



Government of the People's Republic of Bangladesh  
Ministry of Health & Family Welfare

# Health Bulletin 2011

**Management Information System (MIS)**  
**Directorate General of Health Services (DGHS)**

Mohakhali, Dhaka-1212

[www.dghs.gov.bd](http://www.dghs.gov.bd)



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## Special Thanks to:

**Abid Anwar and Dr Nasreen Khan**  
for review of manuscript



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Honorable Minister  
Ministry of Health and Family Welfare  
Government of the People's Republic of Bangladesh



## Message

I am glad to see that 'Health Bulletin 2011' is going to be published by MIS-Health, DGHS. This publication merits special mention because of its wide range of statistical contents which portrays the country's health situation for the year before. The Health Bulletin also publishes trends of country's health status for the past several years. When used with previous Health Bulletins, the publication series become the country's historical documents to understand how health situation is shaping itself gradually. This wider perspective made the Health Bulletin as one of the most popular and widely used publications of the Ministry of Health and Family Welfare.

While I appreciate this wonderful work, I also urge upon MIS-Health, DGHS, to keep the momentum and continue its efforts to further build on it so that the Health Bulletin becomes the best source of country's yearly summary of health data under one cover. As MIS-Health is also making continued progress in building ICT backbone which it aims to extend up to the community clinics and grassroots health workers, I believe that amount of data and data quality will be much better in the subsequent Health Bulletins.

I believe that 'Health Bulletin 2011' will make its wide range of users happier than the year before. I thank Professor Dr Abul Kalam Azad, Director of MIS, DGHS, and this team for great job.

Joy Bangla, Joy Bangabandhu.

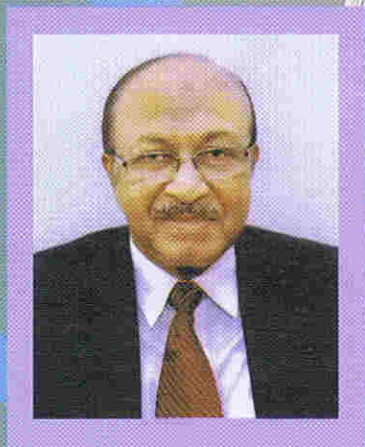
Professor AFM Ruhul Haque (FRCS), MP



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Adviser to the Honorable Prime Minister  
Health, Family Planning and Social Welfare Affairs  
Government of the People's Republic of Bangladesh



## Message

It is my great pleasure to see that the MIS-Health of the DGHS is ready with its manuscript of annual publication well-known as 'Health Bulletin'. Soon the readers will get the Health Bulletin 2011 for which they wait eagerly. Health Bulletin has become a necessary source of information containing statistical information on different aspects of health sector.

Our Government believes on transparency. Therefore, free flow of information remains at the central point of our governance. The Health Bulletin 2011 will contribute to improving transparency about health issues of the country. We have been amazed seeing the progress of eHealth made by MIS-Health with respect to expansion of ICT network since our Government took charge in 2009. This progress is taking place in ever-increasing geometric phenomenon. One of the great expectations of this development is to improve the country's health information system substantially. The obvious outcome will be much better Health Bulletins in future. I am looking for these days.

I specially thank Professor Dr Abul Kalam Azad, Additional Director General (Planning & Development) and Director of MIS-Health, DGHS, for his excellent leadership to bring the eHealth in the forefront.

Professor Dr Syed Modasser Ali



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Honorable State Minister  
Ministry of Health and Family Welfare  
Government of the People's Republic of Bangladesh



## Message

I am indeed happy to see that the Health Bulletin 2011 is awaiting publication. This is an important publication, and we use it as our reference of health data. We use Health Bulletin to understand how much progress we made in the past year in the health sector. We also understand through this book where we made little progress, where we need to pay more attention, and where we could do better. I am quite aware that when a new year is added in the English calendar, the readers of Health Bulletin start counting days for its publication. I hope that this waiting time will be made much lower in future. I have two observations to forecast such possibilities. One is rapid computerization of our health sector extending as low as up to the grassroots level inclusive of the community clinics as well as the community health workers. This would enable us to get quality data on real time and making available the report sooner through the web media before the Health Bulletin is published. Second, Health Bulletin can also be published quicker as data will be available much quicker in automatically-processed format through ICT-based systems. I urge upon our friends and colleagues to provide their full cooperation in our effort.

At the end, I extend my sincere appreciation to the MIS-Health, DGHS, for the publication of Health Bulletin 2011.

Dr Captain (Retd) Mozibur Rahman Fakir



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Secretary  
Ministry of Health and Family Welfare  
Government of the People's Republic of Bangladesh



## Message

It is my pleasure to know that MIS-Health, DGHS, is going to publish the Health Bulletin 2011. Health Bulletin 2011 is a very useful publication as it enables to get statistical data on almost all aspects of health sector of the country in concise and understandable way. MIS-Health could maintain its regularity of publication over the last few years, which deserves it to get special thanks. The MOHFW and MIS-Health constantly working to improve the Health Information System (HIS) of the country for timely generation and dissemination of quality data. To make sure that this dream works, the Ministry already made good progress in deploying ICT-based data communication system throughout the country as low as up to upazila level. We are deploying new database system and automating procurement and supply-chain management system. The deployment of DHIS2 (District Health Information System version 2) to capture health service data from across the health facilities and programs has made much improvement in the existing health information system. The effect of this system will be further revealed in the subsequent days. Under the HPNSDP 2011-2016 (Health, Population and Nutrition Sector Development Program 2011-2016), MIS-Health planned for a substantial development to improve HIS and eHealth through innovative and wider use of information and communication technology. I hope that the natural outcome of these endeavors will be a much better opportunity of getting health information and, of course, much better Health Bulletins.

I extend my sincere appreciation to Professor Dr Abul Kalam Azad, Additional Director General (Planning & Development) and Director of MIS-Health and his team members at MIS-Health and also throughout the country for gathering data and publishing Health Bulletin 2011.

মুহম্মদ হুমায়ুন কবির

Md. Humayun Kabir



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Director General of Health Services  
Government of the People's Republic of Bangladesh



## Message

It is a great event for me that Health Bulletin 2011, which is a prestigious publication of DGHS, is going to be published. The credit goes to Management Information System (MIS-Health) of DGHS for its continued effort to bring this book every year and on time.

I have been informed that Health Bulletin 2011 is better in quality than its earlier siblings. This improvement has been possible because of better effort for improving data availability and quality. The development of digital systems across our healthcare network, which improved our data communication systems in terms of availability, quicker transmission and processing, contributed to improving our health information system as well.

I always believe that there is enough scope for perfection in the future Health Bulletins, and I know that this endeavor is also in place. With this I would like to appreciate Professor Dr Abul Kalam Azad, Additional Director General (Planning & Development) and Director of MIS-Health, DGHS, and his team to successfully make this publication happen. My gratitude is also for the editorial board-members and concerned officers and staff who were associated with Health Bulletin 2011.

Professor Dr Khandaker Md Shefyet Ullah



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Additional Director General (Planning & Development)  
and Director, Management Information System  
Directorate General of Health Services  
Government of the People's Republic of Bangladesh



## Editorial Notes

This is my great relief that we are now ready to present Health Bulletin 2011 to our valued readers. We kept our sincere efforts continuing to improve the quality of the contents of Health Bulletin 2011. The readers will surely feel the improvement.

For Health Bulletin, we gather data from wide range of sources across the country. The health managers, officers and health staff at the head and subordinate offices, in hospitals and health facilities, and in fields, all were engaged to make huge data available, analyze them, and prepare reports. The tasks are gigantic, which need patience, hard work, cool head, and attention. These made me indebted to all of them. I also acknowledge the private healthcare providers who have also provided data as before. Every year we learn a lot of things from experience of publishing Health Bulletin. We identify areas where we need to focus our attention for further improvement. The introduction of DHIS2 (District Health Information System version 2) is a great development for automating data-collection from the source. The benefits will be more revealed in the subsequent Health Bulletins. We are also awaiting publication of Guide Book on ICD-10, which will improve quality of morbidity and mortality data in the time to come.

I express my sincere thanks to Professor AFM Ruhul Haque, MP, Honorable Minister for Health and Family Welfare, for providing his moral support to our work. My thanks are also due to Professor Syed Modasser Ali, Honorable Adviser to the Prime Minister for Health, Family Planning and Social Welfare Affairs. This is my responsibility to thank Captain (Retd) Dr Mujibur Rahman Fakir, MP, Honorable State Minister for Health and Family Welfare, for his positive attitude towards development of



Health Information System. Md. Humayun Kabir, Secretary of the Ministry of Health and Family Welfare, plays role in the Ministry as a real guide for the officers and staff. I appreciate his knowledgeable guidance. I acknowledge my Director General Professor Dr Khandaker Md. Shefyet Ullah for his interest about this Health Bulletin. Finally, I acknowledge deeply the contributions of my associates who worked hard and closely with me to publish the Health Bulletin 2011.



Professor Dr Abul Kalam Azad



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# Contents

Chapter 1	: Bangladesh - a Snapshot	1
Chapter 2	: Healthcare Network of Bangladesh under the Ministry of Health and Family Welfare	7
Chapter 3	: The Millennium Development Goals: Where Does Bangladesh Stand?	14
Chapter 4	: Primary Health Care	25
Chapter 5	: Secondary and Tertiary Health Care	48
Chapter 6	: Utilization of Health Facilities	53
Chapter 7	: Morbidity Profiles	62
Chapter 8	: Mortality Profiles	70
Chapter 9	: Communicable Diseases	81
Chapter 10	: Emergency Preparedness and Response	98
Chapter 11	: Non-communicable diseases	101
Chapter 12	: Safe Blood Transfusion	110
Chapter 13	: Nutrition	113
Chapter 14	: Public-health Interventions by Selected Institutions	119
Chapter 15	: Research and Development	127
Chapter 16	: Human Resource	144
Chapter 17	: Health Information System and eHealth	167
Chapter 18	: National Eye Care	185
Chapter 19	: Health Education and Promotion (HEP)	189
Chapter 20	: Alternative Medical Care	190
Chapter 21	: Financing Health Care	192
Annexures	:	201



# Acronyms

ADB	Asian Development Bank	CIDA	Canadian International Development Agency
ADP	Annual Development Programme	CIDD	Control of Iodine Deficiency Disorder
AEFI	Adverse Events Following Immunization	CMCH	Chittagong Medical College Hospital
AFP	Acute Flaccid Paralysis	CME	Centre for Medical Education
AIDS	Acquired Immunodeficiency Syndrome	CMMU	Construction, Maintenance and Management Unit
ALS	Average Length of Stay	CMNS	Child and Mother Nutrition Survey
ANC	Antenatal Care	CMSD	Central Medical Stores Depot
APR	Annual Program Review	CNP	Community Nutrition Promoter
ARC	American Red Crescent	CNS	Child Nutrition Survey
ARI	Acute Respiratory Infection	COPD	Chronic Obstructive Pulmonary Disease
BBS	Bangladesh Bureau of Statistics	CPR	Contraceptive Prevalence Rate
BCC	Behavior Change Communication	CRF	Chronic Renal Failure
BCG	Bacillus Calmette Guerin	CS	Civil Surgeon
BCS	Bangladesh Civil Service	C-section	Cesarean Section
BDHS	Bangladesh Demographic and Health Survey	CSO	Community Support Organization
BEOC	Basic Emergency Obstetric Care	DAB	Diabetic Association of Bangladesh
BGC	Bangladesh Geographic Survey	DBRH	Demand-based Reproductive Health
BHE	Bureau of Health Education	DCA	Development Credit Agreement
BIDS	Bangladesh Institute for Development Studies	DCM	Dilated Cardiomyopathy
BINP	Bangladesh Integrated Nutrition Project	DDA	Directorate of Drug Administration
BMA	Bangladesh Medical Association	DDC&H	Dhaka Dental College & Hospital
BMI	Body Mass Index	DF	Dengue Fever
BMMS	Bangladesh Maternal Mortality Survey	DFID	Department for International Development
BMRC	Bangladesh Medical Research Council	DG	Director General
BNHA	Bangladesh National Health Accounts	DGFP	Directorate General of Family Planning
BOR	Bed-occupancy Rate	DGHS	Directorate General of Health Services
BRAC	Bangladesh Rural Advancement Committee	DH	District Hospital
BSA	Bangladesh Society of Anesthesiologists	DHF	Dengue Hemorrhagic Fever
BSMMU	Bangabandhu Sheikh Mujib Medical University	DMC	Dhaka Medical College
CABG	Coronary Artery Bypass Grafting	DMCH	Dhaka Medical College Hospital
CBN	Cost of Basic-Needs (method)	DNS	Directorate of Nursing Services
CC	Community Clinic	DOTS	Directly Observed Treatment-Short Course
CDC	Communicable Disease Control	DP	Development Partner
CDD	Control of Diarrheal Diseases	DPA	Direct Project Aid
CFP	Conceptual Framework Paper	DPHE	Department of Public Health Engineering
CGA	Comptroller General of Accounts	DSF	Demand-side Financing
CHCP	Community Health Care Provider	ECNEC	Executive Committee of National Economic Council



# Appendix

EDPT	Early Diagnosis and Prompt Treatment	HOSP	Hospital
EmOC	Emergency Obstetric Care	HPSP	Health and Population Sector Program
EPI	Expanded Program on Immunization	HR	Human Resource
ERD	Economic Relation Division	IAPB	International Association for Prevention of Blindness
ESD	Essential Service Delivery	ICOVED	Integrated Control of Vector-borne Diseases
ESP	Essential Service Packages	ICT	Information and Communication Technology
ETT	Exercise Tolerance Test	IDA	Iron-deficiency Anemia
EU	European Union	IDD	Iodine-deficiency Disorder
FEP	Filariasis Elimination Program	IDH	Infectious Diseases Hospital
FMAU	Financial Management and Audit Unit	IEC	Information, Education and Communication
FMRP	Financial Management Reforms Project	IEDCR	Institute of Epidemiology, Disease Control & Research
FP	Family Planning	IHSM	Improved Hospital Services Management
FWA	Family Welfare Assistant	IHT	Institute of Health Technology
FY	Financial Year	IMCI	Integrated Management of Childhood Illness
GAVI	Global Alliance for Vaccine and Immunization	IMED	Implementation, Monitoring and Evaluation Division
GDP	Gross Domestic Product	IMF	International Monetary Fund
GFTAM	Global Fund to Fight AIDS, Tuberculosis and Malaria	IMHR	Institute of Mental Health and Research
GHDCH	Government Homeopathic Degree College Hospital	IMR	Infant Mortality Rate
GO	Government Organization	IOL	Intraocular Lens
GOB	Government of Bangladesh	IPGMR	Institute of Postgraduate Medicine and Research
GTC	Government Tibbia College	IPH	Institute of Public Health
GUADCH	Government Unani and Ayurvedic Degree College & Hospital	IPHN	Institute of Public Health Nutrition
HA	Health Assistant	IPM	Individual Performance Management
HDI	Human Development Index	i-PRSP	Interim Poverty Reduction Strategy Paper
HDS	Health and Demographic Survey	IRS	Indoor Residual Spraying
HEB	Health Education Bureau	IST	In-service Training
HEU	Health Economics Unit	IT	Information Technology
HFWC	Health and Family Welfare Center	ITHC	Integrated Thana Health Complex
HIES	Household Income and Expenditure Survey	ITMN	Insecticide-treated Mosquito-net
HIU	Health Information Unit	IUD/IUCD	Intra-uterin(Contraceptive) Device
HIV	Human Immunodeficiency Virus	IVM	Integrated Vector Management
HIV/AIDS	Human Immunodeficiency virus/ Acquired Immunodeficiency Syndrome	IYCF	Infant and Young Child Feeding
HKI	Helen Keller International	JICA	Japan International Co-operation Agency
HLIC	High-level Inter-ministerial Committee	KMCH	Khulna Medical College Hospital
HMPD	Health Manpower Development	LAN	Local Area Network
HNP	Health, Nutrition and Population	LBW	Low Birthweight
HNPSP	Health, Nutrition and Population Sector Program		



LD	Line Director	NIPSOM	National Institute of Preventive and Social Medicine
LLIN	Long-lasting Insecticidal Net		
LLP	Local-level Planning	NITOR	National Institute of Traumatology, Orthopedics and Rehabilitation
LTSO	Long-term Strategy Options		
M&E	Monitoring & Evaluation	NNP	National Nutrition Program
M/F	Male/Female Ratio	OP	Operational Plan
MATS	Medical Assistant Training School	OPD	Outpatient Department
MBDC	Mycobacterial Disease Control	ORS	Oral Rehydration Salt
MC	Medical College	ORT	Oral Rehydration Therapy
MCH	Maternal and Child Health	OT	Operation Theater
MCH	Medical College Hospital	PH	Public Health
MCWC	Maternal and Child Welfare Center	PMIS	Personnel Management Information System
MDA	Mass Drug Administration		
MDG	Millennium Development Goal	PRSP	Poverty Reduction Strategy Paper
MIS	Management Information System	PSM	Preventive and Social Medicine
MMR	Maternal Mortality Ratio	RDU	Research and Development Unit
MNCH	Maternal, Neonatal and Child Health	RHC	Rural Health Center
		SBTP	Safe Blood Transfusion Program
MNH	Maternal and Neonatal Health	SEARO	South East Asian Regional Office
MNHC	Maternal and Neonatal Health Care	SVRS	Sample Vital Registration System
MO	Medical Officer	TB	Tuberculosis
MOHFW	Ministry of Health and Family Welfare	TT	Tetanus Toxoid
		TTU	Technical Training Unit
MOLGRDC	Ministry of Local Government Rural Development and Co-operatives	UHC	Upazila Health Complex
		UHFPO	Upazila Health and Family Planning Officer
MOU	Memorandum of Understanding		
MP	Member of Parliament	UHFWC	Union Health and Family Welfare Center
MSA	Management Support Agency		
MSD	Medical Sub-depot	UNICEF	United Nations Children's Fund
MTR	Mid-term Review	USC	Union Sub-Center
MWM	Medical Waste Management	USI	Universal Salt Iodization
NCD	Non-communicable Diseases	VAC	Vitamin A Capsule
NEMEW	National Equipment Maintenance and Engineering Workshop	VAD	Vitamin A Deficiency
		WAZ	Weight of Age Z-score
NGO	Non-government Organization	WCBA	Women of Childbearing Age
NICRH	National Institute of Cancer Research and Hospital	WHO	World Health Organization
NICVD	National Institute of Cardiovascular Diseases		
NID	National Immunization Day		
NIDCH	National Institute of Diseases of Chest and Hospital		
NIKDU	National Institute of Kidney Diseases and Urology		
NIMHR	National Institute of Mental Health and Research		
NIO	National Institute of Ophthalmology		
NIPORT	National Institute of Population Research and Training		



# *Bangladesh-a snapshot*

## **History**

Bangladesh emerged in 1971 as an independent and sovereign country. Formerly, the land was known as East Pakistan as one of the provinces of Pakistan. The citizens of Bangladesh fought a nine-month War of Liberation against the Pakistan army under the leadership of Father of the Nation Bangabandhu Sheikh Mujibur Rahman. Before the Pakistan era (1947-1971), the country was ruled by the British (1757-1947) as a part of Bengal and Assam provinces of Indian sub-continent. In 1947, the Sub-continent was divided into Pakistan and India. Before the British rule, the present territory of Bangladesh was part of greater Bengal constituted by East and West Bengal (the latter now being under India). The then Bengal, Bihar, and Orissa were governed by a sovereign ruler Nawab Sirajuddowla who lost his emperor in a battle with the British army in Plassey on 23 June 1757.

