPORT (HIV-CS 1):

SUPPORT FOR ORPHANS Orphans and other children made vulnerable by HIV/AIDS whose households received free basic external support

Percentage of orphans and vulnerable children whose households received free basic external support in caring for the child.

RATIONALE

This indicator measures support coming from a source other than friends, family or neighbors (unless they are working for a community-based group or organization) given free of user charges to households with orphans and vulnerable children.

DEFINITION OF INDICATOR

Numerator: Number of orphans and vulnerable children residing in households that received at least one of the following services for the child:

- medical care support within the past 12 months;
- emotional support within the past 3 months;
- school-related assistance within the past 12 months; and
- other social support, including material support, within the past 3 months.

Denominator: Total number of orphans and vulnerable children

Note: If sample sizes permit, data should be analyzed and reported by age (0–5, 6–9, and 10–17 years) and by sex.

MEASUREMENT

As part of a household survey, household rosters can be used to identify all eligible orphans and vulnerable children (under 18 years of age). For each household with orphans and vulnerable children, a series of questions is asked about the **types** and **frequency** of support received and the primary source of the help. This survey tool may also be used in low-prevalence settings or targeted populations with similar but adapted methods.

Platform: Household surveys

Frequency: Every 2-4 years

REFERENCES

- UNAIDS/UNICEF (2005). *Guide to monitoring and evaluation of the national response for children orphaned and made vulnerable by HIV/AIDS*. New York: UNICEF. www.unaids.org/EN/in+focus/monitoringevaluation/m_e+library.asp
- UNAIDS-WHO (2004) *National AIDS Programs. A guide to monitoring and evaluating HIV/AIDS care and support*. Geneva: UNAIDS www.unaids.org/EN/in+focus/monitoringevaluation/m_e+library.asp
- UNAIDS (2005) *Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting*, UNGASS, Geneva

SUPPORTIVE ENVIRONMENT (HIV-SE 1):

WORKPLACE POLICY

Companies with HIV/AIDS workplace policies and programs

Percentage of large enterprises/companies which have HIV/AIDS workplace policies and programs.

RATIONALE

The workplace is often a highly convenient and conducive setting for HIV control activities and workplace-based interventions have been proven to be effective. The indicator is useful even in countries where HIV prevalence is low because early action in educating workers on HIV prevention is essential if the serious economic and social consequences of HIV/AIDS are to be avoided.

DEFINITION OF INDICATOR

Numerator: Number of employers with HIV/AIDS policies and regulations that meet all criteria

Denominator: Number of employers surveyed

Note: Analysis and reporting both individually by private/public sectors and by both combined is recommended

MEASUREMENT

Private sector employers are selected on the basis of the size of the labor force. Public sector employers should be the ministries of transport, labor, tourism, education and health. Employers are asked to state whether they are currently implementing personnel policies and procedures that cover a minimum of specified aspects (see reference for details). Copies of written personnel policies and regulations should be obtained and assessed wherever possible.

Platform: Survey of the 30 largest employers – 25 private sector; 5 public sector

Frequency: Biennial

REFERENCES

- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting*, UNGASS, Geneva

HIV OUTCOME INDICATOR (HIV-OI 1):

MULTIPLE PARTNERS

Women and men aged 15-49 who had sex with more than one partner in the last twelve months

Percentage of women and men aged 15-49 who had sex with more than one partner in the last twelve months, of all people surveyed aged 15-49 who report being sexually active in the last twelve months.

RATIONALE

Prevention messages should focus on abstinence and mutual monogamy. As sexual relationships among young people are frequently unstable, relationships that were intended to be mutually monogamous may break up and be replaced by other relationships in which similar intentions prevail. Particularly in high HIV prevalence epidemics, serial monogamy is not greatly protective against HIV infection. This indicator measures the proportion of people that have been exposed to more than one partner in the last twelve months.

DEFINITION OF INDICATOR

Numerator: Number of women and men aged 15-49 who have had sexual intercourse with more than one partner in the last twelve months

Denominator: Number of women and men aged 15-49 who report being sexually active in the last twelve months

MEASUREMENT

In a survey among people aged 15-49, respondents are asked about their sexual partnerships in the last twelve months.

The indicator should be reported separately for men and women. It should also be constructed separately for those aged 15-19 and 20-24, 15-24 and 15-49 if sample size allows.

To cope with the measurement challenge of men in polygamous societies who may have multiple partners within marriage, it is necessary to disaggregate this indicator by marital status including polygamy. Furthermore, given that the likelihood of HIV transmission during recent (acute) infection may be an order of magnitude greater than during chronic infection, it may be desirable to conduct analyses to assess the percentage of sexually active individuals who had two or more partners during the previous two months. Quantifying the prevalence of overlapping or concurrent partnerships may provide a useful proxy for quantifying possible exposures to HIV during the period of acute infection.

Platform: Population based surveys such as UNAIDS general population survey, DHS/AIS, BSS (youth), RHS

Frequency: Baseline, then every 2-3 years

REFERENCES

- WHO-UNAIDS (2004) *Guide to Monitoring and Evaluating National HIV/AIDS Prevention Programs for Young People*. Geneva. www.who.int/hiv/pub/epidemiologu/me_prev_yp/en

HIV OUTCOME INDICATOR (HIV-OI 2):

ABSTINENCE **Primary abstinence**

Percentage of young women and men aged 15-19 who never had sex.

RATIONALE

This indicator provides information on important aspects of sexual behavior. It describes the proportion of young people surveyed who never had sex, thus the prevalence of virginity among young people. Looking at this prevalence within narrow age ranges (15-16, 17-19, for example, or ideally, by single ages) across time allows program managers to see if the age at first sex is changing.

DEFINITION OF INDICATOR

Numerator: Number of young women and men aged 15-19 who never had sex

Denominator: Number of young women and men aged 15-19 surveyed

MEASUREMENT

Respondents (15-19 year olds) are asked if they have ever had sex.

The indicator should be reported separately for men and women.

If the indicator is calculated for groups of ages larger than the period of change in abstinence, the indicator will not reflect changes e.g. change in abstinence among 15-19 year old, will not reflect change over a 2-3 year period. It is therefore recommended that this indicator be reported by single age.

Platform: Population based surveys such as DHS/AIS, RHS

Frequency: Baseline, then every 2-3 years

REFERENCES

- *Adapted from UNAIDS (2004)*

HIV OUTCOME INDICATOR (HIV-OI 3):

ABSTINENCE Secondary abstinence

Percentage of young women and men aged 15-24 who never had sex in the last year of those who ever had sex.

RATIONALE

This indicator is a measure of sex among young people. A high score on this indicator reflects a failure of prevention messages stressing abstinence. Given that young people should be the focus of education and prevention programs, deciding to abstain from sex after having precocious sexual activity would be a desired program outcome. This indicator measures changes in what may be culturally and socially ascribed norms for early sexual activity. Where programs are advocating a delay of first sex or abstinence, the indicator should show a decrease.

DEFINITION OF INDICATOR

Numerator: Number of women and men aged 15-24 who never had sex in the last 12 months

Denominator: Number of women and men aged 15-24 who ever had sex

MEASUREMENT

In a survey among people aged 15-24, respondents are asked about their sexual partnerships in the last twelve months and before.

The indicator should be reported separately for men and women.

Platform: Population based surveys such as UNAIDS general population survey, DHS/AIS, BSS (youth), RHS

Frequency: Baseline, then every 2-3 years

REFERENCES

- *Adapted from UNAIDS (2000)*

HIV OUTCOME INDICATOR (HIV-OI 4):

CONSISTENT CONDOM USE Young people's condom use with non-regular partners

Percentage of young people aged 15-24 reporting the consistent use of a condom with non-regular sexual partners in the last year.

RATIONALE

This indicator shows the extent to which condoms are used by young people who engage in sexual relationships with non-regular partners.

When interpreting trends in this indicator, it should be noted that changes might reflect variations in the numbers of persons having sex with non-regular partners and not necessarily variation in condom use. Thus, this indicator should be analyzed carefully considering the changes in proportion of young people having sex with a non-regular partner to understand the programmatic implications.

DEFINITION OF INDICATOR

Numerator: The number of young men and young women aged 15-24 years who had sex with non-regular partners in the last 12 months and consistently used a condom

Denominator: Young men and young women aged 15-24 years who had sex with non-regular partners in the last 12 months

Note: The target population for this indicator is 15- to 24-year-olds. Data should always be reported separately for males and females. When sample sizes permit, it is also useful to report for age groups 15-19 and 20-24.

MEASUREMENT

Respondents are first asked if they have ever had sex. Among those who have, questions are asked about the consistent use of condom with all the partners in the last year and information on the type of partner (such as spouse, live-in partner, boyfriend/girlfriend, acquaintance, commercial sex worker).

This indicator should be presented as a percentage, separately for males and females, in three age groups: 15-19, 20-24 and 15-24.

Platform: Nationally representative general population survey

Frequency: Preferably biennial; at a minimum every 4-5 years

REFERENCES

- *Adapted from UNAIDS (2000)*

PREVENTION INDICATOR (HIV-OI 5):

BEHAVIOR CHANGE COMMUNICATION Intravenous drug users: safe injecting and sexual practices

Percentage of IDUs who have adopted behaviors that reduce transmission of HIV, i.e. who both avoid sharing non-sterile injecting equipment and use condoms.

RATIONALE

Safe injecting and sexual practices among injecting drug users (IDUs) are essential, even in countries where other modes of HIV transmission predominate, because: (1) the risk of HIV transmission among IDUs using contaminated injecting equipment is extremely high; and (2) IDUs can provide a reservoir of infection from which HIV spreads (e.g., through sexual transmission) to the wider population.

DEFINITION OF INDICATOR

Numerator: Number of respondents who report having never shared injecting equipment during the last month and who also reported that a condom was used the last time they had sex

Denominator: Number of respondents who report injecting drugs in the last month and having had sexual intercourse in the last month

Note: Analysis and reporting disaggregated by age (those less than 25 and those over 25) is recommended.

MEASUREMENT

Survey respondents are asked the following sequence of questions:

1. Have you injected drugs at any time in the last month?
2. If the answer to question 1 is "yes": Have you shared injecting equipment at any time in the last month?
3. Have you had sexual intercourse in the last month?
4. If the answers to questions 1 and 3 are both "yes": Did you (or your partner) use a condom when you last had sex?

Platform: Time-location cluster sample survey or targeted snowball sample survey (see behavioral surveillance survey (BSS) manual)

Frequency: Biennial

REFERENCES

- *FHI (2000) Behavioral Surveillance Surveys (BSS): guidelines for the repeated behavioral surveys in Populations at risk of HIV*
- *UNAIDS (2005) Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting, UNGASS, Geneva*

CARE AND SUPPORT (HIV-OI 6):

SUPPORT FOR ORPHANS Orphans' school attendance

Ratio of orphaned children compared to non-orphaned children aged 10-14 who are currently attending school.

