Status of Mortality Statistics of Bangladesh

Introduction :

Mortality Statistics reflect a country's level of overall development and quality of life. Every citizen of the country expects to be born and brought up in a conducive atmosphere, lead a usual span of life and die a normal death. Thus, the mortality profile, comprising the causes of deaths, the different age-groups affected and the gender disaggregated status of the data, provides a basis for policy-making that will ultimately lead to a decrease in unwarranted deaths. Bangladesh addresses the issues and strives hard to meet the challenges of lowering the death rates due to various causes.

In the following pages, an attempt has been made to highlight the recording and reporting mechanisms of mortality data as regards in-hospital deaths as well as deaths occurring in the community, completeness of the death registration, use of ICD guidelines, utilization of the mortality data, death registration Acts and Enforcement.

Methods :

- The report is formulated as per the Questionnaires attached.
- It presents the activities of the government as well as the non-governmental organizations thereby acknowledges ***a team work*** of all partners in health information and vital registration.
- The expert's view on different aspects of the subject was obtained through ***individual discussions*** and also by ***organizing a workshop*** of 10 persons during which an assessment of each question was discussed. The experts consulted included Director Research, NIPORT; Project Director, SVRS of BBS**;** Head, Health and Demographic Surveillance Unit, ICDDR,B and Chairmen of the Municipalities and the Union Parishads.
- The **full report** covers the points provided in the guidelines.

1. Overview of mortality reporting system :

In the public sector, the system of death registration deals with the statistics pertaining to mortalities due to various causes generated in the health institutions and in the communities. The data recording and reporting mechanisms of the concerned departments of various ministries are : Management Information Systems for Health (MIS-Health) department of the Directorate General of Health Services and the Bangladesh Demographic and Health Survey (BDHS) conducted by the National Institute for Population Research and Training under the Ministry of Health and Family Welfare , Municipal Corporation and the Union Parishad under the Ministry of Local Government and Rural Development and the Bangladesh Bureau of Statistics (BBS) of the Planning Division, Ministry of Planning . In the private sector, deaths occurring in the hospitals and the clinics are recorded in the registers and prescribed forms. In addition, mortality data are also recorded through periodical surveys conducted by several international and national NGOs like International Center for Diarrheal Diseases and Research (ICDDR,B) and Bangladesh Rural Advancement Committee (BRAC).

Statutory death registration:

There exists Acts for death registration which came into being through S,R.O. No.206-Act/2006, S.R.O. No. 321-Act/2006 and S.R.O. No.326-Act/2006 published in the Bangladesh Gazette Notifications dated 24 August 2006 and 24 December 2006.

Key points:

- The Acts will be called (a) **Birth and Death Registration (city corporation) Rules, 2006** and will be effective for all the city corporations of Bangladesh, (b) **Birth and Death Registration (Embassy) Rules, 2006** and will be effective for all the embassies of Bangladesh operating abroad and (c) **Birth and Death Registration (Cantonment Board) Rules, 2006** and will be effective for all the cantonment boards of Bangladesh.

- The **'registrar'** will record the death of a Bangladeshi person who had lived in his jurisdiction.

- The **'inspector'** will visit the place of occurrence to authenticate the related information and fill up the prescribed **'form'**. Subsequently, the registrar, will finally approve and document the death registration.