## **Geographical Location**

Bangladesh territory is one of the largest deltas of the world. The total land area is 147,570 square kilometers (56,977 square miles). It is a low-lying country which stretches in latitude between 20°34' and 26°38' north and in longitude between 88°01' and 92°41' east. The country has borders with India on three sides adjoining West Bengal, Tripura, Assam, and Meghalaya. Only a small strip in the southeast has border with Myanmar. The Bay of Bengal lies on the south. The country is covered with a network of rivers and canals forming a maze of interconnecting channels. Bangladesh mostly comprises floodplain areas, with scattered hills at the eastern and the northern parts. The northern part is in the Himalayan valleys, and the southern part in the coast of the Bay of Bengal. Bangladesh is recognized as the worst victim of global climate change effect without being responsible for its underlying causes. The country manifests all the direct and indirect effects of climate change, such as global warming, sea-level rise, and melting of glaciers. The human health has to bear enormous costs as a result.

## **Climate**

The climate of the country is tropical, with a hot and rainy summer and a dry winter. January is the coolest month, with temperatures averaging nearly 26°C (78°F), and April is the warmest, with temperatures ranging from 33°C to 36°C (91°F to 96°F). Most places receive more than 1,525 millimeters of rain a year, and areas near the hills receive 5,080 millimeters mostly during the monsoon (June-September) and little in the winter (November-February). The humidity varies from 73% to 86%, the highest in the monsoon and the lowest in the winter.

## **Religion and Culture**

The majority (about 89.35%) of the people are Muslim, followed by Hindu (9.64%), Buddhist (0.57%), Christian (0.27%), and others (0.17%). Over 98% of the people speak Bangla. English, however, is widely spoken by people in the literate communities. Bangladesh is heir to a rich



cultural legacy of about two thousand or more years. The cultural traditions can be viewed in innumerable tangible and intangible heritages in archaeological sites, in sculptures, in stones and terracotta, in architectures, museums, archives, libraries, classical music, songs and dance, paintings, dramas, folk arts, festivals, games, and ethnic cultural activities. The simplicity and friendliness of the people of Bangladesh are examples of unprecedented communal harmony among different religions years after years.

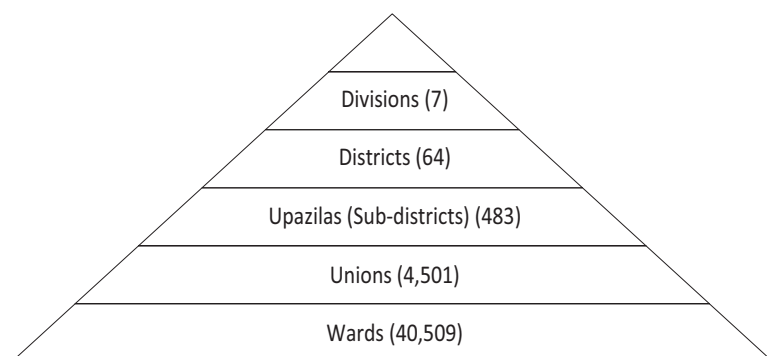
### Population and Demography

The last census in Bangladesh was done in 2011. The preliminary counts show a population of 142,319 thousand which, after adjustment, can be as high as 152,111 thousand.

Bangladesh is a country with the highest population-density, with 964 living per square kilometer as of 2011 census estimate. With the highest adjustment rate of 6.88% (as required in the 1974 census), the figure can be as high as 1,031 per square kilometer. According to Sample Vital Registration Survey 2009, three-fourths of the population (74.5%) live in rural area and the rest in urban area (25.5%). The current national population growth rate is 1.35% as per provisional estimate of the 2011 census; the rural to urban migration rate is 21.9%; the male to female ratio is 100.3:100. The average household-size is 4.68. The 15-49 years age-group constitutes the largest segment (53%) of the population, followed by 33.3% in <15 years age-group. The age-groups of 50-59 years and 60+ years comprise 7.2% and 6.8% of people respectively. Adult (15+ years) literacy rate is 58.4% (as of 2009). The life-expectancy is 67.2 years (66.1 years for males and 68.7 years for females).

### Governance

Bangladesh has a unitary form of government, with no state or province. For purposes of smooth running of the government programs, the country is divided into 7 administrative divisions. There are several districts under a division. There are 64 districts in the country. Each district is again divided into several upazilas (sub-districts). There are 483 upazilas in the country. The upazilas are



**Figure 1.1. For smooth governance, the country is divided into above geographic hierarchies**

divided into unions, and each union is divided into 9 wards. There are 4,501 unions and 40,509 wards in the country. The urban areas have 9 city corporations and 306 municipalities. The country is governed by the Parliamentary Democracy, and it has a unitary National Parliament, named Bangladesh Jatiya Sangsad. There are 40 ministries and 13 functional divisions. The Ministry of Health and Family Welfare is one of the largest ministries of the Government.



### **Economy**

Bangladesh has an agrarian economy, although the contribution of agriculture to GDP has been decreasing over the last few years. Yet, it dominates the economy, accommodating the major rural labor-force. The principal industries of the country include readymade garments, textiles, chemical fertilizers, pharmaceuticals, tea-processing, sugar, leather goods, etc. The principal minerals include natural gas, coal, white clay, glass-sand, etc. From marketing point of view, Bangladesh has been following a mixed system (public and private) that operates on the free-market principles. The GDP growth rate is 6.66% (FY2010-11) (Bangladesh Bank 2011) and GDP per-capita (current price as per 2009 estimate) is US\$ 692 as per World Economic Outlook October 2010 - International Monetary Fund (IMF).

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Source of information: National Census Preliminary Report 2011, BBS 2009 and Key Indicators on Report of Sample Vital Registration System 2009 (published in 2011) by the Bangladesh Bureau of Statistics, World Economic Outlook October 2010- International Monetary Fund (IMF) (HYPERLINK "<http://www.imf.org/external/pubs/ft/weo/2010/02/index.htm>" \t "\_blank")



## Chapter 1: Bangladesh - a snap shot

### Bangladesh- Basic Information & Indicators

Name of indicator			Source
A. GEOGRAPHY			
Location	Between 20°34' and 26°38' north latitude and Between 88°01' and 92°41' east longitude		Bangladesh data sheet, BBS
Boundary	North and West: India; South: Bay of Bengal; East: India & Myanmar		
Area (sq.km.)	147,570 sq. km.(56,977 sq. miles)		
Territorial water	12 nautical miles		
Standard time	GMT+ 6 hrs		
Rainfall	203 mm/month		
B. ADMINISTRATION			
Division	7		
City corporation	9		
Metropolitan city	4		
Municipality	308		
District	64		
Upazila	483		
Union	4,501		
Ward	40,509		
Village (approximately)	87,310		
Household	25,490,822		
Average size of household	4.68		SVRS 2009, BBS
C. EDUCATION and ECONOMY			
Per capita GDP (in US\$) 2010-11	664		Bangladesh Economic Review 2010
GDP growth rate (%) 2009-10	6		
Poverty rate	National: 31.5%; Urban: 21.3%; Rural: 35.2%		HIES 2010, BBS
Average monthly household income (Tk.)	National: 11,480; Urban: 16,477; Rural: 9,648		
Average monthly household expenditure (Tk.)	National: 11,200; Urban: 15,531; Rural: 9,612		
Average monthly household consumption expenditure (Tk.)	National: 11,003; Urban: 15,276; Rural: 9,436		
Per capita daily calorie intake (kcal)	National: 2318.3; Urban: 2244.5; Rural: 2344.6		
Households benefiting from social safety nets	National: 24.6%; Urban: 9.4%; Rural: 30.1%		
Households with access to electricity	National: 24.6%; Urban: 9.4%; Rural: 30.1%		
Households with mobile phones	National: 63.7%; Urban: 82.7%; Rural: 56.7%		
Literacy rate (7+ yrs)	57.9%		SVRS 2009, BBS
Adult literacy rate (Pop.15+), (Both sexes)	58.4		
D. DEMOGRAPHY			
Population (in million) (2011 Census)	Total	142.32	BBS 2011
	Male	71.26	
	Female	71.06	
Population projected July 2015 (in million)	Total	158.96	Projections as per BBS 2008
	Male	81.96	
	Female	77.33	
Population projected July 2019 (in million)	Total	167.39	
	Male	85.86	
	Female	81.51	



## Chapter 1: Bangladesh - a snap shot

### Bangladesh- Basic Information & Indicators (Continued...)

Name of indicator			Source
Sex ratio (male per 100 female)		100.27	BBS 2011
Age 0-14 years population (in %) both sex		33.3	
Female population (15-49 yrs in %)		54.1	SVRS 2009, BBS
Population (60 yrs + in %) both sex		6.4	
Population density per sq.km.		964	BBS 2011
Crude birth rate (per 1,000 pop.)		19.4	
Crude death rate (per 1,000 pop.)		5.8	SVRS 2009, BBS
Population growth rate (%)		1.34	BBS 2011
Total fertility rate (birth per women 15-49 yrs)		2.15	
Gross reproduction rate		1.07	SVRS 2009, BBS
Net reproduction rate (NRR)		1.06	
Life expectancy at birth (in years)	Both sex	67.2	SVRS 2009, BBS
	Male	66.1	
	Female	68.7	
Mean age at first marriage (in years)	Male	23.8	
	Female	18.5	
<b>E. HEALTH STATUS</b>			
Infant mortality rate (per 1000 livebirths)		39	SVRS 2009, BBS
Maternal mortality ratio (per 100,000 live births)		194	BMMS 2010
Neonatal mortality rate (per 1,000 live births)		28	
Under-5 mortality rate (per 1,000 live births)		50	
Percentage of population using safe drinking-water (tap and tubewell)		98.1	SVRS 2009, BBS
Percentage of population using sanitary latrine		62.7	
Prevalence of night blindness among pre school children		0.04	IPHN, DGHS 2010
% of births attended by skilled personnel		26.54	
% of women received at least one antenatal care		71.2	BMMS 2010
% of mother received PNC from a trained provider within 2 days of delivery		22.5	
Malaria incidence rate per 1,000 population in endemic districts		5.13	CDC, DGHS 2011
TB incidence rate per 100,000 population		225.0	WHO 2010
TB case notification rate (%)		70.5	
TB cure rate (%) with DOTS		92.0	NTP 2010
EPI (Valid vaccination among $\leq$ 23 months children)			
	DPT 3	89.4%	Bangladesh EPI Coverage Evaluation Survey 2010
	BCG	98.9%	
	Measles	89.2%	
	HAPB 3	89.4%	
	OPV 3	94.7%	
	Fully immunized	83.4%	
Vitamin A coverage		96%	
<b>F. HEALTH SERVICES PROVISION</b>			
Government hospitals at upazila and union level		463	DGHS 2011
Government hospitals of secondary and tertiary level		120	
Total no. of government hospitals		583	
No. of non-government hospitals (Regd. by DGHS)		2,501	
No. of beds in MOHFW (functioning)		39,639	
No. of beds in private sector (Regd. by DGHS)		42,237	
No. of registered physicians		53,063	BMDC 2011
Estimated no. of doctors available in the country		43,537	
Doctors working under MOHFW		38%	HRD Data Sheet 2011
Doctors working under other ministries		3%	



## Chapter 1: Bangladesh - a snap shot

### Bangladesh- Basic Information & Indicators (Continued...)

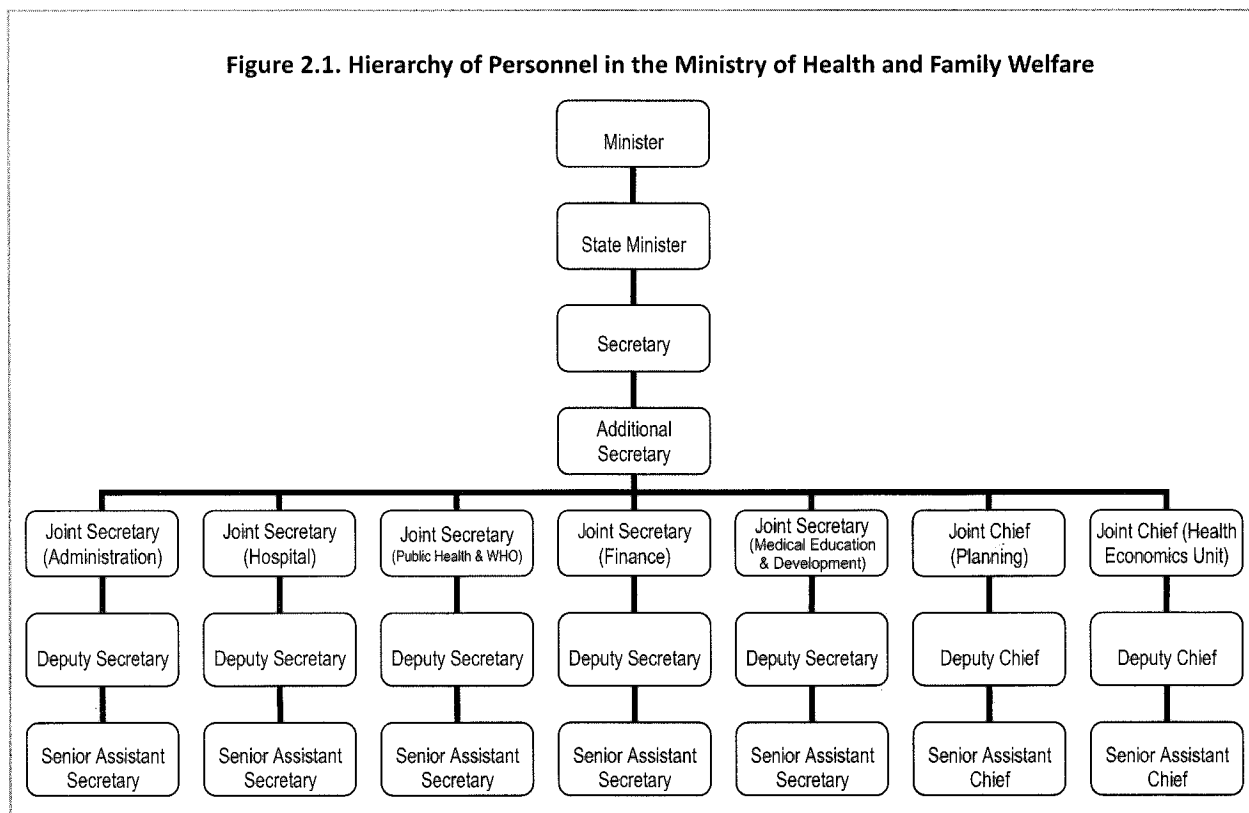
Name of indicator		Source
Doctors working in private sector	58%	HRD Data Sheet 2011
Doctors under DGFP	540	
Registered diploma nurses	26,899	
Estimated no. of nurses available in the country	15,023	
No. of dental surgeons	4,165	
No. of family planning officers	546	
No. of assistant family planning officers	1,440	
No. of registered sanitary inspectors	1,041	
No. of dental technologists	1,886	
No. of laboratory technologists	2,220	
No. of pharmacy technologists	7,622	
No. radiographers	1,456	
No. of physical therapists	581	
No. of medical assistants	7,365	
No. of health assistant (HA)	19,274	
No. of assistant health inspectors	3,655	
No. of family welfare visitors (Sanctioned)	5,705	
No. of health inspectors (Existing)	1,125	
No. of family planning inspectors (Existing)	4,500	
No. of family welfare assistants (Existing)	23,500	
No. of registered dental surgeons	3, 913	BMDC 2009
No. of government medical colleges	21	DGHS (ME) 2011
No. of private medical colleges	44	DGHS (ME) 2010
No. of private dental colleges	12	DGHS 2010
No. of private institute of health technology (IHT)	52	DGHS (MIS) 2009
No. of personnel under DGHS (Existing)	92,759	DGHS 2011 (June)
No. of doctors under DGHS (Existing)	16, 035	DGHS (MIS) 2011 (June)
No. of registered nurses (as on March 2010)	25,018	BNC 2010 (March)
No. of nurses in public sector (Existing)	13, 473	DNS 2010 (March)
No. registered mid -wives	23, 472	BNC 2010 (March)
No. of trained skilled birth attendants	5,159	UNFPA 2009 (Dec)
Population per physician (Current population / available registered physicians)	3,269	HRD Data Sheet 2011
Population per bed (Hospital beds: under MOHFW + Regd. private hospitals)	1,738	DGHS 2011

# *Healthcare Network of Bangladesh*

## *under the Ministry of Health and Family Welfare*

### **Hierarchies of Personnel in the Ministry of Health and Family Welfare**

The Ministry of Health and Family Welfare (MOHFW) is one of the largest ministries under the Government of Bangladesh, which is responsible for national-level policy, planning, and decision-making at macro level. The Ministry's policies, plans, and decisions are implemented by different executing and regulatory authorities. The Ministry is headed by the Honorable Minister for Health and Family Welfare, who is assisted by the Honorable State Minister. The principal executive of the Ministry is the Secretary who works with a team of bureaucrats under him/her, viz. Additional Secretary, Joint Secretaries/Joint Chiefs, Deputy Secretaries/Deputy Chiefs, Senior Assistant Secretaries/Senior Assistant Chiefs, and so on.



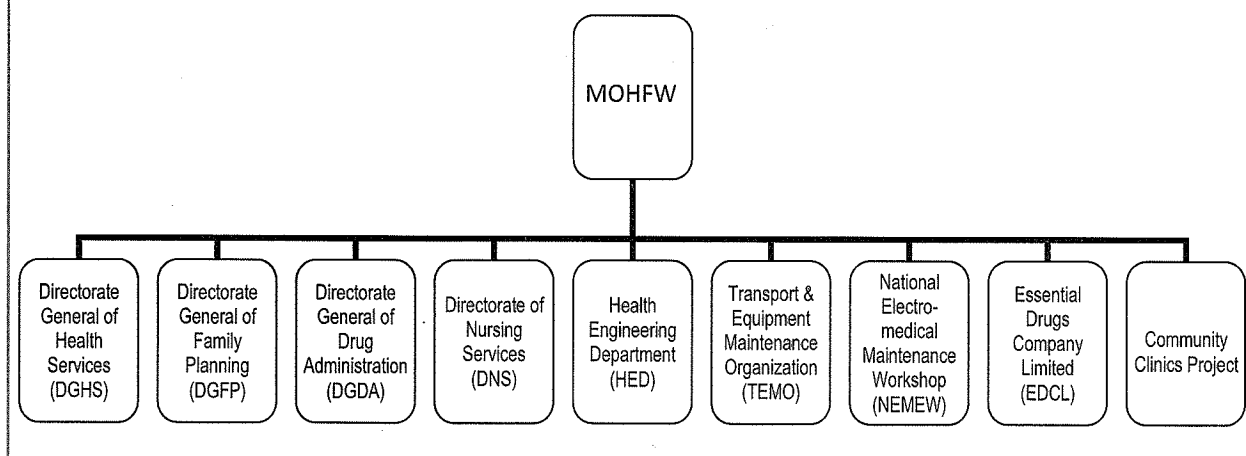
### **Executing authorities under the Ministry of Health and Family Welfare**

Under the MOHFW, there are several executing authorities and regulatory bodies. The executing authorities are Directorate General of Health Services (DGHS), Directorate General of Family Planning (DGFP), Directorate General of Drug Administration (DGDA), Directorate of Nursing Services (DNS), Health Engineering Department (formerly Construction Management & Maintenance Unit or CMMU; currently Directorate General status), Transport & Equipment



Maintenance Organization (TEMO), National Electro-medical & Engineering Workshop (NEMEW), Essential Drugs Company Limited (EDCL), and Revitalization of Primary Health Care Initiatives in Bangladesh (Community Clinics Project).

