

# MEASURE Evaluation's Health Information System Strengthening Model

## A Summary

MARCH 2017

### PURPOSE

MEASURE Evaluation has developed a model for strengthening health information systems (HIS)\* in low- and middle-income countries (LMICs). The HIS strengthening model (HISSM) is a starting point for framing what we know now and the opportunities we have to learn more about strengthening HIS. The model articulates MEASURE Evaluation's current understanding and guides us as we continue to learn how HIS in LMICs are designed, developed, and implemented over time to support health systems and improve health outcomes. An HIS is broadly defined to encompass all health data sources, including health facility and community data collected as part of routine health information systems (RHIS) or health management information systems (HMIS); electronic health records for patient care; population-based data; human resources information; financial information; supply chain information; and surveillance information. Our model includes every type of information that can be used for decision making in the health sector. This model was developed in collaboration with experts around the globe, using the Health Metrics Network (HMN) Framework as a foundation (HMN, 2008), to address four key objectives: (1) promote HIS as an essential function of a health system, (2) define HIS strengthening, (3) measure HIS performance, and (4) monitor and evaluate HIS interventions.

The HISSM is intended for use by HIS managers, personnel in LMICs implementing HIS interventions, donors, and HIS experts. It supports country-specific and global stakeholders as they assess, plan, design, implement, and monitor and evaluate their HIS interventions. MEASURE Evaluation welcomes feedback on the HISSM and will share updates through the MEASURE Evaluation HIS Strengthening Resource Center: <https://www.measureevaluation.org/measure/his-strengthening-resource-center/contact-us>.

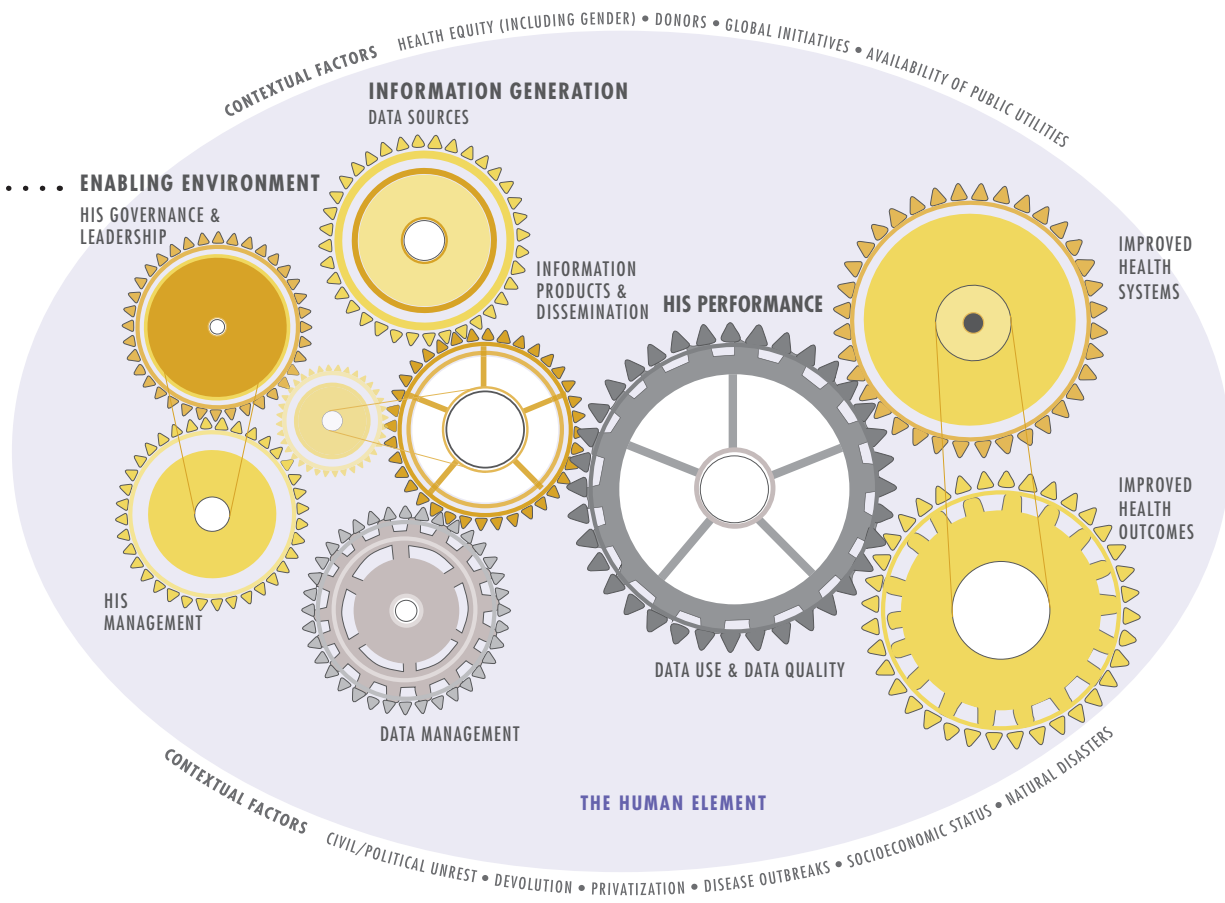
### OVERVIEW OF THE HISSM

The HISSM is divided into four key areas. The first area is the human element: This refers to all of the people who interact with the HIS and drive its development and maintenance. The remaining three areas are the enabling environment (the foundation for planning, implementing, and maintaining the HIS); information generation (the operationalization of the HIS); and HIS performance (measurement of HIS performance). In addition, the model visually represents the relationship between strengthening the HIS and improved health outcomes and services, as a reminder of the importance of the HIS in serving the information needs of the health sector. We have also depicted contextual factors that can influence the HIS positively or negatively.

