



President's Malaria Initiative



# MONITORING AND EVALUATION TOOLKIT

## HIV, Tuberculosis and Malaria and Health Systems Strengthening

Part 2: Tools for monitoring programs for HIV, tuberculosis, malaria and health systems strengthening  
**Health systems strengthening**

Third Edition  
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Investing in our future  
**The Global Fund**  
To Fight AIDS, Tuberculosis and Malaria

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Last but not least, many colleagues at the Global Fund ensured that this toolkit best serves its targeted audience. Thank you for all your efforts and contributions.



## 8. Health systems strengthening

This section presents selected process, output and impact indicators for health systems strengthening. Summary tables provide an overview of selected indicators, which are supported by detailed descriptions. A wide range of international and national experts and donors have developed, discussed and agreed on these indicators. They have been developed for the specific purpose of minimizing information demands on countries. The indicator development process was guided by seven major principles:

- *building on existing nationally and globally agreed indicators and linking these indicators to the objectives to be achieved;*
- *harmonizing with other international frameworks such as WHO's framework for measuring health systems strengthening and trends;<sup>79</sup>*
- *limiting the number of indicators to be collected to avoid overburdening M&E systems and to stay focused on issues that directly affect decision-making;*
- *selecting indicators for which data are generated regularly through a community-based routine data collection system, a health information system, health facility surveys and behavioral surveillance surveys or acknowledged population-based surveys (Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS and DHS+);*
- *ensuring that these indicators have clear data sources and methods of analysis;*
- *conciliating the M&E needs of the country and donors; and*
- *covering a wide range of program areas and sectors related to health systems strengthening.*

The indicator descriptions provide information on:

- *rationale for use;*
- *definition, including the numerator and denominator;*

- *measurement – details on instrument and process, comprising:*
  - *measurement tools: statistics on health services, health facility surveys, qualitative methods, sentinel site surveillance and population-based surveys;*
  - *recommended periodicity of data reporting; and*
- *resource reference for additional information on the indicator.*

When reading these tables, take into account the following issues.

- *The tables presented for health systems strengthening 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. The indicators have been categorized under three areas: “WHO core indicators” as part of the core set of priority indicators recommended to monitor health systems strengthening;<sup>80</sup> “WHO additional indicators”, although not part of the core set, also recommended as additional indicators in the toolkit; and the “other” category, which includes indicators to be monitored by civil society at the community level. Indicators in the “other” category have been recommended by implementing partners through a three-day international workshop on monitoring services and systems at the community level facilitated by the Global Fund, UNAIDS and the World Bank (Global HIV/AIDS Monitoring and Evaluation Team). Further, countries are already using the indicators and methods recommended from this consultative process. The required vetting by international technical partners has not yet happened. For this reason, these indicators and methods may be fine-tuned and updated in the coming 1–2 years. For a complete listing of all existing indicators, see further guidelines in subsection 8.6, which lists available M&E guides, including suggested program indicators, reference groups, software products (as relevant) and sources of technical support.*

79 Toolkit on monitoring health systems strengthening: measuring health systems strengthening and trends: a toolkit for countries. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html), accessed 15 September 2008).

80 Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html), accessed 15 September 2008).

- *To facilitate the referencing of indicators from the summary tables to the related descriptions, indicators have been named based on health systems strengthening as the framework, followed by the service delivery area (service delivery, human resources for health, health information and medical products, vaccines and technology) and then the successive indicator number (1, 2, 3, etc.). The references do not relate to any categorization of these indicators in other publications.*
- *Indicators tracking training activities should specify whether training means new training or retraining of individuals. The indicators should also specify the content of the training and the training audience: public health personnel, midwives, doctors, nurses, staff at the community level, etc. In addition, training should be conducted according to national or international standards when these exist. It is very important that the recognized standards of training be recorded (including objectives, duration and follow-up) and that follow-up be undertaken to ensure that these individuals become active and practice service delivery.*
- *Even though health systems strengthening is included as a separate section, any health systems strengthening area within service delivery 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.*

## 8.1 Introduction

National programs for controlling HIV, TB and malaria require support from public and private organizations for health systems strengthening. This is based on the widespread basic premise that only through building and strengthening health systems will better health outcomes be secured. A health system is defined more broadly in this toolkit as

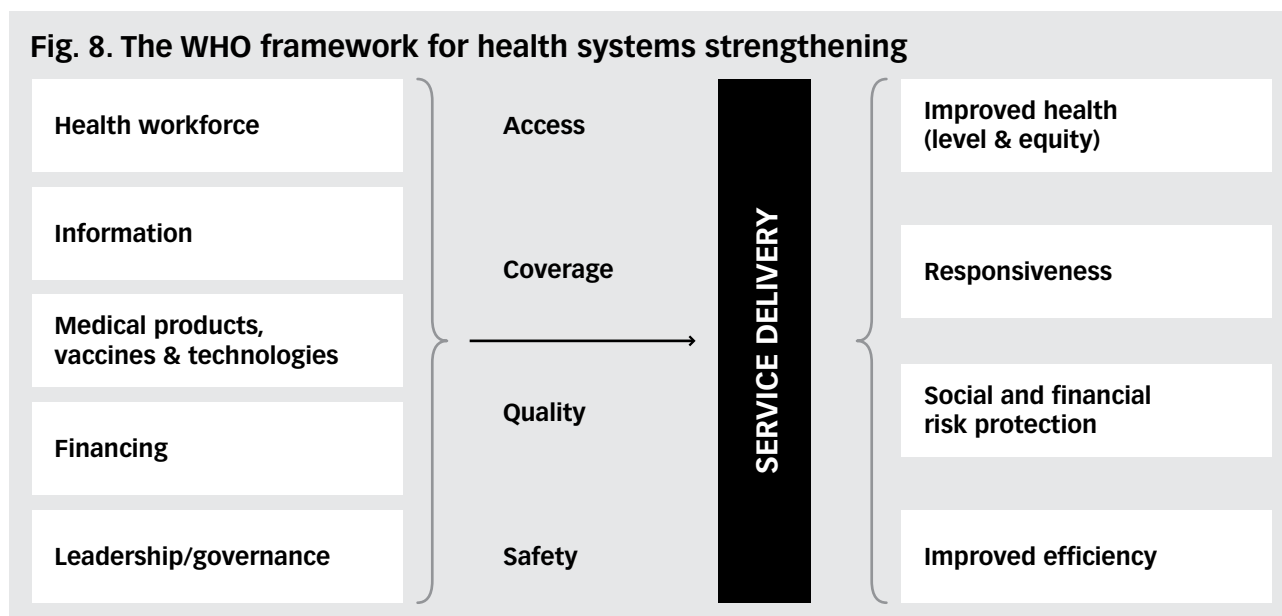
*... all organizations, people and actions whose primary intent is to promote, restore or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities. A health system is therefore more than the pyramid of publicly owned facilities that deliver personal health services. It includes, for example, a mother caring for a sick child at home; private providers; behaviour change programmes; vector-control campaigns; health insurance organizations; occupational health and safety legislation. It includes intersectoral action by health staff, for example, encouraging the ministry of education to promote female education, a well-known determinant of better health.<sup>81</sup>*

Further, the health systems strengthening service delivery areas in the toolkit are adapted from WHO's framework for health systems strengthening (Fig. 8, page 281),<sup>82</sup> which identifies six core building blocks: health workforce, information, medical products and technologies, financing, governance and service delivery.<sup>83</sup> These six building blocks provide the foundation for discrete sets of measurements while acknowledging the links and interactions between each of them.

81 Everybody's business: health systems strengthening to improve health outcomes. WHO's framework for action. Geneva, World Health Organization, 2007 ([http://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](http://www.who.int/healthsystems/strategy/everybodys_business.pdf), accessed 15 September 2008).

82 WHO health systems strategy [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthsystems/strategy/en>, accessed 15 September 2008).

83 Everybody's business: health systems strengthening to improve health outcomes. WHO's framework for action. Geneva, World Health Organization, 2007 ([http://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](http://www.who.int/healthsystems/strategy/everybodys_business.pdf), accessed 15 September 2008).

**Fig. 8. The WHO framework for health systems strengthening**

Source: Everybody's business: health systems strengthening to improve health outcomes. WHO's framework for action. Geneva, World Health Organization, 2007 ([http://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](http://www.who.int/healthsystems/strategy/everybodys_business.pdf), accessed 15 September 2008).

## 8.2 Strategies for health systems strengthening

As noted earlier, the Global Fund recognizes and supports the adaptation of WHO's framework for action on health systems strengthening with six building blocks<sup>84</sup> (hereafter called service delivery areas) as a basis for providing resources for health systems strengthening at all levels, including the community level. The Global Fund may therefore fund the following under each of the six service delivery areas (Box 18).

### Box 18. Global Fund support for health systems strengthening

Global Fund support for health systems strengthening is available where the funding requested meets the following criteria, depending on the country-specific context:

- *is essential to achieve planned outputs and outcomes for the three diseases;*
- *addresses general weaknesses of health systems that are beyond a specific program's mandate but will contribute to improved HIV, TB and malaria outcomes; and*
- *is consistent with (where they exist) national policy directions: for example, a health sector development plan, a national financing strategy or a health workforce plan.*

**1. Service delivery.** Well-functioning health services deliver effective, safe, high-quality health interventions to those who need them, when and where needed, with minimum waste of resources. Action under this service delivery area may therefore be needed to improve how HIV, TB and malaria services are organized and delivered and to expand access to all services. Possible activities may include:

- *increasing service availability;*
- *enhancing capacity for provision of basic services;*
- *creating demand for the utilization of services; and*
- *ensuring the provision of high-quality health services.*

<sup>84</sup> WHO health systems strategy [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthsystems/strategy/en>, accessed 15 September 2008).

**2. Health workforce.** A well-performing health workforce works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given the available resources and circumstances. Activities to strengthen this service delivery area may therefore include:

- *strengthening the production of health workers;*
- *increased recruitment;*
- *an equitable geographical distribution of health professionals by specialization;*
- *retention initiatives; and*
- *productivity.*

The focus should not only be on clinical service providers but also management and support staff essential to keep a system running. Enhancing skills through training should be based on a national standard training curriculum and, wherever possible, trained staff should be accredited.

**3. Health information.** A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on the determinants of health, health system performance and health status. Actions to strengthen the health information system include:

- *strengthening personnel skills and procedures and acquiring appropriate equipment to facilitate or improve the generation of data;*
- *compiling, analysing or synthesizing these data into strategic information; and*
- *using and communicating health information.*

These strengthening actions should apply at all levels. Specific activities may also include strengthening the collection and quality of mortality statistics and building data management capacity for M&E, operations research and surveys at the district and national levels. It may also mean formulating and implementing clear national information policy and standards and expanding reporting by private for-profit health service providers and civil society organizations.

**4. Medical products, vaccines and technology.**<sup>85</sup> A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness and their scientifically sound and cost-effective use. Achieving more equitable access to essential medicines<sup>86</sup> and technologies may require creating or strengthening national policies, standards, guidelines and regulations that support policy. This process requires:

- *evidence-based selection of medicines, vaccines and technologies according to international standards;*
- *information on prices;*
- *international trade agreements and capacity to set and negotiate prices;*
- *reliable manufacturing practices and quality assessment of high-priority products;*
- *procurement, supply and storage and distribution systems that minimize leakage and other waste; and*
- *support for the rational use of essential medicines, commodities and equipment, which can include strategies to assure adherence, reduce resistance and maximize patient safety and training.*

**5. Financing.** Good health financing mobilizes, accumulates and allocates funds to cover the health needs of people, individually and collectively, in the health system. This aims to ensure that people can use needed services and are protected from financial catastrophe or impoverishment associated with having to pay for them. Action should therefore aim at:

- *improving financial risk protection and coverage for vulnerable groups;*
- *mobilizing sufficient resources for health;*
- *enhancing efficient use of these resources; and*
- *enhancing financial transparency and management at the operational level.*

<sup>85</sup> The Global Fund will not fund scientific research and clinical research aimed at demonstrating the safety and efficacy of new pharmaceuticals and vaccines.

<sup>86</sup> An essential medicines list is a government-approved selective list of medicines or national reimbursement list.

**6. Health system governance.** Leadership and governance involves ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition-building, the provision of appropriate regulations and incentives, attention to system design and accountability. This involves improving the governance of health systems with special reference to the positive impact of the delivery and utilization of services for HIV, TB and malaria. Action that may be needed to strengthen this service delivery area includes:

- *strengthening advocacy capacity;*
- *building coalitions with other sectors and civil society;*
- *improving the oversight and regulation of services provided by government and nongovernmental providers;*
- *instituting regular performance reviews; and*
- *supporting policy and research on health systems.*

### 8.3 Key priorities in the M&E of health systems strengthening

Although the toolkit only recommends a small list of indicators to monitor health systems strengthening on a routine basis, these do not replace the need and importance of extensive health system surveys that provide more detailed information for monitoring health systems strengthening. This section highlights the key studies and surveys that WHO encourages countries to implement. Information from these surveys will complement the information reported routinely based on the selected indicators listed in Table 21 (page 286).

**Health facility assessments.** Health facility assessments can be conducted using different sampling approaches (establishment census or sample survey) and methods (self-administered postal, fax or Internet-based questionnaires; or telephone or face-to-face interviews). Depending on the nature of the data collection procedures and instruments, in-depth information can be obtained about the characteristics of health services, including their quality, infrastructure, utilization and availability. Recommended examples include WHO's Service Availability Mapping,<sup>87</sup> the Service Provision Assessments of MEASURE DHS<sup>88</sup> and the facility censuses supported by the Japanese International Cooperation Agency. Subsection 8.5 provides additional references and guidance. Countries are further encouraged to give priority to the following two approaches.

**Health Action International/WHO survey on medicine prices and availability and survey for assessing, monitoring and evaluating country pharmaceutical situations.**<sup>89</sup> Countries are encouraged to participate in these surveys to ensure that a wide variety of information on medicines is collected. Such information includes medicine pricing, availability, affordability, component costs from the manufacturer up to retailers and cost-effective use of medicines by health professionals and consumers. The Health Action International/WHO study, based on a method they developed, uses a short-list of medicines to compare the prices of medicines in different health sectors. Key indicators assess and monitor the use of medicines, prescribing practices and elements of patient care. Although these surveys do not occur frequently, WHO encourages the collection of this information to inform larger country-level decisions on access to high-quality essential medicines and the rational use of medicines.

87 Service Availability Mapping (SAM) [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthinfo/systems/serviceavailabilitymapping/en>, accessed 15 September 2008).

88 Service provision assessments [website]. Calverton, MD, MEASURE DHS, 2008 (<http://www.measuredhs.com/aboutsurveys/spa.cfm>, accessed 15 September 2008).

