

## CHAPTER 1

### INTRODUCTION



#### 1.1 Background and Rationale

Bangladesh is a low lying country in the deltaic region with an area of 147,570 square kilometers. Geographically Bangladesh is located between 20° 34' and 26° 38' North latitude 88° 01' and 92° 42' East longitude. Bangladesh is an Agro-based country having about 68,000 villages. Some other selected demographic characteristics and health status of Bangladesh are shown in Table 1.1.

Table 1.1 Selected Facts about Demography and Health Status of Bangladesh .

<b>Total population of the country (million)</b>	<b>122.80</b>
<b>Male population (million)</b>	<b>62.60</b>
<b>Female population (million)</b>	<b>60.20</b>
<b>Infant population (%)</b>	<b>3.0</b>
<b>Under 5 yrs population (%)</b>	<b>12.6</b>
<b>Under 15 yrs population (%)</b>	<b>40.90</b>
<b>Female population (15 - 49 yrs in %)</b>	<b>27.44</b>
<b>Population density ( Per sq. km )</b>	<b>819</b>
<b>Crude birth rate/1000</b>	<b>24.96</b>
<b>Crude death rate/1000</b>	<b>7.9</b>
<b>Gross fertility rate/1000 women</b>	<b>102.64</b>
<b>Life expectancy at birth (yrs)</b>	<b>59.5</b>
<b>Number of eligible couples (million)</b>	<b>21.9</b>
<b>Working aged (15-59 yrs) population (million)</b>	<b>61.87</b>
<b>Old aged (60 yrs +) population (million)</b>	<b>6.18</b>
<b>Sex ratio ( Male/Female * 100 )</b>	<b>104</b>
<b>Mean age at marriage of male (yrs)</b>	<b>25.1</b>
<b>Mean age at marriage of female (yrs)</b>	<b>18.1</b>
<b>Infant mortality rate (1000 live births )</b>	<b>76.8</b>
<b>IMR for problems during delivery/1000 live birth</b>	<b>9.55</b>
<b>Under 5 mortality rate (1000 live births)</b>	<b>133.0</b>
<b>Maternal mortality rate (1000 live births)</b>	<b>3.90</b>
<b>Neonatal mortality rate (1000 live births)</b>	<b>44.0</b>
<b>Percent of population using safe water only for drinking</b>	<b>96.5</b>
<b>Percent of population using safe water for house hold work</b>	<b>36.9</b>
<b>Percent of population using sealed latrine</b>	<b>11.2</b>
<b>Physician Population ratio</b>	<b>1:4572</b>
<b>Nurse Population ratio</b>	<b>1:9530</b>
<b>Physician Nurse ratio</b>	<b>3:1</b>
<b>Population per hospital bed</b>	<b>3151</b>

Sources: MOHFW Report, 1997 and Bangladesh Health Bulletin, 1997.

According to the disease profile of Bangladesh diarrhoea ranks first and causes major problem of morbidity and mortality specially among the children throughout the year. International Center for Diarrhoeal Disease and Research, Bangladesh (ICDDR, B), in 1994 conducted a survey and indicated that between 20 and 30% of all deaths are due to diarrhoeal diseases. According to the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh (GOB) Report, 1997 there 6.292 millions of people affected in 1997 and that is 14.27% of disease rate and total death rate is 2.6%. Each year 25% of the total death of children under 5-years caused by diarrhoea and it also causes highest percentages of morbidity. It is also responsible for large number of death in Bangladesh and is a great burden to the country (MOHFW, 1997).

Eradicating of this disease is a difficult job. Social circumstances, riverain environment, water supply, use of unhygienic latrine and the peoples themselves create difficulties. Repeated attack of the disease specifically among the children in a year leads to the aggravation of the physical condition of the victim such as chronic malnutrition, retarded growth, poor resistance against other infectious diseases etc. Health Information Report, 1996 showed that the incidence rate of diarrhoeal diseases is higher in rural areas (6.99%) than urban areas (5.95%). Economic impact of the disease is yet to be assessed.

Among the ten leading causes of morbidity diarrhoea the most common disease in Bangladesh is still dominate morbidity pattern of the country accounting 14.27 % and death rate is 2.6 % (Table 1.2).

Table 1.2 Ten Leading Causes of Morbidity with Death Rate in Bangladesh.