Each of these areas builds upon the others to create a strong HIS, which the model reflects as leading to improved health systems and improved health outcomes. Not everything listed in the model would need strengthening in a given country. Priorities will depend on the country context, where some of the subareas will need greater attention in order to strengthen the HIS. A strengthened health system will lead to improved health outcomes over time, and it is possible that these improvements will occur simultaneously. This is why the model presents them at the same level. These two components are included in the HISSM to remind the user of a strong health information system's purpose. . . . .

\*In this document, "HIS" and (below) "RHIS" and "HMIS" will be used both for singular and plural references: "system" or "systems," depending on the context.

# HEALTH INFORMATION SYSTEM STRENGTHENING MODEL



Source: MEASURE Evaluation. 2017. Chapel Hill, NC: MEASURE Evaluation, Carolina Population Center, University of North Carolina.

## HUMAN ELEMENT

In the HISSM, the human element serves as a backdrop for the gears to show that it is the foundation for HIS strengthening—in fact, it is a necessary element of successful HIS strengthening efforts. The human element may include individuals who engage with the HIS as part of the HIS workforce, a data user, or a health system beneficiary. An individual may interact with the HIS through more than one role. For those in the HIS workforce, strengthening efforts involve the effective management of the workforce and the capacity of HIS staff to develop, plan, implement, use, and strengthen the HIS. For data users, strengthening efforts address capacity building and system and product design. The system must meet the user’s information needs and their abilities to use information. A system beneficiary is directly affected by the use of data in health decision making. For health system beneficiaries, strengthening efforts involve including and considering the perspectives, needs, and experience of individuals.

## ENABLING ENVIRONMENT

This area is divided into two domains: HIS governance and leadership, and HIS management. HIS governance and leadership consist of legislation that outlines specific activities under HIS (maintaining data privacy, security, and confidentiality; establishing national statistics offices; and conducting civil registration). It also consists of partnerships and coalition building to leverage resources, governance structures, policies and standards (i.e., national health plans, health sector M&E plans, health indicators, HIS policy and strategy, eHealth and mHealth strategies, and knowledge management and information use strategies); HIS financing; and the presence of HIS champions. HIS management covers such activities as HIS financing, human resources for HIS, training and continuous education, information management, and infrastructure development.

... This depiction of the enabling environment is not exhaustive but it does cover the most important elements. The enabling environment also includes other domains that are outside of the HIS, including policies and the legal framework for health in general.

## INFORMATION GENERATION

The third area of the HISSM encompasses the entire process of collecting, cleaning, processing, managing, and analyzing health and health-related data from a variety of sources, as well as the creation and distribution of health information products. Many types of data sources exist to meet information needs at each level of the health system. This model considers three categories of data sources: (1) institution-based data sources, which include individual records, service records, human resources information, logistics management information systems, and health facility censuses and surveys; (2) population-based surveys and the civil registration and vital statistics system; and (3) mixed-data sources, such as the public health surveillance information system and national health accounts.

Data management underlies or supports the availability of data sources and the functioning of data subsystems, and it leads to the development and dissemination of information products. Many types of information products (e.g., facility service reports and national annual health statistics reports) are available for a variety of users and purposes, and can be disseminated narrowly or widely, depending on the product, by such means as distribution at meetings, e-mail, and websites. HIS and monitoring and evaluation units or specific disease programs could develop these information products.

## HIS PERFORMANCE

This area of the model involves the mechanisms used to measure HIS performance. The main purpose of an HIS is to produce high-quality information that can be used at all levels for decision making. HIS performance is defined using the dimensions of data quality (accuracy, reliability, precision, completeness, timeliness, integrity, and confidentiality) and the continuous or systematic and institutionalized use of information for decision making. Effective data use requires the use of data from multiple sources, and it occurs at every level of the health system, formally and informally, planned and ad hoc. The two objectives of data use in the context of the HISSM are to improve the HIS and drive data-informed decisions. There are four categories of data use described in the HISSM: to improve data quality, generate health statistics, develop information products, and make data-informed decisions.

## CONTEXTUAL FACTORS

There are a number of contextual factors that influence the strengthening of an HIS and are country specific. For example, the value a country places on gender and other issues of health equity are important contextual factors. Donor priorities, privatization of health services, epidemics such as Ebola, and natural disasters are other examples of the contextual factors that the model can incorporate. Such factors influence an HIS as a whole and can have positive or negative effects on it, depending on the global and country-specific context.

If you have feedback regarding the model, please contact us at [HISstrengthening@unc.edu](mailto:HISstrengthening@unc.edu).

**MEASURE** Evaluation  
University of North Carolina at Chapel Hill  
400 Meadowmont Village Circle, 3rd Floor  
Chapel Hill, NC 27517 USA  
P: +1 919-445-9350 F: +1 919-445-9353 E: [measure@unc.edu](mailto:measure@unc.edu)  
[www.measureevaluation.org](http://www.measureevaluation.org)

FS-16-171