89 WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Geneva, World Health Organization, 2007 ([http://www.who.int/medicines/publications/WHO\\_TCM\\_2007.2/en/index/html](http://www.who.int/medicines/publications/WHO_TCM_2007.2/en/index/html), accessed 15 September 2008).

## 8.4 Selected indicators

This section provides a general framework for monitoring health systems strengthening (national, subnational and the community level). Table 21 on page 286 includes recommended process and output indicators that countries may choose to use at all levels. In many cases, it is important to disaggregate relevant indicators by sex, community, region or vulnerable population groups to enable the monitoring of progress in achieving equity of access and coverage of essential services.

As far as possible, the Global Fund encourages the use of existing in-country indicators to monitor health system performance. These would include specific indicators that are part of a program-based approach (including sector-wide approaches), performance matrix or other national strategic frameworks.

Additionally, WHO's toolkit on monitoring health systems strengthening includes other examples of indicators, their definitions and measurement methods and more detailed descriptions of the six building blocks of health system strengthening.

The measurement framework for health systems strengthening in this toolkit encompasses efforts inside and outside health facilities. The health facilities include those in the public and private sectors; systems within communities and villages can provide services outside health facilities. Community-based organizations within communities or villages manage health services provided outside health facilities by using community or village staff or volunteers. In terms of indicators, the framework for measuring health system strengthening focuses on input and output indicators, where input means resources and output indicators measure the availability of services. Outcome and impact indicators measure the level of use of health services and are therefore monitored within disease-specific program interventions.

Although significant progress has been made to strengthen systems within health facilities, this has not been the case for systems outside health facilities (civil society) at the community level. For this reason, indicators of health systems strengthening within health facilities will focus on output indicators, whereas for health systems strengthening within civil society, input indicators will initially be monitored, moving gradually to output indicators as civil society health systems are strengthened.

## 8.5 Recommended annual reviews for health systems strengthening

For routine monitoring of health systems strengthening, only four of the six areas are included: service delivery; health workforce; health information; and medical products, vaccines and technology. "Financing" and "health system governance" are excluded, and the Global Fund and WHO recommend monitoring these service delivery areas through annual reviews.

For the review of the "health system governance" area, it is recommended that the review focus on monitoring the existence of strategic policy frameworks aimed at facilitating delivery of health services; the extent of improvement in oversight of service delivery; and the existence of regulations. Countries should use the policy index as described in the WHO building block on governance for health systems and the World Bank's Country Policy and Institutional Assessment (CPIA) score for health.<sup>90</sup>

For annual reviews on financing for health systems strengthening, countries should focus on the extent of financial risk protection and coverage for vulnerable groups, whether adequate resources are being mobilized and whether their utilization is efficient and transparent. The key indicators to monitor during these reviews should include the total health expenditure per capita; government expenditure on health; out-of-pocket expenditure as a percentage of total health expenditure; and total health expenditure as a percentage of GDP.

<sup>90</sup> Toolkit on monitoring health systems strengthening: health systems governance. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html), accessed 15 September 2008).

In addition to these two areas of focus for the annual reviews, it is recommended for countries to plan and implement more detailed reviews of the health information system. This is in recognition of the complexity of health information systems and that a few selected routine indicators may not adequately indicate how a health information system is functioning. Countries are advised to conduct comprehensive annual reviews on the health information system using the WHO-recommended health information system performance index (HISPIX).<sup>91</sup> The HISPIX is a summary measure based on a core set of 27 standardized indicators for assessing data quality and the overall performance of the health information system. The score is calculated from information available in the public domain using standard indicators to enhance objectivity and comparability over time and across countries. For most of the indicators, simple yes or no responses are required, and these do not carry any weighting. The advantage of this approach is that it permits countries and development partners to identify key areas for improvement as part of a plan for strengthening health information systems.

91 Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html), accessed 15 September 2008).

**Table 21. Selected process and output indicators for monitoring health systems strengthening**

Service delivery area (SDA)	Service delivery sub-area	Indicators	Source <sup>a</sup>	Measurement tool	Frequency of data collection	
Service delivery	Service availability	Centrally	Distribution of health facilities per 10 000 population (number) (HSS-SD1)	WHO core indicator	Administrative records Health facility census	Annually (updating) 3–5 years (validation)
			Distribution of inpatient beds per 10 000 population (number) (HSS-SD2)	WHO core indicator	Administrative records Health facility census	Annually (updating) 3–5 years (validation)
		Outside health facilities	Civil society organizations supported for health system strengthening (number and percentage) (HSS-SD3)	Other	Administrative records	Quarterly
			Civil society organizations with the minimum capacity to deliver HIV, TB and malaria services (number and percentage) (HSS-SD4)	Other	Administrative records	Quarterly
			Distribution of civil society organizations providing HIV, TB and malaria services in a defined catchment area per 1000 population by type of service (number) (HSS-SD5)	Other	Population-based survey	Every 2–3 years
	Basic service capacity	Centrally or within health facilities	Health facilities that meet basic service capacity standards (number and percentage) (HSS-SD7) This is a general service capacity indicator, whereas HSS-SD6 indicates specific service capacity.	WHO core indicator	Administrative records Health facility survey Health facility census	Annually (updating) 2–3 years (updating) 3–5 years (validation)
			Distribution of health facilities with the capacity to provide specific services per 10 000 population (number) (HSS-SD7) This is a specific service capacity indicator, whereas HSS-SD6 indicates general service capacity.	WHO core indicator	Health facility census	Every 3–5 years
	Service utilization	Centrally or within health facilities	People seeking services at outpatient departments per 10 000 population (number) (HSS-SD8)	WHO core indicator	Administrative records	Annually
	Service quality <sup>b</sup>	Centrally	People expressing satisfaction with the care and support services received at the community level (percentage) (HSS-SD9)	Other	Population-based survey	Every 2–3 years
		within health facilities	People expressing satisfaction with health care services received within public and private health facilities (percentage) (HSS-SD10)	Other	Health facility survey	Every 2–3 years

**Table 21. Selected process and output indicators for monitoring health systems strengthening** (continued)

Service delivery area (SDA)	Service delivery sub-area	Indicators	Source <sup>a</sup>	Measurement tool	Frequency of data collection	
Human resources for health	Production	Centrally	People graduating from health professional educational institutions per 100 000 population per year (number) (HSS-HR1)	WHO core indicator	Administrative records	Annually
		Within and outside health facilities	Health workers (including volunteers) trained for providing HIV, TB and malaria services (number) (HSS-HR2) This indicator includes training for community-level volunteers, accredited and non-accredited health professionals.	Other	Administrative records	Quarterly
	Recruitment	Within health facilities	Health workers newly recruited at primary health care facilities in the past 12 months (number and percentage) (HSS-HR3)	Additional WHO indicator	Administrative records	Annually
	Distribution	Centrally	Health workers per 10 000 population by type of health worker (number) (HSS-HR4)	WHO core indicator	Administrative records Population-based survey or health facility census	Monthly, quarterly, annually (updating) 3–5 years (validation)
			Distribution of health workers by profession or specialization, region, place of work and sex (number) (HSS-HR5)	WHO core indicator	Administrative records Population-based survey or health facility census	Monthly, quarterly, annually (updating) 3–5 years (validation)
	Retention	Within health facilities	Health care facilities that received supervision in the past six months (number and percentage) (HSS-HR6)	Additional WHO indicator	Administrative records	Annually
		Outside health facilities	Civil society staff and volunteers who received personal supervision in the past six months (number and percentage) (HSS-HR7)	Other	Administrative records Sample survey	Quarterly
		Within health facilities	Annual rate of retention of health service providers at public health facilities (percentage) (HSS-HR8)	Additional WHO indicator	Administrative records	Annually
		Outside health facilities	Volunteers provided with a stipend or allowance for providing HIV, TB and malaria services (number and percentage) (HSS-HR9)	Other	Administrative records	Quarterly

**Table 21. Selected process and output indicators for monitoring health systems strengthening** (continued)

Service delivery area (SDA)	Service delivery sub-area	Indicators	Source <sup>a</sup>	Measurement tool	Frequency of data collection	
Health information	Data generation	Within and outside health facilities	Staff members trained in M&E (per level) (number) (HSS-HI1)	Other	Administrative records	Quarterly
		Centrally	A nationally coordinated multi-year disease-specific M&E plan with a schedule for survey implementation and data analysis has been prepared and is being implemented (HSS-HI2)	Additional WHO indicator	Administrative records	Annually <sup>c</sup>
			Deaths registered (percentage) (HSS-HI3)	Additional WHO indicator	Vital registers	Every 3–5 years
		Outside health facilities	Civil society organizations with at least one staff member trained in M&E (number and percentage) (HSS-HI4)	Other	Administrative records	Quarterly
		Outside health facility	Civil society organizations using standard data collection formats according to national guidelines (number and percentage) (HSS-HI5)	Other	Administrative records	Quarterly
	Communication and use	Within health facility	Districts submitting timely, complete and accurate reports to the national level (number and percentage) (HSS-HI6)	Additional WHO indicator	Administrative records	Quarterly <sup>d</sup>
		Outside health facility	Civil society organizations reporting routine HIV, TB and malaria data to the nationally designated entity according to national guidelines (number and percentage) (HSS-HI7)	Other	Administrative records	Quarterly
Medical products, vaccines and technology	Procurement, supply, storage and distribution systems	Within health facilities	Facilities with all tracer medicines in stock on the day of the visit (percentage) (HSS-HP1)	WHO core indicator	Health facility survey	2–3 years
		Within and outside health facilities	Facilities that keep accurate logistics data for inventory management (percentage) (HSS-HP2)	Additional WHO indicator <sup>e</sup>	Health facility survey	2–3 years
			Facilities with staff trained in stock management (number and percentage) (HSS-HP3)	Other	Administrative records	Quarterly
			Facilities that maintain acceptable storage conditions and handling procedures (number and percentage) (HSS-HP4)	Additional WHO indicator	Administrative records	Annually
		Within health facilities	Product losses by value due to expired drugs, damage and theft per value received (percentage and number) (HSS-HP5) This indicator should also be tracked at the central level.	Additional WHO indicator	Administrative records	Annually

**Table 21. Selected process and output indicators for monitoring health systems strengthening (continued)**

Service delivery area (SDA)	Service delivery sub-area	Indicators	Source <sup>a</sup>	Measurement tool	Frequency of data collection	
Medical products, vaccines and technology	Reliable manufacturing practices and quality assessment of high-priority products	Centrally	Existence of standard procedures for the quality control of health products at initial receipt at the central level (HSS-HP6)	Additional WHO indicator	Administrative records	Annually
		Centrally	Product batches of pharmaceuticals that have undergone a quality control process at the initial receipt according to standard procedures (percentage) (HSS-HP7)	Additional WHO indicator	Administrative records	Annually
		Within health facility	Health facilities that have a procedure in place to report product quality issues (percentage) (HSS-HP8)	Additional WHO indicator	Health facility survey	Every 2–3 years
	Support for the rational use of essential medicines		Medicines prescribed based on national treatment guidelines or an essential medicines list or formulary (percentage) (HSS-HP9)	Additional WHO indicator	Health facility survey	Every 2–3 years
			Dispensed medicines adequately labeled with dosage instructions (percentage) (HSS-HP10)	Additional WHO indicator	Health facility survey	Every 2–3 years
			Health facilities with an adherence register or other similar record-keeping system available to report adherence <sup>f</sup> rates (percentage) <sup>f</sup> (HSS-HP11)	Additional WHO indicator	Health facility survey	Every 2–3 years

a WHO core indicators: core set of high-priority indicators recommended to monitor health systems strengthening in the toolkit on monitoring health systems strengthening. Additional WHO indicator: although they are not part of the core set, they are also recommended as additional indicators in the toolkit on monitoring health systems strengthening. Other: indicators to be monitored by the civil society at the community level.

b A mechanism to measure the quality of services provided at health facilities needs to be developed and will therefore be used to monitor the provision of high-quality services.

c During supervision, the verification involves checking whether the plan is being adhered to.

d During supervision, consistency in the use of the dissemination plan is checked.

e Indicators drawn from the recommended medical products indicators by WHO.

f During supervision, the adherence to national regulations is checked every time to ensure consistency in following the regulations.

**Table 22. Recommended impact indicator to measure health system strengthening**

Impact indicator	Measurement tool	Frequency of data collection
Mortality rate among children younger than 5 years	Population-based survey	Every 3–5 years

## 8.5 Resources

WHO can provide a wide range of assistance in health systems strengthening to countries through its regional and headquarters offices. In addition, the WHO website provides the latest information on the framework for health systems strengthening with recommended core indicators and measurement methods.<sup>92</sup>

This section provides references to resources, tools and guidelines. The references are provided according to the six building blocks.

### 8.5.1 Service delivery

#### Tools and further reading

International Health Facility Assessment Network. Profiles of health facility assessment methods. Calverton, MD, MEASURE Evaluation, 2006 (<http://www.cpc.unc.edu/measure/publications/pdf/tr-06-36.pdf>).

Islam M, ed. Health systems assessment approach: a how-to manual. Bethesda, MD, Health Systems 20/20, (<http://www.healthsystems2020.org/content/resource/detail/528>).

Logistics Indicators Assessment Tool (LIAT). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). A quantitative data collection instrument, developed by DELIVER, that assesses health commodity logistics system performance and commodity availability at health facilities. The user's guide is included and provides detailed instructions on how to use the tool.

Assessment Tool for Laboratory Services (ATLAS). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). This document is a data-gathering tool developed by the DELIVER PROJECT to assess laboratory services and logistics. The ATLAS is a diagnostic and monitoring tool that can be used as a baseline survey to complete an annual assessment or as an integral part of the work planning process. The ATLAS is primarily a quantitative tool with a small-sample qualitative facility survey of available commodities and equipment. The information collected using the ATLAS is analyzed to identify issues and opportunities and to outline further assessment and/or appropriate interventions.

Logistics System Assessment Tool (LSAT). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). Newly revised, this qualitative data collection instrument provides a comprehensive system-level assessment of logistics system performance for any program that manages a health commodity.

#### OECD work on health care quality monitoring and indicators

Kelley E, Hurst J. Health Care Quality Indicators Project: conceptual framework paper. Paris, Organisation for Economic Co-operation and Development, 2006 (OECD Health Care Working Papers, No. 23; <http://www.oecd.org/dataoecd/1/36/36262363.pdf>).

Mattke S et al. Health Care Quality Indicators Project: initial indicators report. Paris, Organisation for Economic Co-operation and Development, 2006 (OECD Health Care Working Papers, No. 22; <http://www.oecd.org/dataoecd/1/34/36262514.pdf>).

Peters DH et al. A balanced scorecard for health services in Afghanistan. Bulletin of the World Health Organization, 2007, 85:146–151.

