RHIS

Seminar on

Strengthening the Routine Health Information System of the Ministry of Health and Family Welfare in Bangladesh

Directorate General of Health Services
Ministry of Health and Family Welfare
Dhaka, Bangladesh

January 13, 2015

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Contents

List of Tables

List of Figures

List of Abbreviations

ANC	antenatal care
APR	annual program review
BRIS	Birth Registration Information System
CAR	contraceptive acceptance rate
CARE	Cooperative and Assistance for Relief Everywhere
CBHC	community-based health care
CC	community clinic
CCAH	Center for Child and Adolescent Health
CCSDP	Clinical Contraceptive Service Delivery Program
CDC	U.S. Centers for Disease Control and Prevention
CG	community group
CHCP	community health care provider
CIDA	Canadian International Development Agency
COIA	Commission on Information and Accountability
CRVS	Civil Registration of Vital Statistics
CSG	community support group
DFID	Department for International Development (United Kingdom)
DGFP	Director General of Family Planning
DGHS	Directorate General of Health Services
DHIS2	District Health Information System version 2
DP	development partner
EmOC	emergency obstetric care
FSDP	Field Service Delivery Program
FWA	Family Welfare Assistant
FWC	family welfare centre
FWV	family welfare volunteers
GIZ	German Federal Enterprise for International Cooperation
GO	government order
GR	Geographical Reconnaissance
HA	Health Assistant
HIS	health information system
HPNSDP	Health, Population and Nutrition Sector Development Program
HSS	health system strengthening

ICT	information and communication technology
IMCI	integrated management of childhood illness
JICA	Japan International Cooperation Agency
LLP	local level planning
LMIS	logistic management information system
M&E	monitoring and evaluation
MCR&AH	maternal, child, reproductive, and adolescent health
ME	MEASURE Evaluation
MIS	management information system
MNC&AH	maternal, neonatal, child and adolescent health
MNCH	maternal, neonatal and child health
MNCH&FP	maternal, neonatal and child health, and family planning
MOHFW	Ministry of Health and Family Welfare
NCD	non-communicable disease
NGO	nongovernmental organization
NID	national identity card
NNS	National Nutrition Service
OP	operational plan
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHC	primary health care
PMMU	Program Management and Monitoring Unit
PNC	postnatal care
RMNCH	reproductive, maternal, neonatal, and child health
SCI	Save the Children International
SCIP	supply chain information portal
SCMP	supply chain management portal
SDP	service delivery point
SHR	shared health record
SIAPS/MSH	Systems for Increased Access to Pharmaceuticals and Services/Management Sciences for Health
SNL	Saving Newborn Lives
SRP	Smart Register Platform
SWAp	Sector-wide approach
UFPO	Upazila Family Planning Officer
UHFPO	Upazila Health and Family Planning Officer
UIMS	Upazila Inventory Management System

UNDAF	United Nations Development Assistance Framework
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization
WIMS	Warehouse Inventory Management System

Background

The Bangladesh Ministry of Health and Family Welfare (MOHFW) has invested significant resources through its Health, Population and Nutrition Sector Development Program (HPNSDP) in building health sector information communication technology (ICT) infrastructure across the country. Connectivity with field offices through the use of mobile technology also exists, though bandwidth and continuous power supply remain as problems in many areas. However, there are differences between the two departments within the ministry, i.e., Directorate General of Health Services (DGHS) and Directorate General of Family Planning (DGFP), in terms of execution and in-house capacities to handle ICT. Though both have flag bearers and many bright spots, significant efforts are needed to make the ICT-based routine health information system robust and elaborate using the available resources. Most of the field offices, including rural level offices, of DGHS are equipped with electronic data entry equipment. Software solutions are being used for various routine data collection activities. Solutions using mobile phones have also been introduced. Both DGHS and DGFP use the Web for data collection from district and Upazila offices and have important initiatives or shown significant interest for automating data collection process from the health facilities. DGHS is using District Health Information System, version 2 (DHIS2) for collecting aggregate data from Upazilla Health Offices. Data from community clinics (CCs) are also collected by both DGHS and the Community Clinic Project. On the other hand, DGFP is using software solutions to track individual service delivery points (front line workers) in terms of use of reproductive health commodities. All these activities have been supported by different development partners (DPs) and there are opportunities for providing further support for consolidating the gains as well as to establish a robust data collection system within the scope of the Monitoring and Evaluation Strategy and Action Plan (MESAP) of HPNSDP.

The U.S. Agency for International Development (USAID) and its implementing partners are collaborating with DGHS and DGFP and contributing to the development of a routine health information system (RHIS) in the country. To ensure that these activities are aligned with the current operations of DGHS and DGFP, and contribute to their long term RHIS strengthening

goal, a seminar was organized before starting the next phase of activities of MEASURE Evaluation/icddr,b for strengthening RHIS of MOHFW.

Objectives

The objectives of the seminar were to:

- disseminate RHIS activities performed under USAID implementing partners (namely, MEASURE Evaluation/icddr,b, MaMoni/SCI, and MSH);
- identify areas where other DPs are working in order to harmonize USAID partners' activities and avoid duplication; and
- introduce a proposed work plan for strengthening the RHIS of MOHFW.

Seminar on Strengthening RHIS in Bangladesh

The seminar was held on January 13, 2015 in the MIS Auditorium of DGHS. The seminar was organized by USAID partners implementing RHIS in Bangladesh, namely MEASURE Evaluation/icddr,b, MaMoni/Save the Children, and Systems for Increased Access to Pharmaceuticals and Services/Management Sciences for Health (SIAPS/MSH).

Professor Dr. Md. Abul Kalam Azad, additional director general (planning and development) and director (MIS), DGHS chaired the seminar. Mr. Zahiruddin Babar, director, MIS, DGFP was present as special guest. There were participants from MOHFW, DGHS, DGFP, Bangladesh Computer Council, Local Government Division, development partners (USAID, German Federal Enterprise for International Cooperation [GIZ], Canadian International Development Agency [CIDA], Department for International Development [DFID], Japan International Cooperation Agency [JICA], United Nations Children's Fund [UNICEF], World Health Organization [WHO], and nongovernmental organizations [NGOs]). The program schedule is provided in Annex A. A full list of participants is included in Annex B. The seminar was facilitated by Mr. Md. Humayun Kabir, senior strategic and technical advisor, MEASURE Evaluation.

At the outset, the participants introduced themselves. In his opening speech, Prof. Abul Kalam Azad welcomed all participants in the seminar and pointed out some of the major accomplishments of DGHS-MIS. He particularly mentioned a recent GIZ publication that lauded the implementation of DHIS2 in Bangladesh, *A Quiet Revolution*. After his introductory speech, there were four presentations on the following:

- Activities performed by USAID Partners for improving RHIS, presented by Dr. Shams El Arifeen, director, Centre for Child and Adolescent Health (CCAH), icddr,b.
- Experience of DGHS and DGFP in using DHIS2, presented by Mr. Muhammad Abdul Hannan Khan, senior technical advisor, GIZ.
- Support by different development partners in strengthening RHIS, presented by Mr. Munim Rashid, HMIS consultant, UNICEF.
- Proposed concept paper with workplan, presented by Dr. Ishtiaq Mannan, chief of party, Save the Children.

Activities Performed by USAID Partners for Improving RHIS

In his keynote speech titled *Strengthening RHIS of DGHS and DGFP,* Dr. Shams El Arifeen gave an overview of RHIS strengthening activities by USAID partners (ME/icddr,b, MaMoni/HSS/Save the Children, and SIAPS/MSH) over the last two and a half years. USAID-supported partners' (MEASURE Evaluation/icddr,b, MaMoni/HSS/Save the Children, SIAPS/MSH) initiatives have been directed at supporting M&E functions of HPNSDP with particular focus on six operation plans (OPs) of HPNSDP (MNC&AH, MCR&AH, NNS, CBHC, CCSDP, and FSDP); streamlining MIS tools to minimize information gaps and duplication; reducing the burden of data collection and compilation; designing and using a supply chain management portal for efficient and effective logistics management of RMNCH commodities; improving capacity of MIS units of DGHS and DGFP to generate reliable information on time; improving use of information at the local level; and, promoting evidence-based decision making.

