Assessment of the Upazila-level Record-keeping and Reporting System of the Bangladesh Health and Population Sector Programme

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List of Acronyms

ARI	Acute Respiratory Infection
AFB	Acid Fast Bacilli
AHI	Assistant Health Inspector
BCC	Behaviour Change Communication
BP	Blood Pressure
CC	Community Clinic
CDD	Control of Diarrhoeal Diseases
CAR	Contraceptive Acceptance Rate
DC	Differential Count
DFP	Directorate of Family Planning
DGHS	Directorate General of Health Services
DOR	Discharge on Request
DORB	Discharge on Risk Bond
DOTS	Direct Observation and Treatment Strategy
EDD	Expected Date of Delivery
EOC	Emergency Obstetric Care
EPI	Expanded Programme on Immunization
EIS	Epidemiological Information System
ESP	Essential Services Package
ESR	Erythrocyte Sedimentation Rate
FHRP	Family Health Research Project
FP	Family Planning
FRO	Field Research Officer
FRM	Field Research Manager
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
GoB	Government of Bangladesh
GR	Geographical Reconnaissance
HA	Health Assistant
HI	Health Inspector
HIU	Health Information Unit
HPSP	Health and Population Sector Programme
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
IPD	Inpatient Department
LMP	Last Menstrual Period
MA	Medical Assistant
MP	Malaria Parasite
MIS	Management Information System
MCH	Maternal and Child Health
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
MO-MCH	Medical Officer, Maternal and Child Health
NGO	Non-government Organization
OPD	Outpatient Department
ORP	Operations Research Project
ORTC	Oral Rehydration Therapy Corner

OT	Operation Theatre
PHC	Primary Healthcare
RE	Routine Examination
RD	Rural Dispensary
RMO	Residential Medical Officer
SACMO	Sub-Assistant Community Medical Officer
SC	Satellite Clinic
SI	Sanitary Inspector
Sr. FWV	Senior Family Welfare Visitor
SSN	Senior Staff Nurse
TC	Total Count
TB	Tuberculosis Bacillus
TT	Tetanus Toxoid
UFPO	Upazila Family Planning Officer
UH&FPO	Upazila Health and Family Planning Officer
UH&FWC	Union Health and Family Welfare Centre
UHC	Upazila Health Complex
UMIS	Unified Management Information System
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organization

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Executive Summary

The Health and Population Sector Programme (HPSP) of the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh (GoB), has introduced the system of delivery of integrated health and family-planning services, named Essential Services Package (ESP), through three tiers at the upazila level and below. The delivery of ESP will replace vertically-operational services, independently offered by the staff of the Directorate General of Health Services (DGHS) and the Directorate of Family Planning (DFP) until end of 1999. To respond to the management need of delivery of the ESP, the management information system (MIS) of health and the MIS of family planning were unified in 1998 and named as Unified Management Information System (UMIS).

The UMIS unit, located at the DGHS, has introduced a number of record-keeping registers, forms, cards, and reporting formats in all three tiers in February 2000. The Operations Research Project (ORP), now renamed as Family Health Research Project (FHRP) of ICDDR,B: Centre for Health and Population Research provided extensive support in the implementation of the new system in all upazilas of Chittagong and Jessore districts for one year. The ORP staff systematically monitored the use of registers, forms, cards, and reporting formats introduced under the new system. It used a set of formatted monitoring tools, and conducted in-depth interviews with different categories of service providers and managers to assess whether the new system is supportive for the delivery of ESP at the upazila level. The Upazila Health Complex (UHC) with outpatient and inpatient departments, supported by laboratory and X-ray facilities, is the key source of qualified medical consultation for providing the ESP for a population of 275,000-450,000 in an upazila. It is the nucleus for management and coordination of all health and family-planning activities at the upazila level.

Results of one year of monitoring showed that the new record-keeping and reporting system was introduced in all upazilas of both the districts. All users appreciated the new system. Some key milestone indicators, to be achieved under annual performance of HPSP are generated through annual geographic reconnaissance (GR)**.** These indicators include contraceptive prevalence rate (CPR), proportion of users of different contraceptive methods, proportion of women received tetanus toxoid (TT), percentage of births attended by trained providers and by place of delivery, percentage of fully-immunized children, and proportion of children received at least second doze of vitamin A. However, in the context of facility-based service-delivery, it is not possible to generate these indicators on a monthly basis through a monthly performance report. Omissions have been made by service providers while recording information on clients and services offered. There was an overall omission of 32% in recording the serial numbers of patients, 11% in registration numbers, 18% in age of patients, 5% in the purpose of visit, and 34% in the treatment given. Reluctance to follow the instructions included in the training manual, workload of service providers, inadequate supervisory support, and inadequate awareness of use of data were the main reasons for omissions. In some cases, space designated for recording information needed minor adjustments. In few cases, information perceived to be necessary by managers for reporting, such as number of clients referred for different contraceptive methods, number of diarrhoea patients treated by type of dehydration, types of all biochemical tests conducted in the pathological laboratory was not included in the new

system. The old registers and formats were still being used for meeting the sporadic needs of the vertical programmes causing confusions among the users of the system. The information needs of the vertical programmes were still met separately in some cases.

To strengthen the new system and to make it more user-friendly and supportive to delivery of the ESP, a close review of both approved and additional record-keeping and reporting formats is required. Attention should also be paid for integrating the record-keeping and reporting formats of the vertical programmes, such as tuberculosis and leprosy, to be a part of mainstream of the UMIS.

Adequate orientation of the managers, service providers, and concerned staff is important for establishing the system. The willingness of managers to use the full potential of the new system for management and planning purposes at the local level is also crucial.

Introduction

In Bangladesh, the delivery of health and family-planning services for rural population is coordinated from the upazila, the lowest administrative structure with substantial responsibilities for planning and implementation of all development activities in rural areas. After the independence in 1971, Bangladesh inherited a health and family-planning service-delivery infrastructure, which included 150 Rural Health Centres (RHCs) and a number of union subcentres or rural dispensaries (RDs) [1]. A RHC with six beds at the then thana headquarter and three subcentres at the union level were established during early 1960s to administer comprehensive healthcare services to 50,000 people [2]. Although the RHCs were not properly staffed and equipped, these were the nucleus of peripheral infrastructure network for the delivery of promotive, preventive and curative services in line with primary healthcare (PHC) at the upazila level and below**.** Along with the erection of RHCs, three vertical projects, Malaria Eradication, Family Planning, and Small Pox Eradication, were also launched by the then government [2]. During the period, health services had a Director (Curative), responsible for the management of hospital-based curative healthcare services, and a Director (Preventive) responsible for preventive and promotive healthcare services. The Director (Preventive), in collaboration with the District Council, mainly administered the implementation of control of communicable diseases [1].