<sup>92</sup> Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html), accessed 15 September 2008).

## 8.5.2 Human resources for health

### Leading WHO publications on human resources for health

The world health report 2006 – Working together for health. Geneva, World Health Organization, 2006 (<http://www.who.int/whr/2006/en/index.html>).

Working together for health: the world health report 2006 – Policy briefs. Geneva, World Health Organization, 2006 ([http://www.who.int/hrh/documents/policy\\_brief/en/index.html](http://www.who.int/hrh/documents/policy_brief/en/index.html)).

Bossert T et al. Assessing financing, education, management and policy context for strategic planning of human resources for health. Geneva, World Health Organization, 2007 ([http://www.who.int/hrh/tools/assessing\\_financing.pdf](http://www.who.int/hrh/tools/assessing_financing.pdf)).

Management Sciences for Health. Tools for planning and developing human resources for HIV/AIDS and other health services. Geneva, World Health Organization, 2006 (<http://www.who.int/hrh/tools/planning>).

### Selected tools

HRH Action Framework [website]. Chapel Hill, NC, Capacity Project, 2008 (<http://www.capacityproject.org/framework>).

Human resources for health (HRH) tools and guidelines: HRH situation analysis [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/hrh/tools/situation\\_analysis/en/index.html](http://www.who.int/hrh/tools/situation_analysis/en/index.html)).

Human resources for health (HRH) tools and guidelines: HRH planning [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/hrh/tools/planning/en/index.html>).

Human resources for health (HRH) tools and guidelines: HRH management systems [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/hrh/tools/management/en/index.html>).

### Related links

WHO's Department of Human Resources for Health: <http://www.who.int/hrh>.

World Bank's Human Resources for Health programme: <http://go.worldbank.org/XR4K48D5M0>.

Africa Health Workforce Observatory: <http://www.afro.who.int/hrh-observatory>.

Latin America and Caribbean Observatory of Human Resources in Health: <http://www.observatoriorh.org/eng/index.html>.

Eastern Mediterranean Region Observatory on Human Resources for Health: <http://www.emro.who.int/hrh-obs>.

Asia-Pacific Action Alliance on Human Resources for Health: <http://aaahrh.org>.

Capacity Project (a global human resources for health initiative funded by the United States Agency for International Development): <http://www.capacityproject.org>.

Human Resources for Health (online journal): <http://www.human-resources-health.com>.

Global atlas of the health workforce [online database]. Geneva, World Health Organization, 2008 ([http://www.who.int/globalatlas/autologin/hrh\\_login.asp](http://www.who.int/globalatlas/autologin/hrh_login.asp)).

Spotlight on statistics (series of fact files on health workforce statistics): <http://www.who.int/hrh/statistics/spotlight/en/index.html>

Service Availability Mapping (SAM) [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthinfo/systems/serviceavailabilitymapping/en>). Assessment tool and country reports.

### 8.5.3 Health information

The following provides references and links to key sources of standards, guidelines and quality criteria for various components of the health information system. Not all the references are explicit assessment tools, but they do offer guidance on quality criteria for aspects of health information systems. The main focus is on ensuring data quality.

#### **General assessment of health information systems**

Health Metrics Network. Assessing the national health information system: an assessment tool. Version 4.00. Geneva, World Health Organization, 2008 (<http://www.who.int/healthmetrics/tools/hisassessment/en/index.html>). This offers a tool for conducting a systematic assessment of the existing national health information systems – both to establish a baseline and to monitor progress. The assessment is aligned with the standards for health information systems described in the Health Metrics Network framework. The assessment covers the many subsystems of a national health information system, including public and private sources of health-related data. It addresses the resources available to the system (inputs), its methods of work and products (processes and outputs) and the results in terms of data availability, quality and use (outcomes). All major stakeholders should participate in assessing the national health information system and planning for strengthening it. Stakeholders include the producers, users and funders of health information and other social statistics at various national and subnational levels. These include officials in government ministries and agencies; donors and development partners such as multilateral and bilateral agencies; nongovernmental organizations; academic institutions; professional associations; other users of health-related information such as members of parliament; civil society (including health-related advocacy groups); and the mass media. The tool is also available as an electronic spreadsheet to facilitate scoring of the indicators.

#### **Health surveys**

Household sample surveys in developing and transition countries. New York, United Nations, 2005 (<http://unstats.un.org/unsd/hhsurveys>). This document describes standards for household surveys but is not an assessment tool. The publication presents the state of the art on important aspects of conducting household surveys in developing and transition countries, including sample design, survey implementation, non-sampling errors, survey costs and analysis of survey data. The main objective of the handbook is to assist national survey statisticians to design household surveys in an efficient and reliable manner and to allow users to make greater use of survey-generated data.

Demographic and Health Surveys [web site]. Calverton, MD, MEASURE DHS, 2008 (<http://www.measuredhs.com>). The Demographic and Health Surveys are based on specified standards and quality criteria. Macro International implements the Demographic and Health Surveys within the MEASURE DHS project with support from the United States Agency for International Development. MEASURE DHS has been conducting Demographic and Health Surveys work around the world for more than two decades. These nationally representative household surveys include large sample sizes (usually 5000 to 30 000 households) and are generally conducted every five years to allow for comparison over time. MEASURE DHS staff members have advanced training in economics, sociology, behavioral psychology, statistics, management and social marketing.

#### **Civil registration**

Principles and recommendations for a vital statistics system. Rev. 2. New York, United Nations, 2001 (<http://unstats.un.org/unsd/pubs/gesgrid.asp?id=264>). A guide for national governments in establishing and maintaining reliable civil registration systems for legal documentation on events throughout the lifetime of individuals from birth, changes in marital status, and to death. It provides technical guidance on standards, concepts, definitions and classifications for civil registration and vital statistics to further increase the international comparability of data. Companions to this book are a series of handbooks on civil registration and vital statistics systems issued by the United Nations over the last several years.

### Census

Principles and recommendations for population and housing censuses. New York, United Nations, 2008 (<http://unstats.un.org/unsd/demographic/sources/census/census3.htm>). The main objective of the principles and recommendations is to provide international principles and recommendations for use by national statistical offices and census officials in countries throughout the world in planning and organizing their censuses.

### Health facility reporting

PRISM: Performance of routine information system management has been developed by MEASURE Evaluation and John Snow, Inc. (<http://www.cpc.unc.edu/measure/events/improving-routine-health-information-systems-performance-and-use-of-information-for-health-systems-management>). It is designed to assess routine, facility-based information and management systems while acknowledging the broader context in which such systems operate. It emphasizes strengthening routine health information system performance through better data quality and improved information use. PRISM broadens the analysis of performance to include three key categories of determinants that affect performance:

- *behavioral determinants – the knowledge, skills, attitudes, values, and motivation of the people who collect and use data;*
- *technical determinants – data collection forms, processes, systems, and methods; and*
- *organizational determinants – information culture, structure, resources and the roles and responsibilities of key contributors at each level of the health system.*

### Tracking health system Resources

Guide to producing national health accounts: with special applications for low-income and middle-income countries. Geneva, World Health Organization, 2003 (<http://www.who.int/nha/docs>). The guide walks the reader through the process of acquiring and evaluating data and provides step-by-step examples of how to turn raw numbers into information useful for policy analysis and development.

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)). The toolkit is currently in draft form and describes a set of indicators, measurement approaches and strategies that will permit the establishment of country health system statistical profiles, thus facilitating monitoring of health systems investments and providing guidance to countries and development partners on where the critical gaps in health systems functioning lie.

### Assessment of data quality in national statistical systems

How are we doing? Performance indicators for national statistical systems. Netherlands Official Statistics, 1998, 13:5–13 (<http://dsbb.imf.org/vgn/images/pdfs/nld.pdf>). This paper proposes a system approach to evaluating the performance of national statistical offices and takes the view that the quality of a statistical system and the quality of its products are highly correlated. The United Nations Fundamental Principles of Official Statistics (<http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>) are used as a general framework to assess the performance of national statistical offices. The paper briefly explains each principle and raises several operational questions related to each principle.

Elvers E, Rosén B. Quality concept for official statistics. In: Encyclopedia of statistical sciences. New York, Wiley, 1997 (<http://dsbb.imf.org/vgn/images/pdfs/Encyc.pdf>). The quality of statistics is defined by referring to how well statistics meet users' needs and expectations for statistical information, once disseminated. The authors suggest that, to allow users to assess the quality of the statistics they utilize, producers of official statistics provide neutral, descriptive information about all aspects of statistics that affect users' views on how well the statistics might meet their needs and expectations. They suggest that this information be organized by main quality components, identified as contents, accuracy, timeliness and coherence (especially comparability).

What is the General Data Dissemination System (GDDS)? Washington, DC, International Monetary Fund, 2008 (<http://dsbb.imf.org/Applications/web/getpage/?pagename=gddswhatgdds>). The GDDS is designed to encourage countries to improve data quality, provide a framework for evaluating needs for data improvement and setting priorities, and guide countries in the dissemination to the public of comprehensive, timely, accessible and reliable economic, financial and sociodemographic statistics.

Data Quality Assessment Framework: a factsheet. Washington, DC, International Monetary Fund, 2003 ([http://dsbb.imf.org/vgn/images/pdfs/dqrs\\_factsheet.pdf](http://dsbb.imf.org/vgn/images/pdfs/dqrs_factsheet.pdf)).

Data Quality Assessment Framework – generic framework. Washington, DC, International Monetary Fund, 2003 ([http://dsbb.imf.org/vgn/images/pdfs/dqrs\\_Genframework.pdf](http://dsbb.imf.org/vgn/images/pdfs/dqrs_Genframework.pdf)).

Data Quality Assessment Framework [website]. Washington, DC, International Monetary Fund, 2003 (<http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf>).

The Data Quality Assessment Framework (DQAF) of the International Monetary Fund identifies quality-related features of governance of statistical systems, statistical processes and statistical products. It is rooted in the United Nations Fundamental Principles of Official Statistics and describes five dimensions of quality – assurances of integrity, methodological soundness, accuracy and reliability, serviceability and accessibility. The DQAF, which is used for comprehensively assessing countries' data quality, covers institutional environments, statistical processes and characteristics of the statistical products. The generic DQAF serves as an umbrella for seven dataset-specific frameworks, but no health-specific DQAF has been developed.

Fundamental Principles of Official Statistics. New York, United Nations, 1994 (<http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>). The United Nations Statistical Commission adopted the Fundamental Principles of Official Statistics in 1994. Although the Principles are not an assessment tool, they provide a general quality framework for national statistics offices to review performance, identify strengths and weaknesses and make recommendations for improvement. There are ten principles covering:

- *relevance impartiality and equal access*
- *professional standards and ethics*
- *accountability and transparency*
- *prevention of misuse*
- *cost-effectiveness*
- *confidentiality*
- *legislation*
- *national coordination*
- *international standards*
- *international cooperation.*

Implementation of the Fundamental Principles of Official Statistics: report of the Secretary-General. New York, United Nations, 2004 (<http://unstats.un.org/unsd/statcom/doc04/2004-21e.pdf>). The United Nations Statistical Commission has developed a questionnaire allowing national statistical offices to report their experiences with the Fundamental Principles in a uniform way. The most recent review of experiences was conducted in 2003.

Health statistics and health information systems [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthinfo/statistics/en>).

#### 8.5.4 Medical products, vaccines and technology

Measuring medicine prices, availability, affordability and price components. 2nd ed. Geneva and Amsterdam, WHO and Health Action International, 2008 ([http://www.who.int/medicines/areas/access/medicines\\_prices08/en/index.html](http://www.who.int/medicines/areas/access/medicines_prices08/en/index.html) or <http://www.haiweb.org/medicineprices>).

Measuring transparency in medicines registration, selection and procurement: four country assessment studies. Geneva, World Health Organization, 2006 (<http://www.who.int/medicinedocs/index/assoc/s14096e/s14096e.pdf>).

Logistics Indicators Assessment Tool (LIAT). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). A quantitative data collection instrument, developed by DELIVER, that assesses health commodity logistics system performance and commodity availability at health facilities. The user's guide is included and provides detailed instructions on how to use the tool.

Assessment Tool for Laboratory Services (ATLAS). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). This document is a data-gathering tool developed by the DELIVER PROJECT to assess laboratory services and logistics. The ATLAS is a diagnostic and monitoring tool that can be used as a baseline survey to complete an annual assessment or as an integral part of the work planning process. The ATLAS is primarily a quantitative tool with a small-sample qualitative facility survey of available commodities and equipment. The information collected using the ATLAS is analyzed to identify issues and opportunities and to outline further assessment and/or appropriate interventions.

Logistics System Assessment Tool (LSAT). Arlington, VA, DELIVER PROJECT, John Snow Inc., 2006 (<http://deliver.jsi.com/dhome/topics/monitoring/monitoringpubs/meresources/metools>). Newly revised, this qualitative data collection instrument provides a comprehensive system-level assessment of logistics system performance for any program that manages a health commodity.

Guide to writing a procurement and supply management plan. Geneva, Global Fund to Fight AIDS, Tuberculosis and Malaria, 2006 (<http://www.theglobalfund.org/en/about/procurement/guides/#psm>).

Using indicators to measure country pharmaceutical situations: fact book on WHO Level I and Level II monitoring indicators. Geneva, World Health Organization, 2006 (<http://www.who.int/medicinedocs/collect/medicinedocs/index/assoc/s14101e/s14101e.pdf>).

WHO and MSH. Managing drug supply: the selection, procurement, distribution and use of pharmaceuticals. 2nd ed. Hartford, CT, Kumarian Press, 1997.

### **Pharmaceutical assessment tools**

Given that the pharmaceutical sector is highly susceptible to various forms of corruption, several data sources and useful links are proposed here. In particular, procurement – which involves inventory management, aggregate purchasing, public bidding contests, technical analysis of offers, proper allocation of resources, payments, receipts of drugs purchased and quality control checks – is vulnerable to corruption and fraud. In addition, the issue of counterfeit drugs has become salient as drugs are too often deliberately and fraudulently mislabeled with respect to their identity or source. Counterfeiting occurs both with branded and generic products, and counterfeit medicines may include products with the correct ingredients but fake packaging; with the wrong ingredients; without active ingredients; or with insufficient active ingredients.

Anello E. Ethical infrastructure for good governance in the public pharmaceutical sector. Working draft for field testing and revision. Geneva, World Health Organization, 2006 (<http://www.who.int/medicinedocs/index/assoc/s14080e/s14080e.pdf>).

WHO medicines strategy – countries at the core: 2004–2007. Geneva, World Health Organization, 2004 ([http://whqlibdoc.who.int/hq/2004/WHO\\_EDM\\_2004.5.pdf](http://whqlibdoc.who.int/hq/2004/WHO_EDM_2004.5.pdf)).