MIS-Health: In the government run hospitals at the upazilla, district and central levels, the data generated as a result of the services delivered are recorded in different forms of **Registers** kept in the indoor, outdoor and emergency departments. The service providers mainly the **Doctors** and the **Nurses** register the deaths. The **Statistical** persons collect the data from the registers and, after authentication by the local authority, report them upwards. The aggregated data of each month is reported through Monthly Reporting Form. As regards **Data Flow**, a copy of the reporting form is sent directly to the central MIS-Health and a copy of the form is sent to the office of the Civil Surgeon at the district level wherefrom, after endorsement by the authority, a copy is transmitted upwards to the Divisional Director's office as well as a copy to the central MIS-Health. When a death occurs due to any disease, it is also recorded citing the 'cause of death' and reported to the central level. Reports are compiled containing Mortality Statistics of the hospitals in different tiers of the health care delivery system on a monthly basis. This could be termed as **facility- based mortality statistics**. Every year data is collected on several variables from each house-hold of every union covering the whole population (except the municipal areas) through geographical reconnaissance **(GR).** It is conducted by the health workers and supervised by the health officials and the program managers. Here also we get the Mortality Statistics according to different age groups and gender on a yearly basis. It is **home-based mortality statistics.**

Municipalities : Mortality Statistics are maintained at the offices of the city corporations of the six divisional head-quarters and in the municipal areas of the districts and the upazillas.. In these areas, when a death occurs and a relative or a known person of the deceased brings the corpse for burial in a graveyard, he has to register the death. A death registration is also done when a relative comes to the city corporation for obtaining a death certificate. Mortality Statistics are recorded in the printed Death Registration Form present in the offices of the municipalities. The cause of death is mentioned but is not authenticated by a doctor. The percentage of death registration is low. One of the reasons is that proper mechanism for the collection and verification of the data pertaining to deaths is not developed in the municipalities and no worker is assigned to collect the data from the

site of occurrence. It is voluntarily done by the acquaintances of the deceased.

Union Parishad : When a death occurs in a village, the village police or chowkidar visits the place of occurrence, takes the death related data and keeps the information in a diary. Later on, the information is transferred to a printed Registration Form and recorded in registers kept in the office of the respected Union Parishad. The cause of death is mentioned but it is not authenticated by a doctor. No survey is done to identify the total number of deaths recorded through the above mechanisms and as such percentage of population coverage cannot be ascertained.

Cantonment Board: When a death occurs in the jurisdiction of a cantonment board, the prescribed form for recording the death has to be filled up by the person reporting the death and submit it to the registrar of the concerned board. The certified copy of the burial by the caretaker of the designated graveyard has to be produced before the registrar.

Any death out side the country will be registered by embassies of Bangladesh operating abroad.

BBS: Through its sample vital registration system (**SVRS**), the BBS conducts surveys to estimate the determinants of annual population change. It contains mortality statistics as regards absolute number of deaths, age-specific and cause-specific death rates, IMR, MMR, etc. Its coverage is 1000 Primary Sampling Units (PSUs) each comprising of about 250 compact households. The data are collected by the local registrars and the quality of the data checked by the supervisors. Filled-in schedules are then sent to headquarters on monthly basis. Rechecking is done by Regional Statistical Officers and other officers and staff members. Internal Validation and close supervision of data collection is done to improve the quality of data. The surveys are conducted throughout the year. Dissemination is done every 2-3 years.

BDHS : It is a nationally representative survey designed to obtain and provide information on the basic indicators of social progress. It is carried out every 3 years. It presents information on levels, trends, and differentials in neonatal, postneonatal, infant, and child mortality. Infant and child mortality rates reflect a country’s level of socioeconomic development and quality of life and are used for monitoring and evaluating population and health programs and policies. The rates are also important for monitoring the

progress of the United Nations Millennium Development Goal to reduce child mortality.

2. Use of International Classification of Diseases (ICD-10):

In 50% of the upazilla health complexes, the statistical persons classify the deaths recorded in the health institutions according to the coding system of the International Statistical Classification of Diseases (ICD- 10) and Related Health Problems. In the central MIS-Health department of DGHS all deaths are computerized using the coding system of the ICD-10. There is **lacking in the accuracy** of use of ICD-10 guidelines for coding the mortality statistics because the 'causes of deaths' are not mentioned in accordance with the recommended medical certification form. The service providers are being oriented by the MIS-Health for classifying the causes of deaths according to the recommended medical certification system. The statistical personnel are being trained for proper coding of the causes of deaths by using ICD-10 guidelines.