Dr. Arifeen highlighted the activities performed for improving M&E functions of HPNSDP. When the six priority OPs were reviewed, it was found that routine MISs provided data on only 50% of the original OP-level service indicators. Service providers and field-workers were overburdened with recording and reporting requirements; e.g., there were 14 registers for family welfare volunteers (FWV), 11 key sections in Family Welfare Assistant (FWA) register; five in-patient monthly reports had to be manually aggregated; and, Health Assistants (HA) were required to produce at least five monthly reports. As the computer-based database was not fully functional, data accessibility was inadequate. There was inadequate use of RHIS data for local-level decision making. The review of indicators across 32 OPs and development of a performance management plan provided valuable input to the APR of HPNSDP in the last few years. Indicator reference sheets for 342 indicators with detailed information were developed that incorporated definition, calculation, unit of measurement, frequency, source of information and level of data generation. Those indicators were categorized by types (such as training, service, facility readiness, drug/logistic, infrastructure, workshop/meeting etc.). Further assessment by the Program Management and Monitoring Unit (PMMU/Planning Wing of MOHFW) resulted in reduction of OP indicators from 342 to 158.

MaMoni/HSS/Save the Children and MEASURE Evaluation/icddr,b have put special focus on streamlining the MIS tools and implementing those tools. Streamlining of MIS tools necessitated revisions of registers and reports. Revised formats developed have mostly been approved by the authorities. Table 1 below provides an idea of the changes made to the old system with support from the DPs.

The operationalization of these tools required support and engagement of MIS of DGHS and DGFP and other implementers. Table 2 below depicts the nature of implementation and responsibilities performed by DGHS and DGFP.

Table 1: Streamlining of MIS Tools

	Old System	New System
Community		
DGHS/MIS	- No structured *HA register* - No structured *CSBA register*	-Structured HA & CSBA registers - Revised monthly reports online
DGFP/MIS	-Paper-based *FWA register* has separate pregnant women and birth list and missing a number of OP indicators (i.e. ANC, PNC, delivery) - No structured *CSBA register*	- Review of FWA register (in process) adding missing information + pregnant and birth list replaced by piloted 'pregnancy registration handbook' - Online pregnancy registration - Review of MIS 1 & 2 forms are in process - Structured CSBA registers
Union		
DGHS/MIS	-Unstructured g*eneral outpatient register* - Paper-based disease profile report	- Structured register - Simplified monthly report + online reporting at Upazila level
DGFP/MIS	- Separate FWV registers for every service, viz. delivery, ANC, PNC, birth, pill, condom, IUD and IUD follow up	- Reduced FWV registers (MNH, OCP/Pill, IUD) by merging relevant registers - MIS 3 reporting form is under revision

Table 2: Implementation of Tools/Systems

Tools/Systems	Nationwide by DGHS-MIS	With support from icddr,b and MaMoni	Other partners
Directorate General of Health Services (DGHS)			
District and sub-district level: Online hospital in-patient system	Provided ToT to statisticians and instructed to give in-patient data entry, Developed manual inc. ICD 10	All UHCs and DH of Tangail and Chunarughat UHC and DH of Habiganj (logistics, training and onsite support) + central level monitoring by M&E staff	
Union level: General patient register for SACMO and Monthly progress report (aggregated) in DHIS2	DGHS-MIS developed data entry guideline. *Currently, 60 districts reporting in DHIS2*	Paper-based register and reporting format, trainings were provided in entire Tangail district and Chunarughat (Habiganj) Upazila	
CC: Online monthly reporting (aggregated) format in DHIS 2	Provided laptops with connectivity, training to CHCP, developed manual *~8,000 CCs reporting*	Entire Tangail and Chunarughat (Habiganj) Upazila (onsite support), central level monitoring by M&E staff	
CC: Pregnant women and U5 registration system (as part of the Commision on Information and Accountability (COIA) initiative)	Provided ToT, developed manual, intensive monitoring from central level and workshop at divisional level	Training and onsite support in 3 Upazilas of Tangail + ToT to UNICEF + central level monitoring by M&E staff	UNICEF in 3 districts, JICA in Satkhira and Plan in Dinajpur
Household level: a. HA register and reporting tool + online reporting format in DHIS2	DGHS-MIS developed data entry guideline. PHC circulated Government Order (GO) *Currently, 62 districts are reporting in DHIS2*	Paper-based register and reporting format, trainings were provided in entire Tangail district and Chunarughat (Habiganj) Upazila	
b. CSBA register and reporting tool (both FP and Health) + online reporting format in DHIS2 (health)	DGHS-MIS developed data entry guideline. PHC circulated GO *Currently, 62 districts are reporting in DHIS2*		CARE: in Sunamganj SNL: Kushtia
Directorate General of Family Planning (DGFP)			
Sub-district level: Aggregated national reporting form-MIS 4	Revision of MIS4 is done and awaiting for approval	Technical assistance in the review process	
Union level (for FWV): Single register for MNH services OCP, Condom and ECP register IUD register Facility reporting format-MIS 3	Review Committee has revised and finalized reduced MNH and FP registers for FWV. These registers were piloted in icddr,b and MaMoni areas Revision of MIS 3 is done and awaiting for approval	Paper-based register and trainings were provided in entire Tangail and Chunarughat (Habiganj) Upazila Technical assistance in the review process of MIS 3	**SNL:** MNH register in Kushtia

As a result, there have been noticeable improvements in the quality of reporting. Dr. Arifeen demonstrated how reporting of neonatal deaths has improved in Habiganj from 2012 to 2013 as a result of synchronization between reporting of HAs and FWAs through interventions of community volunteers engaged by MaMoni Health Systems Strengthening Project.

He also elaborated on various challenges that had to be tackled. On the technology side, system and connectivity related issues were underscored. Frequent power cuts and slow Internet connection caused delay in online data recording and reporting. There was no provision for offline entry (both DHIS 2 and pregnancy registration system of DGFP). The ability to generate reports or sorting of data is limited. There is a need to add different features to the dashboard as per the needs of different types of users. Absence of individual client-based tracking is also a concern. Because of the use of both old and revised systems there is a duality of work which affects staff motivation. Dr. Arifeen emphasized that it would be desirable to move all systems to a single platform urgently.

There were administrative challenges also. Facility automation covering in-patients was done on a small scale. In facilities senior nurses were somewhat reluctant to use computers. Others perceived that data entry into computer increased their workload. In one facility, several admission registers were used which made it difficult to check whether all patients in a day had been registered or not. Although registration coverage was good, updating of information was poor. There was a perception that encouragement from local level managers to use the new system was not sufficient. Security of computers and accessories was also noted as a major concern by the users.

Dr. Arifeen later explained the work of SIAPS/MSH. An effective logistics management information system (LMIS) is necessary to ensure consistent availability of medicines. It is able to provide real-time information and allow managers to react quickly and efficiently to avoid stock-outs and over-stocks; help plan for proper distribution and assist in forecasting and supply planning of national Stock Status of contraceptives. A Service Delievery Point (SDP) Module in the dashboard tracks SDPs that include FWA, FWV, NGOs, etc. Stock status at the level of individual SDPs is available in the Upazila Inventory Management System (UIMS), which is running in 488 sub-districts). The UIMS data are also uploaded to the Web (SCMP/ SCIP).