Good Governance for Medicines: Assessment Instrument. Geneva, World Health Organization, 2007 (<http://www.who.int/medicines/ggm/en/index.html>).

Measuring transparency in medicines registration, selection and procurement: four country assessment studies. Geneva, World Health Organization, 2006 (<http://www.who.int/medicinedocs/index/assoc/s14096e/s14096e.pdf>).

### 8.5.5 Health financing

#### **Selected tools**

WHO-CHOICE: CHOICE = CHOosing Interventions that are Cost Effective [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/choice>). To estimate the financial costs of scaling up a package of interventions over the medium term.

National health accounts: country information [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/nha/country/en/index.html>).

Guide to producing national health accounts with special applications for low-income and middle-income countries. Geneva, World Health Organization, 2003 (<http://www.who.int/nha/docs>).

Tan-Torres Edejer T et al., eds. Making choices in health: WHO guide to cost-effectiveness analysis. Geneva, World Health Organization, 2003.

OASIS (Organizational Assessment for Improving and Strengthening Health Financing, forthcoming): [http://www.who.int/health\\_financing/tools](http://www.who.int/health_financing/tools). To analyze the performance of a health financing system by assessing key design issues and implementation, identify bottlenecks in the way institutions and organizations function and help in finding institutional and organizational alternatives.

SimIns health financing policy tool [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/health\\_financing/tools/simins](http://www.who.int/health_financing/tools/simins)). SimIns is a computerized tool to aid in health financing policy decision-making. It projects health expenditure and funding and allows alternative mixes of financing sources to be evaluated.

#### **Related links**

GTZ-ILO-WHO Consortium on Social Health Protection in Developing Countries [website]. Eschborn, GTZ, 2007 (<http://www.socialhealthprotection.org>).

OECD health data 2008: statistics and indicators for 30 countries [website]. Paris, Organisation for Economic Co-operation and Development, 2008 (<http://www.oecd.org/health/healthdata>).

Contractual arrangements in health systems [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/contracting>)

Health systems financing [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/healthsystems/financing>).

National health accounts [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/nha>).

Health financing policy [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/health\\_financing](http://www.who.int/health_financing)).

Health systems financing [website]. Copenhagen, WHO Regional Office for Europe, 2008 (<http://www.euro.who.int/financing>).

Health systems development: health systems financing [website]. New Delhi, WHO Regional Office for South-East Asia, 2008 (<http://searo.who.int/EN/Section1243/Section1307.htm>).

Health financing and social protection [website]. Manila, WHO Regional Office for the Western Pacific, 2008 (<http://www.wpro.who.int/sites/hcf>).

WHO Statistical Information System (WHOSIS) [online database]. Geneva, World Health Organization, 2008 (<http://www.who.int/whosis>).

Health systems performance [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/health-systems-performance>).

World development indicators 2008. Washington, DC, World Bank, 2008 (<http://www.worldbank.org/data>).

#### 8.5.6 Health system governance

##### **Selected tools**

##### ***Health facility surveys and assessments***

Health facility surveys measure service availability, commodity management, human resource availability and adherence to treatment standards and protocols. Facility-level data are therefore an important data source for outcome-based indicators of governance in the areas of health service provision, human resources, responsiveness and quality.

Service provision assessments [website]. Calverton, MD, MEASURE DHS, 2008 (<http://www.measuredhs.com/aboutsurveys/spa.cfm>).

##### ***National financing data***

Health financing indicators show the ability of the health system to effectively mobilize and allocate resources, implement pooling and insurance schemes, and distribute the financial burden of care equitably. The main sources of health financing data include country national health accounts, WHO, World Bank and OECD databases along with special studies and surveys.

National health accounts (NHA) [website]. Geneva, World Health Organization, 2008 (<http://www.who.int/nha>).

Guide to producing national health accounts with special applications for low-income and middle-income countries. Geneva, World Health Organization, 2003 (<http://www.who.int/nha/docs>).

Gottret P, Schieber G. Health financing revisited. Washington, DC, World Bank, 2007.

### ***Public expenditure tracking surveys***

Public expenditure tracking surveys (PETS) are studies that track the flow of public funds from central government to districts or other lower-level government units. These studies monitor both the level of allocated resources in central government budgets that reach each subnational level and the associated time taken to reach recipients. PETS are therefore a useful source of governance of resources and the effectiveness of transfers of public funds among government levels.

Public expenditure tracking survey [website]. Washington, DC, World Bank, 2008 (<http://go.worldbank.org/AU6I2D0D70>).

Savedoff WD. Public expenditure tracking surveys: planning, implementation and uses. Portland, ME, Social Insight, 2008.

### ***Public expenditure reviews***

Countries prepare public expenditure reviews to provide a comprehensive analysis of public sector spending and outcomes. These diagnostic studies are an important governance tool in sectors such as health because they provide information on the public–private mix of goods and service provision, public expenditure priorities, the link between expenditure inputs and outcomes and public sector institutional arrangements. Public expenditure review information is available from World Bank documents for most low- and middle-income countries. Data are updated every 3–5 years.

Public expenditure reviews (PERs) [website]. Washington, DC, World Bank, 2008 (<http://go.worldbank.org/K37K361EG0>).

Although population-based surveys are the single most important source of population health information in many low- and middle-income countries, they have more limited use in assessing governance. Nevertheless, household surveys such as DHS and MICS can provide governance-related information on access to services, household expenditure on health, the quality of health services and overall responsiveness of the health care system to client needs.

Demographic and Health Surveys [website]. Calverton, MD, MEASURE DHS, 2008 (<http://www.measuredhs.com/aboutsurveys/dhs/start.cfm>).

Multiple Indicator Cluster Survey/MICS 3 [website]. New York, United Nations Children's Fund, 2008 ([http://www.childinfo.org/mic3\\_background.html](http://www.childinfo.org/mic3_background.html)).

### ***International Health Regulations***

The International Health Regulations aim to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide. The International Health Regulations, which entered into force in June 2007, require countries to report certain disease outbreaks and public health events to WHO. They define the rights and obligations of countries to report public health events and establish several procedures that WHO must follow in its work to uphold global public health security.

International Health Regulations (2005) – 2nd ed. Geneva, World Health Organization, 2008 (<http://who.int/scr/ihr/en>).

### ***Citizen report card surveys***

Citizen report card surveys serve as a mechanism to promote civil engagement and demand-side accountability and to empower individuals to express their views to government bodies. They allow citizens to contribute to oversight and regulation and therefore aim to improve the quality and integrity of public services.

Citizen report card surveys: a note on the concept and methodology. Washington, DC, World Bank, 2004 (<http://siteresources.worldbank.org/INTPCENG/1143380-1116506267488/20511066/reportcardnote.pdf>).

### ***Country Policy and Institutional Assessment***

The World Bank's annual Country Policy and Institutional Assessment (CPIA) provides a composite measure of governance across all sectors. The CPIA index rates the quality of a country's policy and institutional framework in fostering sustainable, poverty-reducing growth, and the effective use of development assistance. This index is based on a set of criteria captured in 16 subcomponents; one of these addresses governance in health and education. The ratings of each criterion are based on expert judgments, which are subsequently aggregated into the overall CPIA index. The 2006 scores for all 16 criteria and the overall CPIA were completed in early 2007 and are publicly available.

CPIA: policies and institutions for environmental sustainability [website]. Washington, DC, World Bank, 2008 (<http://go.worldbank.org/7NMQ1P0W10>).

### ***Other useful sources***

Global corruption report 2006: corruption and health. Berlin, Transparency International, 2006.

Monitoring the Declaration of Commitment on HIV/AIDS: guidelines on the construction of core indicators. 2008 reporting. Geneva, UNAIDS, 2007 ([http://data.unaids.org/pub/Manual/2007/20070411\\_ungass\\_core\\_indicators\\_manual\\_en.pdf](http://data.unaids.org/pub/Manual/2007/20070411_ungass_core_indicators_manual_en.pdf)).

World development report 2004: making services work for poor people. Washington, DC, World Bank, 2004.

The Stop TB Strategy: building on and enhancing DOTS to meet the TB-related Millennium Development Goals. Geneva, World Health Organization, 2006 ([http://whqlibdoc.who.int/hq/2006/WHO\\_HTM\\_STB\\_2006.368\\_eng.pdf](http://whqlibdoc.who.int/hq/2006/WHO_HTM_STB_2006.368_eng.pdf)).

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8.6

Description of indicators for  
health systems strengthening

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## Service delivery (HSS-SD1)

### Number and distribution of health facilities per 10 000 population

#### Rationale

The number of health facilities per 10 000 population is a useful indicator for measuring the supply of health care services.

#### Definition of the indicator

*Numerator:* The number of health facilities, meaning all public and private health facilities, defined as a static facility (designated building) in which general health services are offered but not including mobile service delivery points and non-formal services such as traditional healers

*Denominator:* The total population for the same geographical area

#### Measurement

- *Comparability issues:* the size of health facilities may vary considerably and affect comparisons. When smaller geographical units such as districts are analyzed, the population does not necessarily use the facilities in the designated area. The density of districts has to be compared cautiously.
- *Complementary dimensions:* distribution implies urban–rural differences and could include differences between regions or provinces or, in some instances, districts. Since districts tend to have small populations, the density of districts has to be compared cautiously.
- *Additional information can be presented about the type of health facility using the following categories:* public, private not-for-profit (including faith-based), private for-profit and other (such as parastatals).

The two indicators of service availability (HSS-SD1 and HSS-SD2) only provide partial information on physical access to services: the proportion of the population living within a certain travel time and distance from a health facility. Most data on access to health services appear to have been derived from judgment or basic spatial analysis. Designing catchment areas around health facilities (such as a five- or ten-km buffer) without taking the capacity of each health facility into account and without considering the logistical constraints for patients provides a rough idea of physical access. Such analysis requires the GPS (Global Positioning System) coordinates of all service delivery points and the population data for very small geographical areas. Few countries are conducting such analyses regularly. Urban areas comprise a special challenge for monitoring purposes. Physical access may be less of an issue, but affordability becomes the most important obstacle to access.

*Data sources:* district and national databases provide the number of public facilities, often by type (hospital, health centre, health post, dispensary etc.); special efforts – notably facility censuses – are often required to obtain the number of private facilities, especially if no registration system is enforced

*Frequency:* annual updating of the number of facilities and validation every 3–5 years through a complete health facility census

#### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Service delivery (HSS-SD2)

### Number and distribution of inpatient beds per 10 000 population

#### Rationale

The number of hospital beds per 10 000 population is a useful indicator for measuring the supply of health care services.

#### Definition of the indicator

*Numerator:* The number of inpatients beds, including total hospital beds (long-term and acute care beds), beds for children and maternity beds but not including delivery beds and including the public and private sectors

*Denominator:* The total population for the same geographical area

#### Measurement

- *Comparability issues:* when smaller geographical units such as districts are analyzed, the population does not necessarily use the facilities in the designated area. The density of districts has to be compared cautiously.
- *Complementary dimensions:* distribution implies urban–rural differences and could include differences between regions or provinces or, in some instances, districts.
- *Complementary dimensions:* additional information can be presented about beds by type of hospital facility using the following categories: public, private not-for-profit (including faith-based), private for-profit and other (such as parastatals).

The two indicators of service availability (HSS-SD1 and HSS-SD2) only provide partial information on physical access to services: the proportion of the population living within a certain travel time and distance from a health facility. Most data on access to health services appear to have been derived from judgment or basic spatial analysis. Designing catchment areas around health facilities (such as a five- or ten-km buffer) without taking the capacity of each health facility into account and without considering the logistical constraints for patients provides a rough idea of physical access. Such analysis requires the GPS (Global Positioning System) coordinates of all service delivery points and the population data for very small geographical areas. Few countries conduct such analyses regularly. Urban areas comprise a special challenge for monitoring purposes. Physical access may be less of an issue, but affordability becomes the most important obstacle to access.

*Data sources:* district and national databases provide the number of beds; special efforts – notably facility censuses – are often required to obtain the number of beds in private facilities, especially if no registration system is enforced

*Frequency:* regular updating of the number of beds in facilities and validation every 3–5 years through a complete health facility census

#### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

### Service delivery (HSS-SD3)

Number and percentage of civil society organizations supported for health systems strengthening for enhanced provision of HIV, TB and malaria services

#### Rationale

This indicator measures efforts to strengthen the ability of civil society organizations to provide quality HIV, TB and malaria services according to national standards. Civil society organizations provide services on behalf of and complement the public sector. Ensuring that their capacity to provide quality services is strengthened is therefore important. This indicator provides information on this important aspect.

#### Definition of the indicator

Civil society organizations are all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

Support is defined as technical support, training, financing and consumables provided in any of the health systems strengthening areas for the purpose of improving service delivery. This support is intended to assist civil society organizations in building the capacity to design, implement and evaluate HIV, TB and malaria prevention, care and treatment programs.

Technical support should include regular technical communication and information dissemination continued over time. It can be provided through a combination of strategic approaches and dissemination strategies including individualized and on-site peer and expert consultation, site visits, ongoing consultative relationships, national and/or regional meetings, consultative meetings and conferences, conference calls and webcasts, development and implementation of training curricula and policy development.

*Numerator:* Number of civil society organizations receiving health systems strengthening for enhanced provision of HIV, TB and malaria services

*Denominator:* Total number of civil society organizations providing HIV, TB and malaria services in a given target area

#### Measurement

The numerator is derived from a count or records from organizations that provide support to civil society organizations of the number that they supported during a specified period. The value is the sum of civil society organizations that received any form of support described above in the health systems strengthening building blocks: service delivery, human resources for health, health information, stock management under medical products and technology, finance and health governance.

The data should be disaggregated by type of organization, such as nongovernmental organization, community-based organization, faith-based organization etc.

This indicator should be calculated separately for HIV, TB and malaria.

*Data sources:* administrative records

*Frequency:* quarterly

## Service delivery (HSS-SD4)

Number and percentage of civil society organizations with the minimum capacity to deliver HIV, TB and malaria services

### Rationale

This indicator measures the capacity of civil society organizations to provide quality HIV, TB and malaria services that meet national and international standards. Civil society organizations provide services on behalf of and complement the public sector. Ensuring that they have the requisite capacity to offer services is therefore important. This indicator provides information on the availability of the minimum required capacity.

### Definition of the indicator

Civil society organizations are all nongovernmental organizations, including faith-based organizations that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

The organizational capacity required to deliver quality services is defined along the health system building blocks and includes technical and human resources, financial, M& E and stock management. The country will have to predefine the minimum required capacity depending on the national setting.

*Numerator:* Number of civil society organizations with the minimum capacity to deliver HIV, TB and malaria services

*Denominator:* Total number of civil society organizations providing HIV, TB and malaria services in a given target area

### Measurement

The numerator is derived from the sum of organizations that pass the predefined minimum capacity requirements out of the total number of organizations sampled.