3. Recording and reporting of "unnatural" deaths :

Deaths due to accidents, criminal injuries or other external causes are reported and recorded in the police departments of the concerned areas. The dead bodies are sent to the Forensic Medicine departments of the district hospitals or the medical college hospitals. Post-mortems are performed and the findings are recorded and reported to the MIS-Health, DGHS.

4. Completeness of death registration:

An attempt is made to calculate the completeness of death registration based on the mortality data generated at the upazilla, district and central level hospitals of the public sector and compiled in the MIS- Health department of DGHS. The Mortality Profile of the year 2005, attached to this report, shows that around **26000 deaths** were recorded at the facilities of different tiers of the health care delivery system. The whole population of the country is supposed to be covered. During 2005, the population size was about 140 millions and the crude death rate was approximately 7 per 1000. Multiplying the two, we get the estimated deaths of the period. It comes to **980000.** The **completeness**, calculated by the ***number of registered deaths/number of expected deaths(estimated deaths)*100*** displays a figure of **2.65 %.**

Comment on completeness of death registration: A death is a vital event. It is expected that every death occurring anywhere in the country should be recorded and the related cause explored. The percentage of the death registration as shown by the above calculations is quite low. It can be explained by the fact that;

- All the government run hospitals were not covered
- Deaths occurring in the private hospitals could not be shown
- Mortality data recorded through various surveys are not presented
- Deaths occurring in the communities are under-reported

It is inferred that necessary steps need to be taken for increasing the completeness of death registration through building of public awareness, enforcement of the related Acts, complete registration of the in-hospital deaths as well as deaths occurring in the community and regular monitoring and evaluation for determining the levels and trends in mortality leading to the adoption of effective health care strategy.

Comparisons: National and sub-national comparisons of the mortality statistics are available. It is evident from the report on Sample Vital Registration System of BBS. In the year 2003, Crude Death Rate (CDR) for the nation was 5.9 per 1000 population with 6.6 for male and 5.2 for female. In case of rural area the corresponding CDR 's were 6.2 (both sex), 6.9 (male), and 5.5 (female) and in case of urban area those were 4.7 (both sex), 5.4(male),and 4.0 (female).

5. Maternal and infant mortality statistics:

The ***sources*** of the above statistics are BBS, BDHS, MIS-Health and ***studies*** conducted by some organizations, e.g. ICDDR,B.

- **BBS:** Through its sample vital registration system, the BBS calculates IMR and MMR every year. ***Disaggregated data*** are available for the national, rural and urban areas as well as for the regional differentials. In case of IMR, the figures for the males and the females are also available. As regards ***% of coverage*** by SVRS, the whole population is covered through collection of data by 1000 sampling units each comprising of 250 households. The ***methods*** are described in the section headlined BBS.
- **BDHS:** It calculates IMR every three years. Mortality estimates are ***disaggregated*** by socioeconomic characteristics, such as urban-rural residence, division, mother's education, and wealth index, and also by

selected demographic characteristics, to identify segments of the population requiring special attention. As regards ***% of coverage***, the BDHS is a nationally representative survey of women age 10-49 and men age 15-54 from 10,500 households covering 361 sample points (clusters) throughout Bangladesh. The ***methods*** include collection of mortality statistics in the birth history section of the Women's Questionnaire. All ever-married women age 10-49 are asked to provide a complete history of their births as well as the deaths of their infants. Report was published in 2005. It is a nationally representative survey of 11440 women age 10-49 and 4297 men age 15-45 from 10500 household covering 361 sample points throughout Bangladesh, 122 in Urban areas and 239 in Rural areas. The survey obtained detailed information on childhood mortality and causes of death of children under 5. Under 5 mortality rate for the most recent 5 year period 1999-2003 is 88 deaths per thousand live births and infant mortality is 65 deaths per thousand live birth. almost half of all under five deaths occur during neonatal period, almost a quarter occur during the postnatal period and another quarter occur between ages 1 & 4 years. There are very little different mortality level in urban & rural areas among children who are less then one year of age. Child mortality still some what higher in rural areas than in urban areas. Over the years mortality level at various ages among children under five have declined faster in rural areas than in urban areas.