For decision-making purposes, DGFP officials can also use the SDP Dashboard Module. These activities contributed to identifying the root causes of stock-outs and helped to assess the quality of SDP reports and assist in designing supervision plans for low-performing sites and finally to reduce the stock-out rates significantly. It has improved decentralized decision making and promoted governance and accountability. MSH is going to update the DGFP Logistic Management Information System (LMIS) tools (UIMS, WIMS, and eLMIS) and expand the product list (n=304 items), roll-out national implementation of the SDP dashboard module to all SDPs (about 30,000) by July 2015. Finally, tools will be handed over to the DGFP for management and maintenance. MSH selected a list of 26 items that includes United Nations-commissioned life-saving commodities in consultation with the technical working group for tracking. Mapping out and designing the logistics recording and reporting systems in collaboration with MaMoni/HSS is in progress and being piloted in the district of Lakshmipur. Steps will be taken to integrate the MOHFW Supply Chain Management Portal (SCMP) and the eLMIS with DHIS2. Solutions will also be developed for tracking equipment and assets of DGHS. The experience of MSH made it clear that there is a need to train staff on a continuous basis. Trained staff need to be retained at their current positions as well. ICT infrastructure of the DGFP needs to be improved.

Dr. Arifeen emphasized the need for taking prompt actions based on information. Online entry at or close to source reduces chance of compilation errors and online reporting makes data easily available at different levels. There is a need for improving capacity of technical personnel for development of RHIS materials and improving use of information at the local level for evidence-based decision making, improving data availability and accessibility. Finally, reports generated by using routine data at the local level can be presented and discussed at annual MIS conference.

Experience of DGHS and DGFP in Using DHIS2

Experience of using DHIS2 was presented by Mr. Muhammad Abdul Hannan Khan, senior technical advisor, HIS, GIZ. The title of the presentation was *DHIS2 – A Multi Stakeholder HIS Platform for Strengthening RHIS in Bangladesh*.

He began his presentation with a schema of the Bangladesh health sector. He mentioned that GIZ had been providing technical assistance to DGHS and DGFP to customize, manage, and upgrade DHIS 2 software, an open source web-based platform for routine data reporting. He stated that in 2008, based on a recommendation from the APR of the erstwhile HNP sector program titled Health, Nutrition and Population Sector Program (HPNSP), GIZ agreed to assist the MOHFW in developing a well-functioning health information system (HIS) to incorporate data across all the different levels of the health system. As a result, an innovative and integrated approach towards HIS strengthening started in 2009. The aim was to bridge the gap between the fragmented systems by bringing together the data from various databases. He also provided a historical perspective on the development of DHIS2. The development of DHIS was initiated at the Department of Informatics, University of Oslo in 1994 and first implemented in 1996 based on MS Access in South Africa. In 2005, web-based development using Java programming language was started and the first version of DHIS2 implementation was done in Kerala, India in 2006. The first national online DHIS 2 implementation was done by Kenya in 2010. Now DHIS2 is implemented in 46 countries and is the national standard in 13 countries. It is used by 25,000 users monthly. It has been used for different health programs (HIV, TB, Malaria and more) and Logistics (UNCOLSC), facility registry (OpenHIE), facility surveys (SA Core Standards/WHO SARA), disease surveillance (CDC Global Health Security), finance (Rwanda Health Finance, PEPFAR Expenditure Analysis), education (Pilots, India), case-based registers (Ghana, Kenya), water and sanitation (Zambia, DRC), tracking of pregnant women and children (Uganda, India, Bangladesh) and tracking of TB patients (Rwanda).

DHIS2 is implemented by a large number of NGOs (23 currently) e.g. Population Services International, Médecins Sans Frontières, International Rescue Committee, IMA World Health, MSH, EngenderHealth, Caribbean Epidemiology Centre, Family Health International, ICAP, IntraHealth, CHAI, and BEMFAM. It is used by several global/regional/ international organizations like WHO (malaria program, DQA tool), UNICEF-HQ/Zambia/DRC, Economic Community Of West African State, East African Community, PEPFAR - HQ, USAID - Nigeria, CDC - Global Health Security.

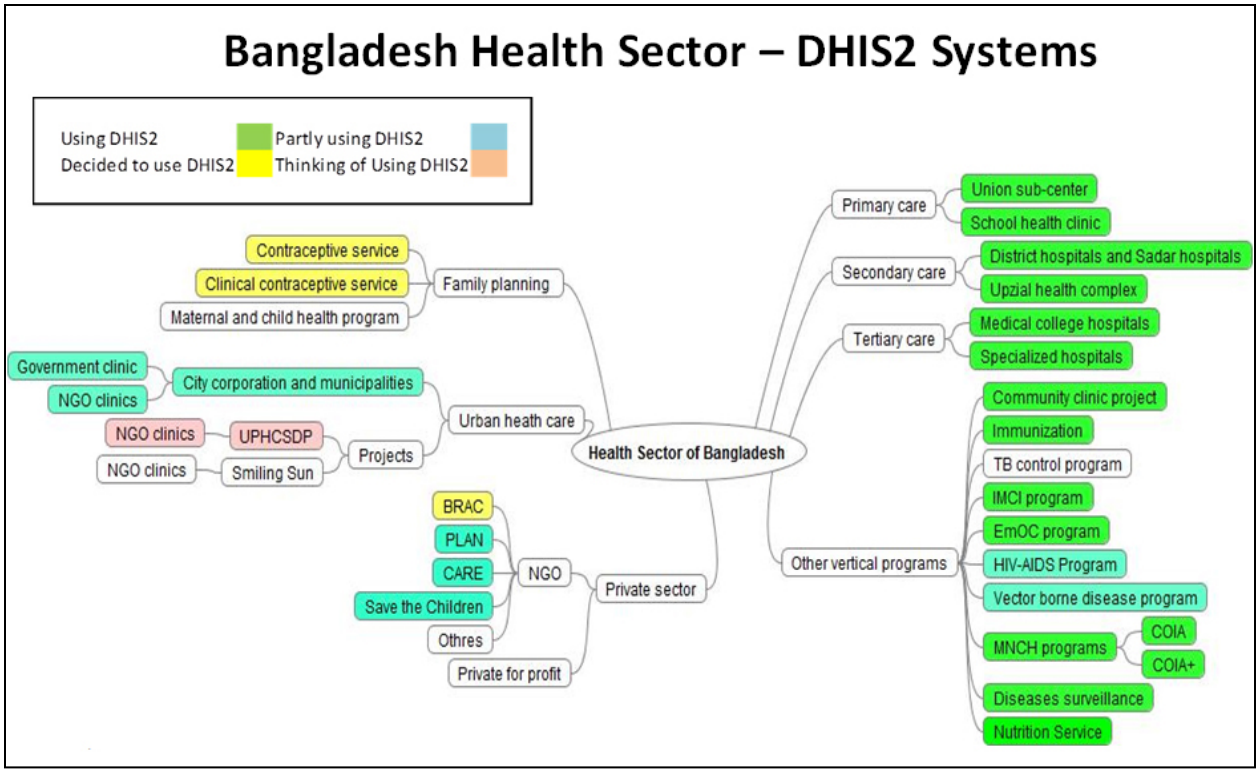

Figure 1: Status of DHIS2 implementation in Bangladesh health sector.

GIZ advocated DHIS2 customization for interested MISs. DGHS showed interest for customization and was it first customized for decentralized data entry in 2011. The first data sets were: monthly EmOC Data Set, monthly Hospital Bed Statement Data Set, monthly IMCI Data Set. Now DGHS has 32 aggregated and 3 individual data sets. Most health programs are included and data are entered from up to 4,501 union level facilities. For the Community Clinic there are 2 individual data sets. It is planned to capture data from 12,784 community clinics.