RATIONALE

HIV/AIDS is claiming lives of ever-growing numbers of adults just as they are forming families and bringing up children. As a result, orphan prevalence is rising steadily in many countries. Fewer relatives within the prime adult ages means that orphaned children face an increasingly uncertain future. Orphanhood is frequently accompanied by prejudice and increased poverty – factors that can further jeopardize children's chances of completing school education, which may lead to the adoption of survival strategies that increase vulnerability to HIV. It is important, therefore, to monitor the extent to which AIDS-support programs succeed in securing the educational opportunities of orphaned children.

DEFINITION OF INDICATOR

Orphans' school attendance (1):

Numerator: Number of children (10-14 years old) who have lost both parents and are still in school

Denominator: Number of children (10-14 years old) who have lost both parents

Non-orphans' school attendance (2):

Numerator: Number of children (10-14 years old) both of whose parents are still alive, who live with at least one parent and who are still in school

Denominator: Number of children (10-14 years old) whose parents are both still alive and who live with at least one parent

Calculate the ratio of (1) to (2)

Note: Indicator scores are required for all children aged 10-14 years and for boys and girls separately. Where possible, the indicator should also be calculated by single year of age. The minimum number of orphaned 10-14 year old children needed to calculate this indicator is 50.

MEASUREMENT

In a population-based survey respondents are asked whether they are currently attending school. The indicator is the ratio of the current school attendance rate of children aged 10–14 both of whose biological parents have died to the current school attendance rate of children aged 10–14 whose parents are both still alive and who currently live with at least one biological parent.

Countries are also strongly encouraged to report the ratio of OVC attending school versus non-OVC attending school. In countries where the number of children who are orphans is relatively low (less than 5–8 percent of the population under age 18), this indicator will overcome the problem of low numbers of double orphans.

Platform: Population-based surveys such as DHS, UNICEF MICS, or other representative survey

Frequency: Every 2-4 years

REFERENCES

- UNAIDS/UNICEF (2005). *Guide to monitoring and evaluation of the national response for children orphaned and made vulnerable by HIV/AIDS*. New York: UNICEF. www.unaids.org/EN/in+focus/monitoringevaluation/m_e+library.asp
- UNAIDS (2005) *Monitoring the Declaration of Commitment on HIV/AIDS: Guidelines on construction of core indicators-2006 reporting*, UNGASS, Geneva

ANNEX B:
Description of TB/HIV Indicators

TB/HIV INDICATOR (TB/HIV 1):

INTENSIFIED TB CASE FINDING AMONG PLWHA

Number of PLWHA, receiving HIV testing and counseling or HIV treatment and care services, who were screened for TB symptoms expressed as a proportion of all PLWHA attending HIV testing and counseling or HIV treatment and care services.

RATIONALE

This is a process indicator for an activity intended to reduce the impact of TB among PLWHA. It will demonstrate the level of implementation of the recommendation that PLWHA are screened for TB at diagnosis and at all follow-up visits.

DEFINITION OF INDICATOR

Numerator: Number of PLWHA seen at HIV testing and counseling or HIV treatment and care services who were screened for TB symptoms, over a given time period

Denominator: Total number of PLWHA seen at HIV testing and counseling or HIV treatment and care services, over the same given time period

Note: This can be reported as a total or separately by facility type for each situation where HIV care and support is provided or HIV counseling and testing is conducted, e.g. number of HIV-positive clients newly diagnosed at VCT center or number of HIV-positive clients who attend annual check-up who are screened for TB symptoms.

MEASUREMENT

Data should be collected routinely at all HIV testing and counseling facilities (e.g. VCT centers, PMTCT providers, medical inpatient wards, private sector) and any situation where regular HIV care and support are provided (e.g., ART clinics, HIV care clinics, PLWHA support groups).

A suggested method of conducting the screening would be to ask HIV-positive clients whether they are currently on TB treatment. If not, they are then asked about the key symptoms of TB disease (e.g. cough, fever, night sweats, recent weight loss, lymphadenopathy). A simple checklist could be used and any positive response would indicate that the individual may be a TB suspect. TB control program protocols should define the criteria for identifying a TB suspect. If on questioning they are defined as a TB suspect (as per national protocols) treatment of latent TB infection should not be given and they should be investigated for TB (or referred to TB service for investigation) and treated appropriately.

Platform: Modified HIV testing and counseling register or HIV treatment and care register

Frequency: Data would be collected continuously and reported and analyzed quarterly

REFERENCES

- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- *Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330*

TB/HIV INDICATOR (TB/HIV 2):

INTENSIFIED TB CASE FINDING AMONG PLWHA

Number of cases of newly-diagnosed TB identified in PLWHA attending for HIV testing and counseling or HIV treatment and care services (who were screened for TB symptoms), expressed as a proportion of all PLWHA attending HIV testing and counseling services and HIV treatment and care services (who were screened for TB symptoms).

RATIONALE

This indicator is important for demonstrating the contribution that collaborative TB/HIV activities can make in increasing TB case-detection rates and thereby reducing the burden of TB in PLWHA and their community.

DEFINITION OF INDICATOR

Numerator: The number of cases of newly-diagnosed TB identified in PLWHA attending HIV testing and counseling or HIV treatment and care services who were screened for TB symptoms, over a given time period

Denominator: Total number of PLWHA attending HIV testing and counseling or HIV treatment and care services who were screened for TB symptoms over the same given time period (This is the same as the numerator in indicator TB/HIV 1)

This can be reported as a total or separately by facility type for each situation where HIV care and support is provided or HIV counseling and testing is conducted e.g. number of HIV positive clients newly diagnosed at VCT centre or number of HIV positive clients who attend annual check-up and who are screened for TB symptoms.

MEASUREMENT

The indicator can be further broken down and reported by type of TB, e.g. pulmonary, smear-positive, smear-negative and extra-pulmonary (if these data are routinely collected) and by type of facility (VCT centre, antenatal care clinic, HIV care clinic). The data needed for this indicator are more difficult to collect if TB diagnosis is not carried out on the same site as HIV testing or treatment and care. This will require the establishment of reliable two-way communication between the TB service and the HIV counseling and testing and treatment and care services. Values for this indicator will vary from site to site depending on the level of TB in the community and the quality (or community-perceived quality) of routine TB services. Therefore, it is not readily comparable between countries – and may even vary significantly at a sub-national level – but it will help to demonstrate the added value of collaborative activities to TB case detection.

Platform: Modified HIV treatment and care register, counseling and testing register, TB register or TB/HIV register

Frequency: Data would be collected continuously and reported and analyzed quarterly

REFERENCES

- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- *Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330*

TB/HIV INDICATOR (TB/HIV 3):

PREVENTION OF TB DISEASE AMONG PLWHA

Number of newly-diagnosed HIV-positive clients who are given treatment for latent TB infection (TB preventive therapy) expressed as a proportion of the total number of newly-diagnosed HIV-positive people.

RATIONALE

This indicator is used to ensure that eligible HIV-positive individuals are given treatment for latent TB infection and thus reduce the incidence of TB in PLWHA.

DEFINITION OF INDICATOR

Numerator: Total number of newly-diagnosed HIV-positive clients in whom active TB has been excluded who start (given at least one dose) treatment of latent TB infection

Denominator: Total number of newly-diagnosed HIV-positive clients

MEASUREMENT

The data needed for this indicator can be collected in all situations where counseling and testing for HIV is conducted, e.g. VCT centers, PMTCT sites, inpatient medical services or at HIV care services, depending on where TB preventive therapy (TBPT) is to be administered. In all these situations, HIV-positive clients should be screened for TB. Those clients found NOT to have evidence of active TB will be offered intermittent preventive treatment (IPT) according to nationally determined guidelines. All those accepting IPT and receiving at least the first dose of treatment should be recorded. This information could be recorded in an extra column in the HIV care register. To accurately predict drug requirements for supply management, more detailed information will need to be collected. For this purpose, a TBPT register is required where client attendance to collect further drug supplies (usually monthly) is recorded. These facilities will be able to report the number of new cases, continuing cases and completed cases on a quarterly basis. If such information is collected routinely then the indicator of choice would be the "number of HIV-positive clients completing treatment of latent TB infection, as a proportion of the total number of HIV positive clients started on treatment of latent TB infection". From pilot testing sites it is apparent that between 10 and 50 percent of clients who test HIV-positive can be expected to start TBPT, some of whom will not meet the eligibility criteria, some will decline and some will drop out during the screening process. The proportion likely to start TBPT depends on the screen used (e.g. using tuberculin skin test as a screening tool reduces the number that are eligible), and the type of VCT facility. If a VCT facility sees mostly hospital or clinical referrals, then a greater proportion would be expected to be sick and not eligible for treatment of latent TB infection. Higher proportions would be expected from sites linked to PMTCT or stand-alone VCT centers. Most programs would aim for between 30 and 50 percent, depending on the types of HIV testing and counseling facilities available.

Platform: Modified HIV testing register, HIV care register or TBPT register

Frequency: The data would be collected continuously and reported and analyzed quarterly

REFERENCES

- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*

TB/HIV INDICATOR (TB/HIV 4):

PREVENTION OF HIV IN TB PATIENTS

Number of registered TB patients who are tested for HIV, after giving consent, as a proportion of the total number of registered TB cases.

RATIONALE

To assess the uptake of HIV testing by TB patients.

DEFINITION OF INDICATOR

Numerator: Total number of TB patients, registered over a given time period, who are tested for HIV (after giving consent) during their TB treatment

Denominator: Total number of TB patients, registered over the same given time period

MEASUREMENT

Ideally, all TB patients should be offered an HIV test and it is preferable that this occurs within the context of the TB service provider, in which case the HIV test can be recorded in the patient record and a modified TB register and reported quarterly with the outcome data. However, in some settings HIV counseling and testing will be carried out in a different part of the same facility or even at a distant site. Under these circumstances, a referral system will need to be established so that the TB program records when a TB patient is referred for an HIV test, and is notified when a TB patient attends counseling and whether or not they are tested for HIV. Such information should be collected at the TB facility level and recorded in the facility or district TB register. Patient confidentiality must be maintained. It is preferable that TB patients are tested at the start of TB treatment so that they can benefit from appropriate care throughout their TB treatment. However, some patients are reluctant to undertake an HIV test until later in their TB treatment, once they feel stronger. A recording and reporting system should be able to capture these late tests otherwise the total number of TB patients knowing their HIV status will be underreported. Although this indicator is similar to TB/HIV 1 which measures HIV prevalence through surveillance, this indicator measures the services' ability to encourage HIV testing in TB patients under program conditions. If a high proportion of TB patients are tested (>80 percent) then this provides a sufficiently robust estimate of the true HIV prevalence among TB patients which can be used for surveillance purposes.

Platform: Modified TB register, separate TB/HIV register or modified HIV counseling and testing register with quarterly analysis and reports. A referral mechanism and reporting of results between TB and HIV testing and counseling services will be needed if HIV testing is performed at a separate site to the TB clinic.

Frequency: Data recorded continuously and reported and analyzed quarterly at the time of reporting outcome of TB treatment. Reporting at the end of TB treatment allows for HIV testing occurring and results being recorded at any time during TB treatment.

Target: All TB patients should be offered an HIV test and ideally a high proportion (>80 percent) should actually have an HIV test. All TB patients who are tested for HIV should receive their results through post test counseling.