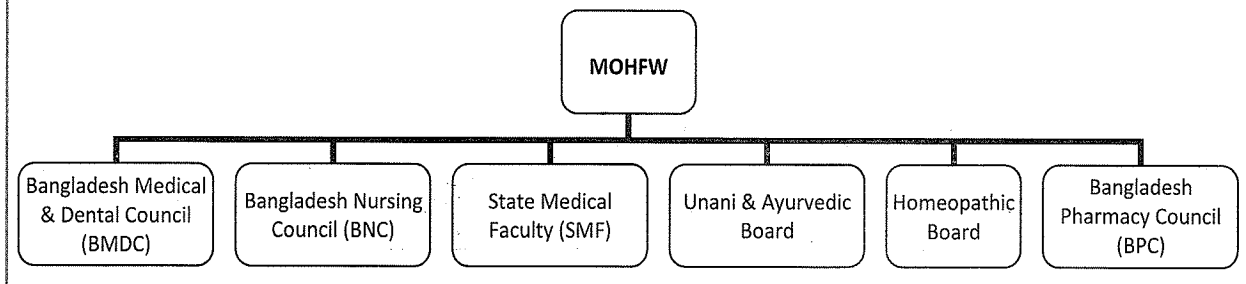
**Figure 2.2. Executing authorities under the Ministry of Health and Family Welfare**



### Regulatory bodies under the Ministry of Health and Family Welfare

The regulatory bodies under the MOHFW are Bangladesh Medical & Dental Council (BMDC), Bangladesh Nursing Council (BNC), State Medical Faculty (SMF), Homeo, Unani and Ayurvedic Board, and Bangladesh Pharmacy Council.

**Figure 2.3. Regulatory bodies under the Ministry of Health and Family Welfare**

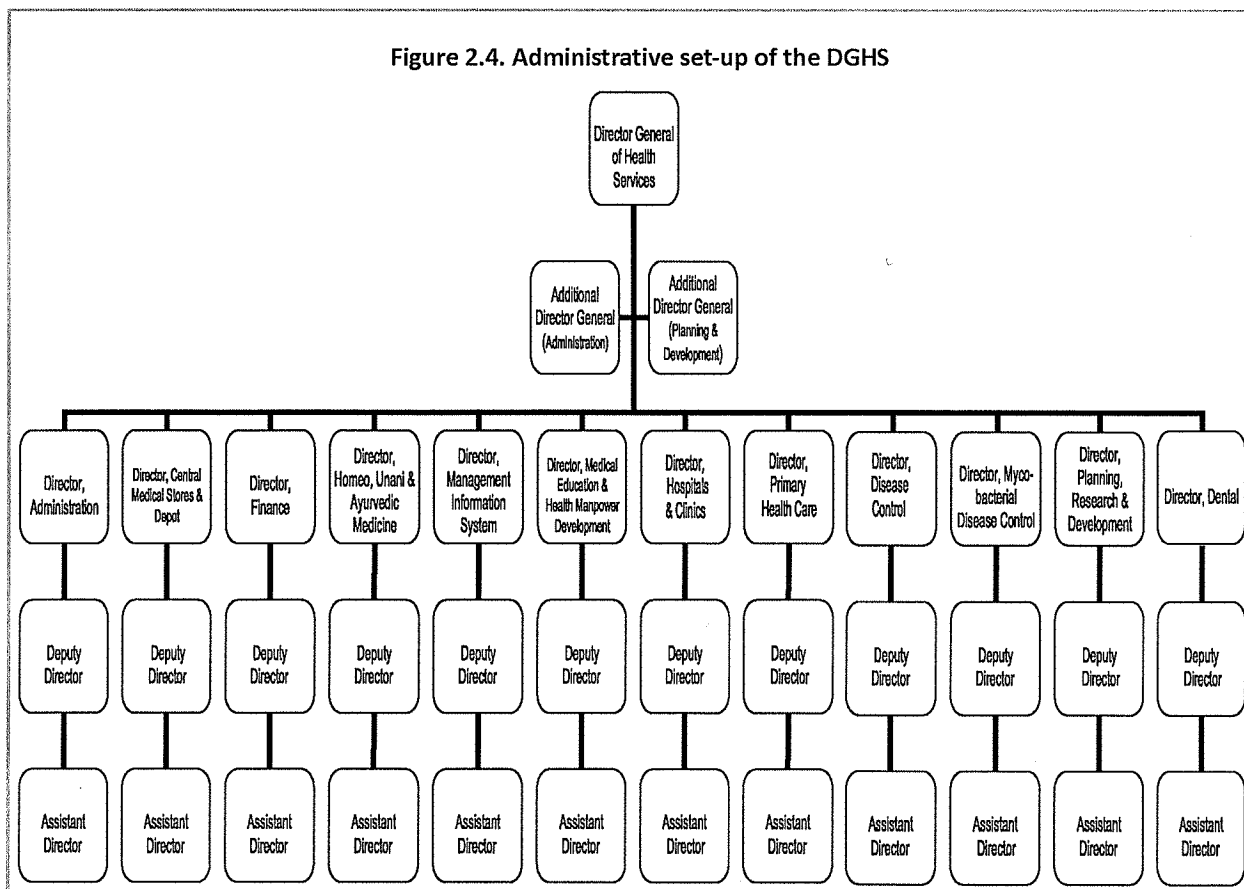


### Directorate General of Health Services (DGHS)

The Directorate General of Health Services (DGHS) is the largest executing authority under the Ministry of Health and Family Welfare. Having over one hundred thousand officers and staff members, it operates the healthcare delivery system for the Ministry all over the country extending as low as up to the village level. The DGHS also provides technical guidance to the Ministry. The activities of the DGHS are implemented both through the regular revenue set-ups as well as under the development programs. The MOHFW undertakes sector-wide multi-year approach in designing the development programs. The sector-wide multi-year development program is popularly known as Health, Nutrition and Population Program (HNPP) which was begun in 2003 and due to be completed in June 2011. The Ministry is finalizing a new sector

program called Health, Population and Nutrition Sector Development Program 2011-2016 (HPNSDP 2011-2016).

Figure 2.4. Administrative set-up of the DGHS



### Health, Nutrition and Population Sector Program (HNPS 2003-2011)

Under HNPS (2003-2011), there are 38 Operational Plans (OPs), of which the DGHS implements 19 OPs. The remaining 19 OPs are being implemented by the MOHFW itself (5 OPs), Directorate General of Family Planning (9 OPs), Directorate General of Drug Administration (1 OP), Health Engineering Department (HEP) (1 OP), Directorate of Nursing Services (1 OP), National Nutrition Program (1 OP), and National Institute of Population, Research & Training (NIPORT) (1 OP). The chief executive officer responsible for implementation of each OP is called Line Director. Line Directors are brought on deputation or given additional responsibility beyond his or her regular tasks. Under each Line Director, there are few to several Program Managers and Deputy Program Managers depending upon the number of programs under specific OPs. Like the Line Directors, the Program Managers and Deputy Program Managers are also brought on deputation or given additional responsibility. The list of the Operational Plans (FY2003-2011) under the DGHS is presented at the next page:



### List of Operational Plans (OPs) of HNPS 2003-2011 under the DGHS

- |   |  |
|---|--|
| 1. Alternative Medical Care (AMC)               | 11. Mycobacterial Disease (Tuberculosis and Leprosy) Control                   |
| 2. Communicable Disease Control (CDC)           | 12. National AIDS/STD Program (NASP) and Safe Blood Transfusion Program (SBTP) |
| 3. Essential Service Delivery (ESD)             | 13. National Eye Care (NEC)  |
| 4. Health Education and Promotion (HEP)         | 14. Non-communicable Diseases and Other Public Health Interventions (NCD OPHI) |
| 5. Human Resource Management (HRM)              | 15. Pre-service Education (PSE)  |
| 6. Improved Financial Management (IFM)          | 16. Procurement, Logistics & Supplies Management (CMSD)                        |
| 7. Improved Hospital Services Management (IHSM) | 17. Quality Assurance (QA)   |
| 8. In-service Training (IST)                    | 18. Research & Development (Health)  |
| 9. Management Information System (MIS)          | 19. Sector-wide Program Management (SWPM)                                      |
| 10. Micronutrient Supplementation (MS)          |  |

### Health, Population and Nutrition Sector Development Program (HPNSDP 2011-2016)

Under HPNSDP 2011-2016, the number of Operational Plans (OPs) will be 32, of which 17 will be under the DGHS, 7 will be under the DGFP, 3 will be under other agencies, and 5 will be directly under the MOHFW. The name and distribution of the OPs are presented below:

#### DGHS

- |  |   |
|--|---|
| 1. Maternal, Neonatal, Child and Adolescent Healthcare     | 10. Alternative Medical Care                              |
| 2. Essential Services Delivery                             | 11. In-service Training                                   |
| 3. Community-based Healthcare                              | 12. Pre-service Education                                 |
| 4. TB and Leprosy Control                                  | 13. Planning, Monitoring and Research (DGHS)              |
| 5. National AIDS and STD Program                           | 14. Health Information Systems and e-Health               |
| 6. Communicable Diseases Control                           | 15. Health Education and Promotion                        |
| 7. Non-communicable Diseases Control                       | 16. Procurement, Logistics and Supplies Management (CMSD) |
| 8. National Eye Care                                       | 17. National Nutrition Services (NNS)                     |
| 9. Hospital Services Management and Safe Blood Transfusion |   |

### **DGFP**

1. Maternal, Child, Reproductive and Adolescent Health
2. Clinical Contraception Services Delivery
3. Family Planning Field Services Delivery
4. Planning, Monitoring and Evaluation of Family Planning
5. Management Information Systems
6. Information, Education and Communication
7. Procurement, Storage and Supplies Management –FP

### **Other Agencies**

1. Training, Research and Development (NIPORT)
2. Nursing Education and Services
3. Strengthening of Drug Administration and Management

### **MOHFW**

1. Physical Facilities Development
2. Human Resources Management
3. Sector-wide Program Management and Monitoring & Evaluation
4. Improved Financial Management
5. Health Economics, Financing and GNSP

### **Management structure and type of health facilities beyond the DGHS**

The distribution of health infrastructure under the DGHS can be divided into different tiers, viz. national, divisional, district, upazila (sub-district), union, ward and village levels. At the national level, there are institutions, both for public health functions as well as for postgraduate medical teaching/training and specialized treatment for patients.

In each division, there is one divisional director for health and under him/her there are deputy directors and assistant directors. In each divisional headquarter, there is one infectious disease hospital and one or more medical college(s). Each medical college has an attached medical college hospital. Some divisional headquarters also possess general hospital and institute of health technologies.

The district health manager is called Civil Surgeon (CS). In each district, there is a district hospital. Some district hospitals have superintendent to look after the hospital management. In others, civil surgeons look after the district hospitals. Some of the district headquarters have medical college and attached medical college hospital. There are also medical assistant training school and nursing training institute in some district.

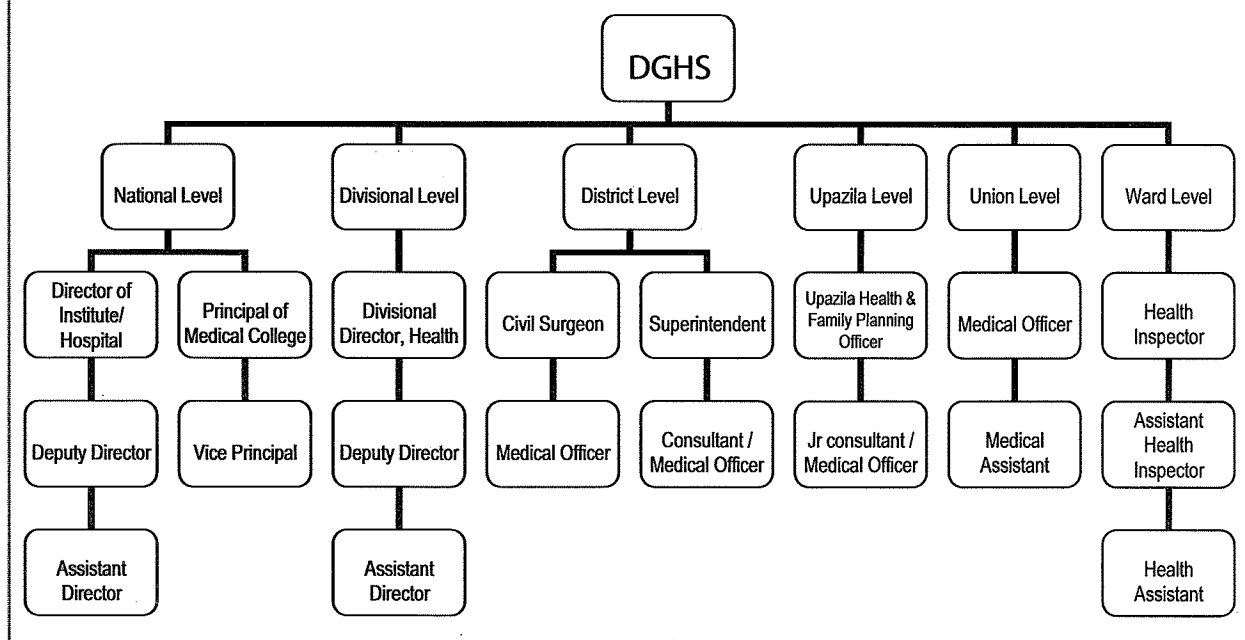
In the upazila level, the upazila health and family planning officer (UHFPO) is the health manager. S/he manages all public health programs in the upazila and also looks after the upazila hospital (31- to 50-bed).



In the union level, one or other of the three kinds of health facilities may exist, viz. rural health center, union sub-center or union health & family welfare center (UHFWC). In a union health facility, there is a post of medical doctor. All union facilities have medical assistants to provide health service to the people.

At the ward level, community clinics (CC)—one for every 6,000 population—are being established. So far, 10,723 independent community clinics have been established as of May 2011. Of these, 10,323 have been made functional. The existing union and upazila facilities (~4,500) also provide community clinic services. Therefore, over 14,000 community clinics are already in operation. The Government estimates that 18,000 community clinics will be required to cover the entire rural population. The remaining community clinics will be constructed and added in the next 2 to 3 years. At the ward or village levels, there are domiciliary workers, one for every 5 to 6 thousand population. There are 26,436 sanctioned posts of domiciliary workers under the DGHS, of whom 20,841 are for health assistants (HA), 4,196 for assistant health inspectors (AHI) and 1,399 for health inspectors (HI). The Directorate General of Family Planning (DGFP) also has domiciliary family planning staff to work at the village levels. Currently, the domiciliary staff members both from the DGHS and the DGFP share the responsibility of running the independent community clinics. However, the Ministry finished work for recruitment of 13,500 full-time community healthcare providers (CHCP) to run the community clinics.

**Figure 2.5. Managerial hierarchies from national to the lowest level under the DGHS**



**Table 2. Type of health facilities under the DGHS in different administrative tiers**

National	Divisional	District	Upazila	Union	Ward
<ul style="list-style-type: none"> <li>Public Health Institute</li> <li>Postgraduate Medical Institute &amp; Hospital with Nursing Institute</li> <li>Specialized Health Center</li> </ul>	<ul style="list-style-type: none"> <li>Medical College &amp; Hospital with Nursing Institute</li> <li>General Hospital with nursing institute</li> <li>Infectious Disease Hospital</li> <li>Institute of Health Technology</li> </ul>	<ul style="list-style-type: none"> <li>District Hospital with nursing institute</li> <li>General Hospital with Nursing Institute (in some)</li> <li>Medical College &amp; Hospital with Nursing Institute (in some)</li> <li>Chest Clinic (in some)</li> <li>Leprosy Hospital (in some)</li> <li>Medical Assistants' Training School</li> </ul>	<ul style="list-style-type: none"> <li>Upazila Health Complex</li> <li>TB Clinic (in some)</li> </ul>	<ul style="list-style-type: none"> <li>Rural Health Center (in some)</li> <li>Union sub-center (in some)</li> <li>Union Health &amp; Family Welfare Center (in some)</li> </ul>	<ul style="list-style-type: none"> <li>Community Clinic (in some)</li> </ul>

### Managerial structure and health facilities under the Directorate General of Family Planning

The primary intention of Health Bulletin 2011 is to capture the health information pertaining to Directorate General of Health Services. However, to give the readers an impression of the family planning services under the public sector, a brief mention about the Directorate General of Family Planning (DGFP) is pertinent. The DGFP also has more or less similar type of managerial structure from the national down to ward levels, viz. director general, directors, deputy directors, and assistant directors at the head office, divisional director, deputy director, and assistant director at the division, district family planning officer (DFPO) at the district and upazila family planning officer (UFPO) at the upazila level. The DGFP has limited number of medical doctors, viz. one medical officer for maternal and child health (MO, MCH) in each upazila, one sub-assistant medical officer (SACMO-a medical assistant by background) in union health facility. For performing family planning procedures, the DGFP also has FWV (family welfare visitor) in the upazila and union facilities. The domiciliary staff members of the DGFP, who work at the ward level, are called family planning inspector (FPI), assistant family planning inspector (AFPI), and family welfare assistant (FWA). The DGFP also operate union health & family welfare center. There are 3,719 HFWCs at the union level. Besides, the DGFP operates 97 MCWCs (maternal and child welfare centers: 24 at the union level, 12 at the upazila level and 61 at the district level), 471 MCH-FP clinics (407 at the upazila level and 64 at the district level), and 8 model clinics (2 at the national level and 6 at the regional level). The DGFP organizes 30,000 makeshift satellite clinics each month. It also supports operation of 179 NGO clinics (27 at the union level, 86 at the upazila level, 44 at the district level, and 22 at the national level).

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Source of information: DGHS and DGFP (2011)



## *The Millennium Development Goals: Where Does Bangladesh Stand?*

The deadline for achieving the Millennium Development Goals (MDGs) is 2015—only 4 years ahead. Assessment is ongoing throughout the world to find the answer whether or not the countries made sufficient progress. Although much progress has been made, much more has yet to be made. The same is true also for Bangladesh. A report has been published by the Secretariat of the World Health Organization for the 64th World Health Assembly held in May 2011 (WHA document A64/11). The report summarizes the current global status of the health-related MDGs.

### **MDG 4: Child survival**

Child mortality continues to decline worldwide. The total number of deaths of children below five years of age fell from 12.4 million in 1990 to 8.1 million in 2009. Mortality in children below five years of age (under-five mortality) has fallen from 89 per 1000 livebirths in 1990 to 60 per 1000 livebirths in 2009, representing a reduction of about one-third, and the rate of decline has accelerated over the period 2000-2009 compared to the 1990s. Despite these figures, much more needs to be done to achieve Target 4.A—a two-thirds reduction in mortality from 1990 levels by the year 2015. Pneumonia and diarrheal diseases are the two biggest killers of children below five years of age, with pneumonia accounting for 18% of all deaths and diarrheal diseases for 15%. These rates include deaths that occur during the neonatal period. Deaths in that period increasingly make up an important proportion of deaths among children below five years of age, accounting for about 40% of all deaths. By 2009, measles immunization coverage was 82% globally, up from 73% in 1990, among children aged 12-23 months,. However, the coverage of crucial child health interventions against fatal diseases remains inadequate. These interventions include oral rehydration therapy and zinc for diarrhea and case management with antibiotics for pneumonia. Most child deaths due to pneumonia could be avoided if effective interventions were implemented on a broad scale to reach the most vulnerable populations.

### **MDG 5: Maternal health**

Estimates suggest that the number of women dying as a result of complications during pregnancy and childbirth has decreased by 34%: from 546,000 in 1990 to 358,000 in 2008, according to the new estimates of the United Nations in 2010. The progress is notable but the annual rate of decline of 2.3% is less than half of the 5.5% needed to achieve Target 5.A—reducing the maternal mortality ratio by three-quarters between 1990 and 2015. Almost all (99%) maternal deaths in 2008 occurred in developing countries. There have been improvements in the coverage of interventions to reduce maternal mortality, including family-planning services and access of all pregnant women to skilled care during pregnancy, childbirth

and the postpartum period. The latest estimates show that 63% of women in developing countries aged 15 to 49 years, who were married or in a union, were using some form of contraception. Although 78% of pregnant women received antenatal care at least once during the period 2000-2010, only 53% received the WHO-recommended minimum of four antenatal visits. The proportion of deliveries attended by skilled health personnel rose from 58% in 1990 to 68% in 2008.