The Government of Bangladesh (GoB) recognized that healthcare has been urban-oriented and curative-biased, neglecting the vast majority of rural population. The government also affirmed that curative-biased healthcare services were not suitable for Bangladesh [1]. There was a need to integrate preventive and curative services, and the RHC was visualized as the 'unit organization' for providing integrated health and family-planning services [1]. In 1972, the government planned to build 356 Thana Health Complexes (THCs), one in each thana, and all RHCs were to be converted to THCs [2]. Prior to the launching of Health and Population Sector Programme (HPSP) in mid-1998, the Directorate General of Health Services (DGHS) and the Directorate of Family Planning (DFP) within the Ministry of Health and Family Welfare (MOHFW) with a separate line of authority were managing their own staff at the upazila level and below.

Until the launching of the HPSP in 1998, 381 THCs, now Upazila Health Complexes (UHCs), and 4,068 Union Health and Family Welfare Centres (UH&FWCs) have been made functional in the country [3]. Currently, besides an X-ray unit, pathological laboratory, oral rehydration therapy (ORT) corner, and a family-planning unit, each UHC has an outpatient department (OPD), an emergency department, an inpatient department (IPD) with 31 beds, and an operation theatre (OT). Other than curative and diagnostic services, each UHC also provides surgical intervention in the management of simple fractures, such as excision, extraction, minor amputation, and surgery required for clinical contraception. Some UHCs offer services, such as emergency obstetric care (EOC), and nutrition education. For treatment of more complicated diseases, patients are referred to the district or higher-level tertiary hospitals [3].

Prior to the beginning of the HPSP, the DGHS and DFP were administering the delivery of selected health and family planning services at the doorsteps through health and family-planning workers, satellite clinics (SC), Expanded Programme on

Immunization (EPI) outreach centres, known as EPI spots, UH&FWC/RD (Rural Dispensary), and UHC independently. To meet the information need of DGHS, the Health Information Unit (HIU), established in 1976, mostly reported the number of patients treated for selected diseases by age and sex and bed occupancy rate at the UHC. The health services mainly focused on the implementation of a set of vertical programmes, such as Control of Diarrhoeal Diseases (CDD), Acute Respiratory Infection (ARI), Malaria, Tuberculosis Bacillus (TB), and Leprosy. These programmes had their own record-keeping and reporting systems. The performance of these programmes was reported at different intervals to the concerned Project Director at the national level with a copy to the Civil Surgeon (CS) at the district level. As such, the record-keeping and reporting system for vertical programmes was more systematic than that in the hospitals, including the THCs, and in the disease surveillance [4]. The Management Information System (MIS) unit of DFP, established in 1979 to serve its information needs, had a limited number of forms and a well-established data-collection and reporting system with well-designed field-level registers. The unit maintained a monthly reporting system for each upazila by district and division [4].

The HPSP introduced an essential services package (ESP)* expanding the range of services offered under health and family-planning services, and initiated its delivery from three tiers at the upazila level and below. The lowest tier is Community Clinic (CC) with limited doorstep visits at the community level, UH&FWC at the union level, and UHC at the upazila level. A unified management structure with clear delineation of each of the three tiers for the delivery of ESP has already been instituted at the upazila level and below. The management structure of UHC has been reorganized to create three functional units: clinical services unit, support services unit, and field services unit. Job descriptions of all staff of three units have been revised in line with changed service-delivery modality.

The UHC is the nearest infrastructure for a population of an upazila ranging from 275,000 to 450,000 to avail of qualified medical consultation. According to the Bangladesh Health Bulletin 1998-1999, an average of 150 patients per day is served at the OPD, and the bed occupancy rate is 80% per UHC [5]. Officially, nine Medical Officers (MOs), posted in an UHC, include; one Upazila Health and Family Planning Officer (UH&FPO), one Resident Medical Officer (RMO), one MO for general services, one MO for Maternal Child Health and Family Planning (MCH-FP), and one Dental Surgeon. In addition, four MOs are posted against the vacant positions of specialized services in the fields of medicine, anesthesia, surgery, and gynecology, and are designated as Junior Consultant. There are several staff nurses, Statistician, and a host of support staff. The clinical services unit of UHC is headed by RMO. The field services unit is headed by MO-MCH with Senior Family Welfare Visitor (Sr. FWV), Sub-Assistant Community Medical Officer (SACMO**),** Medical Assistant (MA), Family Welfare visitor (FWV), and a number of field staff designated as Assistant Health Inspector (AHI), Family Planning Inspector (FPI), Health Assistant (HA), and Family Welfare Assistant (FWA). The support services unit, is headed by a Upazila Family Planning Officer (UFPO), assisted by an Assistant UFPO, is mainly responsible for planning, MIS, logistics, and training. The overall administration of these units has been placed under

* Includes: reproductive healthcare, child healthcare, communicable disease control, limited curative care, and behaviour change communication

the UH&FPO [6]. All these developments had implications in the record-keeping and reporting system. In 1998, the MIS for health and the MIS for family planning were merged to a Unified Management Information System (UMIS) unit headed by a Line Director at the national level.

Prior to the formal launching of the HPSP, a national task force carried out the task of integration of the record-keeping and reporting system [7]. As a member of the national task force, the Operations Research Project (ORP) now renamed as Family Health Research Project (FHRP), of ICDDR,B: Centre for Health and Population Research actively collaborated with the UMIS unit in designing, pilot-testing, and finalizing all record-keeping and reporting formats. The ORP also provided technical assistance in preparing training manuals for use of the relevant staff for implementing the system. The MOHFW considered one-year nationwide implementation of new record-keeping and reporting formats as a period of field-testing**.**

The task force approved the following tools for record keeping and reporting at the upazila level:

Record-keeping registers and formats	**Frequency of use**
Outpatient Department (OPD) Register	Daily
Emergency Register	,,
Inpatient Department (IPD) Register	,,
Bed Head Ticket	,,
Patient Chart	,,
Obstetric Register	,,
Laboratory Register	As appropriate
X-ray Register	,,
Clinic Register (MCH unit)	,,
Reporting formats	
Monthly Performance Report (UMIS Report Form No. 3)	Monthly
Union-wise GR Report of Upazila (UMIS GR Report Form No. 3)	Annually
Yearly Morbidity Report of Upazila (UMIS Morbidity Report Form No. 3)	,,
Monthly Report of Field Activities	Monthly

The ORP was entrusted to supply all UMIS registers and formats in 22 upazilas of Chittagong and Jessore districts, and to conduct intensive monitoring of the new system for one year from February 2000. The objectives of this monitoring were to assess the extent to which the new system was able to gather information, support management of patients, fulfill reporting requirements, and identify the changes needed to make the tools more user-friendly.

With the introduction of UMIS, all record-keeping and reporting formats used in the past were made obsolete, except the formats used for TB and leprosy, tally sheet for EPI, epidemiological information system (EIS), and financial and logistics-related formats [8].

This paper reports and highlights the extent to which the new record-keeping and reporting formats were implemented at the upazila level.* This paper also discusses the extent to which the system supported the management of patients and identifies the additional tools needed.

* The extent to which the new record-keeping and reporting tools was implemented at the CC/field and UH&FWC has been discussed in separate reports.