This indicator should be calculated separately for HIV, TB and malaria.

*Data sources:* administrative records

*Frequency:* annually

**Service delivery (HSS-SD5)**

Number and distribution of civil society organizations providing HIV, TB and malaria services in a defined catchment area per 1000 population by type of service

**Rationale**

This indicator is intended to measure the level of coverage of services provided by civil society organizations in a given catchment area in an effort to determine the equity in HIV, TB and malaria service provision.

**Definition of the indicator**

Civil society organizations are all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

A catchment area is a specific geographical area being that is being covered by particular services.

Indicator: the number of civil society organizations (expressed per 1000 population) providing public health services at community level per defined catchment area by type of service.

**Measurement**

This indicator should be calculated separately for each type of HIV, TB and malaria service, for example, HIV prevention, malaria, care and support for people living with HIV etc. Data on the total number of civil society organizations that offer specific services can be obtained from in-country mapping exercises. The relevant bodies that oversee the work done by civil society organizations need to plan and execute these exercises regularly to facilitate the assessment process. This indicator does not measure the quality of services provided.

*Data sources:* population-based survey

*Frequency:* 2–3 years

## Service delivery (HSS-SD6)

Number and percentage of health facilities that meet basic service capacity standards

### Rationale

Health facilities should be able to meet minimum standards of service capacity or preparedness, including basic amenities and equipment, availability of infection control measures, staffing and essential medicines and diagnostics. Each component of capacity should be presented separately.

### Definition of the indicator

*Numerator:* The number of health facilities with basic service capacity standards

*Denominator:* The total number of health facilities

### Measurement

The basic service capacity or readiness is based on the presence of a core set of items present and functioning in the facility on the day of the assessment. The basic capacity is summarized in five components that should all be presented separately. Ideally, information is available on the physical access to health services, such as the proportion of the population in the country or in a district living within five or ten km of a health facility that has the basic service capacity (or a specific service). Such information depends on the availability of detailed data on the distribution of the population. Further refinement can be obtained if actual travel time can be estimated either from geographical information systems or through interviews in household or community surveys.

#### 1. Basic amenities

- a. Regular water supply from safe source on-site (or within 500 m)
- b. Sanitary facilities: client latrine
- c. Waiting area protected from sun and rain
- d. Communication equipment
- e. Electricity: routinely available during service hours or a backup generator with fuel

#### 2. Basic equipment

- a. Adult weighing scale
- b. Child weighing scale
- c. Thermometer
- d. Stethoscope
- e. Blood pressure cuff
- f. Refrigerator
- g. Needles and syringes

#### 3. Infection control

- a. Functioning sterilization equipment with power source for method: autoclave, dry heat sterilization, boiling and steaming and chemical disinfection
- b. Written guidelines or protocols
- c. Sharps container or box
- d. Soap, disinfecting solution, gloves and water

#### 4. Human Resources

- a. Minimum staffing requirement according to national guidelines
- b. Proportion of health workers present on the day of assessment

#### 5. Tracer drugs and diagnostics

- a. Availability of tracer drugs: the proportion of the tracer medicines that are present and non-expired on the day of the assessment
- b. Capacity to obtain basic laboratory results within one day: hemoglobin, HIV test, syphilis test and malaria blood test if appropriate

- *Comparability issues: definitions and data collection should be standardized.*
- *Complementary dimensions: data need to be presented for the different components of basic service capacity, especially infection control. Hospitals provide a wider range of services and will need an expanded version of the questionnaire administered during facility assessment or regular reporting.*

*Data sources:* facility visits are required using a standardized questionnaire to assess the availability and functioning of the components required to meet the basic service capacity standards.

*Frequency:* the basic state of facilities should be monitored annually at the subnational level as a management tool. National statistics should be updated every 2–3 years through regular reporting by districts, sample surveys and a health facility census once every 3–5 years to validate all information.

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Service delivery (HSS-SD7)

Number and distribution of health facilities with the capacity to provide specific services per 10 000 population

### Rationale

Health facilities should be able to meet national standards for the provision of services. This may include malaria control, Integrated Management of Childhood Illnesses, safe motherhood, family planning, HIV, control of sexually transmitted diseases, TB control and control of noncommunicable diseases.

### Definition of the indicator

This index pertains to functioning facilities or service sites that meet national standards for providing key services applicable to their type of facility or service site. This may include malaria control, Integrated Management of Childhood Illnesses, safe motherhood, family planning, HIV, control of sexually transmitted diseases, TB control and control of noncommunicable diseases. For each program, a small set of key components can be assessed. These include the availability of basic equipment, diagnostic facilities, trained staff, guidelines and treatment (mostly drugs). The main challenge is to come up with a concise set of items for each index so that all programs can be monitored through a single data collection mechanism.

*Numerator:* The number of facilities that have the service capacity to provide a specific service

*Denominator:* The total number of facilities for the proportion or the total population for the same geographical area to compute the density, such as the number of facilities that provide basic delivery care

### Measurement

- *Comparability issues: definitions and data collection should be standardized. When indexes are used, the results for the specific components should be specified.*
- *Complementary dimensions: data need to be presented for the different components of basic service capacity, especially infection control. Distribution implies urban–rural differences and could include differences between regions or provinces or, in some instances, districts. The facility census can be used to monitor the service provision component of specific health programs.*

*Data sources:* facility visits are required using a standardized questionnaire to assess the availability and functioning of the components required to meet the basic service capacity standards.

*Frequency:* the basic state of facilities should be monitored annually at the subnational level as a management tool. National statistics should be updated every 2–3 years through regular reporting by districts, sample surveys and a census once every 3–5 years to validate all information.

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Service delivery (HSS-SD8)

Number of people seeking services at outpatient departments per 10 000 population

### Rationale

The number of people seeking services at inpatient and outpatient facilities is not a coverage indicator, as the population in need is not well defined. Low rates, however could indicate poor availability of services. Several countries have demonstrated that the number of people seeking services at outpatient department increases when constraints to using health services are removed, such as by bringing the services closer to the people or reducing user fees. On the other hand, once this exceeds an uncertain threshold, the number of visits no longer indicates the strength of the health services.

### Definition of the indicator

*Numerator:* The number of visits to public and private health facilities for ambulant care, not including immunization (can be split into children younger than five years versus five years and older)

*Denominator:* The total population for the same geographical area to compute the density

### Measurement

- *Comparability issues: the accuracy and completeness of reporting needs to be consistent over time and between populations to allow the assessment of trends and comparisons.*
- *Complementary dimensions: disaggregation by district or province or region can be presented.*
- *Potential additional indicators of inpatient care and utilization include admission rates (number of new admissions per 10 000 population per year) and number of cesarean sections per 100 deliveries. Both indicators, however, tend to vary considerably with country practices and changes in admission or intervention policies. Very low rates tend to indicate that services are not available, but otherwise the statistics are difficult to interpret.*

*Data sources:* facility records and reporting forms the basis

*Frequency:* annual statistics

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

**Service delivery: service quality (HSS-SD9)**

Percentage of people expressing satisfaction with the care and support services received at the community level

**Rationale**

This indicator is intended to measure the quality of HIV, TB and malaria services provided by civil society organizations. Information will indicate the extent to which client expectations are being met. Users' perceptions are important because they govern users' decisions about the quality of services they have obtained. If the services are satisfactory to the user, there is some likelihood that this will influence that user's actions. If, however, users consider the services to be of low quality, they are unlikely to use the services. Users' perceptions are often easier to collect than details of action based on these perceptions. This indicator must therefore often serve as a rough gauge of the likelihood that the respondent uses the services. To understand users' experiences with health services, evaluators may need to conduct in-depth interviews or focus group discussions with selected users.

**Definition of the indicator**

"Satisfied" means a user's judgment of the adequacy of a product for that user and, therefore, measures perceived quality. Satisfaction reflects the user's perception of the performance of a product or service. Satisfaction is an overall mental state that includes cognitive, affective (like versus dislike) and behavioral response elements.

Civil society organizations include all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

*Numerator:* Number of people expressing satisfaction with care and support services they received from civil society organizations

*Denominator:* Total population in the catchment area who are sampled and interviewed during a survey

**Measurement**

Data on this indicator can be obtained from household surveys, including DHS. Data need to be calculated and analyzed separately for HIV, TB and malaria. Useful dimensions of analysis would be service accessibility, reliability, competence, timeliness, responsiveness, fairness, courtesy, usefulness and value.

*Data sources:* population-based survey

*Frequency:* every 2–3 years

**Service delivery: service quality (HSS-SD10)**

Percentage of people expressing satisfaction with health care services

**Rationale**

This indicator is intended to measure the quality of HIV, TB and malaria services provided at health facilities for both the public and private sectors. Information will indicate the extent to which client expectations are being met. Users' perceptions are important because they govern users' decisions about the quality of services they have obtained. If the services are satisfactory to the user, there is some likelihood that this will influence the user's actions. If, however, users consider the services to be of low quality, they are unlikely to use the services. Users' perceptions are often easier to collect than details of action based on these perceptions. This indicator must therefore often serve as a rough gauge of the likelihood that the respondent uses the services. To understand users' experiences with health services, evaluators may need to conduct in-depth interviews or focus group discussions with selected users.

**Definition of the indicator**

"Satisfied" means a user's judgment of the adequacy of a product for that user and, therefore, measures perceived quality. Satisfaction reflects the user's perception of the performance of a product or service. Satisfaction is an overall mental state that includes cognitive, affective (like versus dislike) and behavioral response elements.

*Numerator:* Number of people expressing satisfaction with care and support services they received at health care facilities (both at public and private facilities)

*Denominator:* Total population sampled and interviewed during a health facility survey

**Measurement**

Data on this indicator can be obtained health facility surveys through exit interviews. Data need to be calculated and analyzed separately for HIV, TB and malaria. Useful dimensions of analysis would be service accessibility, reliability, competence, timeliness, responsiveness, fairness, courtesy, usefulness and value.

*Data sources:* health facility survey

*Frequency:* every 2–3 years

## Human resources for health (HSS-HR1)

Number of people graduating from health professional educational institutions per 100 000 population per year

### Rationale

Health workers are all people whose main activities aim at enhancing the health of the population. This includes technical staff (doctors, nurses, pharmacists, laboratory technicians, etc.) and management and support staff (finance, cooks, drivers, etc.). Available data suggest a shortage of health care professionals in the formal health care system and at the community and civil society levels. This shortage jeopardizes the achievement of the Millennium Development Goals related to health. Sub-Saharan Africa has 25% of the disease burden and only 3% of the workforce. Most countries in sub-Saharan Africa have fewer than 2.3 health workers per 1000 people, whereas the world average is 9.3 per 1000. Action is needed to increase the numbers of people trained, recruited and retained as health workers.

This is actually not one measure, but the aggregate of multiple pieces of information depending on the number of types of health workers in the health system. The number and type of newly trained health workers is relevant everywhere: in countries that need increased production among all types of health workers, in countries that need more workers in rural and underserved areas and in countries receiving large numbers of immigrants that are aiming towards national self-sufficiency in health workforce regeneration.

### Definition of the indicator

The absolute number of graduates (expressed per 100 000 population) of health professional educational institutions (including schools of medicine, dentistry, pharmacy, nursing, midwifery and other health services) during the last academic year.

### Measurement

- *Comparability issues: data on health worker education and training should ideally be classified by or mapped to the International Standard Classification of Education.*
- *Complementary dimensions: data on the output of health professional educational institutions can be used to assess health workforce renewal or the ratio of entry to the health workforce (that is, the number of graduates relative to the total active health workforce). When combined with information on the numbers of foreign-trained health workers in the country, this information can further be used to assess national self-sufficiency in human resources for health.*

*Data sources:* ideally assessed through routine administrative records from individual training institutions (both public and private); in some cases, data may be validated against registries of professional regulatory bodies from which certification or licensure is required for practice

*Frequency:* annually

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Human resources for health (HSS-HR2)

Number of health workers (including volunteers) trained for providing HIV, TB and malaria services

### Rationale

Health workers are all people whose main activities aim at enhancing the health of the population. This includes technical staff (doctors, nurses, pharmacists, laboratory technicians, etc.) and management and support staff (finance, cooks, drivers, etc.). Available data suggest a shortage of health care professionals in the formal health care system and at the community and civil society levels. This shortage jeopardizes the achievement of the Millennium Development Goals related to health. Sub-Saharan Africa has 25% of the disease burden and only 3% of the workforce. Most countries in sub-Saharan Africa have fewer than 2.3 health workers per 1000 people, while the world average is 9.3 per 1000. Action is needed to increase the numbers of people trained, recruited and retained as health workers.

### Definition of the indicator

A count of staff and/or volunteers who are trained in providing HIV, TB and malaria services.

Training means in-service training programs for practicing providers to refresh skills and knowledge or add new material and examples of best practices needed to fulfill their current job responsibilities. Care should be taken to base trainee selection on content and skill needs. It requires a shorter, more focused period of time than pre-service education and is often more “hands-on”. It can be a workplace activity (led by staff, peers or guest lecturers) or an external event.

The training can occur through structured learning and follow-up activities or through less structured means to solve problems or fill identified performance gaps. It can consist of short non-degree technical courses in academic or in other settings, non-academic seminars, workshops, on-the-job learning experiences, observational study tours or distance-learning exercises or interventions.

The training program must meet national or international standards and have specific learning objectives, a course curriculum, expected competencies to be gained by participants and documented minimum requirements for course completion. The duration and intensity of training will vary by type of health worker; however, all training programs should at least have the criteria listed above.

### Measurement

In-service training for the purposes of this indicator includes the following modalities in addition to traditional classroom training and workshops.

Continuing education is education and training offered to current providers to either update or add new knowledge and skills. While in-service training is often limited to practitioners in the public sector and/or managed by the health ministry (or similar entity), continuing education is often used to describe education and training that is provided by other sources, such as professional associations, that reach private sector practitioners and that can be linked to renewal of licensure and/or certification.

On-the-job training is instruction in a specific task or skill provided via mentoring by a practitioner using explanations, demonstration, practice and feedback. On-the-job training may be combined with academic or technical training to provide a practical experience component.

Computer-based training is an interactive learning experience in which the computer provides most of the stimuli, the learner responds and the computer analyzes the responses and provides feedback to the learner. Components most often consist of drill and practice, tutorial or simulation activities offered alone or as supplements to traditional instruction. Computer-based training is sometimes also used as a component of a preservice education course.