### **MDG 6: Combat HIV/AIDS, malaria, and tuberculosis**

In 2009, estimated 33.3 million people were living with HIV; 2.6 million had new infections; and 1.8 million died of HIV/AIDS-related complications. The number of people living with HIV worldwide continued to grow and was 23% higher in 2009 than in 1999. However, the overall growth of the global epidemic appears to have stabilized, with the annual number of new HIV infections steadily declining. In 2009, the estimated number of new HIV infections was nearly 20% lower than in 1999. The increasing number of HIV-positive people reflects, in part, the life-prolonging effects of antiretroviral therapy, which, as in December 2009, was available to more than five million people in low- and middle-income countries. Despite this progress globally, treatment-coverage rates remain low: in 2009, only 36% of people needing treatment in low- and middle-income countries received it. In 2009, estimated 1.4 million HIV-infected women gave birth, and approximately 370,000 of their newborn children were infected during the perinatal and breastfeeding period, with most of such cases occurring in sub-Saharan Africa.

A growing number of countries have recorded decreases in the number of confirmed cases of malaria and/or reported admissions and deaths since 2000. Global control efforts have resulted in a reduction in the estimated number of deaths from almost 1 million in 2000 to 781,000 in 2009. The estimated number of cases of malaria rose from 233 million in 2000 to 244 million in 2005 but decreased to 225 million in 2009. In total, 11 countries and one area in the African region showed a reduction of more than 50% in either confirmed malaria cases or malaria-related admissions and deaths between 2000 and 2009. In other WHO regions, the number of reported cases of confirmed malaria decreased by more than 50% in 32 countries.

Globally, the annual number of new cases of tuberculosis continues to increase slightly as slow reductions in the incidence rates per capita are offset by increases in population. In 2009, cases were estimated to be in between 12 million and 16 million, with new cases estimated at 9.4 million. Estimated 1.3 million HIV-negative people died of tuberculosis in 2009. Mortality due to this disease has fallen by more than a third since 1990. In 2009, 5.8 million cases were reported by national tuberculosis programs. In 2008, the treatment success rate reached 86% worldwide, and 87% in countries with a high burden of disease. This indicates that the target of 85% (first requested by the World Health Assembly in 1991) has been exceeded. However, multidrug-resistant tuberculosis continues to pose threats.



### **Neglected tropical diseases**

The neglected diseases include leprosy, lymphatic filariasis, dracunculiasis, and dengue, which affect more than 1,000 million people, primarily poor populations living in tropical and subtropical climates. According to data received from 121 countries, the global prevalence of leprosy at the beginning of 2009 stood at 213,036, and the number of new cases detected during 2008 was 249,007. In 2009, lymphatic filariasis was endemic in 81 countries, 53 of which were implementing mass treatment programs; the number of people treated increased from 10 million in 2000 to 546 million in 2007. Since 1989, the number of new cases of dracunculiasis fell from 892,055 in 12 disease-endemic countries to 3,190 in four countries in 2009, a decrease of more than 99%. Outbreaks of dengue, however, are increasing and spreading in wider geographic regions; currently, dengue cases are reported in five of the six WHO regions.

### **Safe drinking-water**

The proportion of the world's population with access to improved drinking-water sources increased from 77% to 87% globally between 1990 and 2008. One component of Target 7.C of Millennium Development Goal 7 is to halve the proportion of population without sustainable access to safe drinking-water. Given the current rate, it is likely that this will be met. Nevertheless, in 2008, some 884 million people still relied on unimproved water sources, 84% of whom were living in rural areas. The other component of Target 7.C is to halve the proportion of population without sustainable access to basic sanitation facilities. Current rates of progress towards the sanitation target are insufficient. In 2008, 2600 million people were not using improved sanitation facilities, of whom over 1100 million had no access to toilets or sanitation facilities of any kind. If current trends continue, this component of Target 7.C will not be met.

### **Essential medicines**

Developing countries continue to face low availability and high costs of essential medicines. Surveys mainly in more than 40 low- and middle-income countries indicate that selected generic medicines were available in only 42% of health facilities in the public sector and 64% in the private sector. Lack of medicines in the public sector forces patients to purchase medicines privately. In the private sector, generic medicines cost, on average, 630% more than their international reference price, while recommended brands are generally even more expensive.

### **Pneumonia**

Following the adoption of resolution WHA63.24 on prevention and treatment of pneumonia, several countries have introduced integrated community case management as one of the recognized strategies for increasing access to quality care. Countries such as Ethiopia and Malawi have demonstrated that such strategies can contribute to the reduction in mortality of children below five years of age. UNICEF/WHO joint statements for managing children with diarrhea and pneumonia have been used by a number of countries as a basis for initiating policy dialogue on increasing access to care. Such care can be provided by trained and supervised

community health workers. Out of 68 countries being monitored by the Countdown to 2015 initiative, 29 have changed policy to allow community-based management of pneumonia. Nepal and Senegal have expanded community programs with positive results. In order to support and facilitate the implementation of coordinated, expanded interventions for the control of pneumonia and diarrhea among children below five years of age living in developing countries, WHO is planning four regional workshops (three in the African region and one in the South-East Asian region) for 2011-2012 in collaboration with health ministries, UNICEF, and other partners. These regions carry the highest burden of mortality due to pneumonia and diarrhea and comprise numerous countries that are not on track to achieving Millennium Development Goal 4 (Reduce child mortality). An unprecedented number of countries in the African region, the regions of the Americas and the Eastern Mediterranean countries are set to introduce pneumococcal conjugate vaccines during the coming year with support from the GAVI Alliance. Clinical trials in developing countries, along with experience in industrialized countries that have used the vaccine, indicate that these vaccines, together with Hib vaccine already in use in these countries, will have a significant impact on morbidity and mortality caused by pneumonia. In 2010, Gambia and Rwanda, where the hepta-valent pneumococcal vaccine is in use, will switch to the newly-available 13-valent vaccine that protects against 13 pneumococcal serotypes, including those prevalent in developing countries. In early 2011, Kenya will introduce a decavalent vaccine, while Guyana, Honduras, and Nicaragua will introduce the 13-valent vaccine. Rwanda has already introduced the pneumococcal conjugate vaccines to expand other pneumonia-control strategies, and Kenya has plans to do the same. Likewise, other countries that are introducing the vaccines will be supported to do this. In 2011, Cameroon, Central African Republic, Congo, the Democratic Republic of the Congo, Mali, Sierra Leone, and Yemen are preparing for the introduction of 13-valent pneumococcal vaccine while Benin, Burundi, Ethiopia, Madagascar, Malawi, and Pakistan are scheduled to introduce the vaccine in 2012.

### **High-level Plenary Meeting of the General Assembly on the Millennium Development Goals and Its Follow-up**

The outcome document adopted by the United Nations General Assembly sets out a series of actions, which, if sufficiently expanded and fitted into country-specific situations, would lead to the achievement of the Millennium Development Goals. The High-level Plenary Meeting on the Millennium Development Goals also identified important commitments from the international community, including those represented in the outcome document, and advocated bold new initiatives, such as the United Nations Secretary-General's Global Strategy for Women's and Children's Health. That strategy, developed with the support and facilitation of the Partnership for Maternal, Newborn and Child Health (of which WHO is a member), was initially discussed at technical briefings during the Sixty-third World Health Assembly in May 2010.

The outcome document is based on a decade of effort and progress as well as on a series of World Health Assembly and United Nations General Assembly's resolutions and reports endorsing prioritized actions that reflect consensus for a number of health-related Millennium

## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

Development Goals and underlying health system issues. Findings of the Commission on Macroeconomics and Health and the Commission on Social Determinants of Health guide the health efforts of WHO and its member countries that reinforce links with health, poverty reduction, gender and human rights and that tackle health inequities. According to its Constitution, WHO's objective is "the attainment by all peoples of the highest possible level of health." The achievement of this involves a series of technical interventions. In contrast, the implementation of health programs relies on interconnections with other sectors and the resolution of issues familiar to foreign policy and national decision-makers: economic and social development, humanitarian action, resource allocation, trade, technology transfer, intellectual property, aid effectiveness, mutual accountability, quality of governance, national sovereignty and concepts of human security. These actions help ensure that health remains high on the political agenda. The 2009 and 2010 declarations of the Group of Eight nations confirmed support for the Millennium Development Goals and adherence to past commitments.

Specific actions undertaken by WHO directly related to the Goals are further identified in other documents submitted to the Health Assembly, including those on health system strengthening, the future of financing for WHO, the global health-sector strategy for HIV/AIDS during 2011-2015, malaria, global immunization vision and strategy, infant and young child nutrition and its comprehensive implementation plan, the eradication of dracunculiasis, and the management of safe drinking-water.

WHO is engaged extensively with other bodies in the United Nations system and the Secretary-General's Office in the preparations for the High-level Plenary Meeting on the Millennium Development Goals and actively participated in more than 20 side-events (a third of all that Meeting's side-events were devoted to health), including several that set the stage for preparations for the high-level meeting of the General Assembly on the prevention and control of non-communicable diseases (scheduled to take place in September 2011). Statements made in the General Assembly indicated that health issues remained high on national agenda.

### **Follow-up to the Secretary-General's Global Strategy for Women's and Children's Health**

Before the High-level Plenary Meeting of the United Nations General Assembly on the Millennium Development Goals, WHO, UNICEF, UNFPA, UNAIDS, and the World Bank (known as the H4+ group), at the request of the Office of the UN Secretary-General, facilitated consultations on the draft global strategy for women's and children's health in 25 lowest-income countries with a heavy burden of mortality. The aim was to identify national commitments to the prioritized action on the agenda of women's and children's health, within the context of existing country-level processes and mechanisms for United Nations coordination. The H4+ group led discussions with governments and national stakeholders. The commitments identified were highlighted at that meeting and annexed to the Global Strategy. Following the High-level Plenary Meeting on the Millennium Development Goals, country-



## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

specific commitments for the 25 countries with a high burden of diseases were compiled and analyzed to identify the required actions, activities, and support for their realization. The results are being used in guiding WHO and other organizations in the United Nations system to determine their priorities for providing technical and other support to the member countries. The analytical framework will also serve to ensure accountability.

In the remaining 24 lowest-income countries, work has been initiated to identify specific commitments required for critical areas where additional attention and resources could yield significant results. An approach similar to that for the identification of commitments prior to the High-level Plenary Meeting is being used.

### **Coherence and national health plans, policies, and strategies**

Achieving the MDGs requires coherent global and national health policies. The Secretariat has provided further support to countries in improving the coordination of their national health strategies, policies, and plans in order that the health system delivers an integrated package of services to combat all diseases and brings together the work of all stakeholders. Such an approach needs high-level political leadership and sustained support from development partners.

In anticipation of the Fourth High-level Forum on Aid Effectiveness (scheduled to be held in Busan, Republic of Korea, during 26 November-1 December 2011), WHO will continue to support implementation of the Paris Declaration on Aid Effectiveness (2005) and the Accra Agenda for Action (2008). WHO's continued support for the international commitments to health systems strengthening will promote the elaboration and use of national health strategies, policies and plans as a means of increasing alignment with national priorities, and greater consistency in advice on domestic financing policies. Similarly, WHO is working with the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the GAVI Alliance, to develop a common base for funding, in line with the recommendations of the High-level Taskforce on Innovative International Financing for Health Systems.

Work towards increased alignment and coherence at the country level needs the collaboration of a broad range of stakeholders as emphasized repeatedly in the outcome document. Accordingly, WHO is increasing its efforts in this respect, for instance, through its work with the International Health Partnership Plus (IHP+) group and through its renewed commitment to primary healthcare.

### **Stronger health systems**

Achieving the health-related MDGs will depend heavily on the degree to which health programs can be integrated and underlying health systems strengthened (notably in terms of health personnel, financing, and the organization of service delivery). The Sixty-third World Health Assembly adopted the WHO Global Code of Practice on the International Recruitment of Health

## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

Personnel, which now must be implemented. Health-financing strategies are summarized in the World Health Report 2010.

Ensuring stronger national responses will require WHO country offices to have greater capacity and be more effective, particularly in their roles of convener, facilitator, and provider of support to the efforts of national authorities to place health higher up on the national agenda, strengthen coordination among multiple stakeholders, improve measurable national plans, and thereby increase policy coherence, coordination, and collaboration.

WHO is working with various partners to find ways of increasing multi-sectoral action for health, including the use of indicators to monitor the impact of different strategies. The World Conference on Social Determinants of Health (scheduled to be held in Rio de Janeiro, Brazil, on 19-21 October 2011) will provide a forum for identifying such strategies.

### **Securing required resources**

Concerns remain with regard to raising the resources necessary for achieving the health-related MDGs, meeting shortfalls in funding, and reinforcing the underlying health systems. Recent data on trends in per-capita official development assistance for health in 46 countries of the African region indicate that funding has increased significantly for Goal 6 (Combat HIV/AIDS, malaria and other diseases) but has remained unchanged for the other goals. Moreover, one-third of people living in absolute poverty reside in nations that receive up to 40% less aid per capita than other low-income countries.

The High-level Plenary Meeting on the Millennium Development Goals has prompted several commitments towards reaching the health-related goals. More than US\$ 40,000 million has been pledged over a five-year period to support implementation of the Global Strategy on Women's and Children's Health. The High-level Plenary Meeting has also influenced the Global Fund to Fight AIDS, Tuberculosis and Malaria, through its Third Voluntary Replenishment at the Second Meeting (New York, 4-5 October 2010), at which donors pledged US\$ 11,700 million for 2011-2013, the largest sum to date. The GAVI Alliance held a similar meeting. Initiatives such as UNITAID (which raises some US\$ 300 million annually) and the International Finance Facility for Immunization also contribute significantly to funding the health-related goals.

### **Better accountability, information, and intelligence**

Given the importance of ensuring accountability for commitments made at the High-level Plenary Meeting on the Millennium Development Goals, the United Nations Secretary-General has asked the Director-General to lead the development of an accountability framework to track commitments and results for the Global Strategy on Women's and Children's Health. WHO is establishing a time-limited Commission on Information and Accountability for Women's and Children's Health composed of leaders and experts from member countries, the multilateral system, academia, civil society, and the private sector, with information to be presented on

## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

progress at the Sixty-fourth World Health Assembly. The Commission will identify the principles of an effective global architecture for information and accountability for health. In addition, for use by all countries, it will consider a framework that includes core indicators of health resources and expected results. The aim is not to create an entirely new reporting infrastructure and system but to harmonize and align existing arrangements. The Commission will also identify opportunities for using innovative health information technologies in this context.

Health-information systems that function well are needed for monitoring progress towards the health-related MDGs as well as progress towards the other national objectives and equity goals. Reviews of system performance are also needed so as to inform national and international decision-making processes. Health-information systems need data from multiple sources, such as surveys, health facilities, and administrative bodies. Some progress has been made in advancing health-information systems in many countries through civil registration systems as well as the recording of births, deaths, and causes of deaths but wide gaps remain, most notably in monitoring. WHO is working with partners and the Health Metrics Network to support country efforts to enhance the availability and quality of data on the Millennium Development Goals and on other indicators.

WHO will continue to report on the most recent estimates for health-related statistics in its annual publication and world health statistics which include an assessment of progress towards the health-related goals. The report provides comparative estimates for the main health indicators. However, the quality of global estimates depends on the availability and quality of country data which are still inadequate for many indicators.

Electronic information systems and e-health applications have the potential to provide wider access to better-quality care through appropriate use of electronic health records and mobile devices. Those technologies are also changing the model of health information, promoting local ownership and allowing access to data-records at all levels of health systems. WHO will have a pivotal role in ensuring application of appropriate standards and progressive national policies to optimize the use of these technologies.

### **Health-related MDGs in Bangladesh**

Table 3.1 summarizes the target, benchmark, and the latest information on the achievement of health-related MDGs in Bangladesh.



## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

**Table 3.1. The health related MDGs targets and indicators**

Global goal, target, and indicator			Bangladesh target, benchmark, and current situation		
Goal	Target	Indicator	Target (Year)	Benchmark (Year)	Achievement (Reference)
Goal 1: Eradicate extreme poverty and hunger	Reduce by half the proportion of people who suffer from hunger	Prevalence of underweight children <5 years of age	-	-	41.0 (BDHS 2007) 41.0 (UNICEF 2011)
		Population below minimum level of dietary energy consumption (%)	-	-	-
Goal 4: Reduce child mortality	Reduce by two-thirds the mortality rate among under-five children	Death rate among under-five children /1,000 livebirths	48.0 (2015)	144.0 (1990)	67.0 (MICS 2009) 50.0 (SVRS 2009) 65.0 (BDHS 2007)
		Infant mortality rate/1,000 livebirths	31.3 (2015)	94.0 (1990)	45.0 (MICS 2009) 39.0 (SVRS 2009) 52.0 (BDHS 2007)
		1-year old children immunized against measles (%)	-	52 (1991)	84.8 (BECES 2010) 83.1 (BDHS 2007)
Goal 5: Improve maternal health	Reduce by three-quarters the maternal mortality ratio	Maternal mortality ratio/100,000 livebirths	143.5 (2015)	574.0 (1990)	194.0 (BMMS 2010)
		Births attended by skilled health personnel (%)	50.0 (2010)	7.0 (1990)	26.5 (BMMS 2010)
	Ensure, by 2015, universal access to reproductive healthcare	Contraceptive prevalence rate (%)	-	39.9 (1991)	55.8 (BDHS 2007) 56.1 (SVRS 2009)
		Birth rate among adolescent mothers	-	-	33.0 (BDHS 2007)
		Antenatal care coverage (at least one visit) (%)	-	48.7 (2004)	52.0 (BDHS 2007)
		Antenatal care coverage (at least four visits) (%)	-	-	20.4 (BDHS 2007)
		Unmet need for family planning (%)	-	-	17.1 (BDHS 2007)
Goal 6: Combat HIV/AIDS, malaria, and other diseases	Halt and begin to reverse the spread of HIV/AIDS	HIV prevalence among population aged 15-24 years (%)	Halt (2015)	-	0.7% (HSS 2007) among most-at-risk population
	Ensure, by 2010, universal access to treatment for HIV/AIDS for all those who need	Population with advanced HIV infection with access to ARV drugs (%)	100.0 (2015)	-	49.0% (NASP 2010)
	Halt and begin to reverse the incidence of malaria and other major diseases	Malaria incidence rate in endemic districts/1,000 population	< 3.0 (2015)	-	5.13 (CDC, DGHS 2011)
		Malarial death rate/1,000	-	0.0053 (2003)	0.0034 (CDC, DGHS 2010)
		Under-five children sleeping under insecticide-treated bednets (%)	90% (2015)	-	89% (CDC, DGHS 2011)
		Under-five children with fever treated with appropriate anti-malarial drugs (%)	-	-	12.16 (CDC, DGHS 2011)
		TB incidence rate/100,000 population (new and old patients)	-	-	225.0 (WHO 2010)
		TB prevalence rate/100,000 population	-	-	426.0 (WHO 2010)
		TB death rate/100,000 population	-	-	51.0 (WHO 2010)
		TB case notification rate (%)	75.0 (2010) >70.0 (MDG)	38.4 (2003)	70.5 (NTP 2010)
		TB cure rate (%) with DOTS	93.0 (2010) >85.0 (MDG)	83.7 (2003)	92.0 (NTP 2010)
		Treatment success rate	-	-	92% (NTP 2010)
Goal 7: Ensure environmental sustainability	Reduce by half the percentage of people without sustainable access to safe drinking-water; % basic sanitation	Population using improved drinking-water source (%)	100.0 (2015)	97.6 (2006)	97.8 (MICS 2009) 98.1 (SVRS 2009) 97.0 (BDHS 2007)
		Population using improved sanitation facility (%)	100.0 (2015)	39.2 (2006)	80.4 (MICS 2009)

Note: BDHS 2007 (Bangladesh Demographic and Health Survey 2007); MICS 2009 (Multiple Indicators Cluster Survey 2009 done by Bangladesh Bureau of Statistics; SVRS 2009 (Sample Vital Registration Survey 2009 done by Bangladesh Bureau of Statistics; BECES 2010 (Bangladesh EPI Coverage Evaluation Survey 2010); BMMS 2010 (Bangladesh Maternal Mortality Survey 2010); HSS 2007 (HIV Sero-surveillance 2007); NASP 2010 (National AIDS Surveillance Program 2010); CDC 2011 (Communicable Disease Control 2011); DGHS 2010 (Directorate General of Health Service 2010); NTP 2010 (National Tuberculosis Control Program 2010)

## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

The readers should consider that due to difference in time, place, method, and sampling, there can be variation in the survey results, which we mentioned as reference. To help understand the methodology used in the three major surveys referenced here, a brief description of each is given below:

### **Bangladesh Demographic and Health Survey 2007 (BDHS 2007)**

BDHS is undertaken under supervision of the National Institute of Population Research and Training (NIPORT). BDHS 2007 used Enumeration Areas (EAs) followed in 2001 census. EAs from the census were used as the Primary Sampling Units (PSUs) for the survey because they could be easily located with correct geographical boundaries, and sketch-maps were available for each one. An EA, which consists of about 100 households, on average, is equivalent to a *mauza* in rural areas and to a *mohallah* in urban areas. The survey was based on a two-stage stratified sample of households. The 361 PSUs selected in the first stage of sampling included 227 rural PSUs and 134 urban PSUs. A household-listing operation was carried out in all selected PSUs from January to March 2007. The resulting lists of households were used as the sampling frame for the selection of households in the second stage of sampling. On average, 30 households were selected from each PSU, using an equal probability systematic sampling technique. In this way, 10,819 households were selected for the sample. However, some of the PSUs were large and contained more than 300 households. Large PSUs were segmented, and only one segment was selected for the survey, with probability proportional to segment-size. Households in the selected segments were then listed prior to their selection. Thus, a 2007 BDHS sample cluster was either an EA or a segment of an EA. The survey was designed to obtain 11,485 completed interviews with ever-married women aged 15-49 years. According to the sample design, 4,360 interviews were allocated to urban areas and 7,125 to rural areas. All ever-married women aged 15-49 years in selected households were eligible respondents for the women's questionnaire. In addition, ever-married men aged 15-54 years in every second household were eligible for interviews.