REFERENCES

- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- "Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330

TB/HIV INDICATOR (TB/HIV 5):

PREVENTION OF HIV IN TB PATIENTS

Number of registered TB patients who are tested for HIV (after giving consent) and who test HIV-positive, expressed as a proportion of the total number of all registered TB patients who are tested for HIV.

RATIONALE

To assess the prevalence of HIV among TB patients. Measuring the proportion of HIV-positive TB patients gives important information for targeting of resources, strategic planning of activities and monitoring the effectiveness of HIV prevention interventions over time.

DEFINITION OF INDICATOR

Numerator: Total number of all TB patients registered over a given time period who test HIV-positive (after giving consent) during their TB treatment

Denominator: Total number of TB patients registered over the same given time period who are tested for HIV (after giving consent)

MEASUREMENT

In settings where HIV is driving the TB epidemic, all TB patients should be offered and encouraged to have an HIV test. National protocols for HIV counseling, testing and confirmation of results should be followed. It is preferable that HIV testing takes place early in the course of TB treatment so that TB patients receive optimal care depending on their HIV status. Some patients may not be prepared to have an HIV test immediately after being diagnosed with TB, and staff will need to encourage HIV testing at each follow-up visit for those who have not yet been tested. It is important, therefore, that the system is able to capture the results of an HIV test occurring at any time during a patient's TB treatment. TB patients who consent to HIV testing may be tested within the TB service or, if HIV testing and counseling are not available within the service, be referred to a separate HIV testing and counseling service. In the latter situation, a mechanism for reporting HIV results back to the TB service will need to be established. It is crucial that the results of the HIV test are known to both the health care staff in charge of TB care and the patient. HIV status will influence patient care plans (e.g. referral to PLWHA support group, Co-trimoxazole Prophylactic Treatment (CPT), Antiretroviral therapy (ARV), avoidance of streptomycin injections or thiacetazone), and the risk of ongoing HIV transmission can be reduced with appropriate post-test counseling for the patient. Confidentiality of patient information must be maintained and patient HIV status must be accessible only to health care staff directly responsible for an individual's care. HIV status can be recorded in facility and district TB registers. These TB registers should already be maintained confidentially as they contain patient specific health information; the addition of HIV status should therefore not require any change in the way the registers are maintained. Facility-level staff and the district TB coordinator should be responsible for ensuring the confidentiality of this information.

Platform: Modified TB register, separate TB/HIV register or modified HIV counseling and testing register, with quarterly analysis and reports. A referral mechanism and reporting of results between TB and HIV testing and counseling services will be needed if HIV testing is performed at a separate site to the TB clinic.

Frequency: Recorded continuously and reported and analyzed quarterly at the time of reporting outcome of TB treatment. Reporting at the end of TB treatment allows for HIV testing to take place and results to be recorded at any time during TB treatment.

REFERENCES

- WHO. *Guidelines for HIV surveillance in tuberculosis patients* (WHO/HTM/TB/2004.339, WHO/HIV/2004.06, UNAIDS/04.30E)
- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities* (WHO/HTM/TB/2004.342)

TB/HIV INDICATOR (TB/HIV 6):

PREVENTION OF OPPORTUNISTIC INFECTION IN PLWHA WITH TB

Number of HIV-positive TB patients who receive (given at least one dose) CPT during their TB treatment as a proportion of the total number of HIV-positive TB patients.

RATIONALE

To monitor commitment and capacity of programs to provide CPT to HIV-positive TB patients. It is important for programs to know the proportion of HIV-positive TB patients who receive this potentially life-saving therapy.

DEFINITION OF INDICATOR

Numerator: Number of HIV-positive TB patients, registered over a given time period, who receive (given at least one dose) CPT during their TB treatment

Denominator: Total number of HIV-positive TB patients registered over the same given time period

MEASUREMENT

All HIV-positive TB patients should be given CPT during their TB treatment and lifelong thereafter¹ unless contraindicated or they receive ART and their CD4 cell count rises above 500/mm³. TB patients may have been identified as HIV positive and commenced on CPT prior to being diagnosed with TB; they should continue CPT throughout TB treatment and be included in the denominator. To gain maximum benefit, TB patients should commence CPT as soon as possible after HIV infection is diagnosed in a TB patient as mortality is highest early in the course of TB treatment. However, TB patients may not have access to HIV testing immediately after diagnosis of TB or may not wish to be tested until later in their TB treatment. To be able to include all HIV positive TB patients who start CPT during TB treatment, it will be necessary to assess and report this at the end of TB treatment. This can be achieved using a modified TB register or separate TB/HIV register in which to record HIV status and CPT. This data can then be reported along with the quarterly cohort outcome data. The use in the definition of the clarifying statement – given at least one dose – is to capture all patients who have been assessed and started on treatment, it does not imply that one dose of CPT is sufficient. If CPT is not provided by the TB program but through HIV care or other services, a mechanism should be established to ensure that information about commencing CPT is passed on to, and recorded by, the NTP, again in a modified TB register or separate TB/HIV register.

Platform: Modified TB register, a separate TB/HIV register, or a system to transfer data to TB program if CPT provided outside the TB service.

Frequency: The data should be collected continuously and reported and analyzed quarterly at the end of TB treatment along with the outcome of TB treatment.

REFERENCES

- *Provisional WHO/UNAIDS Secretariat recommendations on the use of cotrimoxazole prophylaxis in adults and children living with HIV/AIDS in Africa* www.unaids.org/publications/documents/care/general/recommendations-eng.pdf
- *World Health Organization (2004). Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- *“Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330*

¹ *Provisional WHO/UNAIDS secretariat recommendations on the use of co-trimoxazole prophylaxis in adults and children living with HIV/AIDS in Africa.* Geneva, Joint United Nations Program on HIV/AIDS and WHO www.unaids.org/en/other/functionalities/ViewDocument.aspx?href=http://gva-doc-owl/WEBcontent/Documents/pub/Publications/IRC-pub04/recommendation_en%26%2346.pdf (accessed 24/05/04).

TB/HIV INDICATOR (TB/HIV 7):

HIV CARE AND SUPPORT FOR HIV-POSITIVE TB PATIENTS

Number of HIV-positive TB patients referred to HIV care and support services (as defined in local or national HIV/AIDS policy) during TB treatment, expressed as a proportion of the total number of HIV-positive TB patients.

RATIONALE

To measure commitment and capacity of TB service to ensure that HIV-positive TB patients are able to access the care and support services that are available.

DEFINITION OF INDICATOR

Numerator: Number of HIV-positive TB patients, registered over a given time period, who are referred to HIV care and support services during their TB treatment*

(*This may be reported as a composite indicator of referral to any HIV care and support services or may be broken down and reported by each individual service, e.g. number referred to PMTCT, number referred to PLWHA support group. Referral to ART services should be excluded as this is covered separately.)

Denominator: Total number of HIV positive TB patients registered over the same given time period

MEASUREMENT

The means to measure this indicator will depend on what services are available for PLWHA and where they are provided. All HIV care and support services may be provided at one site, in which case only one referral will be necessary. It will be relatively straightforward to record such referrals in a modified TB register or separate register for HIV-positive TB patients by use of a checkbox. It is more likely that the range of care and support services will be offered by a variety of providers at different sites. It may therefore be necessary to have a checklist of services in the TB or TB/HIV register where referral to each available service can be recorded. Diagnosis of HIV may occur at any time during TB treatment – and the need for referral to specific services may also arise at any time during TB treatment. It is therefore important that the information for this indicator be collected and reported at the end of TB treatment with the quarterly cohort outcome data. Data can be collected as a single indicator, i.e. number of HIV-positive TB patients who are referred to any HIV care and support service during their TB treatment. Alternatively, if more detailed information is required for program management, these data can be reported by each separate care and support service, e.g. number of HIV-positive TB patients who are referred to PLWHA support group, number of HIV-positive TB patients who are referred to PMTCT service. Referral to ART services should not be included as it is detailed in separate indicator.

Platform: Modified TB register or a separate TB/HIV register

Frequency: The data should be collected continuously and reported and analyzed quarterly with data on cohort outcomes

REFERENCES

- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- *Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330*

TB/HIV INDICATOR (TB/HIV 8):

PROVISION OF ANTIRETROVIRAL TREATMENT FOR TB PATIENTS DURING TB TREATMENT

Number of HIV-positive registered TB patients who are started on or continue previously initiated ART, during or at the end of TB treatment, as a proportion of all HIV-positive registered TB patients.

RATIONALE

Outcome indicator to measure commitment and capacity of TB service to ensure that HIV-positive TB patients are able to access ART.

DEFINITION OF INDICATOR

Numerator: All HIV-positive TB patients, registered over a given time period, who receive ART (are started on or continue previously initiated ART)

Denominator: All HIV-positive TB patients registered over the same given time period

MEASUREMENT

Data collection methods will depend on who provides ART for TB patients. In settings where TB patients are assessed for eligibility and placed on ART by TB program staff, data for this indicator can be captured in a modified TB register or separate TB/HIV register. The data should be reported at the completion of TB treatment in order to include all TB patients started on ART at any time over the course of their TB treatment. In settings where TB patients are referred to HIV or other care services to be assessed and commenced on ART, a system must be established to ensure that the TB program is informed of the outcome of the referral i.e. whether or not TB patients are commenced on ART or not, and that this information is recorded in a modified TB register or TB/HIV register. Not only is this important for program management, it is also important for individual patient care. TB staff members need to be aware if a TB patient is commenced on ART so that they can manage drug reactions and interactions appropriately. TB patients may be commenced on ART at any time during their TB treatment. Commencement of ART may be delayed due to delay in HIV testing or to reduce the risk of drug interactions occurring in the intensive phase. The data collection methods should be able to capture ART treatment starting at any time during TB treatment.

Platform: Modified TB register, modified HIV care register or separate TB/HIV register with referral system (where appropriate)

Frequency: The data would be collected continuously and reported with the quarterly cohort outcome data

REFERENCES

- *World Health Organization (2004). Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*
- *Interim Policy on Collaborative TB/HIV Activities. WHO/HTM/HIV/2004.1 and WHO/HTM/TB/2004.330*

TB/HIV INDICATOR (TB/HIV 9):

HIV SEROPREVALENCE AMONG TB PATIENTS

Number of all newly-registered TB patients who are HIV-positive, expressed as a proportion of all newly-registered TB patients.

RATIONALE

Surveillance of HIV prevalence among TB patients will give information about the epidemics of both TB and HIV. In particular, it gives an indication of the degree of overlap in the epidemics in any given setting and when compared with the HIV prevalence in the general population, will give an indication of the contribution that HIV is making to the TB epidemic in any given setting.