Objectives

The overall objective of the study was to assess the status of introduction of all record-keeping and reporting tools provided by the UMIS unit at 22 UHCs of Chittagong and Jessore districts.

The specific objectives were to identify the extent to which:

- The record-keeping tools were implemented at the UHC and at the upazila level
- Omissions were committed in recording information in different sections/ columns
- Additional record-keeping tools were used for meeting the recording requirements
- Reporting formats were used
- Additional reporting formats were used for meeting the reporting requirements
- Further changes and modifications were needed to make the new system more user-friendly

Methodology

Nine experienced Field Research Officers (FROs) of the ORP monitored the implementation of the new system in 14 UHCs of Chittagong district and 8 UHCs of Jessore district. Each FRO was assigned to make at least one visit to each UHC quarterly during February 2000-March 2001. The methods followed in monitoring the implementation of the new system are described below:

Review: During each monitoring visit to the UHC, the FROs examined the records of at least 10 patients in every department or unit, i.e. OPD, emergency department, IPD, obstetric care unit, pathological laboratory, and X-ray unit using a set of monitoring checklists. Recorded data of 3,818 patients who attended different units of 22 UHCs were reviewed. The FROs assessed whether the designated registers and formats were completed as directed, and also assessed the extent of omissions committed by the service providers. The operational definition of 'omissions' used in this report is "information was not recorded as instructed."

Interview: In-depth interviews were conducted with the UH&FPO, UFPO, MO-MCH, Laboratory Technologist, X-ray Technologist, Senior Staff Nurse (SSN), HI, MA, SI, and Statistician.

Observations: The FROs observed patients in different departments and units of the UHCs, and also observed the different formats used by the service providers for recording and reporting purposes.

Meetings: The FROs attended district and upazila-level monthly staff meetings, and observed the preparation of monthly reports. The Field Research Managers (FRMs) of the ORP who are medical graduates also attended most monthly meetings.

Review Workshops: Two workshops with the upazila and district-level managers were organized to solicit their opinions on the new system.

Limitations

Actual observations of the MOs and other service providers while providing services and keeping records were avoided to allow them to provide unhindered services. The presence of FROs during peak hours could also cause biases in recording. The records of patients reviewed in each unit of UHC may not be the same. Review of the record-keeping system in each department and unit was done independent of other departments and units.

Results

Record-keeping Registers and Formats

The FROs identified a number of omissions committed by the service providers while completing various record-keeping registers and formats provided by the UMIS unit. Omissions in selected indicators and sections of different registers and formats were analyzed. Recording of information, such as serial number, registration number, age, purpose of visit, and treatment given to patients, was common in the OPD, emergency, IPD, and Obstetric registers. To avoid repetition, information on these indicators of 2,133 of 3,818 patients in these registers was combined by districts. The type and percentage of omissions of the selected indicators in these registers are presented in Table 1**.**

Table 1. Type and percentage of common omissions in OPD, Emergency, IPD and Obstetric Registers by district

Section	OPD Register		Emergency Register		IPD Register		Obstetric Register		Total no. of patients (n=2,133)
	Chitta-gong (n=432)	Jessore (n=183)	Chitta-gong (n=422)	Jessore (n=159)	Chitta-gong (n=385)	Jessore (n=155)	Chitta-gong (n=278)	Jessore (n=119)	
Serial number of patients	29	69	26	27	21	42	0	0	32
Registration number of patients	2	7	9	8	9	35	10	39	11
Age	19	69	6	26	8	9	0	0	18
Purpose of visit/ diagnosis	3	0	1	2	2	3	18	30	5
Treatment given/ referred	54	70	36	42	0	0	0	0	34

The serial number of patients was used for quick count of the total number of patients visiting the OPD, Emergency Department, and IPD on each day and in a given month. The ancillary staff and other service providers were instructed to use both daily and monthly serial numbers in these registers. There was an overall omission of 32% in recording the serial numbers of patients. The service providers in some cases used either daily or monthly serial number instead of both, resulting in such omissions.

A registration number is assigned to the patients who visited the OPD, IPD and Obstetric unit for subsequent use as reference. This number is actually originated at the entrance of the UHC where an ancillary staff enrolls all patients, except those coming for emergency treatment. This system is sometimes called as central registration system. It was observed that the registration number assigned at the central registration system was a combination of annual and daily serial numbers of a patient visiting the

UHC. A service provider at the OPD recorded this number in the OPD register. A registration number of a patient can also be originated at the Emergency Department and recorded in the Emergency Register. This number is subsequently used in the Bed Head Ticket, in case the patient is referred to the IPD for admission, and in the IPD and Obstetric Registers. Overall, there was an omission of 11% in recording the registration number. In Jessore district, the rate of omission was 35% in the IPD Register and 39% in the Obstetric Register, while the rate was 9% in the IPD Register and 10% in the Obstetric Register in Chittagong district. The omissions occurred sometimes due to workload and sometimes due to negligence on the part of service providers.

Although it was nationally instructed to write the actual age of patients in figure, overall, an omission of 18% was observed. The service providers sometimes put tick mark in the relevant age group instead of recording the actual age. They tended to mix the purpose of visit with the column of treatment given or sometimes with the column of supply given. Omission of only 5% was observed in the column of purpose of visit. An omission in column on treatment given occurred for more than one-third of patients. The MOs considered that information on treatment given/referred was redundant because when the purpose of visit was written, it had almost same meaning as treatment given, resulting non-recording of information.

In addition to the common information recorded across different registers and formats, each of the registers and formats was used for recording different kinds of information appropriate for the management of patients at the UHC. The nature of omission in selected columns/sections and problems in each register and format is presented below.

OPD Register

The MOs used the OPD Register (Appendix 1) at the OPD to record particulars of patients, such as name, age, sex, address, diagnosis, services offered, and supply provided. The FROs reviewed the records of 432 patients in Chittagong district and of 183 patients in Jessore district. It was found that the MOs skipped the column on supplies given as the Pharmacist usually dispensed the supply of medicines. The column to record weight was skipped on the ground that the weighing machine was not available for every doctor except the MO-MCH who is responsible for weighing pregnant mothers and children.

Emergency Register

The Emergency Register (Appendix 2) is used at the Emergency Department to record particulars of patients who need emergency treatment for any condition, such as road traffic accidents, burns, drowning, and poisoning, and is used by the MOs and MA/SACMO who are assigned at the emergency department. The FROs reviewed the records of 422 patients in Chittagong district and of 159 patients in Jessore district. Although no remarkable omissions were observed in any sections, the MAs reported that the provision to record the ‘name of attendant of the patient’ was sometimes needed. For example, when a patient with head injury or accident was brought at the Emergency Department, it became difficult for the service providers to release or hand over the patient after treatment. The column for recording the name and address of patients, and the purpose of visit/diagnosis was narrow. Emergency patients sometime come straight to this department bypassing the central registration system, without

collecting any OPD ticket for the MO to write prescription. The service providers, thus, used a separate format to prescribe treatment.