### **Multiple Indicators Cluster Survey 2009 (MICS 2009)**

MICS is done by the Bangladesh Bureau of Statistics (BBS). The sample for MICS 2009 was designed to provide estimates of a few indicators on the situation of children and women for urban and rural areas, at the national, district and upazila levels. Upazilas were identified as the main sampling domains, and the sample was selected in two stages. Within each upazila, at least 26 census Enumeration Areas (EAs) were selected with probability proportional to size. A segment with 20 households was randomly drawn in each selected EA. The sample was stratified by upazila and is not self-weighting. For reporting national and district level results, sample-weights were used. Data-collection was done from 28 April to 31 May 2009. Number of households selected was 300,000, of which 299,842 were successfully interviewed for a household response rate of 99.9 percent. In the interviewed households, 336,286 women (aged 15-49 years) were identified. Of them, 333,195 were successfully interviewed, yielding a response rate of 99.1 percent. In addition, 140,860 under-five children were listed in the

## Chapter 3: The Millennium Development Goals: Where Does Bangladesh Stand?

household questionnaire. Sets of questionnaire were completed for 139,580 children, corresponding to a response rate of 99.1 percent. An overall response rate of 99.0 percent was obtained for both women and under-five children.

### **Sample Vital Registration Survey 2009 (SVRS 2009)**

The SVRS is done by Bangladesh Bureau of Statistics (BBS). The decennial Population and Housing Censuses produce benchmark data on the population, its composition, and spatial distribution. However, census covers only basic information every ten years. The detailed changes of vital events during the inter-census period are not known from census data. To have a picture of the changes of vital events during inter-census period, BBS conducts a surveillance system called 'Sample Vital Registration System' (SVRS) since 1980 to provide data on key life-cycle or vital events. It covers 1,000 Primary Sampling Units (PSUs) each comprising about 250 compact households. The data are collected by the local registrars, and the quality of the data are checked by 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.



# Primary Health Care

## Community clinics

During 1996-2001, the Government of Bangladesh planned to extend Primary Health Care services at the door-step of the rural people all over Bangladesh. To materialize this dream, the Government decided to establish 18,000 community clinics (CCs). Following the decision, it was planned to construct 13,500 community clinics (one for about 6,000 rural population). The remaining 4,500 community clinics were planned to operate from within the existing health facilities at upazila and union level. During 1998-2001 period, 10,723 community clinics were constructed, of which 8,000 started functioning. However, due to change of Government in 2001, the community clinics were closed. The condition prevailed until 2008.

With the overwhelming mandate in the National Election held in December 2008, the current Government took initiatives for revitalization of the community clinics as the topmost priority project in health sector shortly after taking the oath on 6 January 2009. A project titled "Revitalization of Community Health Care Initiatives in Bangladesh" was approved by the Executive Committee of the National Economic Council (ECNEC) on 17 September 2009 for the period commencing from 1 July 2009 and to the end of 30 June 2014.

The major activities of the project included:

- Making functional 10,624 existing community clinics
- Constructing 2,876 new community clinics (which included 99 previously constructed but non-functional community clinics)
- Starting operation of community clinic units at 4,500 upazila and union health facilities
- Recruiting 13,500 Community Health Care Providers (CHCPs), one for each community clinic.

**Table 4.1. Number of posts that have been sanctioned for the project**

Name of the Post	No. of posts
Project Director	1
Additional Project Director	2
Deputy Project Director	6
Communication Officer	1
Programmer	1
Accounts Officer	1
Training Officer	1
Data Entry Operator	8
PA-cum-Computer Operator	3
Accountant, Cashier	2
Store Keeper, Driver, MLSS	18
Community Health Care Provider	13,500
<b>Total</b>	<b>13,544</b>

## Chapter 4: Primary Health Care

The project office is now fully functional with all the manpower and necessary logistics. Recruitment of 13,500 community health care providers (CHCPs) has been completed. The community clinic is a unique example of community participation as the clinics are constructed on land donated by local people. At present, the domiciliary health staff, namely the health assistants and family welfare assistants under the Ministry of Health and Family Welfare, are providing health services alternatively, each for 3 days a week at the community clinics. The responsibility will be taken by the CHCPs soon. The CHCPs are preferably females of the same locality to make seeking care for females and children comfortable to the community members.

A package of health services, as listed below, has been set to be delivered from the community clinic. The package includes the following:

1. Maternal and neonatal healthcare (MNH) services
2. Integrated Management of Childhood Illness (IMCI)
3. Reproductive health and family planning services (RH/FP)
4. Expanded Program on Immunization
5. Nutrition education and micronutrient supplements
6. Distribution of family-planning commodities
7. Health education and counseling
8. Identification of other severe illnesses, like tuberculosis, malaria, pneumonia, emergency obstetric care (EmOC), life-threatening influenza, anthrax, etc.
9. Treatment for minor ailments and first-aid
10. Referral to union-level health facilities (health and family welfare centers, union sub-centers, rural health centers, etc.), upazila health complexes (UHCs), and district hospitals.

The community clinics are managed by a body of local people, called community group (CG). This is a 9 to 13-member management body, represented by different sectors of population from within the catchment areas of respective clinics. Four of the community group members are female. Community group plays a vital role in the management of a community clinic through mobilizing community involvement, participation and ownership, ensuring the sustainability of the community clinic activities. The common responsibilities include day-to-day maintenance, cleanliness, security, local fund-generation and transparent use thereof, monitoring, evaluation, and local planning for smooth functioning of the community clinic. Besides the community group, there exist three other support groups in the catchment area of each community clinic. Each support group comprises 10 to 15 members and works under the leadership of community group members. Basically, the support groups work for raising awareness of the community people about the health services available, service providers and service timing, referral and means to promote own and familial health, healthful practices, and behavior. The local government representatives are also involved with the community clinic.

## Chapter 4: Primary Health Care

Local union parishad member is the chairperson of the community group. The union parishad members are the community group members in their respective wards by dint of position. Union parishad chairmen are the advisers of the community clinics of respective unions.

The community clinics will use information technology to store, process, and transmit health-related data of the catchment areas. The CHCPs are IT literate. Each community clinic will be provided with a mini-laptop computer with Internet connection. It is planned that the community clinics will be developed as local health-related data-bank. Data related to community clinic itself; community group; support group; general information; health, nutrition, and family planning; etc. will be collected, stored, processed, interpreted, and acted upon in the community clinic. The data will be used both locally and nationally for monitoring, evaluation, and planning at the local and national level. The mini-laptops will also be used for introducing telemedicine service in the community clinics.

**Table 4.2. Progress of community clinics project as of April 2011**

Description	No.
Community clinics planned to be established	18,000
Independent community clinics planned to be built	13,500
Community clinic units planned to be operated in existing upazila and union health facilities	4,500
Community clinics built during 1998-2001 period	10,723
Community clinics made non-functional during 2001-2008 period	99
Community clinics planned to be built in the current project period (2009-2014)	2,876 (2,777 new + 99 non-functional)
Community clinics made functional (July 2009–April 2011)	10,323
Community clinics repaired by Health Engineering Department	10,638
FY 2008–2010	7,565
FY 2010–2011	3,073
Community clinics newly constructed by Health Engineering Department	
FY 2009-2010	100
FY-2010-2011 (In process)	1,205
FY-2011-2012 (planned)	1,571

All the necessary medicines are being provided in adequate amount to the community clinics; initially, the package consisted of 25 items of drugs. However, depending on the need and reality, the package has been revised and extended to have 28 items.



## Chapter 4: Primary Health Care

**Table 4.3. Status of medicine supply to community clinics**

Financial year	No. of items	Total amount in Taka	Cost per community clinic per year (Taka)	Remarks
2009-2010	25	43 crore	72,000	In addition, medicines worth Tk. 15 crore were supplied from Director of Primary Health Care of the DGHS
2010-2011	28	91 crore	88,000	Ongoing

Community clinics are gradually made functional in phases since 2009. At present, 10,323 community clinics are functioning. The number of clients is increasing day by day.

**Table 4.4. Status of service-use from the community clinics**

Period	No. of clients	No. of clients referred	Average number of clients per community clinic per day
Apr 2009-Dec 2009	11,141,356	172,312	12
Jan 2010-Dec 2010	27,846,053	568,503	19
<b>Total</b>	<b>38,987,409</b>	<b>740,815</b>	-

Community clinic is an unprecedented instance of community participation and public-private partnership. Being inspired by this community participation, some UN agencies and NGOs have started working with the Community Clinics Project. Many other organizations are also coming forward to work as the days are passing.

**Table 4.5. Profile of GO-NGO collaboration for community clinics**

Organization	Memorandum of Understanding	Type of support
WHO	Agreed and supports provided and are ongoing	Rapid Assessment; Deployment of one full-time consultant; Development of CHCP training manual; Printing of all CHCP training-related manuals; Funds for Training of Trainers (TOT) of CHCP training
PLAN International	Signed	Strengthening 200 CCs of 6 upazilas and capacity-building of 1,000 Core Groups (CGs) in 5 districts
Micronutrient Initiative	Signed	Piloting in 3 upazilas to address neonatal health through vitamin A syrup 50,000 IU within 48 hours of birth
Eminence	Signed	Capacity development of CCs and Support Groups in 11 districts
ICDDR,B	In process	Operational research on improvement of CC services and healthcare-seeking behavior of the community

## Chapter 4: Primary Health Care

**Table 4.5. Profile of GO-NGO collaboration for community clinics (Continued...)**

Organization	Memorandum of Understanding	Type of support
UNIDO	In process	Piloting on solar panels and income generation in 5 CCs
EATL	In process	Piloting for the establishment of an IT network from CCs to HQ
CARE	On progress	Capacity development of CGs and Support Groups
VSO	On progress	Capacity development of CGs and Support Groups
JICA	On progress	Capacity development of CGs and Support Groups

Community clinic is the flagship program of the present government. Undoubtedly, it is a pro-people health initiative. If quality health services can be ensured near door-steps even at the remotest corner of the country, people will spontaneously seek necessary service from the well-trained care providers of the health facilities instead of the untrained traditional healers. It is expected that community clinics will ensure provision of quality healthcare for the mass population of rural Bangladesh, particularly the poor, vulnerable and the underprivileged and will contribute to the achievement of the MDGs within 2015.

### **Upward referral linkage of primary healthcare: upazila hospitals and union facilities**

The community clinics have upward referral linkages at the union and upazila level. Table 4.6 summarizes the health facilities available at the upazila level and below. There are 433 government hospitals at the upazila level, which altogether provide 16,104 hospital beds. Some of the unions also have hospitals, with beds ranging from 10 to 20. There are 30 union-level hospitals with total bed-capacity of 470. At the union level, there are 1,275 union sub-centers and 87 union health and family welfare centers. This latter group of health facilities provides only outdoor services. The Directorate General of Family Planning (DGFP) also has 3,719 union health and family welfare centers (not mentioned in Table 4.6). Further below the union level, there are 10,323 functional independent community clinics at the ward level. There is, on average, one community clinic for every 6,000 population.

**Table 4.6. Primary healthcare centers run by the DGHS at the upazila level and below (2010)**

Upazila level		Union level		Ward level	
Type of facility	No.	Type of facility	No.	Type of facility	No.
Upazila health complex (50-bed)	159	10-bed hospital	13	Community clinics (OPD only)	10,323
Upazila health complex (31-bed)	244	20-bed hospital	17		
Upazila health complex (20-bed)	2				
Upazila health complex (10-bed)	13				
<b>Total upazila health complexes</b>	<b>418</b>	<b>Total hospitals</b>	<b>30</b>		
31-bed hospital	10	Union sub-center (OPD only)	1,275		
30-bed hospital	1				
Trauma center (20-bed)	4	Union health and family welfare center (OPD only)	87		
<b>Total</b>	<b>433</b>	<b>Total</b>	<b>1,362</b>	<b>Total</b>	<b>10323</b>
<b>Total beds</b>	<b>16,104</b>	<b>Total beds</b>	<b>470</b>	<b>Total beds</b>	<b>0</b>

## Chapter 4: Primary Health Care

### **Domiciliary service**

At the ward or village level, there are domiciliary workers, one for every 5 to 6 thousand population. There are 26,436 sanctioned posts of domiciliary workers under the DGHS, of which 20,841 are for health assistants (HA), 4,196 for assistant health inspectors (AHI), and 1,399 for health inspectors (HI).

### **Urban health**

The urban primary healthcare in Bangladesh is virtually provided by the Ministry of Local Government, Rural Development and Cooperatives (MOLGRD) through the city corporations and municipalities. These local bodies run a number of small to medium-sized hospitals and outdoor facilities. Besides, two large-scale primary healthcare projects, viz. Urban Primary Health Care Project (UPHCP) and Smiling Sun Franchise Program are run by the NGOs in collaboration with the city corporations and with the financial assistance from donors. The clients in these latter projects also share a part of the cost through service-charge. The Ministry of Health and Family Welfare contributes to urban primary healthcare through the outpatient services distributed through its secondary, tertiary and specialized hospitals located in the urban settings. Besides, there are 35 urban dispensaries and 23 school health clinics in some of the bigger cities and municipalities. Under Health, Nutrition and Population Sector Program (HNPS 2003-2011), there is a component for urban health to compliment the urban primary healthcare services provided by the MOLGRD. The Urban Health Program of MOHFW will be further improved in Health, Population and Nutrition Sector Development Program 2011-2016.

### **Emergency Obstetric Care (EOC) Program**

To improve the maternal health situation targeting to achieve the Millennium Development Goal 5, the Government of Bangladesh, in collaboration with UNICEF, is conducting facility-based Emergency Obstetric Care (EOC) Program in all the districts of Bangladesh. All the government medical college hospitals, district hospitals, upazila hospitals, and maternal and child welfare centers take part in providing EOC. A number of private clinics or hospitals and health-related NGOs also participate in the program. The service is provided in two forms, viz. Comprehensive Emergency Obstetric Care (CEmOC) and Basic Emergency Obstetric Care (BEOC). Currently, all medical college hospitals, 59 district hospitals, 3 general hospitals, 132 upazila health complexes, and 63 MCWCs provide CEmOC, and rest of the upazila health complexes provide BEOC. NGOs and private care providers from a number of districts also provide similar services. Under a program jointly operated by the Management Information Systems (MIS) of the DGHS and UNICEF, data are collected from the EOC facilities. For this publication, data from 690 health facilities, including 14 medical college hospitals, 62 district hospitals, 416 upazila health complexes, 63 maternal and child welfare centers (MCWCs), NGOs, private hospitals from 64 districts, and 7 other types of hospitals have been used for analysis. These data were then translated into a format called United Nations Process Indicators. Table 4.7 summarizes the sources of EOC data we received for 2010.



## Chapter 4: Primary Health Care

**Table 4.7. Number of hospitals and non-state care providers which sent emergency obstetric care data to MIS-Health in 2010**

Type of hospital	No.	Percentage
Medical college hospitals	14	2.03
District and general hospitals	62	8.99
Upazila health complexes	416	60.29
Districts from where NGO care providers sent data	64	9.28
Districts from where private care providers sent data	64	9.28
MCWC	63	9.13
Others	7	1.00
<b>Total</b>	<b>690</b>	<b>100.00</b>

Data show that there were 558,712 reported deliveries in the country's EOC facilities in 2010, and there were 546,233 livebirths. The number of newborn deaths in these EOC facilities was 2,280 and that of maternal deaths was 1,700. Table 4.8 also shows the division-wise distribution.