Recently, DGFP showed interest to implement DHIS2 for their aggregated service statistics system and MNCH tracking. Under the supervision of PMMU, GIZ and icddr,b are going to assist DGFP to implement DHIS2. All Upazilas of two districts will start data entry from February 2015 and by the end of the year all Upazila will be covered. The first three data sets will be: monthly contraceptive acceptance rate (CAR), monthly MNCH data, and monthly reproductive health commodities distribution.

GIZ developed an urban HMIS package which can be used for all urban facilities including city corporations and NGOs. This HMIS package is based on the standards of MIS DGHS and is

freely downloadable. DGHS has also provided a dedicated server for urban HMIS. GIZ is currently supporting HMIS implementation in Sylhet, Rajshahi and Narayanganj city corporations with the active participation of relevant health departments and NGOs, public and private facilities. It is designed to cover the top 10 diseases, peptic ulcers and FP services as reported by NGO clinics. A number of other DPs are also supporting DHIS2 implementation such as USAID, DFID, UNICEF, WHO, UNFPA, CIDA.

These efforts have resulted in widespread adoption of DHIS2 in Bangladesh. As is exhibited in figure 1, all DGHS activities save one program are using DIHS2 now. Some NGOs are also partially using it and others are planning to use it. The only body left out now is the private sector.

Support by Different Development Partners in Strengthening RHIS

The third presentation titled *MIS-Health Interventions on Community HMIS in Hard-to-Reach Districts: For Improving Healthcare Delivery* was done by Mr. Munim Rashid, HMIS consultant, UNICEF. Before starting the third presentation, the facilitator explained that though the presentation only elaborated the experience of UNICEF, it is necessary to have a clear understanding of the all the DPs activities in the area of RHIS. He mentioned that a document has been prepared to identify the areas where other DPs are working. He requested all to look at the document and provide feedback so as to correct or modify it.

Mr. Rashid stated that one of the key RHIS activities by UNICEF has been implementing pregnant women and under 5 children registration at the CC level in three hard-to-reach districts. Pregnant women receive services from different organizations and also move from one place to another for which tracking them becomes difficult and this creates mismatch in base value. He narrated how UNICEF faced difficulties to get coverage indicators. In one village of the same Upazila, the numbers of pregnant women reported by three organizations were different; DGFP recorded 758, DGHS 634, and NGOs 1,873. UNICEF decided to use country systems or HIS Database DHIS2 and planned on a step-by-step intervention plan on HSS. An Action Plan for Community Data Collection was developed (see figure 2). CC registers and data

entry manuals were revised to facilitate community based registration. All maternal services were captured under the same registration, community based under 5 case recording was introduced, and individual EPI information was collected. The system provides a quick view of visit status with color coding, defaulter tracking and priority list, risk case management. All the functionalities are available in software and in registers. Persons' longitudinal history is used to evaluate previous visits and next visit date.

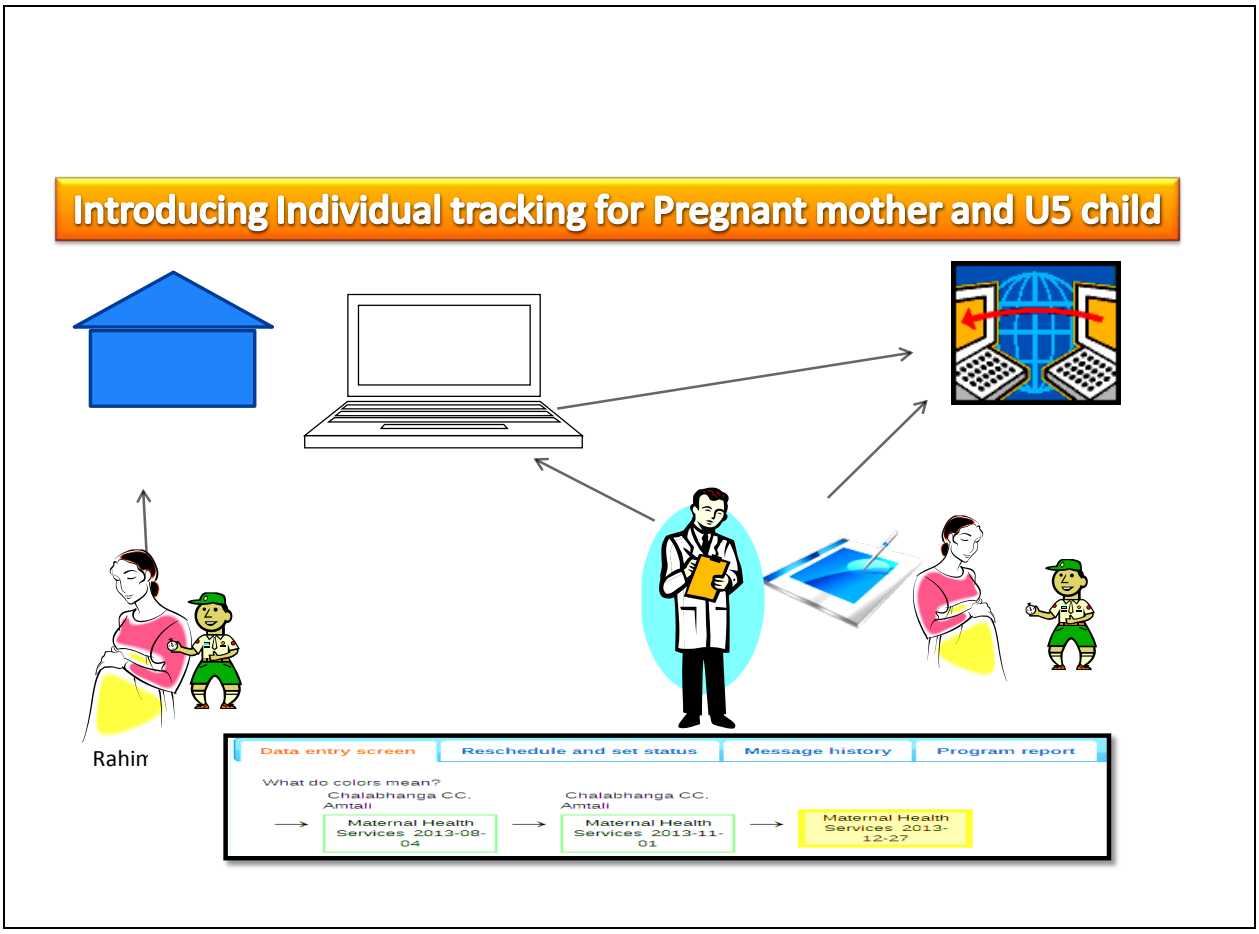

Figure 2: Individual tracking for MNCH services.

CHCPs were provided training on HMIS, DHIS2 and use of registers. An immediate result of the CHCP training was a noticeable enhancement or high percentage of monthly reporting rates. Other capacity building measures include workshops on HMIS and LLP organized by managers. CC HMIS meeting is aligned with regular meetings of the CG and CSGs and one meeting is held every two weeks. These meetings are used to harmonize data (see figure 3).

CCs have clearly demarcated catchment areas. Household mapping is done for each village covering all households. For coordination, it was ensured as an important principle that existing HA/FWA catchment areas would not be changed. They however, aligned their activities with nine wards for further interoperability. All other ministries now use nine wards as the lowest administrative unit and only DGHS/DGFP still follow three wards.

Mr. Rashid also identified a number of challenges like preparing visit schedules. History of health services at the community level is yet to be made available to the higher level health facility. Difficulties remain because of inter divisional movement/migration. Floating and migrant population management is yet to be functional. Urban areas are not covered as those remain under the control of MOLGRDC. Union Centers under family planning (FWC) are not connected by ICT equipment. It was emphasized that there should be harmonization between GO-NGO-Private. He recommended creating provisions for MCH Passport/Booklet, online referrals to higher level facilities and facility-community harmonization. There is a need for legislative measures on health record sharing. He also urged the linking of health records with other services, Universal Health Coverage and health insurance.

