



Routine Health Information Systems

Routine health information systems (RHIS) are the workhorses of the health information system. RHIS refers to data collected by health workers at health facilities or by community-based health workers at the “lowest” level of the healthcare system in rural and remote villages. These data tell the story of individuals, their health issues and concerns, and the services delivered to them. The data have the potential to paint a rich picture of the overall health of people living in a district or a country. But that is possible only if the data collected are accurate and complete, collected consistently and on a timely basis, and then transmitted to health planners in the district and the country.

The world is focused on increasing its use of evidence to underpin decisions made about health: emerging diseases and sudden virulent outbreaks, service delivery, health commodity supply, equity in access to services and services rendered, achieving an AIDS-free generation, and ending preventable child and maternal deaths. To achieve these goals, the world will need data. And reliable data will depend on RHIS, the workhorses.

This need is the genesis for efforts across the world and in Bangladesh to improve RHIS, to make the data it collects more robust, and to ensure that its data are useful and are used for decision making at the highest levels of the health care system. This newsletter focuses on those efforts in Bangladesh.

One Year of RHIS: Looking Back

In Bangladesh, the process of improving RHIS was a continuation of a previous phase that sought to improve the capacity of the management information systems (MIS) units of the Directorate General of Health Services (DGHS) and the Directorate General of Family Planning (DGFP) to generate reliable information on time, streamline MIS tools to minimize information gaps and duplication, reduce the burden of data collection and compilation, improve use of information at the local level and evidence-based decision making in the health, nutrition, and population (HNP) sector. The work began with an extensive revision of existing paper-based MIS tools, which were then redesigned and pretested. The new tools led to improvement in recording and reporting tools used at all levels of DGHS and DGFP.

But there was more that could be done. Information and communication technologies (ICTs)—especially mobile-based solutions, including phones and tablets—offered real promise for the collection of population-based data

through RHIS. It seemed feasible and practicable and resulted in the current phase, known as “RHIS Initiatives.”

RHIS Initiatives was designed as an ICT project and began in January 2015. It began with a seminar on



Syed Monjurul Islam, Secretary, Ministry of Health and Family Welfare (MOHFW), delivering the speech of Chief Guest, August 2015



MEASURE Evaluation's videographer, Kim Best, recently visited Bangladesh to shoot a video showing the digital population registration system (PRS) in action. She interviewed health workers who use tablets to register people, and also interviewed officials from the Ministry of Health, USAID, and implementing partners to gather information on the impact of PRS on data collection and how data will be used. Shown with her here are Reza Ali Rumi, MD, Monir Ahmed, Harunur Rashid, and Gabriela Escudero.

strengthening RHIS in January 2015 to disseminate the previous work done on MIS tools and to create awareness about the current phase. Professor Abul Kalam Azad, Additional Director General (Planning and Development) and Director (MIS), DGHS, chaired the session. Zahiruddin Babar, Director (MIS), DGFP, was present as a special guest. Others who delivered presentations were Anir Chowdhury, Policy Advisor, a2i project, Prime Minister's Office; Saiful Islam Chowdhury, Additional Secretary and Project Director, Birth and Death Registration Project; Dr. Shams El Arifeen, Director Maternal and Child Health Division (MCHD), icddr;b; Dr. Ishtiaq Mannan, Chief of Party, MaMoni HSS (now Director, Health Nutrition and HIV/AIDS, Save the Children); and Muhammad Abdul Hannan Khan, Senior Technical Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit. The seminar was attended by representatives of the Ministry of Health and Family Welfare, DGHS, DGFP, development partners, and non-governmental organizations.

The first module in the implementation of RHIS Initiatives was a population registration system (PRS) in the catchment areas of community-based health workers in Habiganj and Tangail districts. It was developed in February 2015 and ready for deployment by March. The actual PRS data entry using digital tablets began in March in Madhabpur upazila (subdistrict) of Habiganj district and in April in Basail upazila of Tangail. The health workers quickly acquired the necessary skills for data entry and the digital population registration was on its way.