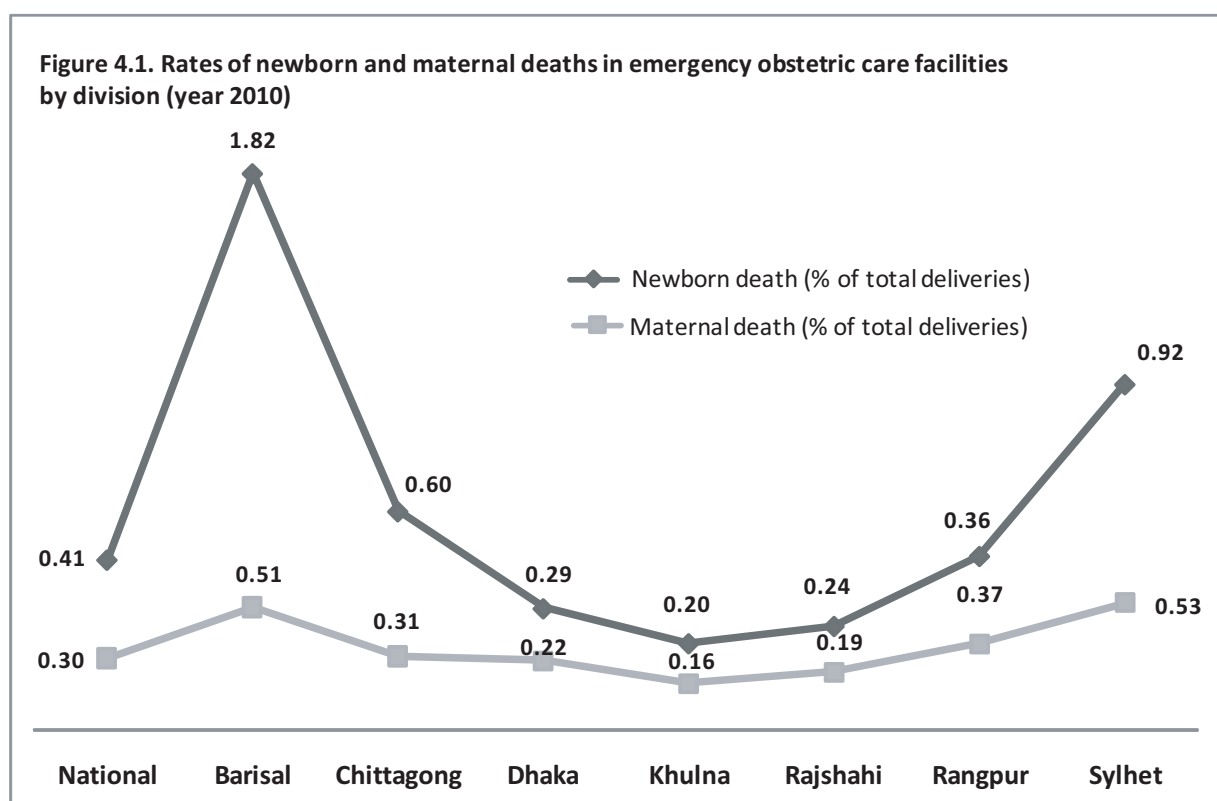
**Table 4.8. No. of total deliveries, livebirths, newborn deaths, and maternal deaths in the emergency obstetric care facilities of Bangladesh by division (2010)**

UN Process Indicator	National	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Total no. of deliveries (N)	558712	27803	82880	184234	73605	86415	70397	33378
Livebirth (N)	546233	26980	80277	180823	72571	85128	69001	31453
Newborn death (N)	2280	505	501	399	147	165	257	306
Maternal death (N)	1700	143	257	537	119	212	255	177

Figure 4.1 shows the rates of newborn and maternal deaths as percentage of total livebirths and number of total deliveries respectively in 2010. These death rates are obtained only from the EOC facilities and should not be seen as reflections of the whole community. Nationally, the newborn death rate as percentage of total livebirths was 0.4%, which was 1.8% and 0.9% in the Barisal and Sylhet divisions respectively but varied between 0.2% and 0.6% in other five divisions (Khulna, Dhaka, Rajshahi, Rangpur, and Chittagong) of Bangladesh. The maternal death rate at facilities as percentage of total number of deliveries was 0.3% nationally. The rate was 0.5% in each of Barisal and Sylhet divisions. The rate varied between 0.2% and 0.4% in other five divisions (Khulna, Dhaka, Rajshahi, Rangpur, and Chittagong).

Table 4.9 shows the detailed figures of the process indicators summarized for each division. The reported institutional delivery rates varied between 13.9% and 21.7%, with average for the whole country being 18.4%. The met need for emergency obstetric care varied between 36.1% and 69.1% (average: 53.7%). Cesarean section rate was between 5.0% and 10.1% (average 7.6%). The case-fatality rate was between 0.4% and 1.4% (average 0.7%).

## Chapter 4: Primary Health Care



**Table 4.9. Summary of data received from the emergency obstetric care facilities in 2010 and translated into process indicators by division**

Head	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Bangladesh
Visit for ANC service (N)	63750	251178	561926	230181	165960	178045	65380	1516420
Admitted patients (N)	41135	105625	253992	102445	120809	94639	48328	766973
Complications treated (N)	15610	35470	98873	28612	28628	18228	18409	243830
Normal delivery (N)	13445	51275	86301	41465	61510	45541	20689	320226
Forceps/Vacuum/ Destructive operation (N)	34	938	949	336	376	753	621	4007
Vaginal breech/Face presentation delivery (N)	72	927	1009	342	361	643	456	3810
Caesarean section (N)	14252	29740	95975	31462	24168	23460	11612	230669
Total deliveries (N)	27803	82880	184234	73605	86415	70397	33378	558712
Livebirth (N)	26980	80277	180823	72571	85128	69001	31453	546233
Stillbirth (N)	1071	3505	4887	1641	2159	2393	2206	17862
Other surgeries (N)	862	4887	10193	2319	3740	1987	3044	27032
Referred in (N)	1128	7349	5523	2076	1515	1606	1060	20257
Referred out (N)	2482	5045	10262	3602	5879	5662	3395	36327
Visit for PNC service (N)	18848	88611	255917	65387	70881	66582	30920	597146
Maternal death (N)	143	257	537	119	212	255	177	1700
Neonatal death (N)	505	501	399	147	165	257	306	2280
Proportion (%) of all births in EmOC facilities	13.9	14.1	19.3	20.6	21.7	20.9	17.3	18.4
Met need (%) for EmOC	52.2	40.1	69.1	53.4	47.9	36.1	63.5	53.7
Cesarean section rate as % of all births	7.15	5.0	10.1	8.8	6.1	7.0	6.0	7.6
Case-fatality rate (CFR) (%)	0.9	0.7	0.5	0.4	0.7	1.4	1.0	0.7

## Chapter 4: Primary Health Care

Table 4.10 shows the distribution of EOC services provided by the medical college hospitals, district hospitals, upazila health complexes, NGO facilities, and the private clinics/hospitals. Out of the 558,712 reported deliveries, 80,615 took place in medical college hospitals, 78,555 in district hospitals, 145,071 in upazila hospitals, 44,013 in maternal and child welfare centers, 35,814 in NGO facilities, and 171,943 in private clinics/hospitals. It stands at 348,254 (62.3%) deliveries in major public facilities (upazilla health complexes, district hospitals and medical college hospitals, and maternal and child welfare centers) and 210,458 (37.7%) deliveries in NGO/private clinics and hospitals, and in other facilities. Of the number of total deliveries at the major public facilities, 23.1% took place in medical college hospitals, 22.6% in district hospitals, and the largest proportion (41.7%) took place in upazila health complexes. In maternal and child health centers, 12.6% of deliveries took place. Of the total number of deliveries in NGO/private clinics/hospitals and other facilities, 17.0% were done at NGO facilities and 81.7% at private clinics/hospitals, and 1.3% at other facilities. Table 4.10 also reveals that there were 230,669 cesarean sections in 2010, of which public hospitals performed 99,264 (43.0%), and NGO and private clinics/hospitals and other facilities performed 131,405 (57.0%). Of the total number of cesarean sections at public facilities (n=99,264), 41.0% were done in medical college hospitals (n=40,727), 28.8% in district hospitals (n=28,602), 20.1% in upazila health complexes (n=19,999), and 10.0% in maternal and child welfare centers (n=9,936). Of the total cesarean sections done by NGO and private facilities (n=131,405), 9.3% were done at NGO facilities (n=12,256), 90.5% were done by private clinics/hospitals (n=118,938), and 0.2% at other facilities (n=211).

**Table 4.10. Summary of data received from the emergency obstetric care facilities in 2010 and translated into UN Process Indicators**

Process Indicator		Medical college hospital	District hospital	Upazila health complex	Maternal and child welfare center	NGO	Private clinic/hospital	Other	Total
Visit for ANC service (N)	No.	121029	145994	492604	256954	191795	303722	4322	1516420
	%	7.98	9.63	32.48	16.94	12.65	20.03	0.29	100
Admitted patients (N)	No.	122983	142161	214852	50253	40531	192114	4079	766973
	%	16.03	18.54	28.01	6.55	5.28	25.05	0.53	100
Complications (N)	No.	51875	56812	56530	6696	4814	66314	789	243830
	%	21.28	23.30	23.18	2.75	1.97	27.20	0.32	100
Normal delivery (N)	No.	38047	49025	123005	33388	23028	51250	2483	320226
	%	11.88	15.31	38.41	10.43	7.19	16.00	0.78	100
Forceps/Vacuum/Destructive operation (N)	No.	973	252	1441	251	269	821	0	4007
	%	24.28	6.29	35.96	6.26	6.71	20.49	0.00	100
Vaginal breech/Face delivery (N)	No.	868	676	626	438	261	934	7	3810
	%	22.78	17.74	16.43	11.50	6.85	24.51	0.18	100
Cesarean section (N)	No.	40727	28602	19999	9936	12256	118938	211	230669
	%	17.66	12.40	8.67	4.31	5.31	51.56	0.09	100
Total deliveries (N)	No.	80615	78555	145071	44013	35814	171943	2701	558712
	%	14.43	14.06	25.97	7.88	6.41	30.77	0.48	100
Livebirth (N)	No.	76812	75388	141197	43758	35282	171150	2646	546233
	%	14.06	13.80	25.85	8.01	6.46	31.33	0.48	100
Stillbirth (N)	No.	5048	4526	4680	583	865	2060	100	17862
	%	28.26	25.34	26.20	3.26	4.84	11.53	0.56	100



**Table 4.10. Summary of data received from the emergency obstetric care facilities in 2010 and translated into UN Process Indicators (Continued...)**

Process Indicator		Medical college hospital	District hospital	Upazila health complex	Maternal and child welfare center	NGO	Private clinic/hospital	Others	Total
Surgery other than cesarean section	No.	8137	8857	6070	618	386	2719	245	27032
	%	30.10	32.76	22.45	2.29	1.43	10.06	0.91	100
Referred in (N)	No.	4350	6389	2265	1423	1141	4689	0	20257
	%	21.47	31.54	11.18	7.02	5.63	23.15	0.00	100
Referred out (N)	No.	250	4821	23891	2106	1866	2875	518	36327
	%	0.69	13.27	65.77	5.80	5.14	7.91	1.43	100
PNC service (N)	No.	62169	79581	197173	63497	39288	153003	2435	597146
	%	10.41	13.33	33.02	10.63	6.58	25.62	0.41	100
Maternal death (N)	No.	1059	389	164	7	26	55	0	1700
	%	62.29	22.88	9.65	0.41	1.53	3.24	0.00	100
Neonatal death (N)	No.	1338	281	259	15	132	252	3	2280
	%	58.68	12.32	11.36	0.66	5.79	11.05	0.13	100

### **Demand-side financing (DSF) through maternal health voucher scheme**

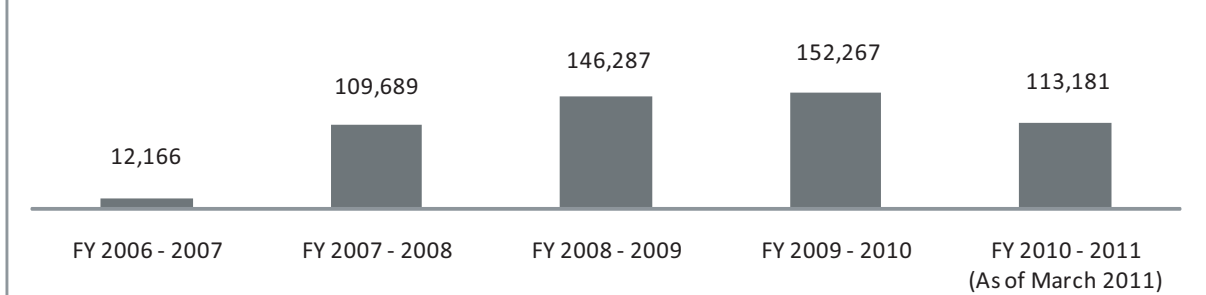
In line with the reform agenda of the Health Sector Programs (SWAp) of the Ministry of Health and Family Welfare (MOHFW), WHO and MOHFW agreed in 2004 to pilot the innovative Maternal Health Voucher Scheme, a demand-side financing initiative, to improve access to and use of quality maternal health services. The scheme was formally inaugurated in 2007. Currently, the program is being implemented in 502 unions of 46 upazilas of 38 districts. Under the program, eligibility for getting vouchers is a defined poverty criterion, validated by the local government representative. Half of the target population qualifies as poor. The total numbers of annual beneficiaries in 46 upazilas are 182,000 pregnant women.

A voucher entitles its holder for specific free health services, such as ante- and postnatal care, safe delivery, treatment of complications, including cesarean section, transportation cost, and laboratory tests. Private and NGO care providers, once, certified under the scheme, are reimbursed for vouchers. If delivery is attended by skilled staff, voucher-holders get unconditional cash benefits for nutritious food and gift-box.

Performance data at the output level continue to increase. Safe delivery rate is now at impressive 89% amongst the voucher recipients who constitute approximately 50% of the pregnant women in the target upazilas. Participation of non-public healthcare providers (NGO and private facilities) is also increasing. An Economic Evaluation Report was released in January 2011. It says that the scheme is very successful with an "unprecedented positive impact in increasing utilization of maternal services from designated public and private providers in a short period of time". In addition to increased rate of safe delivery at 89%, institutional delivery rate also increased to 40%. Use-rate of antenatal care service continued to improve. However, referral rates remained unchanged. The cesarean section rate contained at 9% against national rate of 8%. Strikingly, the maternal mortality rate among the voucher-holder women is 12 per

100,000 livebirths, in sharp contrast with the national rate of 194 per 100,000 livebirths. WHO is providing technical assistance in field supervision through deployment of DSF organizers in 33 upazilas and in operating a national DSF cell located in the Directorate General of Health Services.

**Figure 4.2. Number of beneficiary pregnant mothers who received maternal health vouchers in different years (Total = 533590) under Demand-side Financing Programme**



### Maternal and Neonatal Health (MNH) Program

To accelerate progress towards achievement of MDG 4 and 5, with the assistance of UNFPA, UNICEF, and WHO and funded by EC and DFID, the Director of Primary Health Care of the Directorate General of Health Services is implementing a Maternal and Newborn Health program in four districts of Bangladesh. The districts are: Thakurgaon, Jamalpur, Narail, and Maulvibazar. All the upazilas under these four districts are included in the program. The program focuses on saving maternal and newborn lives through creating need-based demand and priority-based actions. The broad principle of this program is Local Level Planning (LLP) and decentralization. The offices of the civil surgeons and the deputy directors of family planning serve as the two principal locations for the project. The three UN agencies help ensure inclusion of the three 'added values', viz. participation of civil society organizations, direct disbursement of funds to agreed cost centers, and reaching the difficult-to-reach populations. National-level authorities deal with major procurement, training, and partnership arrangements with NGOs and national communication campaigns. The project plans to allocate a fixed ceiling of fund to each district, based on needs, and defined by its poverty level, population and number of upazilas. After successful review the interventions has been expanded to another seven districts. The project has a number of "novel and innovative" approaches, based on global best practices having the following elements: (i) a district-focused approach with direct resource allocation to identified cost centers and the application of WHO's problem-solving techniques to develop, monitor, and implement the plans; (ii) continuum of care that links the mothers and newborns and addresses the three delays model; (iii) rights-based equitable approach in planning, monitoring, implementation and supervision through involvement of consumer groups and public-health watch groups to ensure accountability to women, families, and communities; (iv) piloting initiatives, such as contracting private practitioners to provide specialized services in an attempt to improve human resources for MNH at the district and upazila levels; (v) pilot-testing of demand-side financing schemes (vouchers and other means)

targeting the vulnerable and marginalized households to address equity; and (vi) pilot-testing of ARH community-based and clinic-based 'youth-friendly' services and Voluntary Confidential Counseling and Testing (VCCT) centres in selected districts with high risks of HIV and STIs.

### **Improving Maternal, Neonatal and Child Survival (IMNCS) Project**

To accelerate the achievement of MDG 4 and 5, GOB, UNICEF, and BRAC are jointly implementing an intervention named "Improving Maternal, Neonatal and Child Survival: A Partnership Approach to Achieve the Millennium Development Goals (MDGs)". The intervention is being funded by DFID, AusAID, and the Embassy of the Kingdom of the Netherlands (EKN) for five years from 2008 to 2012. The intervention is implementing under the leadership of Director, Primary Health Care and Line Director Hospital through Reproductive Health Services of Director General of Health Services. Currently this intervention covers ten rural districts - Nilphamari, Rangpur, Gaibandha, Mymensingh, Lalmonirhat, Kurigram, Rajbari, Faridpur, Magura, and Madaripur.

### **Training of manpower for improving maternal health**

One of the major barriers to improving the maternal health is the shortage of skilled manpower in the remote areas to extend obstetric care. To tackle the problem, the Ministry of Health and Family Welfare undertook a short-term measure to produce trained manpower to fulfill the gap in the interim period. Young medical doctors were given 6 months' training on obstetrics and anesthesiology. The number of doctors receiving training in the former discipline was 160 and, in the latter discipline, this was 155. The Directorate General of Health Services is also implementing Community-based Skilled Birth Attendant (CSBA) training program since 2003 with the goal to train and educate the female welfare assistants/female health assistants and similar health workers working in the NGOs and private sector, with midwifery skills. The CSBAs are trained to conduct the normal safe deliveries at home and to identify the risks and complicated cases so that they can motivate and refer them to the nearby health facilities where comprehensive EOC services are available. The CSBA training course is divided in three major phases. First phase is the basic course for six months in a training center, and second phase is a nine-month work experience as CSBA in own communities under supervision. The third phase is the three-month additional course where trainees get opportunity to rectify their shortcomings. Other initiatives also exist to improve maternal healthcare situation. The CSBA training program is now organized in 342 upazilas of 60 districts. By the end of May 2011, a total of 6,155 CSBAs completed basic training with support from UNFPA. There is a plan to create positions of 13,500 CSBAs by 2015 for posting two CSBAs in each union across the country.

**Table 4.11. Distribution of CSBAs across divisions**

Division	Dhaka	Khulna	Chittagong	Rajshahi	Rangpur	Barisal	Sylhet	Total
No.	1,916	1,109	692	917	633	373	278	6,155
%	31%	18%	15%	15%	10%	6%	5%	100%

### Cervical and breast cancer screening program

In Bangladesh, there are around 13,000 cases, with about 6,600 deaths due to cervical cancer each year. Cervical cancer constitutes 22-29% of cancers among females in Bangladesh. Cervical cancer can be prevented if it is detected and treated in the precancerous condition. Breast cancer screening is a method of detecting breast cancer at an early stage. Early detection of breast cancer significantly reduces the morbidity and mortality related to breast cancer. The Government of Bangladesh (GoB), with support from UNFPA, has taken initiatives to develop a cervical and breast cancer screening program in Bangladesh. Since 2004, the Department of Obstetrics and Gynecology of Bangabandhu Sheikh Mujib Medical University (BSMMU) is helping the Government to implement the screening program on cervical and breast cancer throughout the country. Visual inspection of the cervix after acetic acid (VIA) application is an accepted method of cervical cancer screening at maternal and child welfare centers, district hospitals, medical college hospitals, and Bangabandhu Sheikh Mujib Medical University. VIA is administered by trained family welfare visitors (FWVs), senior staff nurses, and doctors. These trained persons use VIA technique to detect the precancerous conditions or initial stages of cervical cancer among women visiting the mentioned centers in various districts of Bangladesh. Screen-positive women are referred to BSMMU and various government MCHs for colposcopic evaluation and management. In Bangladesh, cervical cancer screening program is in an initial stage of development. Colposcopy became an important part of this screening program in 2008 both for diagnosis and guiding the treatment. Women with precancerous lesions are managed by loop electrosurgical excision procedure (LEEP) at the colposcopy clinic of BSMMU and several medical college hospitals. The sensitivity and specificity of VIA to detect CIN 2-3 lesions were 93.6% and 58.3% respectively in a study performed at BSMMU and other medical college hospitals.

This screening program has been implemented through capacity-building for service providers of medical college hospitals, district hospitals, maternal and child welfare centers and selected upazila hospitals, union health and family welfare centers, and various non-government organizations, including Urban Primary Health Care Project (UPHCP). Doctors, senior staff nurses, family welfare visitors, and paramedics from 214 centers of 64 districts have been trained. They are performing VIA for cervical cancer screening and clinical breast examination (CBE) for breast cancer screening at service centers and referring screen-positive women to medical college hospitals and BSMMU for further evaluation and management. Table 4.12 shows the distribution of health personnel who have been given training on VIA by the project.