- **Bangladesh Health & Injury Survey Report on Children :** Bangladesh Health & Injury Survey (BHIS) is the largest injury survey ever conducted at community level in developing countries. With a sample size of 171366 household and a total surveyed population of 819429. 43% (351651) of the surveyed population were children. Children are defined in this report as infants and children of all ages up to their 18^{th} birth day. The survey documented an over all child injury rate of 1592 per 10000 children per year. The BHIS addresses all causes of death and helps characterise the causes within each age group. Communicable and non-communicable disease is still considered a major concern for children especially infants. Injury as documented by this survey now accounts for 38% of all classifiable deaths in children aged 1-17. Not surprisingly the proportion of injury related increases as children get older with injuries causing 2% of infant deaths, 29% of 1-4 years old deaths and 64% of 15-17 years old deaths.

- **MIS-Health:** It assesses the status of facility utilization by women suffering from life-threatening obstetric complications. An increase in the trends of facility utilization would indicate decrease in the number of maternal deaths of the area. Calculation is done using the UN Process Indicators on the data generated as a result of the emergency obstetric care services **(EmOC)** being delivered at the upazilla health complexes, district hospitals and the medical college hospitals. The ***method*** includes collection of the data recorded in a set of registers named Obstetric Register, Delivery Register and Operation Register and reported to central MIS in Monthly Obstetric Care Reporting Form on a monthly basis. The census data provides the population size of the area. Periodical reports are formulated which give an assessment of the status of facility utilization leading to inferences regarding trends of maternal mortality statistics over time.
  Importance: The Government of Bangladesh has given topmost priority to the reduction of maternal and child mortality rates. It has been documented in the Program Implementation Plan **(PIP**) of Health, Nutrition and Population Sector Program (**HNPSP: 2003-2010**). The Global Community also stresses on the improvement of the health of the vulnerable groups-the mothers and the children. It has been reflected in the setting up of targets to be achieved by all Member States: the Millennium Development Goals **(MDG's 4 &5**). In conformity with the Government's Policy and to meet the global challenges, the **MIS-Health** has given emphasis to the recording and reporting of the data generated as regards maternal and child health in different tiers of the health care service delivery system.

- **ICDDR,B:** The Health and Demographic Surveillance System (HDSS) of the ICDDR,B implements a health research programme in Matlab, Bangladesh. It conducts studies on the status of mortality statistics ***of the area*** and calculates IMR every year. The ***methods*** include obtaining of the information by the Community Health Research Workers by visiting each household monthly in their assigned areas and filling out the event registration forms. Their activities are supervised by Field Research Supervisors. As regards ***MMR,*** the NIPORT in collaboration with the ICDDR,B and some other organizations with financial support from the USAID, conducted a nationally representative survey, the **2001 Bangladesh Maternal Health Services and Maternal Mortality survey (BMMS).** The Survey estimates the maternal mortality ratio (MMR)

in Bangladesh during the period 1998-2001 as in the range of 320 to 400 per 100,000 live births. The BMMS is intended to serve as a source of maternal health and maternal death data for policymakers and the research community.

6. Medical Certification of cause of death:

It is in place but the use of international form recommended by WHO in ICD-10 is not followed in totality. In the government hospitals, only **Part I** of the above-mentioned form is followed. It consists of four lines for diseases related to the train of events leading directly to death**. Part II** which is for unrelated but contributory conditions is absent. In the hospitals and clinics of the private sector, the death certificate contains one, two or three lines for citing the cause of death. The certification of the deaths are done by the attending doctors in case of **institutional deaths**. When a death occurs which is of a criminal nature and is reported to the police department, it is sent to the forensic section, post-mortem conducted and the cause of death is **validated** by the forensic experts.