IPD Register

The IPD Register (Appendix 3) is used at the IPD for enrolling all patients admitted, and the staff nurses use it. The key information recorded in this register includes date and time of admission, bed number, name of service provider during admission, date and time of discharge, and status of patient at the time of discharge. The FROs examined the records of 385 patients in Chittagong district and of 155 patients in Jessore district, and observed some omissions. The types and percentages of omissions in selected sections of this Register are presented in Table 2**.**

Table 2. Type and percentage of omissions in IPD Register by district

Section	Chittagong (n=385)	Jessore (n=155)
Date and time of admission	0	14
Bed number	1	13
Name of service provider who admitted patients	11	10
Date and time of discharge	26	29
Status of patient at the time of discharge	15	41

Date and time of admission were not recorded in 14% of the cases and bed number in 13% of admitted cases in Jessore district. Sometimes there were more patients than the number of beds, and, therefore, the bed number could not be assigned to patients who were on the floor. The service providers skipped recording "the name of the service provider who admitted patient" mainly due to workload. The rate of omissions in recording the date and time of discharge was 26% and 29%, respectively, in Chittagong and Jessore districts. Some service providers reported that date and time of discharge was recorded in the Obstetric Register, and in other additional registers used in some upazilas for children with ARI and diarrhoea and, therefore, the information was skipped in IPD Register. The rate of omission in recording the status of patients at the time of discharge was 15% and 41% respectively in Chittagong and Jessore districts. Discharge certificates were issued to some patients, and their status at the time of discharge was recorded in the certificates. Therefore, the service providers skipped recording the status of patients at the time of discharge in the IPD Register.

Bed Head Ticket

The Bed Head Ticket (Appendix 4) is used for recording the history of patients, from the time of admission at the IPD up to discharge. There are five major sections in the ticket, i.e. patient's admission-related, disease-related, pregnancy, confinement note, and discharge-related sections. Admission**,** disease, and discharge-related sections are common for all patients at the IPD, and are frequently used. Usually, an MA at the emergency unit or MOs at the OPD complete the admission-related section, while the other sections are filled in by on-duty MOs at the IPD and retained by the nurses. The

FROs reviewed the records of 393 patients in Chittagong district and of 138 patients in Jessore district. The type and percentage of omissions in the Bed Head Ticket are presented in Table 3.

Table 3. Type and percentage of omissions in Bed Head Ticket by district

Section	Chittagong (n=393)	Jessore (n=138)
Admission-related	0	15
Disease-related	21	34
Discharge-related	26	70

The admission-related section includes particulars and provisional diagnosis of patients. Provisional diagnosis was not recorded for 15% of the patients admitted to the IPD in Jessore district. Usually, the MAs leave it for the MOs to record in the disease-related section of the same ticket. The disease-related section included information on pulse rate, temperature, blood pressure (BP), presence of anaemia, oedema, and jaundice, including results of different tests conducted either at the UHC or at any other laboratory. In general, this section was not filled for 21% of the patients in Chittagong and 34% in Jessore districts. It was observed that the MOs skipped and recorded them in the Patient Chart, always enclosed with the Bed Head Ticket. Findings of interviews revealed that the MOs concentrated on providing services and as such, record-keeping was forgotten. In the discharge-related section, a high rate of omission was observed in Jessore district as similar information was also recorded in the IPD register. Pregnancy-related section and confinement notes were applicable, and were only written for the women coming to the UHC with pregnancy related complications.

Patient Chart

The Patient Chart (Appendix 5) is used for recording examination notes and treatment offered to an IPD patient by the MOs. The MO or MA issues this chart either at the emergency department or at the OPD along with the Bed Head Ticket for all patients to be admitted at the IPD. The nurses retain and follow instructions of MOs in this chart to administer drugs. The FROs reviewed the record of 419 patients in Chittagong district and of 130 patients in Jessore district. There were 34% omissions in examination notes in both the districts. The MOs recorded the treatment offered regularly rather than examination notes of a patient.

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Obstetric Register

The Obstetric Register (Appendix 6) is used at the IPD for enrolling all pregnant women. Usually, the staff nurses record information of all indoor patients, including pregnant women, in the IPD Register. Information of the pregnant women is subsequently transferred to the Obstetric Register. This register is divided into two parts. The first part records information, such as date and time of admission, age, parity, gravida, stage of delivery and previous pregnancy-related complications. The second part has columns to record information on medicines given, type of delivery,

outcome of labour, weight and sex of newborns, time of discharge, and physical condition of a patient at the time of discharge. The FROs reviewed the record of 278 obstetric patients in Chittagong district and of 119 obstetric patients in Jessore district. The type and percentage of omissions in the Obstetric Register are presented in Table 4.

Table 4. Type and percentage of omissions in Obstetric Register by district

Sections	Chittagong (n=278)	Jessore (n=119)
Date and time of admission	13	34
Parity	38	48
Gravida	21	38
Delivery stage	2	30
Type of delivery	15	47
Outcome of labor	22	49
Newborn (weight, sex)	18	40
Date and time of discharge	27	37
Condition of patient at the time of discharge	16	32

The rate of omissions in all sections of this register was lower in Chittagong than that in Jessore district. Omission in date and time of admission was 13% in Chittagong and 34% in Jessore. Since the date and time of admission was also recorded in the Bed Head Ticket, some service providers skipped the information. With regard to omissions in parity, gravida, pregnancy trimester, outcome of delivery, weight and sex of newborns, the percentage of omissions was higher in Jessore than that in Chittagong. The differences between upazilas of the same district were also observed. The same information was recorded in one but was skipped in other upazilas. Findings of interviews revealed that workload and inadequate supervision were the two main reasons for such omissions. Besides, there were some new staff who neither had training nor enough acquaintance with the new record-keeping system. In fact, there was no standardized system of orientation on this issue. Discharge-related information was also sometimes skipped as the same information is recorded in the discharge certificate and in other registers.

Laboratory Register

All UHCs have a pathological laboratory to conduct blood tests for total count (TC) differential count (DC), haemoglobin (Hb), erythrocyte sedimentation rate (ESR), and also for identification of malaria parasites, routine examination (RE) of urine and stool, and sputum for acid-fast bacilli (AFB). The Laboratory Technologist uses the Laboratory Register (Appendix 7) for recording the findings of these tests. Name and address of patients and information about the department from where these patients have been referred are also recorded. The FROs reviewed the records of 393 patients in Chittagong district and of 127 patients in Jessore district. No remarkable omissions were observed, except the column on other tests. In some upazilas, several other tests,

such as venereal disease research laboratory (VDRL) test, hepatitis B agglutination (HBSAg), anti-streptolysin O (ASO) titre, Widal test, platelet count, and blood groupings, were done. Numbers of columns to record all these tests were not sufficient, and in 40% of cases in Jessore, names of other tests were not recorded. Columns to record results of TC, DC, Hb, ESR, urine, and stool were narrow.