**Table 4.12. Distribution of health personnel who have been given training from 2004 to 2010 on VIA (Visual Inspection of Cervix with Acetic Acid)**

Year	Designation	MCH/ DH/UHC	MCWC	UHFWC	UPHCP	Total	Grand total
Pilot program	Doctors	31	17	-	-	48	113
	Nurses/ FWVs	21	32	12	-	65	



## Chapter 4: Primary Health Care

**Table 4.12. Distribution of health personnel who have been given training from 2004 to 2010 on VIA (Visual Inspection of Cervix with Acetic Acid) (Continued...)**

Year	Designation	MCH/ DH/UHC	MCWC	UHFWC	UPHCP	Total	Grand total
2006	Doctors	13	10	-	12	35	100
	Nurses/ FWVs	21	12	20	12	65	
2007	Doctors	20	13	-	7	40	134
	Nurses/ FWVs	47	30	-	17	94	
2008	Doctors	24	14	-	10	48	154
	Nurses/ FWVs	59	27	-	20	106	
2009	Doctors	11	8	-	10	29	153
	Nurses/ FWVs	66	38	-	20	124	
2010	Doctors	8	8	2	10	28	88
	Nurses/ FWVs	18	9	13	20	60	
Total		339	218	47	138	742	742

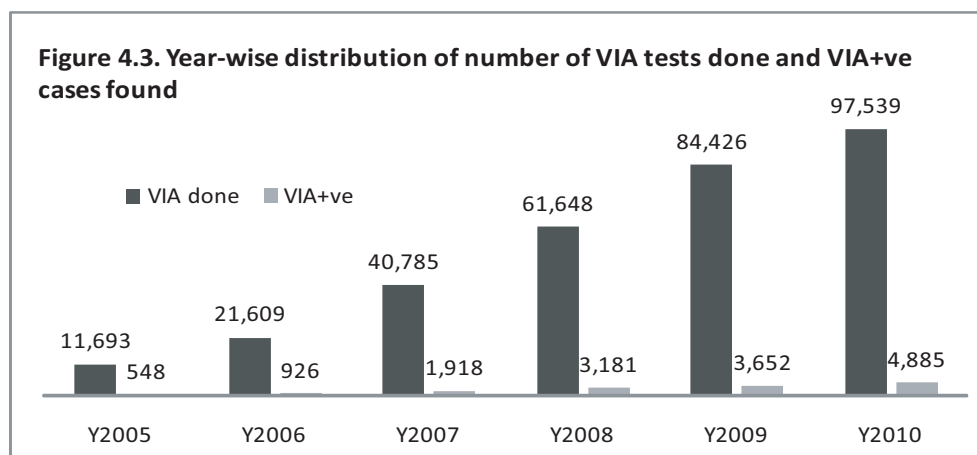
At present, this program is continuing in all the 64 districts and screening-positive women are being referred to the referral hospitals for colposcopic evaluation and management. To serve as the referral hospitals, 79 postgraduate gynecologists from various medical colleges and institutions have been given training on colposcopy. Table 4.13 shows the referral hospitals with number of colposcopies done. In 2010 (January-December), 5,345 women with VIA-positive results attended the colposcopy clinics of BSMMU and various medical college hospitals.

**Table 4.13. Referral hospitals for colposcopy with number and percentage of colposcopies (2006-2010)**

Name of institutions	No. (%)
Bangabandhu Sheikh Mujib Medical University (BSMMU)	1,674 (31.32%)
Rajshahi Medical College Hospital (RjMCH)	850 (15.92%)
Chittagong Medical College Hospital (CMCH)	525 (9.82%)
Mymensingh Medical College Hospital (MMCH)	478 (8.94%)
Sylhet MAG Osmani Medical College Hospital (SMAGOMCH)	431 (8.06%)
Khulna Medical College Hospital (KMCH)	349 (6.52%)
Dhaka Medical College Hospital (DMCH)	285 (5.33%)
Shaheed Suhrawardi Medical College Hospital (SSMCH)	184 (3.44%)
Comilla Medical College Hospital (CoMCH)	170 (3.18%)
Barisal Sher-e-Bangla Medical College Hospital (SBMCH)	139 (2.62%)
Rangpur Medical College Hospital (RpMCH)	135 (2.52%)
Faridpur Medical College Hospital (FMCH)	125 (2.33%)
Total	5,345 (100%)

Figure 4.3 shows that 317,700 VIA tests were performed from January 2005 to December 2010 at various service centers. Among them, 15,109 (4.76%) women were found VIA-positive.

## Chapter 4: Primary Health Care



The condition of the cervixes of the referred VIA+ve cases examined by colposcopy at BSMMU is shown in Figure 4.4.

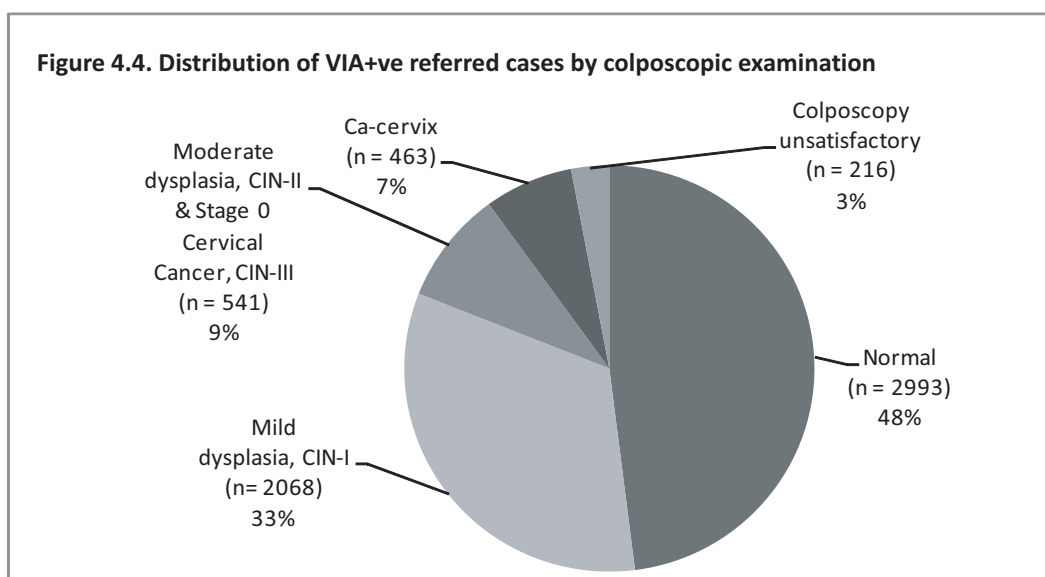


Table 4.14 shows that 240,795 clinical breast examinations (CBE) were performed from January 2007 to December 2010 at different centers. Among them, 6,315 (2.6%) women were CBE-positive. During publication of this report, most of the districts of Bangladesh have at least two centers for cervical and breast cancer screening. It is opined that awareness creation, use of facilities, and further scaling-up will have noticeable impact on improvement of women's health and prevention of cancer.

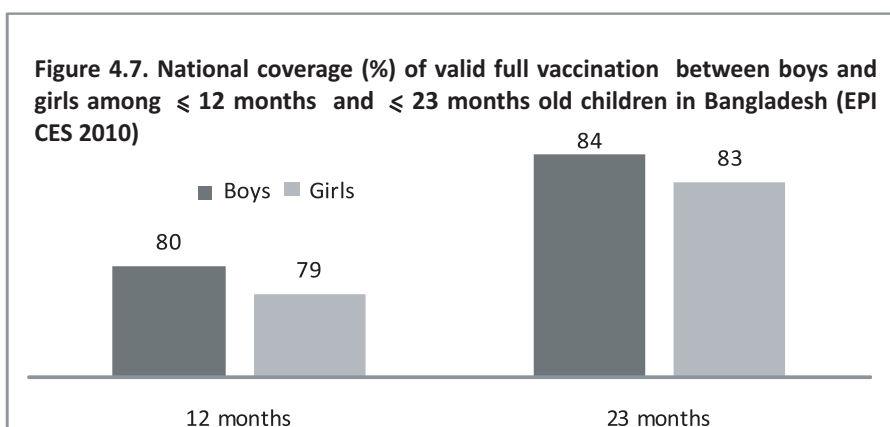
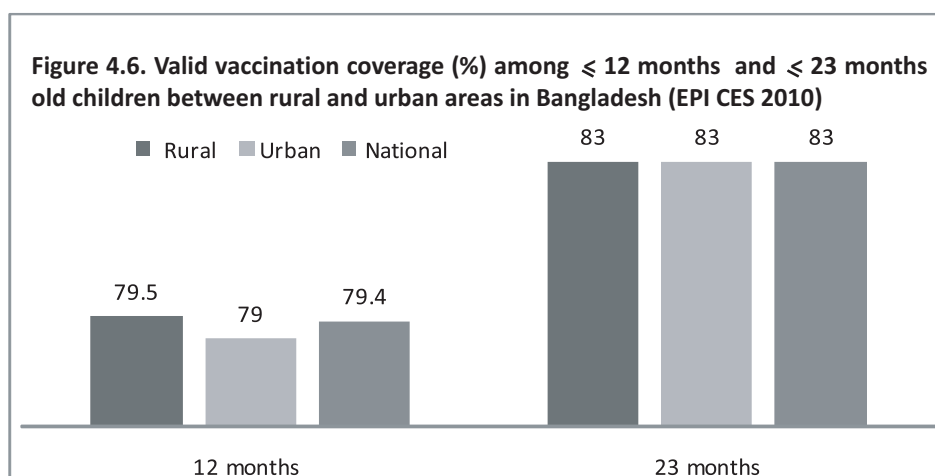
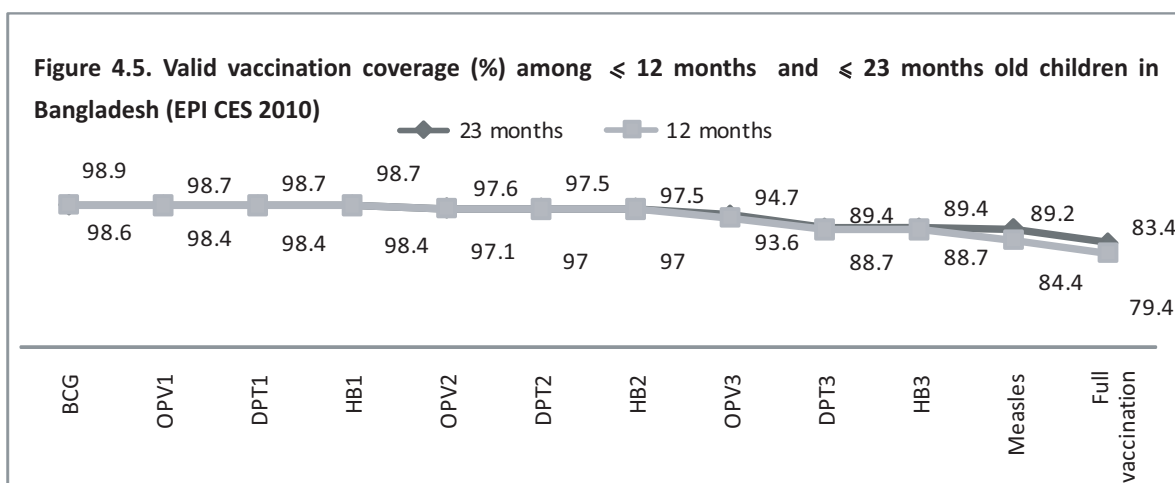
**Table 4.14. Year-wise performance of clinical breast examination (CBE) in Bangladesh (January 2007 to December 2010)**

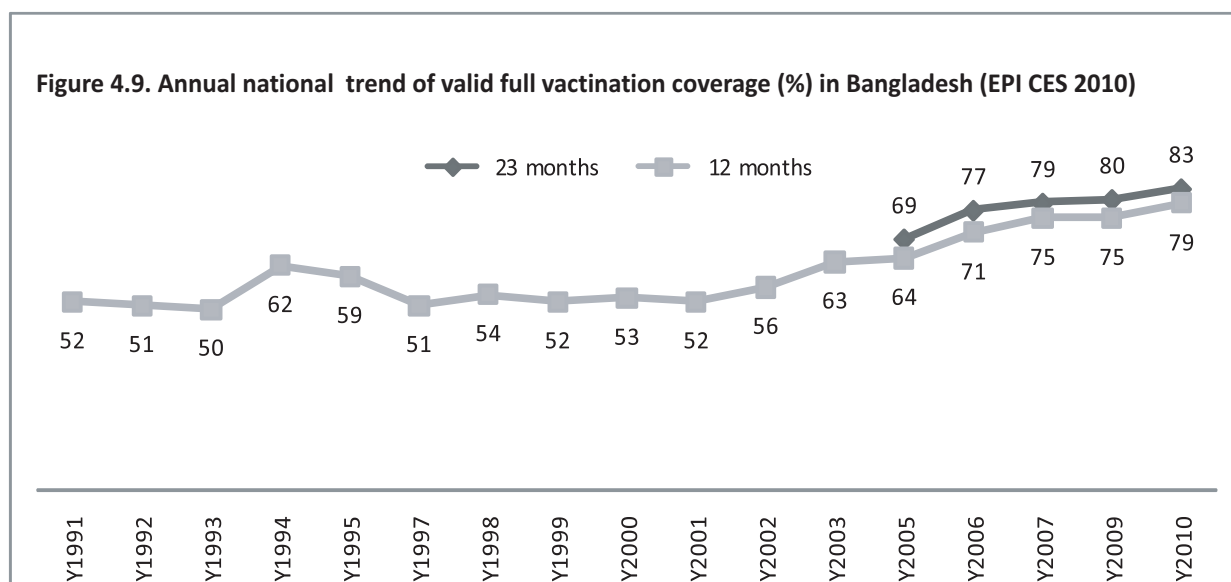
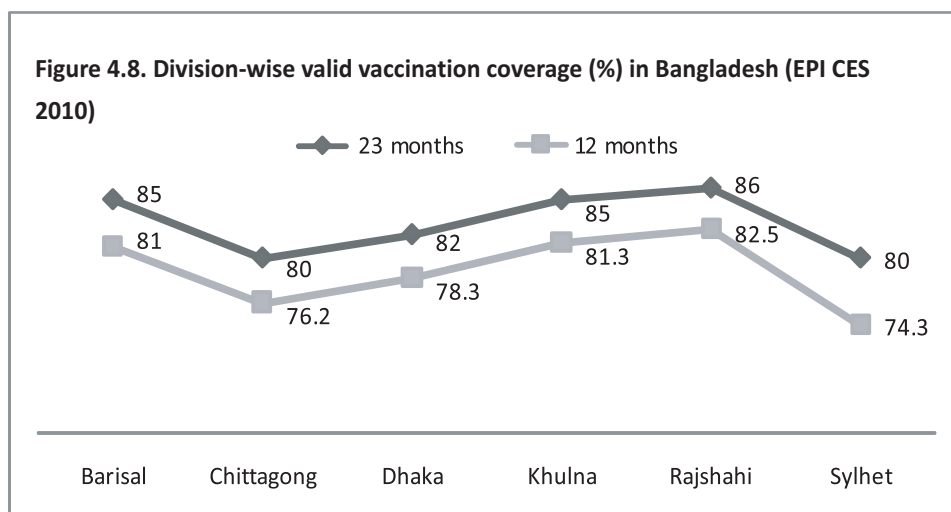
No. and %	Year 2007		Year 2008		Year 2009		Year 2010		Total	
	CBE done	CBE+ve	CBE done	CBE+ve	CBE done	CBE+ve	CBE done	CBE+ve	CBE done	CBE +ve
No.	19,237	202	45,973	1,460	81,701	3,432	93,884	1,221	240,795	6,315
% +ve		1.1		3.2		4.2		1.3		2.6

## Chapter 4: Primary Health Care

### Universal Child Immunization

The Ministry of Health and Family Welfare continues to improve the child health through various measures, the most notable of which is the high coverage of child immunization. Report of the EPI Coverage Evaluation Survey 2010 is now available, which shows that percentage of fully-vaccinated under-two children is 83.4% which was 79.0% in 2007. Hepatitis B and Hib vaccines are also included now in the routine immunization. The picture of universal child immunization program in Bangladesh has been shown in Figure 4.5 through 4.9.





Bangladesh has requested for providing GAVI assistance to include pneumococcal and rotavirus vaccines in the EPI. Discussions are ongoing to introduce also typhoid fever and oral cholera vaccines. Bangladesh is fortunate to have no polio case virtually from 2001, except in a window period in 2006. In 2006, 18 wild polio cases were imported in the country from the bordering districts of India. To keep the country polio-free, Bangladesh conducts country-wide National Immunization Day (NID). So far, 19 NIDs were conducted. Conduction of NID has to be continued until India and Nepal become polio-free. Both the countries are trying to be polio-free. There is a global vision for 90% reduction of measles-related child deaths by 2013. Bangladesh already achieved this target. Overall, 88% of the eligible children in Bangladesh were covered by measles vaccination under Measles Follow-up Campaign 2010. There was a little variation in the coverage between urban and rural areas, i.e. 89% in urban areas vs. 88% in rural areas. In the Measles Follow-up Campaign, oral polio vaccines and high-potency vitamin A were also included (Table 4.15).

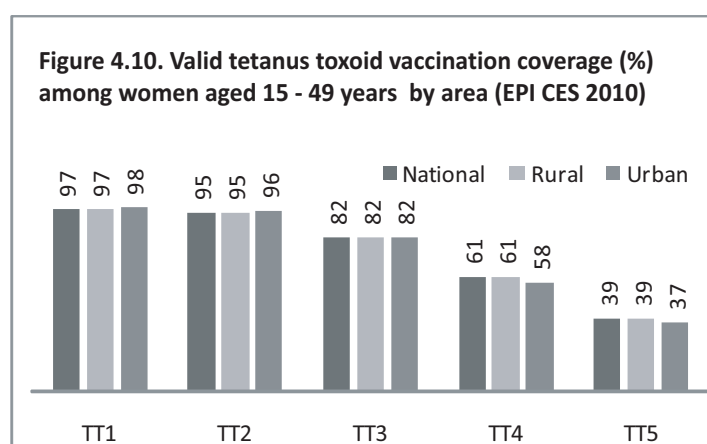


**Table 4.15. Coverage of oral polio vaccine and vitamin A capsules among children (EPI CES 2010)**

Location	Oral polio vaccine (coverage) (0-59 months)	Oral polio vaccine (during measles campaign) (0-59 months)	Vitamin A capsule (12-59 months)	Anti-helminthes (24-59 months)
National	97%	93%	96%	87%
Rural	97%	92%	96%	86%
Urban	96%	94%	97%	91%

### Tetanus toxoid (TT) for women of childbearing age

Bangladesh is maintaining maternal and neonatal tetanus-free status since 2008. EPI Bangladesh aims to immunize the number of women of childbearing age by administering tetanus toxoid vaccine (TT) before the age of 18 years. A period of 2 years and 7 months is required to complete all the 5 doses of TT vaccines. If a woman starts it at the age of 15 years and maintains the exact interval, she would be able to complete all the doses before she reaches the age of marriage, ensuring protection for her entire reproductive life. Figure 4.10 shows the valid TT vaccination status in the country. Although the crude TT vaccination coverage (TT vaccination doses without maintaining exact interval) is relatively higher, it is assumed that coverage of TT4 and TT5 doses goes down in the country. Attention is needed to improve the situation in this regard.



### Integrated Management of Childhood Illness (IMCI)

The program "Integrated Management of Childhood Illness (IMCI)" was introduced in Bangladesh in 2002 with assistance from UNICEF, WHO, and other development partners. Before integration, there were separate vertical child health programs, viz. Control of Diarrheal Diseases (CDD) and Acute Respiratory Infections (ARI). IMCI addresses morbidities which are responsible for almost 75% of under-five deaths. To simplify case management in the primary healthcare settings by the health workers and paramedics, the childhood diseases/problems covered by IMCI program in Bangladesh have been classified into 13 broad categories, viz. (i) very severe disease, (ii) pneumonia, (iii) cough and cold-not pneumonia, (iv) diarrhea, (v) dysentery, (vi) fever-malaria, (vii) fever-not malaria, (viii) measles, (ix) ear problem, (x) PEM (protein energy malnutrition), (xi) drowning, (xii) injury other than drowning, and (xiii) others.