DEFINITION OF INDICATOR

Numerator: Total number of newly-registered TB patients who are HIV positive, over a given time period

Denominator: Total number of newly-registered TB patients (registered over the same given time period) who were tested for HIV and included in the surveillance system

MEASUREMENT¹

Selecting the appropriate strategy for HIV surveillance among TB patients will depend mainly on the existing surveillance system and the underlying HIV epidemic state in a country. There are three main methods for surveillance of HIV among TB patients:

Routine HIV testing data can form the basis of a reliable surveillance system at all levels of HIV epidemic (low-level, concentrated, generalized²), provided that high coverage is achieved (more than 80 percent of all TB patients giving consent and being tested). These routine data can be calibrated by periodic (special) or sentinel surveys. **Sentinel surveillance** collects information in a regular and consistent way from a predetermined number of persons from specific sites and population groups that are of particular interest or are representative of a larger population. The difficulty with sentinel surveillance is in determining how representative they are of the population from which they are taken and also how representative they are of the general population of TB patients. Sentinel surveillance systems are usually based on unlinked anonymous testing methods, often using blood specimens that have been collected for other purposes and stripped of all identifying markers. Periodic **special surveys** have a specific role where the prevalence of HIV among TB patients has not been previously estimated and are an essential part of the initial assessment of the situation. Surveys using representative sampling methods and appropriate sample sizes can provide accurate estimates of the burden of HIV in TB patients. This information may alert TB programs to a potential HIV problem and enable action to be taken which may include the institution of more systematic surveillance.

Ideally surveillance of HIV prevalence should include all newly registered TB patients, diagnosed according to international standards.³ However, if periodic special surveys or sentinel methods are used and resources are limited, countries may choose to include only adult smear-positive pulmonary patients i.e. those with a definitive diagnosis of TB. Countries with scarce resources where the HIV epidemic state is either low or concentrated may also choose to only include a smaller subgroup of TB patients e.g. adults aged 15-59 years.

Relapse cases should be excluded from surveillance systems, because of the risk of surveying the same patient twice, unless they are identified as such and the results are analyzed separately. However, relapse cases may be included and need not be identified as such if surveillance is based on survey methods and these surveys are undertaken over a short period of time, ideally less than 2 -3 months.

¹ Further detail on HIV surveillance in TB patients can be found in the WHO Revised guidelines for the surveillance of HIV among people with TB (in preparation).

² Classified according to the WHO definitions **Low level** HIV epidemic: HIV prevalence has not consistently exceeded 5% in any defined sub-population at risk of HIV. **Concentrated:** HIV prevalence consistently over 5% in at least one defined sub-population but HIV prevalence below 1% in pregnant women in urban areas **Generalized:** HIV prevalence consistently above 1% in pregnant women in urban areas. World Health Organization /UNAIDS. Guidelines for second generation HIV surveillance. Geneva: World Health Organization and the Joint United Nations Program on HIV/AIDS; 2000. WHO document WHO/CDS/CSR/EDC/2000.5 & UNAIDS/00.03E.

³ World Health Organization. WHO Treatment of tuberculosis guidelines for National programs, 2003. WHO document WHO/CDS/TB.

All countries with a **generalized HIV epidemic state** should aim to ensure that HIV counseling and testing are offered and actively promoted to all TB patients, in conjunction with ART where possible. These routine data should be used as the basis for surveillance, if >80 percent of TB patients are tested. These routine data can be calibrated by periodic special or sentinel surveys. In the absence of universal access to HIV testing and counseling for all TB patients, special surveys or sentinel surveys are suitable alternatives. In countries with a **concentrated epidemic state**, HIV counseling and testing for all TB patients should form the basis for the surveillance. If this system is not yet in place, then periodic (special) surveys or sentinel surveys are suitable alternatives. In countries with a **low level HIV epidemic state** where HIV testing is not routinely offered to TB patients, special surveys or sentinel surveys can be conducted at two to three yearly intervals.

At present there is insufficient evidence to recommend the use of sputum testing for HIV as a valid alternative to serological tests for HIV surveillance.

Platform: Routine data from HIV counseling and testing of TB patients collected continuously in a modified TB register or separate TB/HIV register, sentinel surveillance or special surveys.

Frequency: In the absence of a national recording and reporting system where data are continuously collected and reported quarterly, data should be collected every 2-3 years. In countries where HIV prevalence level in TB patients is low (<5 percent) and which have a stable and low HIV epidemic state and TB burden in the general population, periodic surveys may be repeated at 5 yearly intervals. In resource poor countries, where the HIV and TB burden in the general population may be concentrated or generalized, but where the institution of more systematic methods of surveillance is not possible, special surveys should be undertaken at least every three to five years.

REFERENCES

- WHO. *Guidelines for HIV surveillance in tuberculosis patients (WHO/HTM/TB/2004.339, WHO/HIV/2004.06, UNAIDS/04.30E)*
- World Health Organization (2004). *Guide to monitoring and evaluation for collaborative TB/HIV activities (WHO/HTM/TB/2004.342)*

ANNEX C:
Description of Tuberculosis Indicators

TUBERCULOSIS INDICATOR (TB 1):

IDENTIFICATION OF INFECTIOUS CASES New smear-positive TB cases detected under DOTS

Proportion of new smear-positive TB cases detected among the total estimated number of new smear-positive TB cases per year.

RATIONALE

This indicator measures the DOTS program's ability to detect and identify smear-positive cases. If a country has low case detection, it may reflect incomplete reporting, limited coverage or utilization of facilities that provide DOTS, or insufficient referral of TB suspects for diagnosis. Low case detection may indicate that supplemental approaches to detecting new cases may be required. For example, the country may explore implementing DOTS in the private and NGO sectors as well as other areas where cases would be likely to present themselves. It is possible for the calculated detection rate to exceed 100 percent due to intense case finding in an area that has a backlog of chronic cases, over-reporting, over-diagnosis and the under-estimation of incidence. A case detection rate of 70 percent or greater is the national or global target.

DEFINITION OF INDICATOR

Numerator: Annual number of new smear-positive TB cases detected

Denominator: Total annual number of estimated new smear-positive TB cases (incidence)

MEASUREMENT

Measurement of this indicator is done at national level only, on an annual basis.

The numerator is the number of smear-positive cases reported to the national TB control program (reports ultimately come from TB registers in each operational unit). The denominator is the estimated number of new smear-positive cases annually countrywide, an estimation made by WHO. (These estimations are reported every year by WHO in the annual "Global Tuberculosis Control" report.)

Platform: Quarterly reports; WHO estimated incidence for countries

Frequency: Annually

Level: National

REFERENCES

- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*
- WHO. *Global Tuberculosis Control Report 2004 (WHO/HTN/TB/2004.331, www.who.int/gtb)*

TUBERCULOSIS INDICATOR (TB 2):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES Population covered by DOTS

Percentage of the population living in administrative areas that are defined as DOTS areas.

RATIONALE

This indicator is a simple easily collected measure of the availability of DOTS within a country that is useful particularly in the early stages of DOTS implementation. It only measures availability of DOTS services within a given administrative area; it does not measure access or equality of access to those services.

DEFINITION OF INDICATOR

Numerator: Population living in administrative areas that are defined as DOTS areas, as per national guidelines

Denominator: Total population of all administrative areas

MEASUREMENT

This indicator can be calculated quarterly or annually. Ideally, a national TB control program will have recorded the year/quarter when each administrative unit (e.g., district) officially became a "DOTS" unit, as per national guidelines, and will also have available (from the appropriate Ministry) the populations living in these administrative units.

Platform: NTP records; census data

Frequency: Annually

Target: The target is to make DOTS available to 100 percent of the population

REFERENCES

- WHO. *Global Tuberculosis Control Report 2004*. www.who.int/gtb/publications/globrep/index.html
- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

TUBERCULOSIS INDICATOR (TB 3):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES Smear-positive TB cases registered under DOTS who are successfully treated

Percent of new smear-positive pulmonary TB cases that are successfully treated.

RATIONALE

Evaluation of successful treatment outcomes of new pulmonary smear-positive patients is used to determine the quality and effectiveness of DOTS implementation at all levels.

DEFINITION OF INDICATOR

Numerator: Number of new smear-positive pulmonary TB cases registered under DOTS in a specified period that subsequently were successfully treated (sum of WHO outcome categories 'cured' plus 'treatment completed')

Denominator: Total number of new smear-positive pulmonary TB cases registered under DOTS in the same period

MEASUREMENT

Each sputum smear-positive TB case is assigned a treatment outcome, which is recorded in the TB Register. Outcomes for all cases are reported by registration period (usually a quarter) one year after initial registration.

Platform: TB Register; quarterly reports of treatment outcomes (TB-08)

Frequency: Quarterly and annually

Target: A treatment success rate of 85 percent or greater is the global target

REFERENCES

- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

TUBERCULOSIS INDICATOR (TB 4):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES Sputum conversion rate at the end of initial phase of treatment

Percentage of new smear-positive pulmonary TB cases registered in a specified period that converted to smear-negative at the end of initial phase of treatment.

RATIONALE

The majority of new smear-positive pulmonary TB patients should convert their smear to negative after two or three months of treatment, depending on national guidelines. However, at two months, good laboratory technicians can often detect low grades of positivity, and the positivity rate can still be as high as 25 percent, even if the initial phase of treatment is well supervised and the drugs are of good quality. Sputum conversion has treatment implications since, in some countries, patients who have not converted their sputum smears after two months of treatment should extend the initial phase of therapy. Low rates of smear conversion after the initial phase of treatment among retreatment patients are an indication of possible drug resistance.

DEFINITION OF INDICATOR

Numerator: Number of new smear-positive pulmonary TB cases registered in a specified period that are smear-negative at the end of the initial phase of treatment

Denominator: Total number of new smear-positive pulmonary TB cases registered for treatment in the same period

MEASUREMENT

Both the numerator and the denominator can be obtained from the quarterly report on smear conversion (or program management) or from the TB register.

Platform: Quarterly reports on smear conversion; TB register

Frequency: Quarterly and annually

REFERENCES

- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

TUBERCULOSIS INDICATOR (TB 5):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES Re-treatment of TB cases

Percentage of TB cases that are registered as re-treatment cases, among all TB cases registered during a specified time period.

RATIONALE

This indicator represents the percentage of TB patients who require more extensive treatment and should be suspected of having acquired drug resistance. Ineffective treatment or incorrect administration of medication may result in a large proportion of retreatment cases, which points to deficiencies in the medication used and/or nonadherence to DOTS on the part of patients and providers.

INITIATION OF INDICATOR

Numerator: Number of re-treatment TB cases registered during a specified time period*

Denominator: Total number of TB cases registered in the same period

* *Re-treatment includes all previously treated patients (treatment-after-default, treatment-after-failure, and relapse cases) who are newly registered for treatment.*

MEASUREMENT

The numerator can be obtained from the TB register or from the quarterly report on TB registration. The denominator can also be obtained from the TB register.

Platform: Quarterly reports on TB case registration; TB register

Frequency: Quarterly and annually

REFERENCES

- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

TUBERCULOSIS INDICATOR (TB 6):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES **New smear-positive pulmonary TB cases reported to the NTP per year**

The number of new smear-positive pulmonary TB cases reported to the NTP per year per 100,000 population.