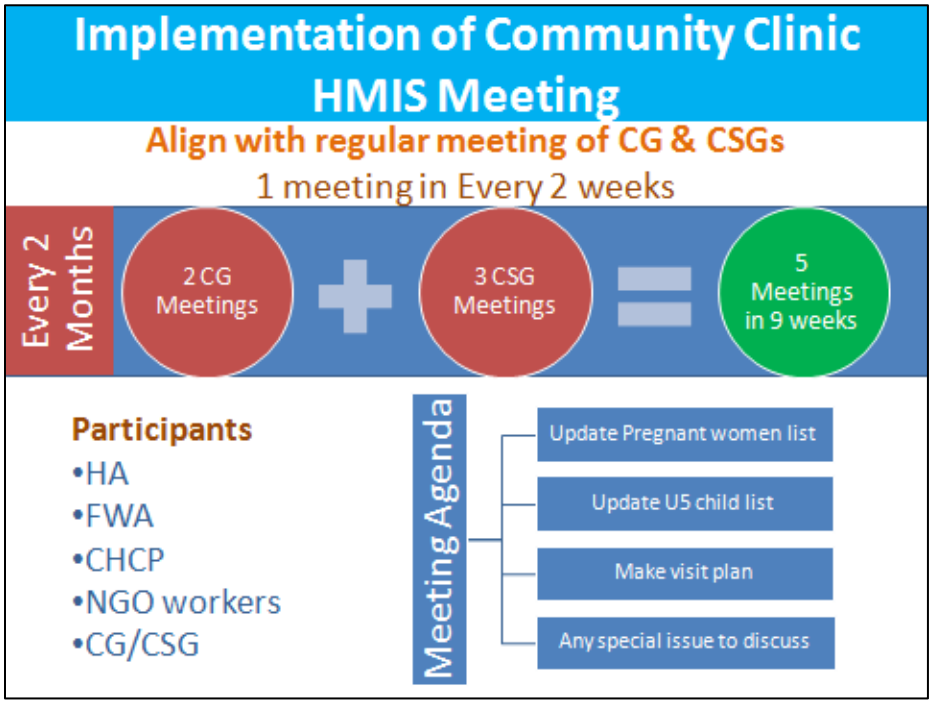

Figure 3: Data harmonization involving CC structures.

Proposed Concept Paper with Workplan

Dr. Ishtiaq Mannan of Save the Children, on behalf of all USAID partners, made a presentation titled *Strengthening RHIS in Bangladesh*. He began his presentation with the success achieved so far and emphasized that business as usual would not help us to achieve the goals. He underlined the success factors with quotes from Bill Gates: "Success is a lousy teacher, it seduces smart people into thinking they can't lose"; and to heed to failure, as "it's fine to celebrate success, but it is more important to heed the lessons of failure". He compared the analogy of a glass half filled with water to bring out challenges, which were described as below:

- Many initiatives are not interlinked – many 'good/excellent' but disjointed efforts need to come together in a logical manner.
- Some concepts merely remain as wishes, 'something' yet to be translated into an actual functioning system so as to produce complete, meaningful, and valid data.
- Data are not optimally used for what they are intended for at different levels.
- Synchronization between program strategy and information system need to be improved.
- Hardware or software are only part of the complex game – there are human beings who are the main elements for success.

He emphasized on the success factors that underline design and quoted from Steve Jobs that "design is not just what it looks like, feels like; design is how it works". Design has to be continually improved with hard work and dogged concentration.

Dr, Mannan narrated the objectives of the current initiatives as follows:

- to review and update HPNSDP M&E framework in the context of the existing M&E Strategy and Action Plan of MOHFW;
- to design and pilot test a comprehensive but modular, electronic, interoperable routine health management information systems for MNCH-FP and nutrition services;
- to build capacity of workers, service providers and managers at all levels to use the systems for generating and using real-time data for management, monitoring and planning purposes; and

- to facilitate the development of a phased national roll-out of the automated electronic routine health management information system and provide technical and facilitation support for its implementation.

He presented the conceptual framework that includes linkages with the National Population Registry, national identity card (NID), and birth registration for identifying the service seekers. A census would be done at the initial stage to capture the population. HA and FWA at the village level would be the main drivers of these efforts and the system would capture the services they provide on a transactional basis and also help them to plan and undertake their regular activities. Data would be available through administrative hierarchies of Union, Upazila and Districts and should help at each level of decision making and managed using the DHIS2 platform. He explained the conceptual flow in the following diagram (figure 4):

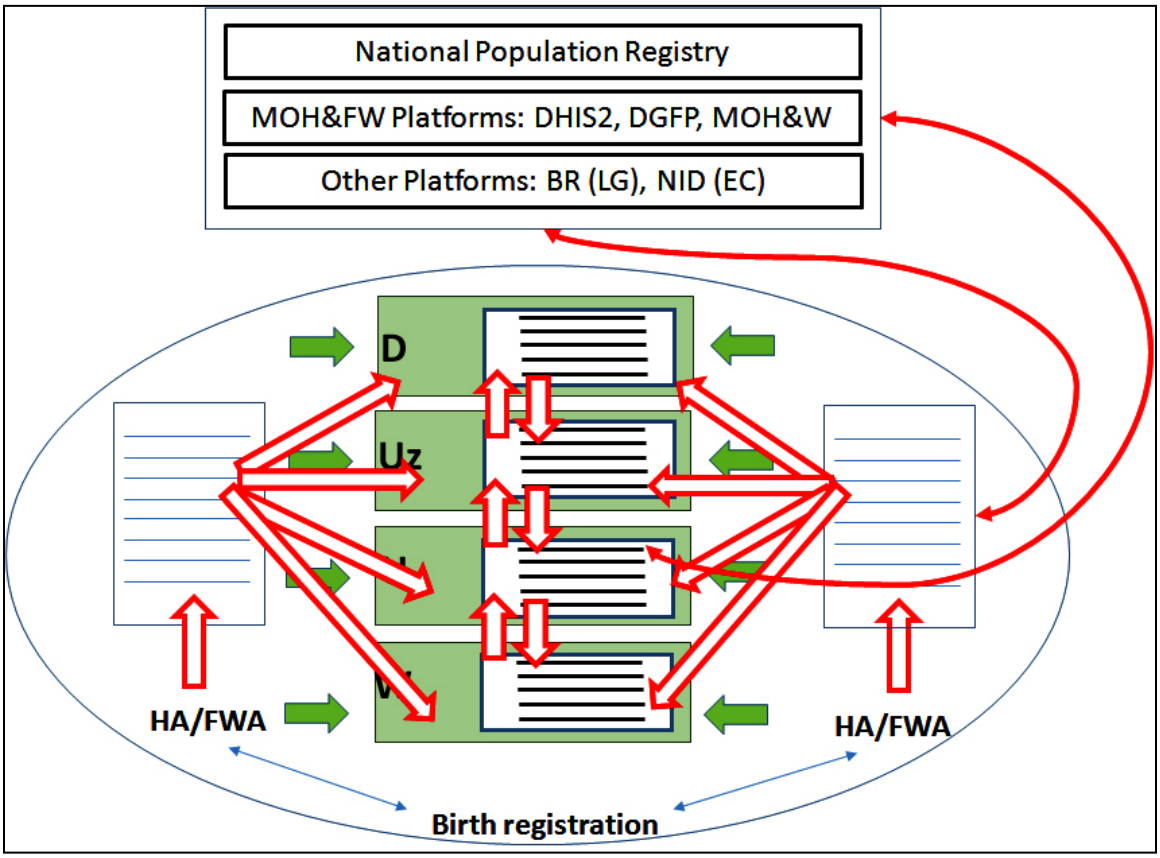

Figure 4: Conceptual flow of proposed activities.