The Laboratory Technologist opined that provision for recording 'referred from' was not useful and, therefore, might be replaced by the registration number given at the OPD or emergency department. The UMIS unit approved continuation of all previous tools for TB and leprosy, and findings of these tests were not recorded in the Laboratory Register in all upazilas.

X-ray Register

Although very few upazilas have an operational X-ray machine, the UMIS unit provided an X-ray Register (Appendix 8) for use of the X-ray Technologist to record registration numbers, name of patients, name of MO who asked for the X-ray, and number of films used. The FROs reviewed the records of 55 patients in Chittagong district and of 3 patients in Jessore district. No remarkable omissions were observed in completing the columns, except that omissions of 31% were found in the column on the number of films used in Chittagong district. The X-ray Technologists skipped this information due to negligence. However, they expressed the need for a provision to document age and sex of patients for record. The column for recording type of X-ray was narrow.

Daily Clinic Register (MCH Unit)

Each UHC has an MCH unit. The MO-MCH is the in-charge of this unit. In this unit, a female Family Welfare Visitor (FWV) provides condoms, oral pills, and injectables and inserts intrauterine devices (IUDs). There is a provision to offer Norplant in selected upazilas and sterilization in all upazilas. The FWV is provided with a Daily Clinic Register, MCH-unit (Appendix 9) to record serial numbers of clients, name, address, and sex of patients, purpose of visit and services offered, and supplies given. Information recorded in this register is identical to those recorded in the Daily Clinic Register used by the FWV at the UH&FWC level. The type of errors and omissions committed in the register are identical to those committed at the union level.

TB related cards and forms: The National TB Control Programme introduced nine cards, forms for record keeping purpose. Those are: TB Treatment card, TB Identity card, Thana TB register, TB laboratory register, Request form for sputum examination, TB culture/sensitivity test request form, TB referral/transfer form, TB requisition for drug and Follow-up form. Use of these cards and forms were approved by UMIS unit and therefore were not studied.

Leprosy related cards and forms: The Leprosy Control Programme introduced Laboratory register: skin smear examination, Laboratory register: skin smear positive patients, and a Treatment card, for record keeping purposes. Use of these tools were approved by UMIS unit and therefore were not studied.

Reporting Formats

The UMIS Unit has introduced two formats to report population-based data generated through Geographic Reconnaissance (GR) at the community level, one format to report the monthly performance of all unions, all departments, and units within the UHC, and one each for pathological laboratory and obstetric care unit for internal reporting purpose. It also has introduced one format for patient management and another format for reporting performance of SI. Detailed description and use of these reporting formats are described below.

Union-wise Yearly Geographic Reconnaissance (GR) Report

This format (Appendix 10) is used for compiling population-based data on selected indicators, identified as milestone to be achieved under annual performance of HPSP implementation in the areas of reproductive health, child health, and maternal health (discussed in a subsequent section)**.** The HA and FWAs collects the data at the community level, and AHI compiles the data at the union level. Subsequently the HI compiles those at the upazila level. This report is signed by the UH&FPO, and copies are sent to the CS office and to the UMIS unit. It was observed that population-based data collected through GR were time-consuming. However, no problem was identified in compiling the report.

Yearly Morbidity Report of Upazila

As part of annual GR, data on prevalence of 14 diseases including TB, leprosy, malaria and filaria are collected at the community level. These data are compiled at the union level and subsequently at the upazila level using Yearly Morbidity Report of Upazila (Appendix 11*).* This report is signed by the UH&FPO, and copies are sent to the CS office and to the UMIS unit. However, no problem was identified in compiling the report.

Monthly Performance Report of Upazila (UMIS 3)

This reporting format, known as UMIS 3, is used for monthly reporting of performance of all service-delivery tiers in an upazila (Appendix 12) as a whole. The UMIS 3 includes the union level performance reported through UMIS 2 (including performances of all CCs, RDs and UH&FWC) and the performance of different departments and units, such as OPD, IPD, emergency, obstetric and pathological laboratory unit within the UHC. The Statistician prepares the UMIS 3 at the end of every month.

The UMIS 3 is divided into two parts. The first part consists of sub-sections on (a) family planning, (b) childcare, (c) maternal care, (d) behaviour change communication (BCC) activities, and (e) follow-up visits. The performance indicators reported in these sub-sections are as follows:

Sub-section	Indicators
Family-planning	Number of contraceptive acceptors by methods, clients treated for contraceptive-related side-effects, number of referrals made for contraception
Childcare	Number of children immunized by doses and given vitamin A
Maternal care	Number of women received antenatal care (ANC) as per visit, pregnant and other women received TT by doses, iron folic acid, menstrual regulation (MR) conducted, patients treated for MR related complications, women treated for pregnancy and delivery-related complications, deliveries conducted by different categories of staff at facilities and at home, women referred and received postnatal care (PNC)
BCC	Number of BCC sessions conducted in hospital, school and at courtyard, and number of film-show sessions organized
Follow-up visit	Follow-up visits paid to EPI drop-outs, pregnant women, contraceptive drop-out clients, DOTS case, and other cases

The performance-related data of the union-level reports (UMIS-2), are included in the above-mentioned sub-sections in the UMIS-3. These sub-sections also have provisions to accommodate the performance of non-government organizations (NGOs).

The second part of the UMIS 3, titled as Hospital Statistics, has the following eight sub-sections: (a) number of patients treated at OPD, (b) IPD, (c) emergency department, (d) summary of number of patients treated by the departments, (e) laboratory tests done, (f) surgical operation performed, (g) number of deaths at IPD, and (h) logistics and supplies received and distributed. The OPD has a provision to report the treatment and referral status of patients with 36 selected diseases. The IPD and Emergency Departments have provisions to report the treatment and referral status of patients with 22 selected diseases. Patients with skin disease, worm, malnutrition, goiter etc. are usually treated at the OPD, and are, therefore, not included in the list of patients treated at the IPD or Emergency Department. Patients treated for each disease are reported by five different age groups i.e., 0-11 mo, 1-4 yr, 5-14 yr, 15-49 yr, 50+ yr.

The UMIS unit made no provision to include the number of patients treated for various diseases at the CC with the number of patients treated at the UH&FWC for monthly reporting. Similarly, the number of patients treated at the UH&FWC was also not included with those treated at the UHC. During the design of UMIS tools, in view of likely variations in diagnosis by the MOs, paramedics, HAs, and FWAs, it was considered not to lump them. Therefore, the number of patients treated at the OPD, Emergency Department, and IPD of UHC by the MOs was only reported to the district and national levels.

At the end of a month, the Statistician receives the UMIS 2 from all unions, and also receives the performance reports of different departments and units within the

UHC. The Statistician also receives the compiled report of the Obstetric Care unit (Appendix 13), a format provided to the Senior Staff Nurse (SSN) for reporting the performance of the Obstetric Care unit and the compiled report of laboratory tests (Appendix 14), another format provided to the Laboratory Technologist for reporting the performance of the pathological laboratory for inclusion in the UMIS 3.