RATIONALE

The numerator provides information on the number of infectious TB cases detected. Because effective treatment of infectious TB patients reduces TB transmission, early detection is one of the main strategies of TB control, and the indicator measures the program's capacity to identify those sources. Information on true incidence or prevalence of TB disease is unlikely to be available. However, the number of cases reported can be compared with incidence estimates to detect deficiencies in case detection and registration. Trends over time in case notification usually indicate changes in program coverage and capacity to detect TB cases; at high levels of case detection, the indicator reflects changes in the prevalence of TB in the community.

INITIATION OF INDICATOR

Numerator: The total number of new smear-positive TB patients notified to the NTP per year

Denominator: Total population in the specified area

MEASUREMENT

The numerator can be obtained from reports at the national level for the previous year. The denominator can be obtained from census data.

Platform: Quarterly reports on TB case registration; Census statistics

Frequency: Annually

REFERENCES

- *WHO Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

TUBERCULOSIS INDICATOR (TB 7):

TIMELY DETECTION AND QUALITY TREATMENT OF CASES Smear positivity among TB suspects

The number and percentage of persons found to be smear-positive cases of TB, among persons identified as TB suspects clinically during a specified time period.

RATIONALE

This indicator measures case detection effort among health staff. Increased case detection effort should lead to increased case detection. The target for this indicator should be around 10 percent. A value higher than 10 percent may indicate that clinicians are not fully aware of TB symptoms and send only those patients at advanced stages of TB for sputum examination. When X-rays are used as a filter to select patients who should have a sputum smear examination, positivity rates are expected to be higher than 10 percent. A value less than 10 percent may indicate that the clinicians are referring too many “suspects” for sputum smear examination, and laboratory services can be overburdened with unnecessary negative examinations, which could compromise the quality of their work.

DEFINITION OF INDICATOR

Numerator: Number of TB suspects found to be smear positive during a specified period

Denominator: Number of TB suspects identified clinically during the same period

MEASUREMENT

The numerator and denominator can be obtained from the TB laboratory register or a “cough register” maintained at the treatment facility. This register lists all TB suspects who have been referred for chest X-ray and/or sputum smear examinations. In this case, each facility – and the district as a whole – can calculate the indicator.

In addition, the health facility can monitor the number of suspects identified per patient population (e.g. per outpatient visits), and the district as a whole can monitor the number of suspects identified per population.

Platform: TB laboratory register or a “cough register”

Frequency: Quarterly and annually

REFERENCES

- WHO. *Compendium for monitoring TB control activities (WHO/HTM/TB/2004.344)*

ANNEX D:
Description of Malaria Indicators

PREVENTION INDICATOR (MALARIA-PI 1):

INSECTICIDE TREATED NETS (ITNs) ITNs distributed to people

Number of mosquito nets distributed to people at risk.

RATIONALE

In areas of high malaria transmission and poor access to facility-based health care, particularly in rural Africa, ITNs are the principal strategy for malaria prevention. ITNs have been shown to reduce malaria-related morbidity and mortality in areas of high and moderate endemicity in sub-Saharan Africa, and to reduce malaria-related morbidity in various Asian settings of moderate endemicity. In Latin American countries ITNs have been shown to reduce malaria morbidity at the same level as in African settings. However, in both, Latin American and Asian countries, ITNs efficacy shows a much higher variability than in African countries due to different mosquito vectors.

DEFINITION OF INDICATOR

Number of mosquito nets distributed to people living in malaria-endemic areas, with the mosquito nets being limited to nets that were treated with insecticide within the last 12 months (pretreated nets or nets distributed together with treatment kit) or Long-lasting Insecticidal Nets (LLIN).

Note: It may be considered to add numbers of net treatment kits distributed to people living in malaria-endemic areas to the number of nets, for GFATM-funded programs in which treatment kits are distributed for the (immediate) treatment of existing nets in the community other than ITNs distributed in the same grant. However, this should never be done for net treatment kits used for the first impregnation of ITNs.

MEASUREMENT

This indicator is derived from data recorded by the malaria control program. Nets received by persons at risk must not be equated with the nets distributed to the point of service delivery (e.g. EPI clinics or antenatal clinics) – because important delays could still occur in the last stage of the distribution, from service delivery point to persons targeted. (In other words, “received by” persons at risk denotes ‘distributed to persons targeted, *from* the service delivery point’.)

Although this indicator thus is meant to be the one, among service delivery indicators, closest to predicting net ownership and usage within households, it should not be equated with either of those latter indicators – which are to be measured through household surveys (see MALARIA-PI 2).

Platform: Records from National Malaria Control Programs and other relevant sources

Frequency: Quarterly

PREVENTION INDICATOR (MALARIA-PI 2):

INSECTICIDE TREATED NETS (ITNs) Households owning ITNs

Proportion of households owning at least one insecticide-treated net.

RATIONALE

In areas of high malaria transmission and poor access to facility-based health care, particularly in rural Africa, ITNs are the principal strategy for malaria prevention. ITNs have been shown to reduce malaria-related morbidity and mortality in areas of high and moderate endemicity in sub-Saharan Africa, but also in Latin American and Asian countries. While ownership of nets without usage would not protect against malaria, net ownership has been shown to predict rates of actual net usage. Moreover, there is evidence of a 'community effect' where promptly treated ITNs are associated with reductions in all-cause child mortality and malaria-related morbidity among children who do not themselves sleep under an ITN but live within close proximity to households with ITNs.

DEFINITION OF INDICATOR

Numerator: Number of households surveyed within malaria-endemic areas with at least one mosquito net which has been treated within the last 12 months or is a Long-lasting Insecticidal Net (LLIN)

Denominator: Total number of households surveyed within malaria-endemic areas

Note: Analysis and reporting by province and according to urban/rural setting is recommended.

MEASUREMENT

This indicator requires data collected at the household level from representative sample surveys. In countries where most of the population lives at risk of endemic malaria, such as in tropical Africa, surveys ideally are nationwide, such as DHS and MICS.

In countries where only part of the population lives at endemic risk, ITNs are only relevant for households in at-risk areas, and surveys must take a representative sample of the area at endemic risk, with the survey report clearly describing sampling design and definition of population-at-risk used. Alternatively, in such countries, areas without endemic malaria must be identified so that they may be excluded during the analysis when data were collected through nationally representative household surveys.

The limited number of questions required to measure this indicator can be easily added to any representative household sample survey. It is important that ITN possession be assessed through a household questionnaire, rather than a questionnaire concerning individuals, as individuals may not be representative of household possession. Survey design and sample size should be chosen so as to allow comparisons between provinces and urban/rural strata at the household level.

The numerator for this indicator is obtained from asking household respondent if there is a mosquito net in the house that can be used to avoid being bitten while sleeping, and whether any such net has been treated in the last 12 months or is a Long-lasting Insecticidal Net (LLIN). The denominator is simply the total number of surveyed households.

Suggested questions: Questions 1.1, 1.3 and 1.4 of the 'Malaria-add-on household questions' in the 2004 Guidelines for core indicators for assessing malaria intervention coverage from household surveys.

Platform: DHS (USAID/MACRO), MICS (UNICEF), MIS, 'Rider' on other representative sample surveys

Frequency: Every 2-3 years



REFERENCES

- *Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing malaria intervention coverage from household surveys. July 2004. Available online: rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9-20_Malaria.pdf*
- *Roll Back Malaria. Malaria Indicator Survey (MIS): rbm.who.int/merg, section 'Survey and Indicator Guidance Task Force'*
- *UNICEF Multiple Indicator Cluster Survey: www.unicef.org/statistics/index_24302.html*
- *MEASURE Demographic and Health Surveys: www.measuredhs.com/*

PREVENTION INDICATOR (MALARIA-PI 3):

INSECTICIDE TREATED NETS (ITNs) Children under five using ITNs

Proportion of children under five who slept under an ITN the previous night.

RATIONALE

In areas of intense malaria transmission, malaria-related morbidity and mortality is concentrated in young children, and use of ITNs by children under five has been demonstrated to considerably reduce malaria disease incidence, malaria-related anemia, and all-cause under-five mortality.

DEFINITION OF INDICATOR

Numerator: Number of children under five years old surveyed in malaria endemic areas who slept under a mosquito net the previous night, which has been treated within the last 12 months or is a Long-lasting Insecticidal Net (LLIN)

Denominator: Total number of children under five years old who slept the previous night in surveyed households within malaria-endemic areas

Note: Analysis and reporting by province and according to urban/rural setting is recommended.

MEASUREMENT

This indicator requires data collected from representative household sample surveys. In countries where most of the population lives at risk of endemic malaria, such as in tropical Africa, surveys ideally are nationwide, such as DHS and MICS.

In countries where only part of the population lives at endemic risk, ITNs are only relevant for households in at-risk areas, and surveys must take a representative sample of the area at endemic risk, with the survey report clearly describing sampling design and definition of population at risk used. Alternatively, in such countries, areas without endemic malaria must be identified so that they may be excluded during the analysis when data were collected through nationally representative household surveys.

The limited number of questions required to measure this indicator can be easily added to any representative sample survey. It is crucial that the survey contains a household listing that captures the total number of children under five years old within each surveyed household. Survey design and sample size should be chosen so as to allow comparisons between provinces and urban/rural strata at the individual (child) level.

The data for the denominator is obtained during the household listing procedure when every child under five who slept in the house the previous night is identified. The numerator is then obtained from a listing of children in the house who slept under a mosquito net the previous night, in combination with information on whether the net had been treated with insecticide within the last 12 months or is a Long-lasting Insecticidal Net (LLIN)

Suggested questions: Questions 1.1 and 1.3-1.6 from the 'Malaria-add-on household questions' in the 2004 Guidelines for core indicators for assessing malaria intervention coverage from household surveys

Platform: DHS (USAID/MACRO), MICS (UNICEF), MIS, 'Rider' on other representative sample surveys

Frequency: Every 2-3 years



REFERENCES

- *Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing malaria intervention coverage from household surveys. July 2004. Available online: rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9*
- *Roll Back Malaria. Malaria Indicator Survey (MIS): rbm.who.int/merg, section 'Survey and Indicator Guidance Task Force'*
- *UNICEF Multiple Indicator Cluster Survey: www.unicef.org/statistics/index_24302.html*
- *MEASURE Demographic and Health Surveys: www.measuredhs.com/*

PREVENTION INDICATOR (MALARIA-PI 4):

MALARIA PREVENTION DURING PREGNANCY Pregnant women using ITNs

Proportion of pregnant women who slept under an ITN the previous night.

RATIONALE

In areas of stable endemic malaria transmission (such as tropical Africa) where most malaria infections in adults are asymptomatic, ITN use by pregnant women reduces malaria-related maternal morbidity and improves birth outcomes, including a reduction in the incidence of low birth weight. Coverage of pregnant women with ITNs is therefore a key component of the technical strategy for control and prevention of malaria advocated by WHO Roll Back Malaria (RBM), for areas of stable endemic malaria transmission.

DEFINITION OF INDICATOR

Numerator: Number of pregnant women at risk for malaria in areas of stable endemic malaria transmission who slept under a mosquito net the previous night, which has been treated within the last 12 months or is a Long-lasting Insecticidal Net (LLIN)

Denominator: Total number of pregnant women who reside within surveyed households within malaria-endemic areas

Note: Analysis and reporting by province and according to urban/rural setting is recommended.