Dr. Mannan then described the design and testing of a comprehensive RHIS in terms of its functions. A development phase would address conceptualization to design and adaptation.

Demonstration would be done in Tangail and Habiganj. Advocacy, coordination, dissemination, capacity building would be attempted at the pilot sites and used to design support for scale up as shown in figure 5.

He described the functions of two modules. Service statistics module would be interlinked and automated tracking system would record and report population-based denominators and community-based service statistics by FWA, HA, and CSBA. He also elaborated plans for automated recording and reporting systems for facility-based services with linkages to the population database. Out-patient department (OPD) only facilities and in-patient department (IPD) facilities would be brought under coverage to complete the service cycle. Management modules would include logistics and HR management.

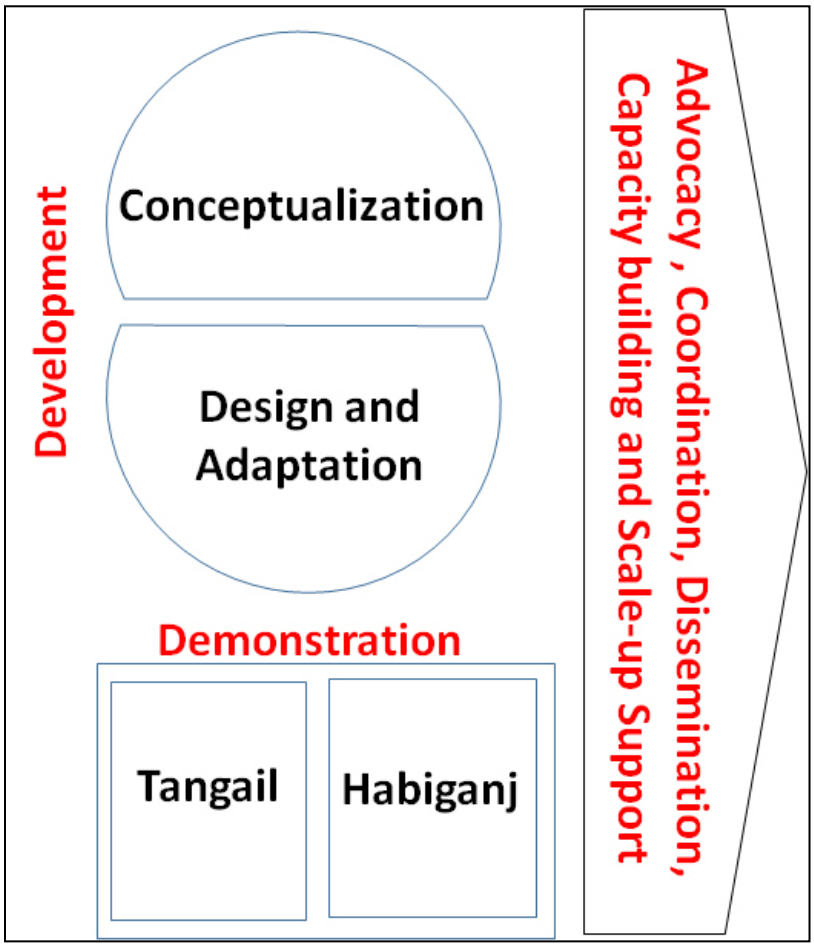

Figure 5: Development, demonstration, and scale-up of RHIS activities.

Dr. Mannan explained that the review and update of the HPNSDP M&E framework in the context of the existing M&E Strategy and Action Plan of MOHFW would aim at improving logical organization of indicators in the M&E plan and results framework of the sector program for which algorithms and processes for data driven decision making at all levels need to be developed. There is also a need to incorporate relevant data from non-public, non-health sectors through policy frameworks. He also emphasized capacity building for system operations and development; data management, data quality, data analysis and use.

He underscored that after completion of the pilot, phase-wise national roll-out of a comprehensive RHIS need to be undertaken by the government and would require addressing the following elements:

- mapping of RHIS partners and their initiatives
- assessment of readiness at all levels
- developing capacity strengthening plans
- developing a costed work plan and identifying potential partners and stakeholders to facilitate in other districts

He finished his presentation with a quote from the founder of Apple computer, Steve Jobs, to be brutally honest in all undertaking and to aim for achieving the highest standards thus setting the tone for a difficult job ahead with lots of implementation challenges that have to be overcome with concerted efforts from all stakeholders.

Presentation on CRVS

On request from the chair, Mr. Anir Chowdhury, policy advisor, A2I project, Prime Minister's Office, gave a short presentation of the government's current activities regarding integrated civil registration and vital statistics (CRVS). In his presentation titled *Whole-of-Government Approach in Bangladesh to Build CRVS: A Model for the World* he underscored the need for maintaining a National Population Register that would ensure convergence of all citizens' ID systems in order to reduce duplication. The system would have a central authentication and provide a foundation for efficient citizen's service delivery and would enable tracking of all delivered services to each

citizen and their family leading to effective statistics and data collection. Vital statistics include vital life events including but not limited to birth and death with cause of death, fetal death, marriage, separation/divorce, adoption etc.

He also dwelt on the overall approach taken by the government. In February 2014, the cabinet secretary called a meeting with four secretaries viz. Local Government Division, Election Commission Secretariat, Ministry of Health and Family Welfare, and Statistics and Informatics Division to bring synergy to the effort. The importance of a concerted government effort is visible in the birth registration project. Birth registration had only achieved 8% registration in 131 years from 1873 to 2004, but in just 10 years (2004-2014) it reached 75% of the population. This dramatic improvement was a result of the Birth and Death Registration Act of 2004. Electronic birth registration is being done in more than 4,500 rural local government institutions, which is also linked with many service deliveries.

CRVS is regarded as a matter of human right and human dignity. No one should be without a legal identity and no life should be allowed to remain invisible to policymakers. No person should fall between the cracks of incomplete official data. CRVS enables e-Services across the Government. The CRVS Project is looking at developing a Single ID and that would be integrated with NID, BRIS, GR and future poverty DB as well as educational institutions.

Mr. Chowdhury raised a number of questions at the end which were: how to align processes across multiple agencies so as to create, update and use CRVS data. A huge quantity of data is possible to collect from the field using digital devices; therefore there is a need to ensure that there is coordination among DPs, just as the CRVS steering committee is ensuring coordination within the government.

Sharing of Experiences from the Field

The next session was on experience sharing by local level service providers and managers from icddr,b and MaMoni implementation areas. FWV, HA, and CHCP from Habiganj and local level health and family planning managers from Tangail shared their experience of using revised tools/systems.

Ms. Nurjahan Begum, FWV, Poil, Habiganj, narrated how with help from MaMoni they were able to prepare reports correctly. She explained that previously they had to fill up four registers which created an extra burden and difficulties. A new register that replaced those made it easy to report. They also participate in union level meeting and consult with other health workers. These discussions help to identify whether she had missed any pregnant women and to capture any pregnant women thereby making the reports accurate.

Mr. Moni Shankar Sarker, HA, Nabigonj, Habiganj, explained the work done by HAs at the village level. The HAs register the pregnant women and ensure necessary vaccinations. They submit the reports to the higher authority. They participate in the meetings organized by MaMoni. Through the community volunteers, they reconcile the figures in a joint meeting of FP and health workers. This system is very useful.

Mr. Ishtiaq Ahmed Iqbal, CHCP, Madhabpur, Habiganj, explained how they use their laptops to send aggregate data and individualized data. In this work, there is collaboration among HA, FWA, and CHCP.