Name of Disease	Number of persons infected (million)	Disease rate (%)	Death rate (%)
Diarrhoea	6.962	14.27	2.6
Intestinal Worm Infection	6.003	12.30	-
Anemia	4.808	9.85	-
Skin Diseases	4.538	9.30	-
Peptic Ulcer	2.706	5.55	1.3
Acute Respiratory Infection	2.668	5.43	3.9
Deficiency Diseases	2.574	5.27	0.6
Eye Diseases	1.637	3.35	-
Accidents/Injuries	1.554	3.19	1.9
Ear Diseases	1.262	2.59	-

Source : MOHFW Report, Bangladesh 1997.

Public health care facilities/system is free and involves the cost of treatment for patient and directly plays an important role in diarrhoeal management with scarce resources. Though there are great advancements in medical sciences still diarrhoeal management in Bangladesh remains a major problem with high morbidity and mortality.

The health sector of Bangladesh is a composite of public and private. There are teaching, general, specialized hospitals at national level. Teaching hospitals have 250 to 800 bed facilities. There are 64 districts each with at least 50 bed hospital. There are 490 Thanas having 31 bed hospital each called Thana Health Complex with IPD (In-patient Department) and OPD (Outpatient Department). Beside those there are 4,451 unions out of which 1,275 have Health Sub Centers under Health Service Directorate and 3,263 Health and Family Welfare Centers at union level under the Directorate of Family Planning only with OPD services in 1997.

The epidemic creates each year acute public problem and is a great burden to the health services of the country and some times the epidemics become unmanageable because of scarce public resources. Every year during the rainy season more or less flooding occurs which also aggravate the situation. Sub-urban and rural people suffer most, mainly because of lack of safe drinking water or its use and also because of lack of knowledge of general hygiene.

For communicable disease control program provision of sanitary latrine and safe water supply for drinking and washing are necessary. Safe water supply and specially sanitary measures are much more below then the expected level to combat the problem. Households coverage only for safe drinking water is 96.5% but not for other purposes like washing, cooking etc. and using sanitary latrines 21.3% (BBS, 1996).

About 47% of the population of the country living under poverty line (Economic Review, Ministry of Finance, GOB, 1997) and are mostly lives in rural areas and it is difficult for them to manage the disease. In this situation control of diarrhoea is a hard job. On the other hand financial scarcity specially from the public side is also a great challenge for the planners and decision makers.

In Bangladesh the health care seeking behavior of the rural people is different and they have different attitude towards rural public health care facilities. During their illness they primarily follow some ayurvedic medicine/ traditional healer/ homeopath though they have nearby modern health complexes. After an elapse of time when the patient condition becomes very worse/bad then they usually rush to district hospital leaving the health complexes.

Most of the district hospitals are located at a longer distance. District hospitals are usually remains over crowded, takes long waiting time from the patient. In this situation rural people have to wait long and spend more to get services and to manage the disease. But still they use district hospital specially for in-patients. Information about the reasons why people seek hospital care may be useful to re-plan the disease control strategy.

Cost for the management of the disease from provider's side at different level not yet measured and the estimation will be helpful for better under-standing about the provider cost and to re-plan the patient service for efficient management of the disease so that best utilization of scarce public as well as individual resources could be possible.

In addition it may be helpful for introducing appropriate service / user charges as a cost recovery measure for health care services at different level justified from patients' perspective and financial solvency.

Finally it will stimulate further health economics studies in health sector.

## 1.2 Objectives of the Study

General Objective :

To calculate the unit costs of treatment for diarrhoeal patient at outpatient and in-patient departments of District Hospital and Thana Health Complex from providers' perspective.

Specific Objectives :

- a) To calculate the cost per patient day in in-patient departments of District Hospital and Thana Health Complex.
- b) To calculate the cost/visit in outpatient departments of District Hospital and Thana Health Complex.

## 1.3 Scope of the Study

This is a case study of Manikgonj District Hospital and Thana Health Complex for cost analysis for the operation and management of diarrhoeal disease from providers' perspective. This is the first time and a short term retrospective study about cost analysis for the management of a disease in Bangladesh at hospital level. Because of short term and retrospective survey some of the information can not be collected accurately for the analysis as it should be. Therefore some assumptions are made for costing analysis. This weakness could be overcome by a long term prospective survey which will provide more accurate information as well as result. The methodology followed in this study can be used for further study about the costing of same disease or other specific disease management.