Other departments and units of the UHC, such as X-ray, OT, and dental care unit, use loose sheets to report the performance to the Statistician.

Based on these reports, the Statistician prepares the UMIS 3, and forwards it to the UFPO and also passes it on to the UH&FPO for review. The UH&FPO sends the report to the office of CS, to the Deputy Director, Family Planning (DD-FP), and to the Line Director, UMIS unit. The users of UMIS 3 identified the following short comings:

i. The heading of the section on family planning has some ambiguity. It is not stated clearly whether the number of recipients of contraceptive methods is to be reported or the quantity of commodities distributed is to be reported.

ii. There is no provision to report on the numbers of eligible couples and, of old and new users of family planning and to calculate the contraceptive acceptance rate (CAR) on a monthly basis. Besides, there is no provision to report the number of cases referred for different contraceptive methods.

iii. In the section of mother's care, there is no provision to report the number of pregnant women admitted to the UHC and the number of deliveries conducted by type. The compiled report of Obstetric Care Unit, prepared by the SSN for the Statistician to include in the UMIS 3, is therefore required to be sent to the CS office.

iv. There is no provision to include the total number of patients treated for different diseases at the UH&FWC and below. As such, the total number of patients treated for different diseases for the whole upazila cannot be prepared. Previously, the total number of patients treated for major diseases, such as diarrhoea, malaria, and ARI throughout the upazila were reported on a monthly basis, which was a requirement of the Director, PHC. Some Statisticians informed that the district authority wanted to receive a compilation of the total number of patients treated for various diseases in the whole upazila, and some upazilas reported to have compiled those in a separate sheet and submitted to the CS office. The Statisticians also informed that the compilation of the number of patients by diseases and age group is cumbersome.

v. Previously, the number of patients treated by age and type of dehydration, i.e. 'no', 'some', and 'severe', was reported to the Project Director, CDD. In the UMIS 3, there is no provision to report dehydration with similar breakdown but only by age. Therefore, a separate report is required to send to the CS office.

vi. In the section of laboratory tests done, the number of AFB and MP done is reported, but other biochemical tests, such as VDRL, HBAg, and Widal test conducted cannot be reported. Therefore, a copy of compiled report of laboratory

tests, which was developed for internal reporting with details of other tests conducted, is sent to the CS office from some upazilas.

Compiled report of obstetric care: This reporting format (Appendix 13) contains information on the number of women with pregnancy-related complications treated, outcomes of delivery, maternal and neonatal deaths, and number of referrals made for institutional delivery, and management of delivery-related complications. It is prepared by the SSN for the Statistician for inclusion in the UMIS 3. No problem on this format was reported.

Compiled report of laboratory: This reporting format (Appendix 14) contains information on the number of different laboratory tests done by type at the pathological laboratory. The Laboratory Technologist prepares it for the Statistician for inclusion in the UMIS 3. No problem on this format was reported.

Morning statement: This format (Appendix 15) is used mainly for an internal management purpose. Every morning, the SSN prepares a statement describing the status and number of patients admitted, discharged, absconded, discharged on risk bond (DORB), and discharged on request (DOR) at the IPD, during the past 24 hours, for the UH&FPO with a copy to the RMO. Based on this statement, the UH&FPO assigns MOs at the IPD and ensures supply of medicines and other logistics. A review of 400 morning statements in Chittagong district and 104 in Jessore district by the FROs of ORP showed no omissions. It was, however, observed that the nurses prepared a summary on patients by major diseases, such as number of patients with diarrhoea and ARI. This practice was not found to be uniform across the upazilas.

Monthly report of field activities

This format (Appendix 16) is used by the Sanitary Inspector (SI) for reporting the performance to the CS. Key information reported includes the number and type of shops spot-checked and food samples collected for quality control purposes and legal actions taken, if any. Although no major omission was detected, the SIs suggested that a provision to report the number of pending and settled cases is required as a common activity as was reported in the past.

Epidemiological Information System

In an attempt to prevent outbreaks of cholera, the government instituted, during 1980s, a system to collect epidemiological information at the community level through home visits mainly by the HAs, and update the higher authority on a weekly basis to take prompt measure to prevent possible outbreaks. The HAs used to record their findings on a loose sheet and report weekly. At the end of 1990s, three printed Epidemiological Information System (EIS) forms were provided, one at each service-delivery tier, to report six diseases, i.e., diarrhoea, blood dysentery, pneumonia, tetanus, polio, and measles, on a weekly basis. The HAs recorded the findings in the EIS Form 1, the AHI compiled the data at the union level in the EIS Form 2 and finally the HI compiled the data in EIS Form 3 (Appendix 17) at the upazila level. The UMIS unit approved continuation of these three formats. Although the delivery of ESP through the static facilities has been emphasized in the HPSP, both HAs and FWAs still make home

visits, and provide selected services. The HAs visit assigned households bimonthly, while the FWAs visit those monthly, and the services provided or referrals made are recorded in the Daily Service Register provided for each HA and FWA. Based on this record, the number of patients treated or referred for these particular diseases is reported through the EIS Form. But the HA and FWA informed that they could not complete their assigned household visits after providing services at the EPI spots and SCs at least for 8 days and attending several staff meetings per month. Therefore, the EIS 1 was prepared based on the findings of the household they visit. However, the same information i.e. the number of patients with these diseases treated, or referred is reported monthly through the UMIS 1 to the union level, and through EIS weekly to the upazila level and monthly to the national level.

TB related Forms

There are three reporting formats on case findings, treatment result, and sputum at 2 and 3 months of smear positive. The UMIS unit approved their continuation.

Leprosy-related Forms

There is one quarterly and one annual reporting form for leprosy. The UMIS unit approved their continuation.

Use of Additional Record-keeping and Reporting Formats

The UMIS unit approved the continuation of record-keeping and reporting formats used for TB, leprosy, EPI tally sheet, EIS, financial and logistics-related formats at the UHC. During monitoring, the FROs observed that, other than the approved record-keeping and reporting formats, some additional record-keeping and reporting formats used in the previous system were still being used at different departments and units of some upazilas.

Additional Record-keeping Formats

Other than approved record-keeping registers and formats of the UMIS unit, some additional registers and formats were used. The types of additional record-keeping register and formats used by various departments and units are presented in Table 5.