MEASUREMENT

This indicator is relevant **only** in areas of stable endemic malaria transmission. It is best measured through representative household sample surveys. In most countries which have distribution of ITNs to pregnant women as an official malaria control policy (such as tropical Africa), malaria transmission is intense and covers most of the population and surveys measuring usage of ITNs by pregnant women should, ideally, be nation-wide.

In countries where only part of the population lives at endemic risk, areas without endemic malaria must be identified so that they may be excluded from this indicator during the analysis phase of data collected through nationally representative household surveys.

The limited number of questions required to measure this indicator can be easily added to any representative sample survey. However, due to small number of women who are pregnant at the time of any given survey, only surveys with a sample size of over 5,000 women (such as MICS and DHS) can be expected to generate useful data for this indicator. Furthermore, it is important that the survey contains a household listing that captures all women of reproductive age within each surveyed household. Survey's design and sample size should ideally be chosen so as to allow comparisons between provinces and urban/rural strata at the individual level.

The data for the denominator is obtained from a series of questions asked of all women of reproductive age in the household about their current pregnancy status. The data for the numerator is then obtained from a listing of these pregnant women that slept under a mosquito net the previous night, in combination with information on whether the net had been treated with insecticide within the last 12 months or is a Long-lasting Insecticidal Net (LLIN).

Suggested questions: 1.1, 1.3-1.6, and 2.1 from the 'Malaria-add-on-household-questions' in the 2004 Guidelines for core indicators for assessing malaria intervention coverage from household surveys.

Platform: DHS (USAID/MACRO), MICS (UNICEF), MIS, 'Rider' on other representative and large enough surveys

Frequency: Every 2-3 years



REFERENCES

- *Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing malaria intervention coverage from household surveys. July 2004. rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9*
- *Roll Back Malaria. Malaria Indicator Survey (MIS): rbm.who.int/merg, section 'Survey and Indicator Guidance Task Force'*
- *UNICEF Multiple Indicator Cluster Survey: www.unicef.org/statistics/index_24302.html*
- *MEASURE Demographic and Health Surveys: www.measuredhs.com/*

PREVENTION INDICATOR (MALARIA-PI 5):

MALARIA PREVENTION DURING PREGNANCY Pregnant women receiving Intermittent Preventive Therapy (IPT)

Proportion of pregnant women in stable endemic areas receiving intermittent preventive therapy (IPT).

RATIONALE

In areas of stable endemic malaria transmission such as tropical Africa, IPT of pregnant women with a recommended antimalarial drug* reduces the risk of maternal anemia, placental parasitemia, and low birth weight. IPT in pregnancy is therefore a key component of the technical strategy for control and prevention of malaria advocated by Roll Back Malaria (RBM), for areas of stable endemic malaria transmission.

The definition and measurement method for this indicator (as described below) will depend on whether it is obtained through a community-based household survey or through the routine health management information system (HMIS).

1. IPT information obtained through household surveys

DEFINITION OF INDICATOR

Numerator: Number of surveyed women in stable endemic areas who received at least two doses of a recommended antimalarial drug treatment to prevent malaria, during their last pregnancy that led to a live birth within the last 2 years

Denominator: Total number of women surveyed in malaria-endemic areas who delivered a live baby within the last 2 years

Note: Analysis and reporting by province and according to urban/rural setting is recommended.

MEASUREMENT

Surveys measuring this indicator must be representative household sample surveys. The limited number of questions required to measure this indicator can be easily added to any nationally-representative sample survey. It is important that the survey contain a household listing that captures all women of reproductive age within each surveyed household, as well as a women's questionnaire collecting data on previous births and antenatal care. Due to the limited number of women who delivered a live baby within the two years preceding any survey, care should be taken to ensure such surveys are designed with sufficient sample size, ideally still allowing comparisons between provinces and urban/rural strata at the individual level.

Data from the women's questionnaires on all women in surveyed households who delivered a live baby within the two years preceding the survey are used to calculate the denominator. The numerator is the number of women who mention having taken the recommended drug* for prevention of malaria (as opposed to treatment of acute malaria disease episodes).

Suggested questions: 2.2-2.7 from the 'Malaria-add-on-household-questions' in the 2004 Guidelines for core indicators for assessing malaria intervention coverage from household surveys

Platform: DHS (USAID/MACRO), MICS (UNICEF), MIS, 'Rider' on other nationally representative surveys

Frequency: Every 2-3 years

* As of 2005, the most effective drug for IPT is sulphadoxine-pyrimethamine (SP) and all countries with IPT included in their national malaria control policy, defined this to be the case.



2. IPT information obtained through HMIS

DEFINITION OF INDICATOR: HMIS

Numerator: Number of pregnant women in stable endemic areas who received at least two doses of intermittent preventive treatment (IPT) with a recommended antimalarial drug during antenatal care (ANC) visit under direct observation

Denominator: Total number of first ANC visits

The indicator should be collected at routine ANC visits using the *ANC register*. To avoid duplication of work, the existing ANC register should be modified to include a column to record the doses of IPT dispensed. ANC cards should also be adapted to include a record of IPT doses taken.

IPT should be administered under direct observation of the health worker, to maximize compliance; the column should not be marked if the dose is not observed directly. In case no IPT is dispensed, the reasons should be marked in the column comments (e.g. stockout, allergic, refused, treatment for illness, etc.).

Frequency: Continuous, with monthly reporting

3. General comments for both measurement methods

It is important to differentiate between usage of an antimalarial drug for prevention of malaria, as prescribed for IPT, and usage of an antimalarial drug for treatment (cure) of acute malaria disease episodes that may occur during a pregnancy – which does not count as IPT. Similarly, usage of weekly chloroquine prophylaxis for malaria prevention must not be considered as IPT – as this is no longer effective in most settings with a high burden of *falciparum* malaria.

The advantage of survey-based measurement is that it covers the whole population of pregnant women, including the typical 10 percent that do not attend antenatal care. The advantage of measurement through HIS is that it measures IPT coverage at current time, and analysis can be targeted to facilities where IPT is actually being implemented. The disadvantage of surveys is that their results refer to pregnancies that occurred up to two years prior to the time of survey, and hence provide outdated data.

REFERENCES

- *Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing malaria intervention coverage from household surveys. July 2004. rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9*
- *Roll Back Malaria. Malaria Indicator Survey (MIS): rbm.who.int/merg, section ‘Survey and Indicator Guidance Task Force’*
- *UNICEF Multiple Indicator Cluster Survey: www.unicef.org/statistics/index_24302.html*
- *MEASURE Demographic and Health Surveys: www.measuredhs.com/*

PREVENTION INDICATOR (MALARIA-PI 6):

VECTOR CONTROL

Houses in areas at risk covered with Indoor Residual Spraying

Proportion of houses in areas at risk of malaria transmission that were sprayed with insecticide in the past 12 months.

RATIONALE

In areas of intense malaria transmission, IRS and ITNs are alternative means for malaria vector control. In areas exposed to unstable or epidemic malaria, IRS has some important advantages: it is particularly useful for achieving a rapid reduction in malaria transmission and it can be targeted to the communities at highest risk.

DEFINITION OF INDICATOR

Numerator: Number of houses in areas at risk of malaria transmission that were sprayed with insecticide in the past 12 months

Denominator: Number of targeted houses in areas at risk of malaria transmission

MEASUREMENT

A critical element in measuring this indicator is the definition of areas at risk of malaria transmission. Although WHO currently does not prescribe any standardized risk definition, it is crucial that any report on vector control coverage specifies the local definition used.

It is possible that a control program targets only a part of the area at risk of malaria for IRS with the remaining risk area being targeted for ITNs instead. For comparability of data between countries and over time, any report on IRS coverage must therefore clearly specify whether coverage is measured against the total population at risk or against the targeted part of the population at risk.

The threshold frequency of conducting spraying is set at once per year, which is the minimum frequency likely to be effective in significantly reducing malaria transmission.

Alternative measurement methods:

In the absence of data on houses sprayed, IRS coverage could alternatively be estimated from quantities of insecticide used for IRS, by assuming a specific application rate for each insecticide and an average sprayable area per house, e.g. 250m². In areas where spraying programs are highly decentralized or where monitoring efforts at the national level are less developed, the inclusion of questions on IRS coverage in household surveys (e.g. a Malaria Indicator Survey) might be useful.

Platform: Houses sprayed from records from National Malaria Control Programs; total houses in areas at malaria risk from national censuses

Frequency: Every 1 year

REFERENCES

- Roll Back Malaria. Malaria Indicator Survey (MIS): <http://rbm.who.int/merg>, section 'Survey and Indicator Guidance Task Force'

PREVENTION INDICATOR (MALARIA-PI 7):

VECTOR CONTROL

Houses in areas at risk that received Indoor Residual Spraying

Number of houses in areas at risk of malaria transmission that were sprayed with insecticide.

RATIONALE

In areas of intense malaria transmission, IRS and ITNs are alternative means for malaria vector control. In areas exposed to unstable or epidemic malaria, IRS has some important advantages: it is particularly useful for achieving a rapid reduction in malaria transmission and it can be targeted to the communities at highest risk.

DEFINITION OF INDICATOR

Number of houses in areas at risk of malaria transmission that were sprayed with insecticide for malaria vector control.

MEASUREMENT

This indicator is derived from data recorded by the malaria control program.

Alternative measurement methods: In the absence of records on houses sprayed, IRS service delivery could alternatively be estimated from quantities of insecticide used for IRS, by assuming a specific application rate for each insecticide and an average sprayable area per house, e.g. 250m².

Relation between the coverage indicator (PI 6) and the output indicator (PI 7):

Although this indicator may seem to be exactly the numerator of the coverage indicator Malaria PI-6, 'Proportion of houses in areas at risk of malaria transmission that were sprayed with insecticide in the past year', this is only so in case the number of houses sprayed is cumulated over exactly 12 months without double counting of houses sprayed more than once over the 12 months. (This 12 months threshold for the coverage indicator was chosen because annual spraying is likely to be the minimum frequency effective in significantly reducing malaria transmission.) For Malaria-PI 7, however, more frequent reporting, e.g. every 3-6 months, may be possible and desired. When converting service delivery results into coverage results, care should therefore be taken not to double count the same houses which are continuously kept covered by repeated sprayings.

Platform: Records from National Malaria Control Programs

Frequency: Every 3-6 months

REFERENCES

- *Roll Back Malaria. Malaria Indicator Survey (MIS): <http://rbm.who.int/merg>, section 'Survey and Indicator Guidance Task Force'*

PREVENTION INDICATOR (MALARIA-PI 8):

VECTOR CONTROL

Areas with Integrated Vector Management (IVM) activities

Number of specific geographical areas (districts, regions, etc.) with integrated vector management (IVM) activities implemented.

RATIONALE

Vector control has a proven record in the prevention and control of vector-borne disease. IVM is based on the premise that effective control is not the sole preserve of the health sector but requires the collaboration of various public and private agencies and community participation. IVM entails the use of a range of interventions of proven efficacy, separately or in combination, in order to implement more cost-effective control and reduce reliance on any single intervention. This strategy also serves to extend the useful life of insecticides and drugs by reducing the selection pressure for resistance development.