Ms. Shahin Pervin, UFPO, Tangail, narrated their work at the field level. She explained how registers provided by icddr,b are helping the FWAs to streamline data relating to ANC, delivery and PNC. She also highlighted the visit undertaken by the MEASURE Evaluation/icddr,b team.

Dr. Maleka Banu, UHFPO, Basail, Tangail highlighted the level of cooperation that exists in the field between health and FP workers and the amount of support they provide to continue that.

Open Discussions

The facilitator then thanked the presenters and provided a summary of the presentations. Afterwards, the floor was opened for discussion. The following participants participated in the discussion session:

Dr. K.M. Azad DPM, (NNS) IPHN

Dr. Ajit Chandra Roy, DCS,(Habiganj), DGHS

Dr. Debashis Debnath, UH&FPO, (Madhabpur), DGHS

Dr. Riad Mahmud, Health Specialist, UNICEF/Bangladesh

Dr. Md. Altaf Hossain, Program Manager (IMCI), DGHS

Dr. Md. Alamgir Ahmed, Deputy Director & Program Manager (MNH), DGHS

Dr. Sayed Ebne Sayeed, CS, (Tangail), DGHS

Mr. Md. Lutful Kibria, DDFP, (Tangail), DGFP

Mr. Md. Akib Uddin, UFPO, (Madhabpur), DGFP

Dr. Rahat Ara Nur, Team Leader, (CARE-GSK CHW initiatives), CARE Bangladesh

Dr. Sharif Kuddus, Project Manager, (Human Resources for Health Project in Bangladesh), Plan Bangladesh

Dr. Tanowarul Aziz, Director, (Health, nutrition and Population Program), BRAC

Dr. Imran Ahammed, PM (MIS & e-health), RCHCIB, CBHC,DGHS

The main issues or points raised by them are described below:

1. **Legislative Issues:** Collection of sensitive health data raises privacy issues. There is no law to control the use of such data and protect the right of service seekers. A comprehensive legal instrument on health information systems or eHealth should be developed.
2. **Single identity number of service recipient**: There should be a unique ID for service recipients. UID is important to track a service recipient when s/he is visiting different facilities at different levels to seek care. Without a UID, it is impossible to have reliable service utilization information which is the key to decision making both at local and central level. Two of the participants suggested using the EPI card as an ID system.
3. **Cover urban population, private sector healthcare and NGOs**: It was pointed out that current efforts to get routine health and family planning service coverage data mainly cover rural areas. Twenty seven percent of the population of the country live in urban areas and they are not covered under the existing routine MIS. Therefore, routine MIS provides an incomplete picture of the country. Similarly, routine data from a large and

growing number of private/NGOs facilities in rural areas are not being made available at the national level.

4. **Adolescent health**: One of the participants emphasized that adolescent health MIS is currently not well focused which is a growing need.
5. **Collecting data on NCD**: In view of epidemiological transitions that are happening in the country, it was emphasized that data on non-communicable diseases (NCD) should be given priority.
6. **Expansion of different components**: UNICEF has been working with DGHS-MIS by implementing the COIA initiative in three districts and MPDR in ten districts. Their future plan is to expand the coverage of MPDR in 20 United Nations Development Assistance Framework (UNDAF) districts.
7. **Data quality needs to be improved**: Recent efforts have been focused on establishing ICT infrastructure across the country, developing and integrating aggregated reporting tools. However, now it is time to concentrate on quality and use of information.
8. **Integrated report from DGHS and DGFP**: Currently, CSBAs from health and family planning report separately through two different mediums (paper-based and online). Reports need to be integrated across DGHS and DGFP to get a complete picture of the government CSBA performance. Besides, a large number of private CSBA performance reports should also be included in the public sector RHIS.
9. **Coordination between health and family planning workers at the local level**: There is evidence of having good coordination between health and family planning staff at the local level in a few areas where NGOs are active and strong. However, it is not common everywhere. Administrative measures from the national level should be taken to make it a common practice everywhere.
10. **OpenSRP**: OpenSRP is a smart phone-based open source platform to collect population level information. With support from mPower, DGHS-MIS is currently working on development of data collection systems using health workers based on OpenSRP. This system will be linked with DHIS2 through the Shared Health Record (SHR) system. In the next three or four months, a health worker data collection format will be developed and ready for implementation.

Summary and Recommendations

At the end of the discussion, the facilitator summed up the issues. He stressed the importance of coordination among different stakeholders at all levels to ensure reliable routine data on important indicators. He also urged for developing legal documents for addressing issues relating to privacy and maintaining of confidentiality of personal data as well as to address cyber security. He also emphasized on using providers ID at all levels. At the end, he presented a draft format to capture information on RHIS activities coverage by different partners.

At the end of the seminar, the Special Guest and other guests were requested to give closing remarks.

Dr. Quamrul Islam, director (PHC), in his statement highlighted progresses made in the health sector and narrated how he worked with family planning officials and activated community clinics for delivery while he worked as Civil Surgeon, Sylhet.

Mr. Saiful Islam Chowdhury, additional secretary and project director, Birth and Death Registration Project, began his speech by saying that when he joined the birth-registration project people mistook him for an FP official and enquired about reproductive health commodities. But after years of work, now people request him to correct their records, which is a testimony to the fact that there is now awareness about registration of birth. He referred to the order expected to be issued by MOHFW on July 1, 2015 regarding registration of births by health workers and urged for its quick implementation by the DGHS. He narrated an incident where the mayor of a local government body provided the wrong certificate. He emphasized the need for ensuring consistency of data.

Later Mr. Zahiruddin Babar, director, DGFP, spoke and reaffirmed their support to the current exercise in the field of strengthening RHIS. He stressed that DGFP would introduce online monthly reporting using DHIS2. He also informed that devices would be provided to the FP staff and training would be given to increase their capacity.

Dr. A. K. Azad, additional director general and director MIS, DGHS, in his closing speech thanked all the presenters for their excellent and informative presentations. He referred to the

mapping document and invited all to provide input to the document in order to complete it. He also stressed that it was time to move from theory to practice phase. He cautioned that the work ahead was very hard and all should cooperate to achieve success. He lamented that very few mentioned COIA in the seminar. COIA indicators are now globally accepted and its implementation in a country tells about the strength of its health system. He also explained that the public sector health service is different from the private sector as the public sector is collecting data on public health or preventive services, maternal health, while private sector is providing curative services. Dr. Azad informed that CC data is collected in both aggregate and individualized form allowing tracking of every citizen. He further informed that a new platform would be launched from July this year called SHR which would capture each individual at each encounter at the point of health service. There is one ID for each citizen. Provider ID could be linked with user ID using profile management of the system. Persons representing an informal provider may be given ID if necessary. He also discussed the problem of repair and maintenance and informed that the statisticians have been trained and are capable of general trouble shooting of the devices. He explained that due to procurement procedures it is not possible to purchase the best equipment all the time. He expressed satisfaction that DHIS2, OpenSRP have been accepted by all and DGFP should also start it soon. He also clarified that urban health data are coming into the system. Dr. Azad finally urged all DPs in the field of RHIS to select at least one district in its entirety and not just part of it. He finally hoped that USAID and its partners like icddr,b and MEASURE Evaluation would help at the central level to ensure quality of data and provide support at the top level.

The following issues emerged from the seminar and should be taken forward through appropriate structures/institutional mechanisms:

- There is a need for bringing collection of data and their use for health service delivery into a regulatory framework so as ensure the privacy of sensitive personal data and stop misuse.
- Strengthening RHIS is urgently needed to ensure comprehensive, quality routine data and use of information for decision making at different levels from local to central.
- There should be a strong coordination mechanism in order to avoid duplication of work among different stakeholders.