Table 5. Use of additional record-keeping registers and formats

Title of register/format	Department/unit where used			
	OPD	IPD	MCH unit	Other
OPD Ticket Register	√			
OPD Ticket	√			
Short Slip	√			
Drug Register	√			
Disease profile	√			
Temperature chart		√		
Medicine Register		√		
ARI Register		√		
Day and Night Patient Register		√		
Indoor Diarrhoea Patient Register		√		
IUD-related formats			√	
Norplant-related forms			√	
Sterilization-related forms			√	
Discharge Certificate				√
Death Certificate				√
Pathology Khata				√

The reasons for using the additional record-keeping formats are described below:

OPD: At the UHC, all patients, except those attending the Emergency Department, go through a process of central registration. An ancillary staff records the particulars of patients in a register, termed as either OPD Ticket Register or sometimes Central Register Khata. In some upazilas, three registers - one for male, one for female, and the other one for children aged less than 12 years - are maintained. After registration, the ancillary staff gives a OPD Ticket (Appendix 18), sometimes printed, containing particulars of the patient, is handed to the patient for the MO to use it as a prescription. At the same time, a small piece of white paper, termed as 'Short Slip', is also given to the patient for the MO to write names of medicines only to be dispensed free of charge from the store by the Pharmacist. After consultation, the patients retain the prescription, and produce the short slip to the Pharmacist to collect the drug(s) prescribed. The Pharmacist preserves the short slip for recording the name and quantity of the prescribed drug(s) in the Drug Register. Some MOs prepare a brief disease profile of patients treated in the day in a plain paper or in the OPD register, to make it convenient for the Pharmacist to prepare the disease profile of all patients later.

IPD: A Temperature Chart (Appendix 19) is used for recording the temperature of patients particularly with fever. The nurse uses a Medicine Register, where doses and time for administering drugs are recorded based on the instructions made by the MO in the Patient Chart. An ARI Patient Register provided by the former ARI programme to record particulars of patients and treatment offered is still used in some upazilas for preparing a separate monthly ARI report. A Day and Night Patient Register is used for recording names of all patients staying at the IPD during the last 24 hours. This register makes the preparation of Morning Statement easier. The Indoor Diarrhoea Patient Register, provided by the former CDD programme, with provision of recording particulars of patients and treatment and food offered together, is used in some upazilas. The provision to record ongoing treatment and abundance of stock supplied earlier are the reasons for using the register.

MCH unit: The unit uses several formats provided in the past by the DFP for screening of clients and for obtaining consents of accepting a particular method and follow-up of clients with IUD, Norplant, and sterilization.

Other formats: A Discharge Certificate *(*Appendix 20) and a Death Certificate are used at the IPD in most upazilas. The Discharge Certificate is given for follow-up purpose, while the Death Certificate is given on demand, usually for legal purpose. A Pathology Khata with name of patient and type of pathological tests advised by the MO is recorded by the SSN.

Additional Reporting Formats

The UMIS unit introduced the UMIS 3 to report the key activities carried out by different departments and units within the UHC and at the union-level facilities in the upazila. With the inception of UMIS 3, all reporting formats used in the past were supposed to be obsolete, excepting the reporting format for TB, Leprosy and EIS. It was observed that some additional reporting formats were being used for reporting performance to the CS office, UMIS unit, and headquarters of vertical programmes, such as EPI and ARI, at the national level. The use of these formats by departments/units of UHC is presented in Table 6.

Table 6. Use of additional reporting formats

Name of format	Departments/units where used			
	IPD	Obs	Lab	Other
ARI report for children aged less than 5 years	√			
Age-specific diarrhoea patients report	√			
ORT Corner/Indoor report	√			
Age and sex-specific causes of death	√			
Compiled report of obstetric care		√		
Compiled report of laboratory tests			√	
Laboratory examination report			√	
Monthly EPI diseases report (six diseases)				√
Patients treated at Indoor and Outdoor departments				√

IPD: Although the UMIS 3 has a provision to report the number of ARI patients treated by age, a separate ARI report (Appendix 21) for children aged less than 5 years is also prepared monthly in a loose sheet and sent to the CS office. The CS office compiles and forwards a copy to the office of Divisional Director of Health and Programme Manger of ARI control programme at the national level. The number of patients treated for dehydration by age groups is reported in the UMIS 3, but the SSN prepares an Age-specific Diarrhoea Patients Report (Appendix 22) with the number of patients treated at various departments, i.e. emergency and IPD, and by type of dehydration. This report is also sent to the CS office, which is partly a duplication of efforts. An ORT Corner Report (Appendix 23) is also prepared by type of dehydration (no, some, severe) and dysentery (no, some), and is sent to the CS office. The UMIS 3 has a provision to report the total number of deaths occurred within the UHC by causes. But an additional report titled 'Age and Sex-specific Death Report' (Appendix 24), containing address, date of admission, date of death, sex, age, and causes of death, is sent to the CS office and to the UMIS unit.

Obstetric Care unit: The compiled report of obstetric care is prepared by the SSN and is sent to the Statistician for inclusion in the UMIS 3. A copy of the report is also sent to the CS office since information on the number of deliveries by type is not reflected in the UMIS 3.

Laboratory: A copy of the compiled report of laboratory tests prepared by the Laboratory Technician for inclusion in the UMIS 3 is also sent to the CS office. It was reported that there was no provision to report all tests conducted in the pathological laboratory by the Laboratory Technologist in the UMIS 3. Results of laboratory examinations are provided to the patients in a plain paper or in a rubber-sealed format named as Laboratory Examination Report (Appendix 25).

Others: A monthly EPI Diseases Report (Appendix 26), a reporting format used in the past, containing information on the number of patients affected and the number of

deaths caused by six diseases, such as diphtheria, Pertusis, tetanus, measles, poliomyelitis, and TB, is still sent to the CS office and to the EPI headquarters at the national level. Patients identified with some of these diseases, such as measles and tetanus, are also reported through the EIS report causing duplication.

A monthly report titled 'Patients treated at the IPD and OPD' (Appendix 27) is sent to the UMIS unit and to the CS office. This report shows the total number of patients treated at the Emergency Department, OPD, UH&FWC, the number of patients admitted to the IPD, the number of patients discharged, and the number of deaths occurred. Most of these information are also included in UMIS 3. These information are used for calculating average daily admission of patients in the IPD, duration of their stay, bed occupancy rate, and hospital death rate at the national level.

Lessons Learned

Prior to the introduction of the UMIS, the health MIS at the upazila level could not grow systematically similar to the MIS of family planning due to the influence of numerous vertical programmes. The unification of record-keeping and reporting formats enabled to report the key performances at the field and facilities of an upazila in an organized manner. Some key milestone indicators, to be achieved under annual performance of the HPSP, such as CAR, proportion for contraceptive methods, women TT coverage, and percentage of births attended by trained provider and by place of delivery, percentage of fully-immunized children and proportion of children received at least second dose of vitamin A, are generated through annual GR**.** However, in the context of facility-based service-delivery, it is not possible to generate these indicators on a monthly basis through the monthly performance report. The prevalence of communicable diseases, such as TB, leprosy, malaria, and filaria, is generated annually using a two week recall period. It was found that collection of information was difficult and time-consuming. The field workers need adequate training and supervisory support for collecting these data at the community level. However, the number of positive cases receiving treatment for these diseases is reported through monthly UMIS 3.

There was a dearth of printed record-keeping and reporting formats at the UHC, prior to the introduction of the UMIS. In view of short supply of the appropriate record-keeping and reporting tools, the local managers procured registers and white sheets from the open market, and made necessary formats. The use of hand-drawn formats with uneven columns and rows contributed to variations in the design and contents and between upazilas. Supply of record-keeping and reporting registers and formats by the UMIS unit has ensured more systematic record keeping and reporting.