DEFINITION OF INDICATOR

Numerator: Number of geographical areas at risk of malaria (district, regions, provinces) that have IVM activities implemented in the past 12 months

Denominator: Total number of targeted geographical areas at risk of malaria transmission

MEASUREMENT

For specifying “malaria risk” and “target areas” see indicator “houses in areas at risk covered with Indoor Residual Spraying (Malaria PI 6).

Maps and data on malaria endemic areas – targeted and non-targeted for control – are usually available in vector control offices. Likewise, the main activities in IVM are to be collected from vector control staff through key informant interviews. This information can be validated by reviewing monthly activity records in different geographical areas.

IVM activities may include ITNs, IRS, larviciding (for instance in urban areas). Larvivorous fishes, source reduction and others. Non-recommended activities such as space spraying should not be included.

Frequency: Annually

REFERENCES

- *Global Strategic Framework for Integrated Vector Management. World Health Organization. Geneva, 2004*

TREATMENT INDICATOR (MALARIA-TI 1):

PROMPT EFFECTIVE ANTI-MALARIAL TREATMENT

People with uncomplicated or severe malaria receiving antimalarial treatment

Number of people with uncomplicated or severe malaria receiving antimalarial treatment as per national guidelines.

RATIONALE

(Prompt) treatment with an effective antimalarial drug regimen is a key component of the technical strategy for control and prevention of malaria advocated by RBM. Which drug regimens are effective differs between countries and changes over time, depending on local drug resistance patterns. Therefore it is important to define effective anti-malarial regimens in the local context, which most countries do in national treatment guidelines.

DEFINITION OF INDICATOR

Number of people diagnosed with uncomplicated or severe malaria who are given anti-malarial treatment according to the national malaria treatment policy.

MEASUREMENT

'People diagnosed with malaria' is to be understood as the total number of episodes of malaria; in case a given person was diagnosed with malaria twice over the evaluation period of the program, this would contribute two episodes that potentially were correctly treated.

Diagnosis of uncomplicated or severe malaria can be laboratory-confirmed in countries which routinely perform laboratory testing for malaria, or presumptive, based on clinical symptoms (such as in most high-endemic countries in sub-Saharan Africa) where all cases of acute fever without an obvious non-malarial cause are considered malaria).

An antimalarial treatment conforming to national treatment guidelines can be artemisin-based combination therapy (ACT) or another, non-artemisinin-based therapy that is recommended in the country. For purposes of analysis and advocacy at the GFATM, however, it is preferable to also report the number of treatments separately for ACT and non-ACT.

Platform: Routine health information system or other relevant sources

Frequency: Every 3-6 months

TREATMENT INDICATOR (MALARIA-TI 2):

PROMPT EFFECTIVE ANTIMALARIAL TREATMENT

Children under five years of age (and other target groups) with fever who are promptly treated with an effective antimalarial

Proportion of children under 5 years of age (and other target groups) with fever who received antimalarial treatment according to national policy within 24 hours of onset of fever.

RATIONALE

The majority of deaths from severe malaria are caused by the lack of or delayed administration of effective anti-malarial treatment. In Africa where the majority of malaria cases and deaths occur in young children who have not yet acquired clinical immunity and where the differential diagnosis of malaria as the cause of acute child fever is problematic, it is recommended that all acute childhood fevers in areas of high malaria endemicity be treated presumptively with an antimalarial. In areas of unstable or highly seasonal falciparum malaria transmission, as in most countries outside sub-Saharan Africa, the lack of frequent exposure to malaria infection early in life delays the acquisition of clinical immunity, and older age groups remain at relatively high risk for malaria when exposed. Prompt access to effective malaria treatment among children with fever in high endemic areas, and other target groups in lower endemic areas is therefore a key component of the technical strategy for control and prevention of malaria advocated by Roll Back Malaria (RBM).

DEFINITION OF INDICATOR

Numerator: Number of children <5 years old (and other target groups) with a fever during the previous two weeks who were treated with a locally effective anti-malarial drug according to the national malaria treatment policy, within 24 hours from onset of the fever

Denominator: Total number of children <5 years old (and other target groups) with a fever during the previous two weeks

Note: Analysis and reporting by province and according to urban/rural setting is recommended.

MEASUREMENT

In countries where most of the population lives at risk of endemic malaria (such as tropical Africa), surveys measuring this indicator such as DHS and MICS should be used. In countries where only part of the population lives at risk of malaria transmission, surveys must take a representative sample of the entire area at risk and the survey report should clearly describe sampling design and definition of population- at risk used. Alternatively, in such countries, areas without endemic malaria must be identified so that they may be excluded during the analysis when data were collected through nationally representative household surveys.

The denominator is measured during the household listing procedure when every child <5 who slept in the house the previous night is identified. The numerator is determined by first asking about whether each child has had a fever in the two weeks preceding the survey then for each child with a fever if (and where) s/he was given an anti-malarial treatment, and finally which specific drug and the timing of treatment relative to the onset of the fever. The definition of 'effective' antimalarial depends on the local drug efficacy spectrum, and is operationally defined as all drugs that are included in the national antimalarial drug policy. (In some countries, these may include only artemisinin-based combination therapies; in others, conventional monotherapies such as chloroquine and sulphadoxine-pyrimethamine are also considered effective.)

In countries of mostly stable endemic transmission, such as in tropical Africa, a large proportion of child fevers (e.g. 40 percent) are due to malaria, and, in the absence of universal access to laboratory diagnosis, the recommendation is to treat all child fevers presumptively as malaria. In lower-endemic settings, however, fewer child fevers are due to malaria, a larger proportion of malaria episodes occur in older age groups, and fevers in children under-5 are a less



useful denominator for assessing the coverage of antimalarial treatment. In these settings, surveys ideally inquire about fevers or self-reported episodes of malaria in older age groups as well (see sampling framework of MIS). Here, data about antimalarial usage for fevers are probably more useful as an indication of the demand for antimalarial treatments than as an estimate of coverage of antimalarial treatment.

Platform: DHS (USAID/MACRO), MICS (UNICEF), MIS, 'Rider' on other representative surveys

Frequency: Every 2-3 years

REFERENCES

- *Roll Back Malaria/MEASURE. Guidelines for core indicators for assessing malaria intervention coverage from household surveys. July 2004. rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9*
- *Roll Back Malaria. Malaria Indicator Survey (MIS): rbm.who.int/merg, section 'Survey and Indicator Guidance Task Force'*
- *UNICEF Multiple Indicator Cluster Survey: www.unicef.org/statistics/index_24302.html*
- *MEASURE Demographic and Health Surveys: www.measuredhs.com*

TREATMENT INDICATOR (MALARIA-TI 3):

PROMPT EFFECTIVE ANTI-MALARIAL TREATMENT Health facilities with no reported stockouts of anti-malarial drugs

Percentage of health facilities with no reported stock outs lasting >1 week of nationally recommended anti-malarial drugs at any time during the past three months.

RATIONALE

The continued supply of anti-malarial drugs is key to the delivery of prompt effective treatment at health facilities.

DEFINITION OF INDICATOR

Numerator: Number of health facilities with nationally recommended anti-malarial drugs available on the day of survey and with no stock outs lasting one week or longer at any time in the last three months

Denominator: Total number of health facilities surveyed with nationally recommended anti-malarial drugs

Note: Analysis and reporting by province according to urban/rural setting is recommended.

MEASUREMENT

Health facility surveys, with questionnaires administered to the head of each section of sampled facilities. Surveys must be designed to include, for each district of interest, the district hospital and at least two other Health centers/posts serving selected communities within the district. Besides this indicator, such surveys will also provide important data on the appropriateness of management of severe malaria cases, through examination of in-patient records of the District Hospital as well as through direct observation of health care providers at work in patient consultation.

Platform: Health Facility Survey

Frequency: Annually

REFERENCES

- *Roll Back Malaria. Framework for Monitoring Progress and Evaluating Outcomes and Impact. 2000. Geneva. rbm.who.int/cmc_upload/0/000/012/168/m_e_en.pdf*
- *WHO. Roll Back Malaria Initiative in the African Region. Monitoring and Evaluation Guidelines. Harare, WHO Regional Office, 2000*

TREATMENT INDICATOR (MALARIA-TI 4):

PROMPT EFFECTIVE ANTI-MALARIAL TREATMENT Patients with severe malaria receiving correct treatment

Percentage of patients admitted with severe malaria receiving correct treatment at health facilities.

RATIONALE

Severe malaria usually occurs as a result of a delay in treatment of uncomplicated malaria. Especially in children, progression to severe disease may occur very rapidly. Because of the high case fatality of severe malaria, correct clinical management is key to saving lives.

DEFINITION OF INDICATOR

Numerator: Number of patients admitted with severe malaria who are correctly given anti-malarials and supportive treatment according to national malaria treatment policy

Denominator: Total number of patients admitted with severe malaria at health facilities

MEASUREMENT

Data on this indicator are collected through health facility surveys, with questionnaires administered to the head of each section of sampled facilities. Surveys must be designed to include, for each district, the district hospital and at least two other health centers/posts serving selected communities within the district. Besides this indicator, such surveys will also provide important data on the appropriateness of management of severe malaria cases, through examination of records of in-patients in the District Hospital as well as through direct observation of health care providers at work in patient consultation.

Platform: 1) Part of routine supervision of NMCP; 2) Health facility survey (Form 7)

Frequency: 1) Annually 2) Annually

REFERENCES

- *Roll Back Malaria. Framework for Monitoring Progress and Evaluating Outcomes and Impact. 2000. Geneva. rbm.who.int/cmc_upload/0/000/012/168/m_e_en.pdf*
- *WHO. Roll Back Malaria Initiative in the African Region. Monitoring and Evaluation Guidelines. Harare, WHO Regional Office, 2000*

TREATMENT INDICATOR (MALARIA-TI 5):

HOME BASED MANAGEMENT OF MALARIA Home based management kits distributed

Number of kits for home-based management of malaria distributed to households living at risk of malaria.

RATIONALE

The majority of deaths from malaria are caused by a lack, or delayed administration, of effective anti-malarial treatment. In areas of high malaria transmission and poor access to facility-based health care, such as rural Africa, RBM advocates home-based case management of children under 5 years of age as one of the strategies to achieve high coverage of prompt and effective antimalarial treatment. The group of children under-5 is targeted for home-based case management because in this age group progression to severe disease and deaths is particularly fast, and this age group accounts for a large share of overall malaria burden in high-transmission areas. Home-based case management involves educating mothers, training community-level providers – including shopkeepers – and supplying pre-packaged quality-assured medicines.

DEFINITION OF INDICATOR

Number of kits of pre-packaged quality-assured antimalarial medicines distributed to caregivers of children under 5 years in households living in areas at risk of malaria, for the home-based management of malaria in children under 5 years.

MEASUREMENT

Distributed to households denotes being delivered, by community-level providers, to caregivers of children under 5 years of age (as opposed to being distributed by the malaria control program to community health workers).