Verbal autopsy is used when a death is recorded by a health worker or a village police in the domiciliary level. In Bangladesh, most births and deaths occur at home rather than in a hospital, inhibiting assessment of cause of death by physicians. Verbal autopsy utilizes retrospective reports provided by caregivers on sequence of signs and symptoms of the deceased person prior to death. This procedure was followed extensively on a pilot basis.

7. About misclassification of cause of death:

It occurs when a death is recorded by a person who is not competent enough and records the deaths in the community. But **in-hospital deaths**, which are noted and certified by the medical doctors, are classified citing the causes of deaths. However, in practice, the deaths are not properly classified according to the recommendation of the **World Health Assembly** which stresses upon mentioning the disease or condition directly leading to death or to state any antecedent conditions giving rise to this cause.

8. Dissemination of the information:

The Sample Vital Registration System determines the annual population change during inter-censal period. It collects the related data every year but publishes the report at an interval of 2-3 years. The BDHS disseminates information after every three years. MIS-Health formulates Health Bulletin which contains information on the mortality statistics. It was last published in the year 2001.The report for 2005 will be published shortly.

9. Utilization of the mortality statistics information :

Information regarding mortality statistics is the corner-stone of Health Information System. Mortality rates and ratios are important indicators reflecting the health situation of a country. Evaluation of the patterns and determination of the levels and trends in mortality are needed for formulation of plans and implementation of programs. It is emphasized in the Program Implementation Plan (PIP) of the Health, Nutrition and Population Sector Program (HNPSP). Periodical assessment is done as regards Crude Death Rate, Infant Mortality Rate, Maternal Mortality Ratio and Cause-Specific Death Rate. Information on the mortality data is of particular importance for monitoring the achievements of the Millennium Development Goals.

10. What contributes to incomplete registration :

Since proper mechanism for the collection and verification of the mortality data is not developed in the municipalities, **deaths occurring in the community** is liable to be wrongly diagnosed as well as under-reported. There is also lack of adequate public awareness about importance of vital registration. This contributes to incomplete registration.

11. Level of public awareness; Enforcement

Bangladesh is a developing country with a low literacy rate There is a **lack of initiative** among the people to inform and register the births and deaths with the proper authorities. In order to make the vital registrations universally adopted throughout the whole population, the Government promulgated the **Birth and Death Registration Ordinance, 2006** which has been **enforced** from 3 July, 2006.

The above information are collected through the procedures described below and the relevant annexure are attached:

MIS-Health:

- Data are collected through the recording and reporting tools of service statistics and the reporting forms containing mortality statistics mentioning the 'cause of death'.
- Death Certificate Forms. In the Government hospitals, forms according to the medical certification recommended by the World Health Assembly –***International form of medical certificate of cause of death*** are used for recording deaths. The forms contain rows which are to be filled up indicating which morbid conditions led directly to death and to state any antecedent conditions giving rise to it. But in practice only the disease directly leading to death is mentioned.
- GR reporting forms

BDHS:

- Periodical surveys of BDHS

BBS:

- SVRS publications
- Questionnaires for collecting the required information from the survey areas.

Municipalities:

- Application form containing Birth and Death Registrations.
- Death Certificate form. Here the form consists of only one row. The disease or condition directly leading to death is mentioned.

Union Parishad :

- Information is collected through some questionnaires. The data related to the deaths are collected on a diary. The information is transferred to a Registration Form and recorded in a register kept at the office of the union parishad.

Ordinances:

- Directives published in the form of 'Nirdeshika' by the Ministry of Local Government and Rural Development, Dhaka dated 14 August, 2006

- Bangladesh Gazette Notification dated August 31, 2006 and December 27, 2006

Deliverable outputs:

1. Mortality Profile of the year 2005 compiled by MIS-Health.
2. Duly filled-in questionnaire forms.