Distance learning is characterized by a geographical separation of instructor and learner in which learners work on their own. It uses a range of mechanisms, such as self-guided lesson plans, mailings, radio and computer-based activities. It is usually tied to an educational facility and uses sequential instructional material that is corrected by the instructor. Regardless of the methods chosen, it requires motivation on the part of the learner and regular feedback on the part of the learning institution. It can also be used for preservice education. »

Civil society organizations means all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

Civil society organization staff and volunteers may include a range of types of health workers: peer educators, community health outreach workers, DOTS coordinators, village health workers, malaria village workers, home-based care providers, outreach workers, health educators, health promoters and other volunteers in accordance with an individual country's definition. Typically, these community-based providers would be working directly for the civil society organizations but can also be engaged directly and/or collaborating with the local government authorities or any other recognized entity.

This indicator does not measure the quality of the training, nor does it measure the outcomes of the training in terms of the competencies of individuals trained or their job performance. This indicator does not measure the placement or retention in the health workforce of trained individuals. Although training is an essential component of human resources for health, programs should plan it in the context of effective human resources management. In some countries, for instance, trained staff may be transferred before they have a chance to apply their new skills.

*Data sources:* Administrative records or program implementation records (both public and private). This needs to be complemented by facility assessments during which staff members are asked whether they have received training and information is collected on the availability of training materials.

*Frequency:* quarterly

#### **Resources**

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

Toolkit on monitoring health systems strengthening: human resources for health. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/EN\\_PDF\\_Toolkit\\_HSS\\_HumanResources\\_oct08.pdf](http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_HumanResources_oct08.pdf)).

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### Human resources for health (HSS-HR3)

Number and percentage of health workers newly recruited at primary health care facilities in the past 12 months

#### Rationale

The public health sector has been experiencing many challenges in retaining health professionals. Knowing the gap between the desired number of health professionals by category and the actual number at different levels of service provision is very important in making decisions about the distribution of available human resources to ensure equity of service provision. This indicator also provides a proxy measure of the capacity of the health sector to attract health professionals.

#### Definition of the indicator

*Numerator:* Total number of health workers recruited at primary health care facilities in the past 12 months disaggregated by different professional categories

*Denominator:* Target for total number of planned recruitment at primary health care facilities for the past 12 months

#### Measurement

The numerator is calculated from a count of health professionals recruited at primary health care facilities. The human resource registers would have this information documented. The denominator is derived from the human resource management plan, which should include information on the annual numbers of health professionals planned to be recruited by category. The results should be expressed as a percentage of planned recruitment.

*Data sources:* administrative records

*Frequency:* annually

#### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Human resources for health (HSS-HR4)

Number of health workers per 10 000 population by type of health worker

### Rationale

The most commonly reported indicator internationally on human resources for health is health worker density: the number of health workers per 10 000 population by type of health worker. When measured systematically, this indicator provides information on the stock of health workers relative to the population and can be used to monitor whether, for example, the size of the current workforce meets a critical threshold that should allow the most basic levels of health care coverage to be achieved across the country.

### Definition of the indicator

The number of health workers available in a country relative to the total population.

*Numerator:* The number of health workers at a given time in a given country or region by type of health worker

*Denominator:* The total population for the same geographical area

### Measurement

- *Data collection method:* this is ideally assessed through routine administrative records compiled, updated and submitted regularly (such as quarterly) by district health officers, individual health facilities (both public and private) and/or professional regulatory bodies. Information on the stock of health workers and on the total population should be periodically validated and adjusted against data from a population census or other nationally representative source.
- *Comparability issues:* data on health occupations should ideally be classified by or mapped to the International Standard Classification of Occupations.
- *Complementary dimensions:* the most complete and comparable data currently available on the health workforce globally pertain to physicians, nurses and midwives. However, the health workforce includes a wide range of other categories of service providers (such as dentists, pharmacists and community health workers) as well as management and support workers (such as health service managers, health economists, health information technicians and others). Information should ideally be captured on all of these categories of human resources for health.

Interest is increasing globally in equity in health and the pathways by which inequity arises and is perpetuated or exacerbated. Imbalance (or maldistribution) in the supply, deployment and composition of human resources for health, leading to inequity in the effective provision of health services, is an issue of social and political concern in many countries. Drawing on an analytical framework for understanding health workforce imbalance, at least four ways of monitoring the distribution of health workers should be considered: profession and specialty imbalances, geographical imbalances, institutional and services imbalances and gender imbalances. The impact on the health system varies for these different types of imbalance; in consequence, each of these dimensions of workforce distribution needs to be monitored and assessed. In practical terms, this implies that the collection, processing and dissemination of data on human resources for health should enable disaggregation by occupation (and within a given occupation, such as by medical specialization), by geography (such as urban versus rural, within versus outside the capital city, by province or state or by district), by place of work (such as hospital versus primary health care facility and public versus private) and work activities (such as preventive or curative health services versus others such as teaching or research) and by sex.

*Data sources:* ideally assessed through routine administrative records compiled, updated and submitted regularly (such as quarterly) by district health officers, individual health facilities (both public and private) and/or professional regulatory bodies; information on the stock of health workers and on the total population should be periodically validated and adjusted against data from a population census or other nationally representative source

*Frequency:* monthly, quarterly or annually for routine administrative records; a validation exercise should be conducted every three to five years against the national population or facility-based assessment

### Resources

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

Zurn P et al. Imbalance in the health workforce. *Human Resources for Health*, 2004, 2:13 (<http://www.human-resources-health.com/content/2/1/13>).

## Human resources for health (HSS-HR5)

Number and distribution of health workers by profession or specialization, region, place of work and sex

### Rationale

Interest is increasing globally in equity in health and the pathways by which inequity arises and is perpetuated or exacerbated. Imbalance (or maldistribution) in the supply, deployment and composition of human resources for health, leading to inequity in the effective provision of health services, is an issue of social and political concern in many countries. Drawing on an analytical framework for understanding health workforce imbalance, at least four ways of monitoring the distribution of health workers should be considered: profession and specialty imbalances, geographical imbalances, institutional and service imbalances and gender imbalances. The impact on the health system varies for these different types of imbalance; in consequence, each of these dimensions of workforce distribution needs to be monitored and assessed. In practical terms, this implies that the collection, processing and dissemination of data on human resources for health should enable disaggregation by occupation (and within a given occupation, such as by medical specialization), by geography (such as urban versus rural, within versus outside the capital city, by province or state or by district), by place of work (such as hospital versus primary health care facility and public versus private) and work activities (such as preventive or curative health services versus others such as teaching or research) and by sex.

### Definition of the indicator

The distribution of health workers according to selected characteristics – notably, by occupation, geographical region, place of work and sex.

*Numerator:* The number of health workers with a given characteristic (such as working in a privately operated health facility)

*Denominator:* The total number of health workers

### Measurement

- *Comparability issues:* data on occupation and place of work should ideally be classified by or mapped to the International Standard Classification of Occupations and the International Standard Industrial Classification of All Economic Activities, respectively.
- *Complementary dimensions:* because counts of workers in the private sector are likely to be less accurate when drawing on administrative sources than counts of those in the public sector and because private providers are often less accessible to low-income populations, it is recommended that national and international reports include statistics disaggregated by employment sector (public versus private). Additional information on health workers' demographic characteristics may also be important for policy and planning, such as the age distribution, which can lend insights into the numbers of workers approaching retirement age.

*Data sources:* the means of measuring the distribution of the health workforce is a simple disaggregation of the stock of health workers (see indicator HSS-HR5) according to the selected characteristics

*Frequency:* monthly, quarterly or annually for routine administrative records; a validation exercise should be conducted every three to five years against national population or facility-based assessment

### Resources

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

Zurn P et al. Imbalance in the health workforce. *Human Resources for Health*, 2004, 2:13 (<http://www.human-resources-health.com/content/2/1/13>).

## Human resources for health (HSS-HR6)

Number and percentage of health care facilities that received supervision in the past six months

### Rationale

This indicator measures mechanisms for assuring the quality of the provision of HIV, TB and malaria services at health facilities.

### Definition of the indicator

*Numerator:* Number of health care facilities that report having received supervision from trained designated personnel in the past six months

*Denominator:* Total number of health care facilities in the target area in the past six months

Supervision is primarily aimed at monitoring service provision at health facilities to assure quality in the provision of services. However, it may also encompass some of the following: skills development; quality assurance; and personal and professional development and training. It can involve individual sessions or group sessions, review of inventory laboratories and storage facilities etc. Supervision is also an opportunity for two-way feedback and ensuring improved understanding of the tasks and issues involved in delivering high-quality services.

### Measurement

The numerator is derived from a count of all health facilities that report having received supportive supervision. The count is generated by responses from health workers on whether the facility received supervision or not during the past six months. The denominator is computed from administrative records that have information on the number of health facilities in the same target area.

*Data sources:* sample survey and/or administrative records

*Frequency:* annually

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Human resources for health (HSS-HR7)

Number and percentage of civil society staff and volunteers who received personal supervision in the past six months

### Rationale

This indicator measures quality assurance mechanisms for the provision of HIV, TB and malaria services provided by the civil society organizations.

### Definition of the indicator

*Numerator:* Number of staff members and volunteers of civil society organizations who report having received supervision from trained designated personnel in the past six months

*Denominator:* Total number of staff members and volunteers of civil society organizations in the target area in the past six months

Civil society organizations include all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organizations, networks of people living with HIV and women's groups. Stakeholders include partner community leaders and representatives, board members and indirect and direct beneficiaries.

Supervision encompasses skills development, quality assurance, personal and professional development and training and needs to be carried out by trained designated personnel. This can be from a government coordinating body or line ministry or a national umbrella nongovernmental organization. It can involve individual sessions of providing support and addressing individual training and development needs and can be an opportunity for two-way feedback and ensuring an improved understanding of the tasks and issues involved in delivering high-quality services for each part of the organization's work.

Civil society organization staff and volunteers may include a range of types of health worker: peer educators, community health outreach workers, DOTS coordinators, village health workers, malaria village workers, home-based care providers, outreach workers, health educators, health promoters and other volunteers in accordance with the individual country's definition. Typically, these community-based providers would be working directly for the civil society organizations, but they can also be engaged directly and/or collaborating with the local government authorities or any other recognized entity.

### Measurement

The numerator is derived from a count of all staff members and volunteers who report having received supportive supervision. The count is generated by responses from staff and volunteers on whether they received supervision during the past six months. The denominator is computed from administrative records that have information on number of staff members and volunteers under civil society organizations that provide HIV, TB and/or malaria services.

*Data sources:* sample survey and/or administrative records

*Frequency:* annually

## Human resources for health (HSS-HR8)

Annual rate of retention of health service providers at public health facilities (percentage)

### Rationale

In many countries, concern is growing that the loss of even a few health workers could seriously affect health outcomes in the general population. This is worsened by the current shortage of health care professionals in the formal health care system and at the community and civil society levels. It is therefore important for countries to monitor the numbers of staff members they retain even among the few that are available, and this indicator provides that information.

### Definition of the indicator

The retention rate is the percentage of employees who were in employment at health facilities at the beginning of the year and remain employed at the health facilities at the end of the year.

*Numerator:* Total number of health workers currently employed at the health facility

*Denominator:* Total number of employees ever employed at health facilities during the past 12 months (includes current employees and those who left during the year)

### Measurement

The numerator is a count of employees who were employed at the beginning of the reporting year and still in employment at the end of the reporting year. The information can be derived from the human resource administrative records. The denominator is the total count of employees during the reporting year, including currently employed and those who may have left during the year.

Most organizations experience the departure of employees during the course of a year, and caution should be taken into account due to varying reasons why staff may have left. Behind the raw figures lies a variety of explanations: some individuals may have retired, others may have been dismissed, some may have moved out of the area, others opted to change career, some poor performers may have left as have some good performers, some departures may have been regretted and others not.

*Data sources:* administrative records

*Frequency:* annually

### Resources

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

Employee retention 2008 [website]. Cheshire, Employee Retention Guide, 2008 (<http://www.employee-retention-guide.com>).

## Human resources for health (HSS-HR9)

Number and percentage of volunteers provided with a stipend or allowance for providing HIV, TB and malaria services

### Rationale

This indicator measures concerted systematic effort to motivate volunteer staff to increase the retention of these people in providing HIV, TB and malaria services in the community.

### Definition of the indicator

Civil society organizations include all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organizations, networks of people living with HIV and women's groups.

An allowance or stipend is a type of remuneration that is not equivalent to salary and is meant to facilitate transport, lunch or utensils required for providing HIV, TB and malaria services.

Civil society organization staff and volunteers may include a range of types of health worker: peer educators, community health outreach workers, DOTS coordinators, village health workers, malaria village workers, home-based care providers, outreach workers, health educators, health promoters and other volunteers in accordance with the individual country's definition. Typically, these community-based providers would be working directly for the civil society organizations but can also be engaged directly and/or collaborating with the local government authorities or any other recognized entity.

*Numerator:* Number of volunteer staff members of civil society organizations given a stipend or allowance to facilitate their provision of HIV, TB and, malaria services during the reporting period

*Denominator:* Total number of volunteer staff members of civil society organizations

### Measurement

Data on the total number of civil society organizations that report employing volunteers can be obtained from in-country exercises for assessing the capacity of civil society organizations. Measurement of this indicator considers that an allowance or stipend is not necessarily equivalent to a salary; rather it is meant to facilitate transport, lunch or utensils required for providing HIV, TB and malaria services.

Some civil society organizations may attract skilled volunteers from national and international organizations or affiliates that pay them directly (and not through the host civil society organizations). This category of staff members should, therefore, be considered "paid" volunteers and should not be counted.

*Interpretation:* this indicator does not measure the quality of or the range of stipend or allowance paid to the volunteer staff

*Data sources:* administrative records

*Frequency:* quarterly

## Health information (HSS-HI1)

Number of staff members trained in M&E (per level)

### Rationale

In recent years, countries have been attempting to strengthen the technical capacity of staff in identifying data needs and collecting, analyzing and using appropriate data to meet these needs. Capacity-building through training on M&E enables trained individuals to generate relevant high-quality data, analyze them and use these data to improve program planning and decision-making, thus improving health systems and health status. This indicator therefore provides information on the pool of staff members whose capacity is being built in M&E.

### Definition of the indicator

A count of staff and/or volunteers who are trained in M&E.

Training means in-service training programs for current M&E officers or staff members with M&E responsibilities to refresh skills and knowledge or add new material and examples of best practices needed to fulfill their current or emerging M&E responsibilities.

The training can occur through structured learning and follow-up activities or through less structured means to solve problems or fill identified performance gaps. It can consist of short non-degree technical courses in academic or in other settings, non-academic seminars, workshops, on-the-job learning experiences, observational study tours or distance-learning exercises or interventions.

### Measurement

In-service training for the purposes of this indicator includes the following modalities in addition to traditional classroom training and workshops.