The logistical planning for the PRS was elaborate. A one-day training of trainers session in February 2015 included master trainers from icddr;b, who first trained a number of other trainers from MaMoni/Save the Children, Health Systems

Strengthening Project, and icddr,b. Subsequently, these trainers trained field officials of DGHS and DGFP staff, who then trained family welfare assistants (FWAs) and health assistants (HAs) at the field level.

The team of programmers at icddr,b, MaMoni HSS, and Systems for Improved Access to Pharmaceuticals and Services (SIAPS) continued to develop digital applications to be used by FWAs and HAs. They also developed other modules for use in health facilities offering primary health care, family planning services, and attended deliveries. They focused on Union Family Welfare Centers run by family welfare visitors and subassistant community medical officers. All RHIS partners participated in a workshop in mid-August to develop a technical document describing each of the modules and to further refine module details and data dashboards that should be developed.

Work also began to prepare applications that could be used by HAs in the community to record immunization data to replace the paper-based data collection currently used. Staff from DGHS and DGFP, along with other partners, met in September to discuss business processes and requirements for the national Expanded Program on Immunization (EPI).

Meanwhile, introduction of PRS continued in three additional upazilas in Tangail (Mirzapur, Bhuapur, and Ghatail). Eight more upazilas of Tangail are set to start in 2016 (Gopalpur, Dhanbari, Modhupur, Delduar, Shakhipur, Nagarpur, Kalihati, and Sadar).

In Habiganj District, Madhapur registration started in November and in Bhuapur and Ghatail in December.

About “RHIS Initiatives”

RHIS Initiatives started in January 2015 to improve data collected by health workers and health facilities and to move the data collection toward digital tools, which help to make high-quality data available for decision making for health. Effective use of information and communication technologies is poised now to change the business processes of rural health workers and offer them an increased level of efficiency.

These initiatives initially aim to automate the work of rural health workers through several platforms. Paper-based systems are being replaced with applications in digital

A health assistant
registering a man with a
tablet in Madhapur



tablets (handheld computing devices) and in programs for laptops or desktops.

To that end, all of RHIS Initiatives' implementing partners are jointly working to develop and implement comprehensive electronic software solutions employing mobile devices and the Internet. Both of these technologies are now available throughout the country, though problems of power and connectivity remain, so RHIS applications design incorporates the ability to work offline.

Applications are built to capture all service encounters and service history and to track services provided to everyone in the coverage area. These data are uploaded to a database, after which they can be made available to providers and supervisors in near-real-time for improved decision making.

RHIS Initiatives has four implementing partners working under USAID: MEASURE Evaluation, icddr,b, MaMoni HSS, and SIAPS. They are piloting the program in the two districts of Tangail and Habiganj. Two departments under the Ministry of Health and Family Welfare of the Bangladesh government provide healthcare at this level: DGHS, which deploys HAs and DGFP, which deploys FWAs, who provide health services chiefly through home visits.

A family welfare assistant
registering a woman with
a tablet in Basail



How the Digital Population Registration System Works

The PRS in Bangladesh is a mobile application designed for use in digital tablets to register people residing in a particular area. PRS is considered to be the foundation of the RHIS, from which all service delivery providers and health decision makers can retrieve the data they need.

At the most granular level of local government, called a ward or union, FWAs and HAs register the population of their areas to gather information so that they can identify and provide necessary health services, such as reproductive health, maternal and child care, and immunizations.

The geographical and administrative data they gather, plus data related to households and their members, are uploaded in a database in a cloud environment. A data user has access only to data belonging to the area s/he is responsible for. A number of screens or forms are used for data entry.

The system validates the data and also collects background meta data, such as geographic coordinates. A household with four to five members can be registered in about 10 to 12 minutes, enabling health workers to collect data

from about 50 to 60 people each day, with each individual identifiable by a health identification number. Registration in Basail and Madhabpur districts already is completed.

The software for the PRS is an mHealth application designed for the Android platform, written in Bangla. Each data collector has a 3G Internet connection and a sufficient quota per month for uploading or downloading data to the central database.

The PRS database is the key to building a service history for each individual, which will provide important evidence of health issues so that decision makers can plan coverage and make decisions about services needed. Once fully implemented, PRS can also assist Bangladesh to implement full civil registration and vital statistics coverage, which records events such as births and deaths and is essential for sound health care planning.