Manikgonj District is diarrhoea prone and diarrhoea ranks first in the disease profile of the district. Table 1.3 shows the disease profile of the district.

Table 1.3 Disease Profile of Manikgonj District, Bangladesh 1997.

Name of diseases	Age Group				Total (no.)	%
	<1year (no.)	1-4 year (no.)	5-15 year (no.)	>15 year (no.)		
<b>Diarrhoeal Disease</b>	2835	9076	16473	26560	<b>54944</b>	<b>10.8</b>
<b>Clinical Malaria</b>	-	-	-	2	<b>2</b>	<b>0</b>
<b>Int. Worm Infection</b>	885	10013	17222	26751	<b>54871</b>	<b>10.7</b>
<b>Peptic Ulcer</b>	-	-	9093	38406	<b>47499</b>	<b>9.3</b>
<b>T.B.</b>	-	-	7	130	<b>137</b>	<b>0.03</b>
<b>A R I</b>	3053	7610	14449	21596	<b>46708</b>	<b>9.1</b>
<b>Skin Disease</b>	1332	8012	13627	18781	<b>41752</b>	<b>8.2</b>
<b>Hepatitis</b>	-	24	64	117	<b>205</b>	<b>0.04</b>
<b>Tetanus</b>	2	-	-	1	<b>3</b>	<b>0.00</b>
<b>Diphtheria</b>	-	-	-	-	-	-
<b>Night Blindness</b>	-	63	145	159	<b>367</b>	<b>.072</b>
<b>Deficiency Disease</b>	1198	5847	11822	17744	<b>36611</b>	<b>7.2</b>
<b>Anemia</b>	440	5962	12125	24044	<b>42571</b>	<b>8.3</b>
<b>Asthma</b>	5	65	566	3579	<b>4215</b>	<b>.82</b>
<b>Whoping Cough</b>	-	-	-	-	-	-
<b>Measles</b>	65	41	25	2	<b>133</b>	<b>0.03</b>
<b>Chicken Pox</b>	-	-	-	-	-	-
<b>Diabetes</b>	-	-	103	866	<b>969</b>	<b>0.18</b>
<b>Eye Disease</b>	1272	3196	6848	10501	<b>21817</b>	<b>4.28</b>
<b>Ear Disease</b>	669	2726	6438	9236	<b>19069</b>	<b>3.74</b>
<b>Dental Disease</b>	16	1644	6448	12540	<b>20648</b>	<b>4.04</b>
<b>Hypertension</b>	-	-	109	2186	<b>2295</b>	<b>0.45</b>
<b>Poisoning</b>	-	8	51	375	<b>434</b>	<b>0.09</b>
<b>Injuries</b>	37	813	3995	8453	<b>13298</b>	<b>2.6</b>
<b>Obs. &amp; Gynae Compln.</b>	-	-	386	4525	<b>4911</b>	<b>0.96</b>
<b>Filariasis</b>	-	-	-	-	-	-
<b>Kala-Zar</b>	1	22	72	110	<b>205</b>	<b>0.04</b>
<b>Mental Disease</b>	-	-	5	39	<b>44</b>	<b>.001</b>
<b>P.U.O.</b>	1720	4753	9698	15094	<b>31265</b>	<b>6.13</b>
<b>Polio Milities</b>	-	-	-	-	-	-
<b>Others</b>	4932	10045	17675	32433	<b>65067</b>	<b>12.8</b>
<b>Total</b>	<b>18462</b>	<b>69920</b>	<b>147428</b>	<b>274230</b>	<b>510040</b>	<b>100</b>

Source : Civil Surgeon Office, Manikgonj District, Bangladesh 1997.

#### **1.4 Possible Benefits**

The study will provide information about the in-patient and outpatient cost per case of diarrhoeal patients at Thana health complex and at District hospital by the provider. The information may be beneficial for patient service planning for efficient management of the disease along with the best utilization of our scarce public resources. Government is also thinking to introduce user charge in the hospitals at least up to the district level as cost recovery measure for health care services. In this case the study will also provide information for establishing appropriate service/user charges which are justified from the patient's perspective and by financial solvency.