- *Continuing education: education and training offered to current M&E officers or staff with M&E responsibilities to either update or add new knowledge and skills.*
- *On-the-job training: instruction is provided via mentoring by a more experienced M&E officer using explanations, demonstration, practice and feedback. On-the-job training may be combined with academic or technical training.*
- *Computer-based training: an interactive learning experience in which the computer provides most of the stimuli, the learner responds and the computer analyzes the responses and provides feedback to the learner. Components most often consist of drill and practice, tutorial or simulation activities offered alone or as supplements to traditional instruction. Computer-based training is sometimes used as a component of a preservice education course.*
- *Distance learning is characterized by geographical separation of the instructor and learner in which learners work on their own. It uses a range of mechanisms, such as self-guided lesson plans, mailings, radio and computer-based activities. It is usually tied to an educational facility and uses sequential instructional material that is corrected by the instructor. Regardless of the methods chosen, it requires motivation among the learners and regular feedback from the learning institution. It can also be used for preservice education.*

This indicator does not measure the quality of the training nor does it measure the outcomes of the training in terms of the competencies of individuals trained or their job performance.

*Data sources:* administrative records

*Frequency:* quarterly

### Resource

Training and capacity-building [website]. Chapel Hill, NC, MEASURE Evaluation, 2008 (<http://www.cpc.unc.edu/measure/training>).

## Health information (HSS-HI2)

A nationally coordinated multi-year disease-specific M&E plan with a schedule for survey implementation and data analysis has been prepared and is being implemented

### Rationale

The development of a coordinated multi-year disease M&E plan is an important tool that could address program weaknesses in terms of timely, high-quality data that will enable evidence-based decision-making for decision-makers, including program managers, to facilitate improved health outcomes. A plan with a clearly identified schedule for surveys separate from routine information on diseases and program implementation is critical to strengthening the performance of health systems. This indicator therefore helps to monitor the existence of the plan and whether it is being implemented as outlined.

### Definition of the indicator

This indicator measures existence of a national disease-specific M&E plan for HIV, TB or malaria. The indicator has two parts. The first is the existence of a coordinated multi-year disease-specific M&E plan with a schedule for survey implementation and data analysis. The second part is whether the plan is being implemented as outlined.

### Measurement

The indicator is generated by conducting a desk review of M&E plan and checking whether it is a multi-year plan, whether it has a survey implementation schedule and whether it has a data analysis schedule. The second part after the review of the plan is to monitor its implementation. An annual review is therefore conducted of whether the plan is being implemented according to what is outlined in the plan.

*Data sources:* administrative records

*Frequency:* annually

### Resources

Developing an M&E plan. In Monitoring and evaluation manual. Geneva, Global Fund to Fight AIDS, Tuberculosis and Malaria, 2008 (Module 3; [http://www.theglobalfund.org/documents/me/ME\\_Manual\\_Module\\_3\\_en.pdf](http://www.theglobalfund.org/documents/me/ME_Manual_Module_3_en.pdf)).

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Health information (HSS-HI3)

### Percentage of deaths registered

#### Rationale

Accurate statistics on births, deaths and the causes of death generated by a well-functioning vital statistics system are the foundation of rational health and public policy. Nevertheless, these are lacking for the vast majority of the world's poorest countries. In sub-Saharan Africa, for example, fewer than 10 countries have routine vital statistics systems that produce usable data. In particular, data on both the number and causes of death in low- and middle-income countries are virtually non-existent. Reliable data on the numbers of adults dying – let alone causes of death – simply do not exist for most low- and middle-income countries, where a large majority of deaths occur at home. Mortality estimates, particularly for adults, that are patched together and modeled from limited sources of information have not provided an adequate foundation for setting health sector priorities or for assessing the progress and impact of programs. The objective is to move from a situation in which knowledge of most events that take place in communities and households is lost to one in which information about these vital events is brought into the health information system.

#### Definition of the indicator

*Numerator:* Number of deaths registered as reported by civil or sample registration systems, hospitals and community-based reporting systems

*Denominator:* Total deaths are estimated by extrapolating using demographic techniques from the census or based on information about mortality rates derived from population surveys

#### Measurement

The numerator is generated from a count of all registered deaths as reported by civil or sample registration systems, hospitals and community-based reporting systems. The denominator is derived by a count of all deaths for the same time period and geographical region. In some cases, such as most countries in sub-Saharan Africa, information on total deaths is not available because of incomplete civil registration. In such instances, deaths have to be estimated by extrapolating data from censuses using demographic techniques or based on information about mortality rates derived from population-based surveys.

Although civil registration systems are essential, complementary approaches to complete civil registration are needed to respond to the demand for timely information and to assess the performance of the systems themselves. WHO, in collaboration with partners, is stepping up efforts to improve the quality of data that underlies its overall estimates of mortality by age, sex and cause. Such efforts include making better use of household surveys and censuses, implementing standardized verbal autopsy instruments and using data from partial civil registration and sources other than civil registration.

*Data sources:* vital registers (for estimates, population-based surveys and censuses)

*Frequency:* every 3–5 years

#### Resources

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

Shibuya K. Counting the dead is essential for health. *Bulletin of the World Health Organization*, 2006, 84:170–171.

## Health information (HSS-HI4)

Number and percentage of civil society organizations with at least one staff member trained in M&E

### Rationale

In recent years, organizations have been investing in strengthening the technical capacity of staff in identifying data needs and collecting, analysing and using appropriate data to meet these needs. Capacity-building through training on M&E enables trained individuals to generate relevant high-quality data, analyze them and then use these data to improve program planning and decision-making, thus improving health systems and health status. This indicator therefore provides valuable proxy information on the increase in the organizational capacity in the M&E of HIV, TB and malaria programs.

### Definition of the indicator

Training means in-service training programs for current M&E officers or staff with M&E responsibilities to refresh skills and knowledge or add new material and examples of best practices needed to fulfill their current or emerging M&E responsibilities.

The training can occur through structured learning and follow-up activities or through less structured means to solve problems or fill identified performance gaps. It can consist of short non-degree technical courses in academic or in other settings, non-academic seminars, workshops, on-the-job learning experiences, observational study tours or distance-learning exercises or interventions.

Civil society organizations include all nongovernmental organizations and faith-based organizations that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

*Numerator:* Number of staff members and/or volunteers who are trained in M&E

*Denominator:* Total number of organizations providing HIV, TB and malaria services

### Measurement

In-service training for the purposes of this indicator includes the following modalities in addition to traditional classroom training and workshops.

- *Continuing education is education and training offered to current M&E officers or staff with M&E responsibilities to either update or add new knowledge and skills.*
- *On-the-job training is instruction is provided via mentoring by a more experienced M&E officer using explanations, demonstration, practice and feedback. On-the-job training may be combined with academic or technical training.*
- *Computer-based training is an interactive learning experience in which the computer provides most of the stimuli, the learner responds and the computer analyzes the responses and provides feedback to the learner. Components most often consist of drill and practice, tutorial or simulation activities offered alone or as supplements to traditional instruction. Computer-based training is sometimes also used as a component of a preservice education course.*
- *Distance learning is characterized by geographical separation of the instructor and the learner and learners work on their own. It uses a range of mechanisms, such as self-guided lesson plans, mailings, radio and computer-based activities. It is usually linked to an educational facility and uses sequential instructional material that is corrected by the instructor. Regardless of the methods chosen, it requires motivation on the part of the learner and regular feedback from the learning institution. It can also be used for preservice education.*

*Data sources:* administrative records

*Frequency:* quarterly

## Health information (HSS-HI5)

Number and percentage of civil society organizations using standard data collection formats according to national guidelines

### Rationale

This indicator is intended to measure the capacity of civil society organizations to operationalize M&E plans by putting in place functional M&E systems for collecting, analyzing, interpreting and disseminating data. This includes monitoring health system inputs and service delivery coverage (performance of health systems) with special reference to the three diseases and cross-cutting high-priority areas.

### Definition of the indicator

Civil society organizations include all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups. The indicator measures the number of civil society organizations with standardized data collection tools. This includes manual primary source documents and registers, data collection and reporting formats and both manual and electronic databases for data collection.

*Numerator:* Number of civil society organization with mechanisms and tools for data collection and analysis

*Denominator:* Total number of civil society organizations providing HIV, TB and malaria services sampled for study

### Measurement

Data on the total number of civil society organizations can be obtained from in-country civil society organization mapping exercises. Measurement of the indicator will also consider existence of a clear schedule and forums for sharing information and mechanisms for integrating collected information into program planning and re-planning and submitting regular programmatic and expenditure reports to stakeholder organizations including donors and government departments.

*Data sources:* health services statistics

*Frequency:* quarterly

## Health information (HSS-HI6)

Number and percentage of districts submitting timely, complete and accurate reports to the national level

### Rationale

National programs managing the national response to HIV, TB and malaria need accurate program information on a timely basis from all facilities. By tracking this indicator, national programs will be able to identify health facilities that may need support to report accurately and on time.

### Definition of the indicator

*Numerator:* Number of health districts with timely, complete and accurate reporting of key data series (note: countries should define core data series that should be reported by all facilities and reported to districts and compare reports against this list)

*Denominator:* Total number of health districts

### Measurement

The numerator is calculated from a count of district summary reports that are received before or on the day they are due and are checked for errors and are found to be accurate in accordance with defined criteria. The denominator is the total count of health districts, and this can be determined from administrative system records.

National programs and implementing partners and stakeholders at all levels need to develop and implement data dissemination and feedback mechanisms to further enhance information use for evidence-based decisions as well as data quality assurance procedures.

*Data sources:* administrative records

*Frequency:* quarterly

### Resource

Toolkit for monitoring health systems strengthening [website]. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

## Health information (HSS-HI7)

Number and percentage of civil society organizations reporting routine HIV, TB and malaria data to the nationally designated entity according to national guidelines

### Rationale

This indicator measures the adherence of civil society organizations to national reporting obligations and linkage into national M&E systems. It further aims to track adherence to sharing information with the relevant government national systems.

### Definition of the indicator

Civil society organizations are all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups. The indicator measures the number of civil society organizations that submit timely programmatic progress updates to the relevant government departments or nongovernmental organizations for integration into the national M&E system and includes reports submitted to donors and other stakeholders.

*Numerator:* Number of civil society organizations reporting routine HIV, TB and malaria data to the national designated entity according to national guidelines

*Denominator:* Total number of registered private for-profit facilities or civil society organizations providing HIV, TB and malaria services in the target areas

### Measurement

Data for the denominator can be obtained from in-country exercises mapping civil society organizations and the civil service registry in the respective areas. The data for the numerator can be obtained from the national agency or government body responsible for data management and aggregation.

National programs and implementing partners and stakeholders at all levels need to develop and implement data dissemination and feedback mechanisms to further enhance information use for evidence-based decisions as well as data quality assurance procedures.

*Data sources:* in-country exercises assessing the capacity of civil society organizations and routine programmatic reports from organizations

*Frequency:* quarterly, semi-annually and annually (depending on national guidelines)

## Health products, vaccines and technologies (HSS-HP1)

Percentage of facilities with all tracer medicines in stock on the day of the visit

### Rationale

This indicator measures the current availability of key essential medicines to treat common health problems in facilities on the day of the visit. Physical availability is a basic measure of access to essential medicines for the population. This indicator can also be used for monitoring the effectiveness of the distribution system.

### Definition of the indicator

*Numerator:* Number of health facilities with all the selected tracer medicines in stock (present and not expired) on the day of the visit

*Denominator:* Total number of health facilities surveyed

### Measurement

**Data collection methods:** facility visits are required using a standardized list of tracer medicines to assess the availability of non-expired medicines and commodities on the day of the visit. Go through the shelves and identify which of the medicines on the list are available at the facility at the time of the survey.

**Comparability issues:** the quality of data generated by facility visits is likely to be better than those based on reporting systems. The list of tracer medicines may vary between countries, or at least some elements and depending on the epidemiology (such as the presence of malaria or the type of HIV epidemic). The components of the index (individual items) have to be presented as well.

**Complementary dimensions:** data on the medicines availability are used with data on other components of service capacity to assess the ability of facilities to provide specific services (see section on service delivery). »

### List of medicines, commodities and vaccines

Medicines underlined are medicines that belong to the WHO/Health Action International global core list to be surveyed.

#### Infectious diseases

Ciprofloxacin

Co-trimoxazole (suspension)

Co-trimoxazole (tabs)

Amoxicillin

Ceftriaxone (injection)

*Other injectable antibiotic*

Fluconazole

Albendazole or mebendazole (depending on country standards)

Metronidazole

#### Chronic diseases

Salbutamol inhaler (asthma)

Glibenclamide (diabetes)

Atenolol (cardiovascular diseases)

Captopril or enalapril (cardiovascular diseases) (depending on country standards)

Simvastatin (cardiovascular diseases)

Amitriptyline (depression)

Omeprazole (peptic ulcers and reflux)

*Other*

Diclofenac or ibuprofen

Diazepam

Paracetamol (suspension)

Oral rehydration salts (sachets)

#### Reproductive health

Oral contraceptive pills (combined)

Injectable contraceptives (progestin-only)

Condoms (male)

Oxytocin (injection)

Magnesium sulfate

Measles vaccine

#### Malaria

Artemether + lumefantrine

Sulphadoxine + pyrimethamine

Quinine (oral or injectable)

Other antimalarial medicines (oral or injectable)

*Data sources:* health facility survey

*Frequency:* the situation status at facilities should be monitored annually at the subnational level as a management tool; sample facility surveys every 2–3 years or routine reporting systems can provide national statistics

#### Resources

Toolkit on monitoring health systems strengthening: medical products, vaccines and technologies. Geneva, World Health Organization, 2008 ([http://www.who.int/healthinfo/statistics/toolkit\\_hss/en/index.html](http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html)).

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

WHO and Health Action International. Measuring medicine prices, availability, affordability and price components. 2nd ed. Geneva, World Health Organization, 2008 ([http://www.who.int/medicines/areas/access/medicines\\_prices08/en/index.html](http://www.who.int/medicines/areas/access/medicines_prices08/en/index.html)).

#### TB

Ethambutol

Isoniazid

Pyrazinamide

Rifampicin

Streptomycin (injectable)

Isoniazid + rifampicin

Isoniazid + ethambutol

Isoniazid + rifampicin + pyrazinamide

Isoniazid + rifampicin + pyrazinamide +

ethambutol

#### Antiretroviral drugs

Zidovudine (AZT, ZDV)

Abacavir (ABC)

Didanosine (DDI)

Efavirenz (EFV)

Lamivudine (3TC)

Nevirapine (NVP)

Stavudine 40 mg or 30 mg (d4T)

d4T + 3TC

d4T + 3TC + NVP

AZT + 3TC

AZT + 3TC + ABC

AZT + 3TC + NVP

Tenofovir disoproxil fumarate (TDF)

TDF + emtricitabine (FTC)

TDF + 3TC

TDF + 3TC + EFV

TDF + FTC + EFV

#### Protease inhibitors

Atazanavir (ATV)

Indinavir (IDV)

Lopinavir/ritonavir (LPV/RTV)

Nelfinavir (NFV)

Ritonavir (RTV)

Saquinavir (SQV)

## Health products, vaccines and technologies (HSS-HP2)

Percentage of facilities that keep adequate logistics data for inventory management

### Rationale

This indicator determines the extent to which stock records are maintained. The presence of adequately maintained and accurate stock records contributes to proper medicine management and estimation of need and facilitates the reordering of medicines.

