Health Informatics

Information and communications technologies (ICTs) are revolutionizing our day-to-day lives, our ways to interact with each other, and our work. Their applications in health include telemedicine; electronic medical records; and health information systems with decision support, mHealth, and eLearning tools.

Health informatics (HI)—defined by the U.S. National Library of Medicine as *the interdisciplinary study of the design, development, adoption, and application of information technology-based innovations in healthcare services delivery, management, and planning*—is integral to use of ICTs in the health sector. Because health informatics offers a systems approach to use of ICTs, it holds promise in increasing access to health care, improving the quality of care, and decreasing costs—leading to better health outcomes and healthier people.

HI applies informatics concepts, theories, and practices to achieve better health outcomes, including enhancing processes for health information systems (HIS) to be more effective and efficient in collecting, storing, analyzing, and presenting data in a digital format. HI can facilitate:

- Access to multiple data sources
- Data sharing
- Data visualization
- Data quality assessment and improvement
- Data analytics
- Big Data—a term that refers to the increased volume, greater variety, and quicker velocity of data coming from sensors, social media sites, online photos and videos, online purchase records, mobile phone record signals, and call records.

What role does MEASURE Evaluation play?

MEASURE Evaluation focuses on overcoming challenges to developing strong national HIS and helping to create an enabling environment so that systems can develop.

HI is an emerging discipline and is changing and evolving quickly. How well it develops into a sharable, scalable platform for HIS will depend, in part, on rules being set down now. MEASURE Evaluation is helping to set standards and guidance for HI applications and to develop principles and policy, and to prepare ground for their testing and large-scale implementation.

These principles and standards include:

• **An enterprise architecture approach to integrating technology into HIS**. An enterprise architecture approach means that HI applications should align with and serve an entire health system, not just a piece of it. Enterprise architecture guides the selection, development, and adaptation of technologies to meet system needs, and entails aligning health system goals with the information needed to support those goals, and then identifying the technologies required to generate the required information.

• **Privacy, confidentiality, and security**. These are hallmarks of quality enterprise systems, meant to ensure that information systems are sensitive to their context, that clients are treated fairly, and that their personal data are secure and managed for their best interest.

• **Interoperability and standards.** We encourage open, interoperable systems if there is adequate connectivity, so that data from multiple sources can be shared.

• **Collaborative communities**. We participate in and foster strong professional networks, such as the Open Health Informatics

Exchange (OpenHIE), the Health Data Collaborative (HDC), the Routine Health Information Network (RHINO), and the Global Digital Network (formerly mHealth Working Group) to share best practices for strengthening country-level HI.

Examples of our work:

DATIM

Data for Accountability, Transparency, and Impact (DATIM) is an initiative of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), created to help combat HIV worldwide by collecting data to analyze PEPFAR programs and help improve overall accountability. MEASURE Evaluation has supported and contributed to its design, deployment, implementation, and capacity building activities, working with a variety of partners, including the University of Oslo and Regenstrief Institute.

Swaziland

In Swaziland, MEASURE Evaluation and a local USAID implementing partner, the Institute for Health Measurement (IHM), are supporting the Ministry of Health (MOH) to develop and deploy a client management information system (CMIS). This system will integrate disparate data into a patient-based record for reporting into the district health information system (DHIS 2). The system will improve access to timely, quality data, reduce duplication of patient cases, and improve patient flow and wait times. The CMIS is expected to enhance integration and availability of patient data, improve efficiency and cost effectiveness, and enable systems to deal with a more complex and rapidly changing environment.

South Africa, MomConnect

Subsets of HI systems, such as mobile messaging mHealth solutions, are useful even before HI is fully implemented. South Africa's MomConnect program is a case in point. With a mobile phone, women enroll in the program and receive text messages throughout their pregnancy and their child's first year of life. The program has the potential to expand the number of women receiving adequate prenatal care, track mothers who are HIV-positive to ensure they receive treatment to prevent transmission to their babies, and to follow high-risk pregnancies.

MEASURE Evaluation Strategic Information for South Africa (MEval-SIFSA) is supporting MomConnect and the adoption of the proposed nationwide mHealth strategy. It provides technical assistance to help address challenges, especially in HIV programming, and to help develop an open and transparent repository of mHealth projects and stakeholder forums. The project is producing practical products on interoperability design, privacy and security considerations in design, good practices for messaging and materials, and good practices in providing mobile devices to providers.

Liberia

MEASURE Evaluation conducted an enterprise architecture analysis of the Liberian HIS to complement the 2015–2018 HIS strategic plan and to ensure a more resilient health system, supported by an information technology infrastructure aligned with HIS needs, with the ultimate aim of producing quality data for decision making on health.

Côte d'Ivoire, Mali and Guinea:

DHIS 2 is becoming more and more the *de facto* HIS management software in developing countries, mainly because of its adherence to the Health Metrics Network (HMN) framework principles and its flexibility in allowing adaptation to various uses. MEASURE Evaluation in Côte d'Ivoire, Mali, and Guinea is supporting DHIS 2 implementation while building HIS capacity and creating mechanisms for increased country ownership. For example, with support from MEASURE Evaluation, Côte d'Ivoire has successfully implemented and deployed DHIS 2 throughout the country and the health ministry has taken charge of its management. MEASURE Evaluation is assisting the governments of Mali and Guinea to replicate the Côte d'Ivoire experience.

How can you access MEASURE Evaluation's resources?

MEASURE Evaluation tools and approaches are available free of charge on the project website: www.measureevaluation.org. The project is available to tailor activities and tools to the particular needs of a country. To explore the possibilities, country governments should contact their local USAID mission. The missions, in turn, can contact the USAID AOR for MEASURE Evaluation, Lisa Maniscalco (lmaniscalco@usaid.gov).

measure@unc.edu
www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. FS-15-141 Revised July 2016

USAID FROM THE AMERICAN PEOPLE PEPFAR MEASURE Evaluation