Health Information System Strengthening:
Standards and Best Practices for Data Sources

MODULE 4:

Logistics Management Information System

This module is one of 12 HIS data source modules in *Health Information System Strengthening: Standards and Best Practices for Data Sources*. The full series of modules (available at https://www.measureevaluation.org/resources/publications/tr-17-225) is intended to provide health authorities and other health information stakeholders with a reference guide that, along with other sources, can help align the HIS data sources with international standards and best practices.

Type of Data Generated: Essential Medicines and Health Commodities

Description

The logistics management information system (LMIS) collects and provides data on healthcare commodities that are routinely supplied to health facilities (Routine Health Information Network, n.d.). The primary purpose of the LMIS is to manage the logistics of ensuring a smooth supply chain and that the data it generates are also relevant for monitoring key indicators of health system performance, namely essential medicines.

Essential medicines, including vaccines and contraceptives, are those identified as meeting the priority healthcare needs of the population. They should be available in the healthcare system at all times, in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price that individuals can afford (WHO, 2016). Access to essential medicines, measured by their availability and affordability, is one of the health system building blocks (WHO, 2010). However, data to monitor indicators related to essential medicines are poor in most low- and lower-middle-income countries (WHO, 2015b). In the absence of routine data, many countries have conducted surveys to measure prices and availability of essential medicines using samples of health facilities (WHO & Health Action International, 2008).

To improve routine measurement of medicine availability and affordability, an electronic LMIS, such as OpenLMIS or Logistimo, can be programmed to provide timely data on both stocks and prices of medicines in medicine outlets, including pharmacies and health facilities (OpenLMIS, n.d.; Logistimo, n.d.). In addition to providing complete and timely data on essential medicines, an electronic LMIS can interoperate with a patient management system, such as DHIS 2, to effectively link the availability of and demand for medicines with health service delivery (Village Reach, 2017; John Snow, Inc., 2017).

Affordability is another dimension of access to essential medicines (Niens, et al., 2012; Cameron, et al., 2011). In 2001, WHO member states endorsed a resolution to develop a standardized methodology for measuring medicine prices, which is a crucial component of affordability (WHO, 2001). Although there is not yet an agreed-on methodology for measuring prices, an electronic LMIS can provide routine information on the range of prices and median prices for medicines by recording financial data on the distributed cost and treatment price for each medicine. This fundamental evidence can help define regulations and policies to ensure affordable medicines and promote equity in pricing.

Types of Indicators

To monitor access to essential medicines, countries select tracer medicines from the national and global essential medicine list (EML), including brand-name and generic products for each medicine (WHO, 2015c). Health information officers measure availability of these medicines through indicators of stocks on hand, stockouts, and other indicators (USAID, 2008). They measure affordability through median unit prices and consumer price ratios.

Consumer price ratios are calculated as the median local unit price divided by the Management Sciences for Health (MSH) international reference price. MSH has published the International Drug Price Indicator Guide with WHO since 2000 and updates it annually (Management Sciences for Heath International [MSH], 2015). The international reference prices represent median prices of selected medicines offered to developing and middle-income countries by different suppliers. These ratios show the price of local medicine relative to the international reference price and are considered good comparative information on prices.

Table 7 shows several indicators for monitoring the availability and affordability of selected medicines.

Table 7. Essential medicine availability and affordability indicators

Global reference list of core health indicators*	Sustainable development goal targets and indicators†
Percentage of health facilities with essential medicines and life-saving commodities	Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries. Provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the Trade-Related Aspects of Intellectual Property Rights Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the agreement regarding flexibilities to protect public health, and, provide access to medicines for all (Target 3.b) Proportion of the population with access to affordable medicines and vaccines on a sustainable basis (Indicator 3.b.1)
Stockout rate (e.g., median availability of 14 essential medicines in public and private health facilities and 20 medicines of national importance)[11]	Achieve universal health coverage, including financial risk protection; access to high-quality, essential healthcare services; and access to safe, effective, high-quality, and affordable essential medicines and vaccines for all (Target 3.8) Coverage of tracer interventions (e.g., child full immunization, ART, tuberculosis treatment, hypertension treatment, skilled attendant at birth) (Indicator 3.8.1)

Global reference list of core health indicators*	Sustainable development goal targets and indicators†
Median availability of selected generic medicines (%)	
Median consumer price ratios of selected generic medicines	

* WHO, 2015a, p. 112; WHO, 2010, pp. 63–64; WHO, 2015b, p. 115

† United Nations, 2016

Alternative Data Sources

Until a country has a national LMIS that routinely collects data on medicine stocks and prices from all public and private facilities that dispense medicines, it must rely on surveys to derive that information. The WHO and Health Action International Project on Medicine Prices and Availability have developed a standard survey methodology to measure price components of 50 essential medicines in public, private, and other sectors. The survey has been conducted in more than 50 countries, and the internationally comparable results are publicly available (WHO & Health Action International, 2008).

Standards

1. The national list of essential medicines, or in its absence, the WHO global list, serves as the basis for monitoring availability and affordability. Since 1997, the WHO has produced a global EML, with updates about every two years. The most current EML is the WHO Model List of April 2015, which includes 340 medicines that treat priority conditions, including malaria, HIV/AIDS, tuberculosis, reproductive health, and chronic diseases such as cancer and diabetes (WHO, 2015c).

2. The U.S. Agency for International Development funded a series of technical guides and tools aimed at developing essential health commodity supply chains. Project publications address strengthening logistics management information systems, streamlining distribution systems, identifying financial resources for procurement and supply chain operation, and enhancing forecasting and procurement planning (USAID, 2008; USAID, 2009; USAID, 2011). USAID also funded A Guide to Improving Drug Management in Decentralized Health Systems: The Monitoring-Training-Planning Guide for Program Implementation (Nelson & Adams, 2000).

[11] The 14 global essential medicines are from the 2010 global core list of medicines. This list should be checked for updates, and countries should select tracer medicines that are most relevant to their needs (MEASURE Evaluation, n.d.).

Best Practices

- A **national EML** is adapted to national needs and formally adopted as part of the national medicine policy; both are updated every five years.
- The logistics management unit has a **strategic plan** that covers the next one to three years.
- The national logistics management unit maintains an LMIS with data on essential medicines, including routine information on **stock status and medicine prices.**
- **All medicine outlets,** including health facilities and pharmacies, are required to report in the LMIS.
- LMIS data are used regularly to derive indicators of **availability and affordability of selected essential medicines.**
- LMIS data are **periodically reconciled** against physical inventories and validated using a standard survey methodology, such as WHO and Health Action International's health facility assessment.
- Logistics **data are linked** to health service delivery data to match demand for essential medicines with availability.
- A **logistics system assessment** is conducted regularly using a tool such as USAID's Logistics System Assessment Tool, and results are used to update the program of work and for strategic planning exercises.

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