### Definition of the indicator

*Numerator:* Number of health facilities that keep accurate logistics data for inventory management

*Denominator:* Total number of health facilities surveyed

### Measurement

A list of 15 key essential medicines to treat the most common health problems is a prerequisite.

The information is collected from a representative sampled survey of health facility dispensaries. For each of the key medicines, examine the data on the stock card and count the physical stock and then compare physical and recorded stock. The error rate can then be identified.

The percentage of facilities with adequate stock records is equal to the number of facilities that have adequate records for key medicines reviewed divided by the total number of facilities.

*Data sources:* health facility survey

*Frequency:* every 2–3 years

### Resources

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

## Health products, vaccines and technologies (HSS-HP3)

### Number and percentage of facilities with staff trained in stock management

#### Rationale

This indicator measures the existence of skilled staff at health facilities and civil society organizations responsible for managing health products, vaccines and other health equipment. The presence of skilled and qualified staff members at a minimum ensures the efficient management of health products, vaccines and technologies.

#### Definition of the indicator

##### Numerators

- 1) Health facilities: number of health facilities where at least one staff member responsible for stock management has been trained in stock management
- 2) Civil society organizations: number of civil society organizations where at least one staff member responsible for stock management has been trained in stock management

##### Denominators

- 1) Total number of health facilities
- 2) Total number of civil society organizations

#### Measurement

The numerator is calculated by adding the number of health facilities or civil society organizations with staff responsible for stock management trained during the reporting period. This can be measured at the national and subnational levels from administrative records.

Civil society organizations include all nongovernmental organizations, including faith-based organizations, that operate alongside the mainstream government health facilities for providing public health care. These include community-based organizations, faith-based organization, networks of people living with HIV and women's groups.

Source: administrative records

*Frequency:* quarterly

## Health products, vaccines and technologies (HSS-HP4)

Number and percentage of facilities that maintain acceptable storage conditions and handling procedures

### Rationale

The quality of health products, vaccines and technologies highly depends on storage and handling capability. Tracking the standards and procedures for storage and handling is therefore critical in ensuring the existence of acceptable standards to assure safe storage and handling of products and commodities.

### Definition of the indicator

*Numerator:* Number of facilities that maintain acceptable storage conditions and handling procedures

*Denominator:* Total number of facilities

### Measurement

A prerequisite is a checklist of minimum criteria for adequate conservation conditions and handling of medicines at facilities based on WHO good storage practices and national guidelines, if available.

A representative sample of health facility dispensaries or private drug outlets is surveyed, and the conservation conditions and handling of medicines is rated using the checklist. Only indicate “true” if all conditions included in the statement are true. If any condition of the statement is false, indicate “false”.

The conservation conditions and handling of medicines is equal to the total number of “true” responses to items on the checklist on the conservation conditions and handling of medicines divided by 10 and multiplied by 100.

*Data sources:* administrative records

*Frequency:* annually

### Resources

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

A model quality assurance system for procurement agencies. Module IV. Receipt and storage of purchased products and appendix 14. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fortieth report. Geneva, World Health Organization, 2006 (WHO Technical Report Series, No. 937; [http://whqlibdoc.who.int/trs/WHO\\_TRS\\_937\\_eng.pdf](http://whqlibdoc.who.int/trs/WHO_TRS_937_eng.pdf)).

WHO, UNICEF, UNDP, UNFPA and World Bank. A model quality assurance system for procurement agencies: recommendations for quality assurance systems focusing on prequalification of products and manufacturers, purchasing, storage and distribution of pharmaceutical products. Geneva, World Health Organization, 2007 (<http://www.who.int/medicines/publications/ModelQualityAssurance.pdf>).

## Health products, vaccines and technologies (HSS-HP5)

Percentage and number of product losses by value due to expired drugs, damage and theft per value received

### Rationale

A well-managed distribution system should achieve the following objectives: maintain a constant supply of medicines, keep products in good condition throughout the distribution process, maintain accurate inventory records, rationalize drug storage points, minimize medicine losses due to spoilage and expiry, reduce theft and fraud and provide information for forecasting medicines and other health product needs. By determining the extent of losses due to expired medicines, damage or theft, this indicator measures the performance of distribution systems for health products.

### Definition of the indicator

*Numerator:* Value of products expired, damaged or theft during the last calendar year taken out of the stock

*Denominator:* Total value of products received during the last calendar year

### Measurement

This indicator can be used for measuring losses at the health facility level but also at the central level (national, regional and district medical stores).

The numerator is generated by summing the total value of products expired, damaged or stolen at a health facility during the last calendar year taken out of the stock. The denominator is the sum total of value of products received during the last calendar year.

The national average is derived by summing the percentage values for all the facilities surveyed and dividing by the total number of health facilities surveyed.

*Data sources:* inventory control records from facility records or national, regional and district warehouse records

*Frequency:* annually

### Resources

A model quality assurance system for procurement agencies. Module IV. Receipt and storage of purchased products and appendix 14. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fortieth report. Geneva, World Health Organization, 2006 (WHO Technical Report Series, No. 937; [http://whqlibdoc.who.int/trs/WHO\\_TRS\\_937\\_eng.pdf](http://whqlibdoc.who.int/trs/WHO_TRS_937_eng.pdf)).

WHO, UNICEF, UNDP, UNFPA and World Bank. A model quality assurance system for procurement agencies: recommendations for quality assurance systems focusing on prequalification of products and manufacturers, purchasing, storage and distribution of pharmaceutical products. Geneva, World Health Organization, 2007 (<http://www.who.int/medicines/publications/ModelQualityAssurance.pdf>).

## Health products, vaccines and technologies (HSS-HP6)

Existence of standard procedures for the quality control of health products at initial receipt at the central level

### Rationale

Quality control is concerned with sampling, specifications and testing and with the organization, documentation and release procedures that ensure that the necessary and relevant tests are carried out. It also ensures that materials or products are not released for use until their quality has been judged satisfactory for their intended purpose. Quality control of medicines should cover all activities to ensure that people who need medicines receive safe, efficacious and high-quality medicines.

Each procurement agency should have access to a quality control department, which should meet the general requirements for facilities, policies and procedures, staff expertise, experience and training. The quality control department must be capable of undertaking the full range of tests required or of managing any subcontracting of such work to third parties correctly while retaining responsibility for the quality of the work done.

As part of quality assurance, a supply system should have a defined protocol at the central level for managing quality control testing activities for purchased medicines and other health products.

### Definition of the indicator

This indicator measures the existence of standard procedures for the quality control of health products at the central level to assess the quality of health products at initial receipt.

### Measurement

The indicator is generated by conducting a desk review at the central level to ascertain the existence of the standard procedures for the quality control of health products.

The indicator does not measure the actual process of quality control. To assess whether the procedures are implemented, an additional indicator is required; indicator HSS-HP7 is recommended to complement this one.

*Data sources:* administrative records

*Frequency:* annually

### Resources

A model quality assurance system for procurement agencies. Module IV. Receipt and storage of purchased products and appendix 14. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fortieth report. Geneva, World Health Organization, 2006 (WHO Technical Report Series, No. 937; [http://whqlibdoc.who.int/trs/WHO\\_TRS\\_937\\_eng.pdf](http://whqlibdoc.who.int/trs/WHO_TRS_937_eng.pdf)).

WHO, UNICEF, UNDP, UNFPA and World Bank. A model quality assurance system for procurement agencies: recommendations for quality assurance systems focusing on prequalification of products and manufacturers, purchasing, storage and distribution of pharmaceutical products. Geneva, World Health Organization, 2007 (<http://www.who.int/medicines/publications/ModelQualityAssurance.pdf>).

## Health products, vaccines and technologies (HSS-HP7)

Percentage of product batches of pharmaceuticals that have undergone a quality control process at the initial receipt according to standard procedures

### Rationale

Quality control is concerned with sampling, specifications and testing and with the organization, documentation and release procedures that ensure that the necessary and relevant tests are carried out. It also ensures that materials or products are not released for use until their quality has been judged satisfactory for their intended purpose. Quality control of medicines should cover all activities to ensure that people who need medicines receive safe, efficacious and high-quality medicines.

Each procurement agency should have access to a quality control department, which should meet the general requirements for facilities, policies and procedures, staff expertise, experience and training. The quality control department must be capable of undertaking the full range of tests required or of managing any subcontracting of such work to third parties correctly while retaining responsibility for the quality of the work done.

### Definition of the indicator

*Numerator:* Total number of product batches of pharmaceuticals that have undergone a quality control process at the initial receipt according to standard procedures

*Denominator:* Total number of product batches received in the last calendar year

### Measurement

The numerator is generated by a count of all pharmaceutical product batches with evidence that a sample of medicine for each batch was randomly selected and tested for quality control at the initial receipt of each respective batch. For each batch received, a sample of medicines is supposed to be randomly selected and tested for quality control.

The denominator is the total count of all pharmaceutical product batches received during a calendar year.

*Data sources:* administrative records

*Frequency:* annually

### Resource

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

## Health products, vaccines and technologies (HSS-HP8)

Percentage of health facilities that have a procedure in place to report product quality issues

### Rationale

As part of quality assurance system, dispensing health facilities should be equipped with a defined protocol to report quality issues for received medicines to the central level.

### Definition of the indicator

*Numerator:* Total number of health facilities that have a procedure in place to report product quality issues

*Denominator:* Total number of health facilities surveyed

### Measurement

The numerator is derived from a check and count of all sampled health facilities that have a procedure in place to report product quality issues. The denominator is the total number of sampled health facilities.

*Data sources:* health facility survey

*Frequency:* every 2–3 years

### Resource

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

## Health products, vaccines and technologies (HSS-HP9)

Percentage of medicines prescribed based on national treatment guidelines or an essential medicines list or formulary

### Rationale

This indicator measures the degree to which prescribing practice conforms to the national treatment guidelines. More and more countries are formulating national treatment guidelines and essential medicine lists and formularies. For most, this should be the basis for all public procurement and prescribing of medicines.

### Definition of the indicator

*Numerator:* Number of prescribed medicines included on the national treatment guidelines or essential medicine list or formulary at a health facility

*Denominator:* Total number of medicines prescribed at a health facility

### Measurement

The indicator is generated from a random representative sample of outpatient encounters (retrospective or prospective) at health facilities.

If there is a current officially endorsed set of national treatment guidelines and/or essential medicine list and/or formulary, copies should be provided to each survey team. Request all available records for the past 12 months before beginning sampling. Then determine how many of the prescribed medicines at each of the randomly selected health facilities are included on the national treatment guidelines and/or essential medicine list and/or formulary, even if they are not prescribed under an internationally recognized name.

The national average is derived by adding the percentage values for each of the selected health facilities and then dividing the value by the number of facilities sampled.

*Data source:* health facility survey

*Frequency:* every 2–3 years

### Resource

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

## Health products, vaccines and technologies (HSS-HP10)

Percentage of dispensed medicines adequately labeled with dosage instructions

### Rationale

This indicator assesses the quality of dispensing practice. If medicines are to be used properly, the person dispensing them should label them appropriately.

### Definition of the indicator

*Numerator:* Total number of medicines adequately labeled at each health facility sampled

*Denominator:* Total number of medicines dispensed at each health facility sampled

### Measurement

An adequate label at a minimum requires the name of the medicine, how much is to be taken and the frequency of administration. Interview people leaving the dispensing area or leaving the facility after they have been treated and received medicines. People can be interviewed consecutively or as convenient. Check whether each medicine label conforms to at least all the requirements noted above for adequate labeling. Count a medicine as adequately labeled only if all requirements are met.

The national average is equal to the sum of percentage of medicines adequately labeled at all public health facility dispensaries sampled divided by the number of facilities sampled.

*Data sources:* health facility survey

*Frequency:* every 2–3 years

### Resource

WHO operational package for assessing, monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. Geneva, World Health Organization, 2007 (<http://www.who.int/medicinedocs/index/assoc/s14877e/s14877e.pdf>).

**Health products, vaccines and technologies (HSS-HP11)**

Percentage of health facilities with an adherence register or other similar record-keeping system available to report adherence rates

**Rationale**

Adherence to life-long treatment such as antiretroviral therapy is critical to ensure positive treatment outcomes and prevent the development of drug resistance. The availability of adherence tools supports prescribers and dispensers in monitoring adherence and in helping to identify reasons for suboptimal adherence from the perspective of both users and front-line health workers.

**Definition of the indicator**

*Numerator:* Total number of health facilities with an adherence register or other similar record system available to report adherence rates

*Denominator:* Total number of health facilities surveyed

**Measurement**

The numerator is derived from a check and count of all sampled health facilities that an adherence register or other similar record system is available to report adherence rates. The denominator is the total number of health facilities sampled.

*Data sources:* health facility survey

*Frequency:* every 2–3 years

**Resource**

Hardon A et al. From access to adherence: the challenges of antiretroviral treatment – studies from Botswana, Tanzania and Uganda. Geneva, World Health Organization, 2006 (<http://www.who.int/medicinedocs/en/d/Js13400e/#Js13400e>).

## Impact indicator (HSS-I1)

All-cause mortality rate among children younger than five years

### Rationale

The mortality rate among children younger than five years is a leading indicator of the level of children's health and overall development in countries. It is also a Millennium Development Goals indicator.

### Definition of the indicator

The probability (expressed as a rate per 1000 live births) that a child dies before reaching the age of five years if subject to the current age-specific mortality rate.

### Measurement

The mortality rate among children younger than five years can be derived from household survey data. This requires data collected on the birth date and either death date or age at death of children to produce the probability of dying before age five years among children exposed to mortality during the five-year period before the survey. More specifically, DHS use the synthetic cohort life-table approach, in which mortality probabilities for small age segments based on real cohort mortality experience are combined into larger age segments that correspond to the age group of interest.

*Frequency:* every 3–5 years

### Strengths

- *All-cause mortality can be measured reliably.*
- *This indicator is representative of large populations of interest.*

### Limitations

- *Due to cost and other resource limitations, large nationally representative surveys are usually conducted only in three-year or five-year cycles, and data may therefore not be available at the optimal intervals for evaluation.*
- *The survey recall period may not coincide exactly with the scale-up period of interventions, causing their impact to be underestimated.*







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