Platform: Records from National Malaria Control Programs and other relevant sources

Frequency: Every 3-6 months

IMPACT INDICATOR (MALARIA-II 1):

DEATH RATES ASSOCIATED WITH MALARIA

- Stable/highly endemic settings: All-cause under-5 mortality (${}_5q_0$), expressed as deaths per 1000 under-fives.
- Settings with lower malaria endemicity or epidemic malaria: Malaria-attributed deaths reported in all age groups.

RATIONALE

Mortality is a major component of the burden caused by malaria, and halving malaria-related mortality is the overall goal of the Roll Back Malaria initiative. Approaches to measuring malaria-related mortality differ between regions, according to the local endemicity (transmission intensity) of malaria.

Areas of stable malaria transmission

Most countries of sub-Saharan Africa have areas where malaria transmission occurs at a high level for several months each year; in addition similar areas of stable transmission exist in small focal areas of South-East Asia. In these areas of stable endemicity, the major burden of malaria occurs in very young children who, because they have not yet developed adequate clinical immunity, are at highest risk of severe illness and death. Over 80% of global malaria deaths occur in African children under 5 years of age.

Because the symptoms (such as fever) and signs (such as anemia) are not specific and sensitive for malaria, measuring malaria-specific mortality in these settings is difficult. Efforts to assess malaria-attributable mortality using a retrospective verbal autopsy lack sufficient specificity, especially for young children. Child deaths related to malaria are frequently concurrent with other common illnesses, rather than directly and solely attributable to malaria. Moreover, a majority of deaths do not occur in hospitals and are not recorded in national health information systems (HIS), and these are unlikely to be picked up in vital registration systems.

All-cause under-5 mortality, abbreviated as ${}_5q_0$, i.e. the probability that a live-born child dies before his or her fifth birthday, is therefore the preferred mortality indicator, because in these settings, about 18% of under-5 mortality is estimated to be directly attributable to malaria [Rowe *et al.*, 2005], malaria contributes indirectly to many more under-5 deaths, and successful malaria control using ITNs has been demonstrated to considerably reduce all-cause under-5 mortality. For proper interpretation, trends in all-cause under-5 mortality must be analyzed alongside trends in coverage of key malaria interventions (ITN use, prompt effective treatment, and intermittent preventive treatment of pregnant women), which are commonly measured in the same surveys that provide mortality statistics (see below).

Areas of unstable, low malaria transmission

Residents of areas of low, highly seasonal malaria transmission or areas at risk of malaria epidemics will not have had enough exposure to acquire any significant level of clinical immunity to malaria. In these areas, all age groups are at risk of severe illness and death. In many of these settings, a larger proportion of severe malaria cases presents to health facilities, and malaria-attributed deaths reported in the HIS may provide a reliable indication of malaria-related mortality. Depending on the population's access to health care and completeness of HIS reporting, reported malaria deaths will reflect the total burden of malaria mortality in the population, or a proportion of that from which at least the time trend in malaria mortality could be inferred. In areas of lower access to health care, or where HIS reporting is inadequate (such as in complex emergencies), estimations of malaria deaths may be obtained through other methods such as community surveys or special surveillance sites.

DEFINITION OF INDICATOR – All-cause under-5 mortality (${}_5q_0$)

Numerator: Number of children borne alive who were reported to have died before their fifth birthday

Denominator: Total number of children borne alive (as reported in a survey)

MEASUREMENT

In sub-Saharan Africa, where civil death registration is in most countries inadequate, the main source of statistics on all-cause under-5 mortality are representative, population-based surveys. Notably, the Demographic and Health Surveys (DHS [ORC Macro]) estimate infant and childhood mortality rates through birth history interviewing of women aged 15-49 years sampled nation-wide through a two-stage cluster design. Besides DHS, UNICEF's Multiple Cluster Indicator Surveys (MICS) also provide nationally representative mortality estimates, through a non-birth-history surveying technique. These two surveys are carried out in an increasing number of developing countries every 3-5 years. The DHS and MICS data are two of the main sources for the country-by-country under-5 mortality estimation published every year by UNICEF in the State of the World's Children Report [UNICEF, 2004; Hill *et al.*, 1999]. This estimation also takes into account data from censuses, where available, and for some countries, vital registration and surveys using the preceding birth technique [PBT] [Hill & Aguirre, 1990]. The method to synthesize mortality data has recently been refined such that standard errors can be estimated and the statistical significance of mortality trends can be determined.

Platform: DHS (USAID/MACRO), MICS (UNICEF), or other nationally representative surveys

Frequency: Every 5 years

REFERENCES

- Hill AG, Aguirre A. *Childhood mortality estimates using the preceding birth technique: some applications and extensions. Population Studies* 1990;44:317–40.
- Hill K, Pande R, Mahy M, Jones G. *Trends in child mortality in the developing world: 1960–1996. New York: UNICEF, 1999.*
- ORC Macro, MEASURE DHS+. *Demographic and Health Surveys (DHS). ORC Macro, Calverton, MD, USA. <http://www.measuredhs.com>.*
- Rowe AK, Rowe SY, Snow RW, *et al.* *For the Child Health Epidemiology Reference Group. Estimates of the burden of mortality directly attributable to malaria for children under 5 years of age in Africa for the year 2000. Final report. 2005.*
- *The state of the world's children 2005: childhood under threat. New York, NY, United Nations Children's Fund, 2004 (<http://www.unicef.org/sowc05/english/sowc05.pdf>, accessed 25 February 2005).*
- *Multiple Indicator Cluster Surveys (MICS-2)/End decade assessment. New York, NY, United Nations Children's Fund, 2001 (<http://www.childinfo.org/MICS2/natlMICSrepz/MICSnatrep.htm/>).*
- *Roll Back Malaria Monitoring & Evaluation Reference Group (MERG), Survey and Indicator Guidance Task Force. <http://rbm.who.int/merg> and http://www.rollbackmalaria.org/partnership/wg/wg_monitoring/docs/HHsurvey_schedule.xls.*

IMPACT INDICATOR (MALARIA-II 2):

INCIDENCE OF CLINICAL MALARIA CASES

Number of clinical (symptomatic) cases of malarial illness, per 1000 person-years.

RATIONALE

In persons without adequate immunity, malaria infection usually results in clinical illness, the most common symptom being acute fever. The burden of disease directly attributable to malaria is best expressed as the incidence, rather than prevalence, of clinical disease episodes for several reasons: 1) clinical malaria episodes typically last a short period of time measured in days; 2) in areas of stable transmission, most adults and older children may become infected and remain parasitaemic for substantial periods of time without ever developing symptoms or, thus, requiring treatment. The overall occurrence of parasite infection, which is commonly measured as malaria parasite or infection *prevalence*, is not, then, a good indication of malaria *disease* burden.

The incidence of clinical malaria episodes, which is a more valid measure of disease burden, is usually estimated rather than directly measured. In most high burden areas, the majority of cases of malarial illness are treated outside the formal health care system, and thus cases reported in national health information systems represent only a fraction of the total cases occurring in the population.

DEFINITION & MEASUREMENT OF INDICATOR

WHO/RBM leads the RBM Monitoring & Evaluation Reference Group (MERG) Task Force on Malaria Morbidity, which has developed an epidemiological model estimating the incidence of clinical malaria episodes. The model is based on national populations living in different categories of malaria transmission risk and intensity (endemicity), which are defined according to the prevalence of parasite infection among children aged 2 to 9 years old (see also description of next indicator: 'Prevalence of malaria parasite infection' (MALARIA-II 3)). For each population group of a given endemicity and age, a standardized rate of clinical incidence is applied. Country estimates are further adjusted to account for the local coverage and impact of insecticide treated nets (ITN) and indoor residual spraying (IRS). Resulting estimates can be updated every 3-5 years to reflect the impact of increasing levels of coverage of ITNs and IRS (at country level).

An alternative method to estimate the incidence of clinical malaria disease is based on the malaria cases recorded in national health information systems (HIS). In most countries, cases recorded in national HIS represent only a fraction of total malaria cases, due to limited access to health facilities and lack of completeness of HIS reporting (e.g. HIS covers only public facilities and not private facilities, and/or not all health facilities or districts report their malaria cases consistently every month). Cases reported through the HIS must therefore be adjusted for the (local, national) level of completeness of HIS reporting to arrive at a valid estimate of total clinical malaria disease episodes.

For some countries, notably most high burden countries in sub-Saharan Africa, access to health care and the quality of HIS are so limited that only the first method is recommended. For other countries with better access to health care and better HIS reporting, both methods are valuable and they are ideally triangulated to arrive at a final estimate of disease incidence.

Frequency:

- Epidemiological estimation: every 3-5 years
- Cases recorded in national HIS: every year, with accompanying assessment of the local completeness of HIS reporting ideally every 1-2 years

REFERENCES

- *Roll Back Malaria Monitoring & Evaluation Reference Group (MERG)*. <http://rbm.who.int/merg>.
- *Korenromp EL, for the Roll Back Malaria Monitoring and Evaluation Reference Group & MERG Task Force on Malaria Morbidity. Malaria incidence estimates at country level for the year 2004 – proposed estimates and draft report. Geneva, Roll Back Malaria, World Health Organization, March 2005* (http://mosquito.who.int/docs/incidence_estimations2.pdf).
- *Nahlen BL et al. Malaria risk: estimating clinical episodes of malaria. Nature 2005, 434: p. E3.* <http://www.nature.com/nature/journal/v437/n7056/pdf/nature04178.pdf>.
- *Minutes of the first meeting of the MERG Task Force on Malaria Morbidity, October 2004*, http://www.rollbackmalaria.org/partnership/wg/wg_monitoring/docs/MorbidityTaskForce_meetingOct04_2004.pdf

ENDEMICITY INDICATOR (MALARIA-II 3):

PREVALENCE OF MALARIA PARASITE INFECTION

Prevalence of *Plasmodium* infection among relevant age groups in the population.

RATIONALE

The prevalence of *Plasmodium* infection is not a direct indication of malaria's disease burden, because parasite infection is frequently asymptomatic, especially in adults in high endemic areas. However, infection prevalence is a useful indicator of the level of malaria endemicity (transmission intensity), which in turn is one of the determinants of disease incidence (see indicator above: Incidence of clinical malaria cases).

DEFINITION OF INDICATOR

Numerator: Number of persons having a positive blood smear

Denominator: Total number of persons tested

MEASUREMENT:

Representative population-based surveys conducted during or right after the local malaria transmission season. Population groups to be surveyed are, in high endemic areas, children up to age 5 or 9 years, and in lower endemic areas, all age groups. The standard measurement method is microscopy on finger-prick blood samples. The possible use in surveys of Rapid Diagnostic Tests is under investigation.

Platform: Malaria Indicator Surveys (MIS) or similar surveys conducted during or right after the local malaria transmission season

Frequency: Every 2-3 years

REFERENCES

- *Roll Back Malaria. Malaria Indicator Survey (MIS): <http://rbm.who.int/merg>, section 'Survey and Indicator Guidance Task Force'.*