- Providing a unique health ID to track all service recipients should be explored.
- Focus should be given to a common web-based platform across DGHS and DGFP to ensure interoperability and avoid duplication of efforts. DHIS 2 is a proven platform and has been used in many developing countries. It is possible to develop it further through community efforts. Therefore, DHIS 2 should be the platform for health sector data.
- All partners should provide information to complete the mapping exercise undertaken by MEASURE Evaluation/icddr,b.
- Private sector should be included in the RHIS and, if necessary, it should be addressed through a legal instrument.
- NCD has been an emerging issue for Bangladesh. NCD related data need to be incorporated in the RHIS.
- The DPs working with the MOHFW for implementing RHIS tools/system should select at least one whole district and not just part of it as their area of work so as to help DGHS increase coverage.
- USAID and its implementing partners, including MEASURE Evaluation and icddr,b, should support work at the central level to increase the institutional capacity of DGHS.

Annex A: Program Schedule

Item	Time	Person/Official
Registration followed by lunch	1.00- 2.00 p.m.	
Seating on the dais	2:00-2:05 p.m.	
Opening speeches	2:05-2:10 p.m.	ADG, and Director (MIS), DGHS
Keynote Speech (Outline of the Seminar) and Presentation 1: Activities performed by USAID partners for improving RHIS	2:10-2.30 p.m.	Dr. Shams El Arifeen
Presentation 2: Experience of DGHS and DGFP in using DHIS2	2.30-2.45 p.m.	GIZ Representative
Presentation 3: Support by different development partners in strengthening RHIS	2.45-3.00 p.m.	UNICEF Representative
Afternoon tea break	3:00-3.20	
Presentation 4: Proposed concept paper with workplan	3:20-3.40 p.m.	Dr. Ishtiaq Mannan
Sharing of experience by local level managers and service providers of Tangail and Habiganj	3.40-4.10 p.m.	
Open discussion	4:10-4.40 p.m.	
Speech by Special Guest	4.40-4.50 p.m.	Director (MIS), DGFP
Speech by Chair	4:50-5.00 p.m.	ADG, and Director (MIS), DGHS

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Annex B: List of Participants

Not listed according to seniority

Prof. Dr. Abul Kalam Azad, ADG (Planning & Development) and Director (MIS), DGHS
Dr. Md. Quamrul Islam, Director (PHC & ITHC) and Line Director (MNC&AH), DGHS
Dr. Md. Alamgir Ahmed, Deputy Director & Program Manager (MNH), DGHS
Dr. Ashrafi Ahmad, DPM (HSM), DGHS
Md. Ashraful Islam Babul, Deputy Director (MIS), DGHS
Dr. Md. Altaf Hossain, Programme Manager (IMCI), DGHS
Dr. K.M. Azad DPM, (NNS) IPHN
Mr. Nazrul Haidar, Team Leader, COIA
Dr. Nasima Khatun, DPM,(MNH), DGHS
Dr. Liaquat Ali Khan, PM, RCHCIB, DGHS
Dr. Sharmina Rahman, Technical Expert, PM & E, CBHC,DGHS
Dr. Imran Ahammed, PM (MIS & e-health), RCHCIB, CBHC,DGHS
Mr. G.M. Sharfaraz, Policy Support Officer, (A2I), PMO
Mr. AK Sabbir Mahbub, Sr.Consultant, (A2i), PMO
Mr. Karar Zunaid Ahsan, M & E Advisor, (PMMU), MOHFW
Mr. Joby George, Deputy COP, (MaMoni HSS), Save the Children
Mr. Nazat Chowdhury, Sr. Manager, (ICT), Save the Children
Mr. Mohammad Ullah, Technical Advisor-HIS, GIZ
Ms. Fatema Uddin, Technical Advisor-HIS, GIZ
Mr. A K M Saiful Islam Chowdhury, Project Director & Additional Secretary (Birth & Death Registration Project), Local Govt. Division
Mr. Anir Chowdhury, Policy Adviser, (A2i), PMO
Mr. Farhad Hossain, Technical Specialist, (LICT Project), BCC
Mr. Ashish Varma, Manager, BCC-EX
Dr. Ishita Hossain Chowdhury, DPM, (MNH), DGHS
Dr. Kanta Jamil, Senior Monitoring, Evaluation and Research Advisor, USAID
Dr. Niaz M. Chowdhury, Project Management Specialist, USAID
Dr. Umme Salma Jahan Meena,Team Leader, (OPHNE),USAID
Dr. Riad Mahmud, Health Specialist, UNICEF/Bangladesh
Ms. Yukie Yoshimura, Chief Advisor, JICA/Bangladesh
Dr. Momena Khatun, Health Advisor, DFATD (CIDA)

Mr. Muhammad Abdul Hannan Khan, Senior Technical Advisor, GIZ

Mr. Md. Humayun Kabir, SSTA, MEASURE Evaluation

Ms. Rashida-E-ijdi, Research Associate, MEASURE Evaluation

Dr. Rafiul Alam, Sr. Project Officer, SMPP/JICA

Mr. Munim Rashid, HMIS Consultant, UNICEF

Dr. Ishtiaq Mannan, Chief of Party Save the Children

Dr. Ziaul Ahsan, Manager (M&E), Save the Children

Dr. Muhibbul Abrar, Consultant (M&E), MaMoni, Save the Children

Dr. Selina Amin, Senior Advisor, (MaMoni HSS), Save the children

Dr. Sharif Kuddus, Project Manager, (Human Resources for Health Project in Bangladesh), Plan Bangladesh

Dr. Mary Rashid, Project Manager, Plan Bangladesh

Dr. Jahangir Hossain, Program Director (Health), CARE Bangladesh

Dr. Rahat Ara Nur, Team Leader, (CARE-GSK CHW initiatives), CARE Bangladesh

Prof. Farhana Dewan, Secretary General, OGSB

Mr. Syed Golam Kibria, Sr. Technical Advisor, SIAPS/MSH

Dr. Anaya Radian, Executive Director, D-net

Mr. Mridul Chowdhury, CEO, mPower

Dr. Tanowarul Aziz, Director, (Health, nutrition and Population Program), BRAC

Dr. Ahmed Ali, Director, (Health, nutrition and Population Program), BRAC

Ms. Rubayat Khan, Chief of Research, mPower

Dr. Sabbir Ahmed, PD, (NBCH), Save the Children

Mr. Md. Abu Abdullah, Advisor - Local Government, Save the Children

Dr. Jatan Bhowmick, DPD-DP, Save the Children

Mr. Nazmul Kabir, Sr. Manager-HSS, Save the Children

Mr. Md. Bashir Ahammed, Sr. Project Officer, Save the Children

Mr. Najim Uddin, Sr. Officer,(ICT), Save the Children

Dr. Farzana Islam, DPD,DIT, (MaMoni-HSS), Save the Children

Dr. Afsana Karim, Program Director (DIT), (MaMoni-HSS), Save the Children

Mr. Md. Zahir Uddin Babar, Director, (MIS), DGFP

Dr. Md. Jaynal Haque, AD, (MCH-Services), DGFP

Dr. Nurun Nahar, PM (QA), CCSDP, DGFP

Ms. Shalina Akter, Deputy Director, (MIS), DGFP

Dr. Md. Shamsul Karim, Program Manager, (FSDP), DGFP

Md. Kafil Uddin, Director (Finance) & Line Director, FSDP, DGFP

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Mr. Md. Lutful Kibria, DDFP, (Tangail), DGFP
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Ms. Nurjahan Begum, FWV, (Habiganj), DGFP
Mr. Moni Shankar Sharker, HA, (Nobiganj), DGHS
Mr. Istiaq Ahmed Iqbal, CHCP, (Madhabpur), DGHS
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