Resource constraint sometimes hampered the smooth implementation of the UMIS tools. There was a tendency among the service providers to resort to the available registers and formats of the previous system as soon as the supply of registers and formats exhausted at the upazila level. Close monitoring and supervision from the higher level is needed to allow the system to reach some level of maturity.

During monitoring, it was observed that the managers in their role as a service provider tended to keep the columns in the registers unfilled. Lack of adequate training to managerial staff was a key reason for such omissions. Prior to inception of the HPSP, the practice of record-keeping and reporting did not strongly develop, and therefore, the users skipped information. Findings of another collaborative study on the

completeness of patient registers carried out jointly by the Health Information Unit and the World Health Organization (WHO) concluded, "the columns relating to patients diagnosis were frequently left unfilled by responsible medical personnel" [3]. It was experienced by the FROs that when other service providers had been skipping recording of certain information, corrective measures were seldom taken until the issue was brought to the notice of the UHFPO or MO-MCH. It was further observed that the number of omissions was more in upazilas of Jessore district. Inadequate cooperation between the management staff of health and family planning contributed to such variations**.**

The use of old registers and formats sometimes resulted in duplication of reports. Despite the availability of required information in the UMIS 3, the district and national managers sometimes asked for additional information separately.

Recommendations

Based on the monitoring and systematic review of the record-keeping and reporting formats provided by the UMIS unit and additional registers and formats used at the upazila level, the following recommendations are made:

Record-keeping Tools

The system of maintaining both monthly and daily serial numbers in the OPD, IPD, Emergency and Obstetric Registers should be dropped. The use of monthly serial number is more logical for the management and reporting purposes and avoiding confusions among and between the service providers. In the column of age of patient, tick mark may be acceptable against different age groups. The column for treatment given/referred may be merged with the column for supply.

Unless weighing of all patients is made mandatory, the column for weight in the OPD Register should indicate 'only applicable for children and pregnant mothers' to avoid confusion and omissions. A column for 'referred to' may be created in the OPD Register for counting the number of referrals made per month and to meet the reporting requirement of UMIS 3.

In the Emergency Register, the columns for name, address, and purpose of visits are narrow, and therefore, need to be widened. A separate column for recording "the name of attendant of patient', particularly with homicide, road accident, and poisoning, may be created to enable the service providers to release patients after treatment and hand them over to their attendants.

The columns for patient's name and address need to be widened in the IPD Register.

In the Laboratory Register, the column for 'referred from' was seldom used, and therefore, may be replaced for recording the registration number given at the OPD, Emergency Department, and IPD. The columns to record results of TC, DC, Hb, ESR, urine and stool examinations need to be widened, and the number of columns for other tests should be increased.

A column for type of X-ray needs to be widened in the X-Ray Register.

Additional record-keeping registers, such as OPD Ticket Register, OPD Ticket, Short Slip, Drug Register, Temperature Chart, Medicine Register, Discharge Certificate, and Death Certificate are useful tools and, therefore, should be standardized. The use of ARI Register and Malaria Patient Register along with IPD Register should be stopped. The use of the Diarrhoea Patient Register and of the Day and Night Patient Register needs to be carefully reviewed.

Reporting Tools

Internal reporting formats used in the OT, dental care, and X-ray unit should be standardized to strengthen internal management and for inclusion in the UMIS 3.

The heading in the family-planning section of UMIS 3 should be corrected to specify that the “number of persons” who received pill, condom, IUD, and injectables to be reported. A provision to report numbers of referrals by contraceptive methods may be made within the UMIS 3.

Modification in the mother’s care section of UMIS 3 needs to be done to include deliveries conducted by type.

A complete view of the total number of patients treated for different diseases in the whole upazila is not feasible through the UMIS 3 considering the level of education of service providers at different tiers and also wide variation in facilities. However, provision for compilation of information on diseases treated by category of service providers or by type of facility in the whole upazila may be examined.

The UMIS 3 has a provision to report on diarrhoea only by age group, and, therefore, modification in the UMIS 3 may be made to report on diarrhoea patients under the three sub-categories, 'no' 'some', and 'severe’.

Modification in the Laboratory test section of UMIS 3 is needed to be done to include other biochemical tests conducted, such as VDRL, HBAg, and Widal test. This will help procure supply of reagents and logistics from the district level. The Laboratory Examination Report, which is given to patients after laboratory tests is useful, and should be standardized.

Provision to record the number of pending and settled cases may be included in the monthly report of field activities of the SI. This is a common activity accomplished by the SI, and had been reported in the past for monitoring purpose.

In the context of gradual withdrawal of home visit by fieldworkers, the possibility of generating an EIS report needs to be examined. The monthly EPI disease report and EIS report may be merged with the UMIS 3.

Additional reporting formats, such as ARI Report for children aged less than 5 years, Age-specific Diarrhoea Patients Report, Age and Sex-specific Causes of Death, are a duplication of UMIS 3, and, therefore, need not be used.

The monthly report on “Patients treated at the IPD and OPD”, including those at UHFWC/RD, is a useful tool. Information reported through this format needs to be integrated with the UMIS 3.

The formats used for TB and leprosy need to be integrated with the mainstream UMIS.

Conclusions

Although the new record-keeping registers and formats have been accepted and used everywhere, there is a tremendous scope for the UMIS unit to make them more user-friendly by necessary modifications and changes as recommended.

The UMIS unit should examine the utility of all additional registers and formats and the extent those are causing duplication. Findings of this study indicate that the information needs of vertical programmes sometimes met separately. Effort is required to enable the UMIS tools to address the needs of vertical programmes. The district level is the key link for information-flow between the upazila and the national level. Whatever information is needed at the national level is requested to the UHC through the district office. But the role of district office is limited in compiling reports received from different upazilas. The role of district office as regards MIS needs to be reviewed.

All categories of service providers need refresher training on the use of registers and formats provided by the UMIS unit. Routine staff training is very important for implementing the new system smoothly. In addition to the training manual provided by the UMIS unit, a users manual for users of UMIS registers and formats will be helpful to ensure proper use and reduce omissions. The timely supply of the UMIS registers and formats is to be ensured to prevent the use of obsolete tools.

In the next phase, the UMIS unit has to focus more on developing a MIS to manage the programme and ensure maximum benefit out of the available data rather than only meeting the record-keeping and reporting requirements. The UMIS unit should computerize the UMIS data at the UHC level to make the voluminous exercise manageable and facilitate dissemination of performance data across different departments and units within the MOHFW.

In addition, the UMIS unit may consider to undertake a periodic or a sample survey on selective indicators to meet the information need, which cannot be generated through service statistics.

The MOHFW should also ensure that the UMIS unit is the sole authority for modification of any register or format or for introducing the new ones. Unification of health and FP-MIS is indeed a substantial task, but should be done in a planned manner to measure the progress, improve management, and contribute to formulation of policy.

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