IMCI is provided through facility-based treatment as well as through home-care. The latter is called Community IMCI Program. Currently, facility IMCI is running in 325 upazilas and community IMCI in 15 upazilas. UNICEF and WHO provide technical and financial assistance to the Ministry of Health and Family Welfare for implementing the IMCI program. Various other development partners and NGOs also collaborate with the Government.

The Management Information System (MIS) of the DGHS tries to capture the data from IMCI services provided in different IMCI facilities. Community IMCI Program is a newer intervention, and a separate system for data-collection is being developed. Facility-based IMCI is delivered in 42 districts. Data on 1804577 patients from the IMCI facilities of the 42 districts have been received by MIS-Health. The patients were aged 1 day to 5 years. The distribution of the patients by division is shown in Figure 4.11.

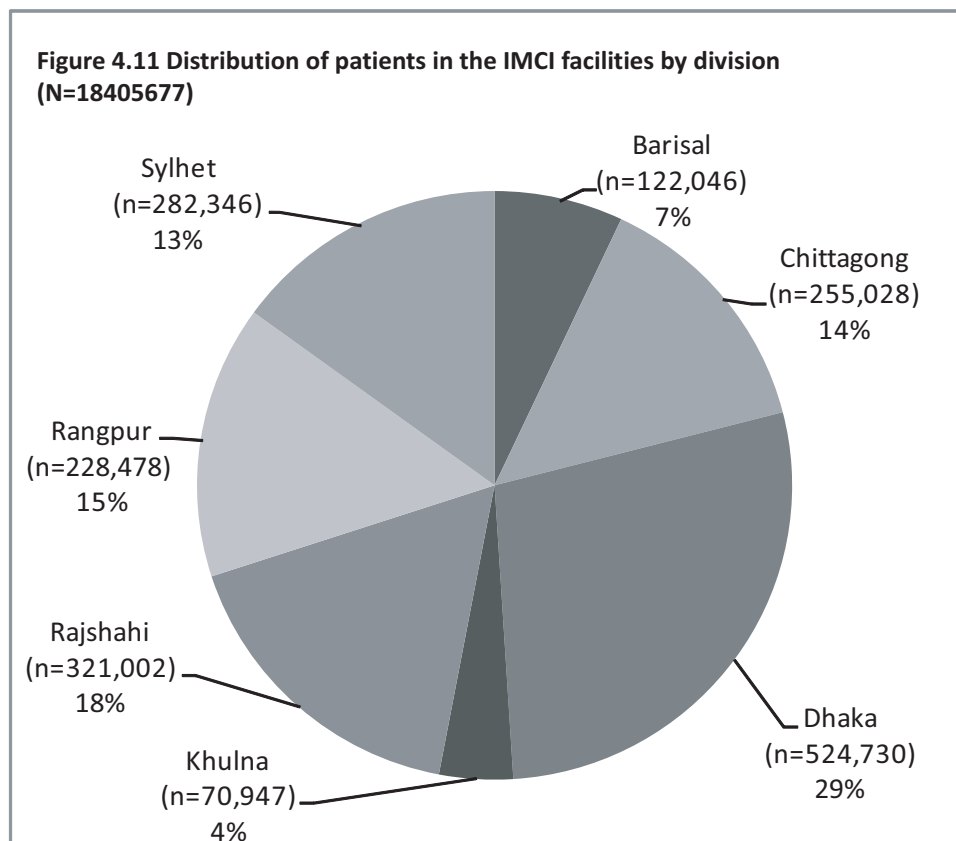


Figure 4.12 shows the age distribution of the children. It is seen that children from 1 to 5 year(s) of age constituted the largest IMCI service recipients (56%), followed by 2 to 12 months age-group (34%). Of the total under-five children, 3% were at the neonatal age. Age-group 29 to 59 days comprised 7% of the total children receiving services from the IMCI facilities.

## Chapter 4: Primary Health Care

**Figure 4.12. Distribution of patients in the IMCI facilities by age-group (n=1,844,658)**

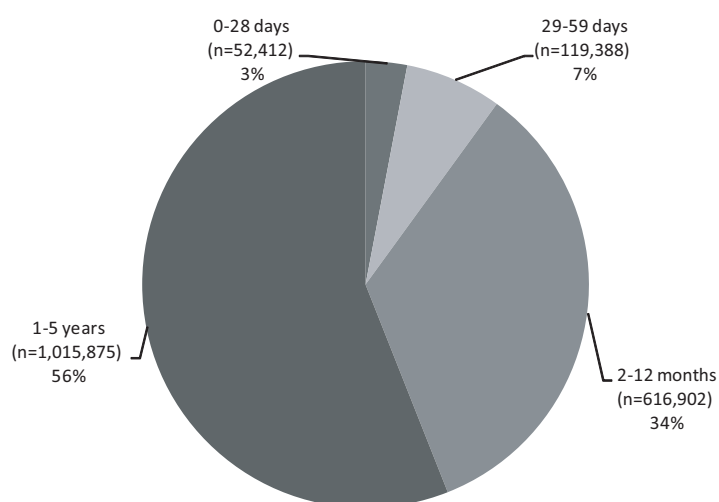


Table 4.16 shows the distribution of the IMCI diseases among children aged 1 day to 5 years. It is seen that the number and percentage of patients increased with age in case of each disease. Caution is needed to interpret this situation. This trend should be related to more attendance of the older children in the IMCI facilities than the younger ones.

**Table 4.16. Distribution of IMCI diseases between age-groups (summary of data received from IMCI facilities in 42 districts in 2010)**

Diseases/health problems	Unit	0-28 days	29-59 days	2-12 months	1-5 years	Total
Very Severe Disease	No.	20,447	40,464	16,166	19,195	95,134
	%	21	43	17	20	100
Pneumonia	no.	-	-	79,623	115,087	194,755
	%	-	-	41	59	100
No Pneumonia (Cough & Cold)	no.	-	-	173,322	295,698	470,088
	%	-	-	37	63	100
Diarrhoea	no.	10,470	22,959	79,859	156,399	269,687
	%	4	8	30	58	100
Fever-Malaria	no.	-	-	5,425	11,017	16,442
	%	-	-	33	67	100
Fever-No Malaria	no.	-	-	97,841	188,322	286,188
	%	-	-	34	66	100
Measles	no.	155	326	2,148	5,664	8,293
	%	2	4	26	68	100
Ear Problem	no.	1,967	6,011	22,912	44,676	75,566
	%	3	8	30	59	100
Malnutrition	no.	5,044	13,684	30,685	57,517	106,930
	%	5	13	28	54	100
Others	no.	19,619	39,683	119,432	252,577	431,311
	%	4	9	28	59	100
Total		57,702	123,127	627,413	1,146,152	1,954,394
		3	6	32	59	100

## Chapter 4: Primary Health Care

Table 4.17 presents the distribution of the IMCI diseases within each age-group. Among the total children, respiratory tract infection was the leading cause of morbidity (cough and cold: 24%; pneumonia: 10%).

**Table 4.17. Distribution of IMCI diseases within each age-group of children of both sexes (summary of data received from IMCI facilities in 42 districts in 2010)**

Diseases/health problems	Unit	0-28 day(s)	29-59 days	2-12 months	1-5 year(s)	Total
Total cases	(No.)	57,702	123,127	627,413	1,146,152	1,954,394
Very Severe Disease	%	35.4%	32.9%	2.6%	1.7%	4.9%
Pneumonia		0.0%	0.0%	12.7%	10.0%	10.0%
No Pneumonia (Cough and Cold)		0.0%	0.0%	27.6%	25.8%	24.1%
Diarrhoea		18.1%	18.6%	12.7%	13.6%	13.8%
Fever-Malaria		0.0%	0.0%	0.9%	1.0%	0.8%
Fever-No Malaria		0.0%	0.0%	15.6%	16.4%	14.6%
Measles		0.3%	0.3%	0.3%	0.5%	0.4%
Ear Problem		3.4%	4.9%	3.7%	3.9%	3.9%
Malnutrition		8.7%	11.1%	4.9%	5.0%	5.5%
Others		34.0%	32.2%	19.0%	22.0%	22.1%
Total		100.0%	100.0%	100.0%	100.0%	100.0%

Fever (malaria or no malaria) and diarrhea were the morbidities of 15% and 14% of the children respectively. Similar pattern of morbidities was also observed among children of all age-groups. However, very severe disease, diarrhea, and protein energy malnutrition were also prevalent during the neonatal period [1-28 day(s)] affecting 35%, 18%, and 9% respectively.

Table 4.17 shows the burden of each of the IMCI diseases (based on the number and percentage of children visiting IMCI facilities) shared by the IMCI facilities in various divisions. The estimates are not representative of prevalence of these diseases. The variation in the number of patients may also be due to variation in the number of IMCI facilities among the divisions. The distribution of children according to IMCI diseases in each division is shown in Table 4.18.

**Table 4.18. Distribution of children aged 1 day to 5 years according to IMCI diseases among divisions (summary of data received from IMCI facilities in 42 districts in 2010)**

Disease	Unit	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
Very Severe Disease	No.	2,437	14,554	24,359	2,322	26,987	7,928	16,547	95,134
	%	2.6%	15.3%	25.6%	2.4%	28.4%	8.3%	17.4%	100.0%
Pneumonia	No.	4,942	38,118	60,233	3,823	35,079	19,534	33,026	194,755
	%	2.5%	19.6%	30.9%	2.0%	18.0%	10.0%	17.0%	100.0%
No Pneumonia Cough & Cold	No.	35,097	62,085	158,845	19,511	85,730	61,231	47,589	470,088
	%	7.5%	13.2%	33.8%	4.2%	18.2%	13.0%	10.1%	100.0%
Diarrhea	No.	16,588	46,019	67,829	10,060	46,878	39,171	43,142	269,687
	%	6.2%	17.1%	25.2%	3.7%	17.4%	14.5%	16.0%	100.0%
Fever-Malaria	No.	168	1,802	2,411	367	3,443	3,789	4,462	16,442
	%	1.0%	11.0%	14.7%	2.2%	20.9%	23.0%	27.1%	100.0%
Fever-No Malaria	No.	24,483	36,320	110,064	14,327	49,715	29,779	21,500	286,188
	%	8.6%	12.7%	38.5%	5.0%	17.4%	10.4%	7.5%	100.0%



## Chapter 4: Primary Health Care

**Table 4.18. Distribution of children aged 1 day to 5 years according to IMCI diseases among divisions (summary of data received from IMCI facilities in 42 districts in year 2010) (Continued...)**

Disease	Unit	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
Measles	No.	1,596	286	992	22	954	2,923	1,520	8,293
	%	19.2%	3.4%	12.0%	0.3%	11.5%	35.2%	18.3%	100.0%
Ear Problem	No.	4,615	8,998	21,163	1,681	13,993	8,927	16,189	75,566
	%	6.1%	11.9%	28.0%	2.2%	18.5%	11.8%	21.4%	100.0%
Malnutrition	No.	10,416	8,676	28,179	2,528	22,522	17,241	17,368	106,930
	%	9.7%	8.1%	26.4%	2.4%	21.1%	16.1%	16.2%	100.0%
Others	No.	30,796	58,782	107,658	16,694	68,412	46,337	102,632	431,311
	%	7.1%	13.6%	25.0%	3.9%	15.9%	10.7%	23.8%	100.0%
Total	No.	131,138	275,640	581,733	71,335	353,713	236,860	303,975	1,954,394
	%	6.7%	14.1%	29.8%	3.6%	18.1%	12.1%	15.6%	100.0%

**Table 4.19. Distribution of children (%) aged 1 day to 5 years according to IMCI diseases within each division (summary of data received from IMCI facilities in 42 districts in 2010)**

Disease/health problem	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
No. of cases	131,138	275,640	581,733	71,335	353,713	579,810	303,975	2,297,344
Very severe disease	1.9	5.3	4.2	3.3	7.6	13.7	5.4	7.2
Pneumonia	3.8	13.8	10.4	5.4	9.9	10.4	10.9	10.3
No pneumonia (Cough and cold)	26.8	22.5	27.3	27.4	24.2	12.2	15.7	20.9
Diarrhea	12.6	16.7	11.7	14.1	13.3	10.3	14.2	12.6
Fever-Malaria	0.1	0.7	0.4	0.5	1.0	4.8	1.5	1.8
Fever-No malaria	18.7	13.2	18.9	20.1	14.1	7.5	7.1	13.1
Measles	1.2	0.1	0.2	0.0	0.3	9.7	0.5	2.7
Ear problem	3.5	3.3	3.6	2.4	4.0	8.9	5.3	5.1
Malnutrition	7.9	3.1	4.8	3.5	6.4	4.8	5.7	5.1
Others	23.5	21.3	18.5	23.4	19.3	17.6	33.8	21.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

### Nutrition for the community

The Ministry of Health and Family Welfare has a National Nutrition Program (NNP) included under Health, Nutrition and Population Sector Program (HNPS 2003-2011). As of 2010, the program was available in 172 upazilas. However, in Health, Population and Nutrition Sector Development Program 2011-2016, the nutrition service has been planned to be mainstreamed for delivery through the normal service-delivery chain of the DGHS and the DGFP. A new operational plan called National Nutrition Service (NNS) has been included under the DGHS in HPNSDP 2011-2016. As of June 2011, there was a community nutrition worker for every 1,200 population in NNP areas. She held nutrition clinic 6 days per week in her community. The NNP provided nutrition care for the following: (i) children (birth registration plus services for malnourished under-two children); (ii) mothers (pregnant and lactating mothers); (iii) newly-married couples; (iv) adolescents; (v) father- and mother-in-law forum; (vi) husbands of pregnant women forum; (vii) monitoring body-weights of children and pregnant women; (viii)

## Chapter 4: Primary Health Care

supplementary nutrition (supply of specially-prepared local nutritious food); (ix) training; (x) behavior change communication; (xi) food security (homestead gardens, poultry farming, vulnerable group feeding, etc.). To implement the nutrition program at the field level, there were 36,764 community nutrition workers, 3,732 community nutrition organizers, 960 field supervisors, and 172 upazila managers under the NNP. The beneficiaries of the NNP included 9.1 million households covering 45 million people. The registered population for nutrition care included 1.94 million under-two children, 0.5 million pregnant women, 0.42 million lactating mothers, 2.1 million adolescent girls, and 0.24 million newly-married women.

### **Medical waste management at upazila level**

Medical wastes are products of healthcare activities and, if not handled and disposed of properly, these can transmit diseases by direct contact or by contaminating soil, air, and water. In uncontrolled environment, service providers, other individuals, community and the environment remain at risk. Under HNPSP 2003-2011 and HPNSDP 2011-2016, medical waste management has been included as one of the important components of health facility management. The waste management function for the health facilities at upazila level and below has been entrusted with the operational plan of essential services delivery (ESD). The components of the program are: (i) construction of pits (for infectious, general and recyclable wastes, and sharps) in the upazila health complexes; (ii) procurement and regular supply of logistics for collection and transportation of wastes and the safety materials for the waste-handlers; (iii) training and orientation of the health personnel on proper waste management; and (iv) community awareness of medical wastes, its management, and individual responsibility.

The medical waste management functions for hospitals at and the above district-level has been entrusted with Line Director of Improved Hospital Services Management and Safe Blood Transfusion.

## *Secondary and Tertiary Care*

Chapter 4 provided an overview of the primary healthcare centers in the country. The hospitals and health facilities located in the upazila level and below are, in general, termed primary healthcare centers. However, many of the upazila health complexes have clinical specialists who provide specialty-care to the patients.

The district hospitals are usually termed secondary hospitals as these have fewer facilities for specialty-care compared to many in the medical college hospitals. There are also different types of special-care centers, such as infectious disease hospitals, tuberculosis hospitals, leprosy hospitals, which fall under health facilities of secondary care. The medical college hospitals are located in the regional level, one for several districts, and are affiliated with medical colleges and provide specialty-care in many disciplines. These hospitals are called tertiary hospitals. Tertiary hospitals also include the super-specialty hospitals at the national level or centers that provide high-end medical services in a specific field. Bangladesh has built, over the past decades, a good network of primary-, secondary-, and tertiary-care hospitals and health centers to provide primary and referral healthcare to its citizens. This chapter presents an overview of this healthcare network.

Although an overview of primary-care hospitals and health centers located at the upazila level and below is presented in Chapter 4, a summary is presented also in this chapter to help recap the information on primary healthcare in the broader context of health facilities in the country. Table 5.1 shows the number of primary healthcare facilities in Bangladesh as of 2010.

**Table 5.1. Primary healthcare hospitals and health centers in Bangladesh (2010)**

Type of hospitals/Health centers	No. of facilities	No. of functional beds
<b>A. Upazila health complex (run by the DGHS)</b>		
Upazila health complex (50-bed)	159	7,950
Upazila health complex (31-bed)	240	7,440
Upazila health complex (new 31-bed)	4	124
Upazila health complex (new 20-bed)	2	40
Upazila health complex (10-bed)	13	130
Total number of upazila health complexes (UHCs)	418	15,684
<b>B. Other hospitals at the upazila and union level (run by the DGHS)</b>		
10-bed hospital	13	130
20-bed hospital	17	340
20-bed trauma center	4	80
30-bed hospital	1	30
31-bed hospital	10	310
Total no. of hospitals at the upazila level other than UHCs	45	890
Total no. of hospitals at the upazila level	463	16,574
<b>C. Outdoor health facilities at the union level (run by the DGHS)</b>		
Union sub-center	1,275	-
Union health and family welfare center	87	-
Total outdoor facilities at the union level	1,362	-
<b>D. Outdoor health facilities at the ward level (run by the Community Clinics Project)</b>	10,323	-

Under the Health, Nutrition and Population Sector Program (HNPSP) 2003-2011 of the Ministry of Health and Family Welfare, the Director of Primary Health Care, being the Line Director for the Operational Plan of Essential Service Delivery, was entrusted with the responsibility of management and supervision of the hospitals and health facilities at the upazila level. There was a program-component called 'Support Services' in the Operational Plan to provide financial and technical assistance to these primary healthcare hospitals and centers. In the Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016, the system is continuing. The establishment of community clinics is one of the top priority programs of the present Government of Bangladesh, and there is a plan to gradually establish 18,000 community clinics in the rural areas, with one community clinic for every 6,000 people. As of now, 10,323 community clinics are in operation. Considering the need for rapid establishment of all community clinics and institutionalizing these with active community participation, the Government has undertaken a new project called "Revitalization of Community Health Care Initiatives in Bangladesh." However, the project is well-known as Community Clinics Project. An independent project office headed by a Project Director, directly under the MOHFW, looks after the implementation of the Community Clinics Project.

### Secondary and tertiary hospitals

The hospitals other than those designated as primary healthcare hospitals under the DGHS are looked after by the Director of Hospital. The Director of Hospital was also the Line Director of the Operational Plan called "Improved Hospital Services Management" under HNPSP 2003-2011. In HPNSDP 2011-2016, the Operational Plan has been renamed "Improved Hospital Services Management and Safe Blood Transfusion Services." All these hospitals and healthcare centers belong to the category of secondary and tertiary healthcare facilities. Table 5.2 summarizes the number and bed-capacity in different types of these hospitals and healthcare centers. Further details, including list and bed-capacity of each type of hospitals, are provided in the annexure.

**Table 5.2. Secondary and tertiary hospitals/health centers under the DGHS (as of March 2011)**

Type of hospitals	No.	Functional beds	Revenue beds	Development beds	Proposed beds	No. of beds to be increased
Specialized hospitals affiliated with postgraduate teaching institutes	7	2174	1550	624	2274	100
Medical college hospitals/ Dental college hospitals/ Hospitals affiliated with colleges for alternative medicines (some colleges have postgraduate teaching facilities)	21*	10480	8355	1625	13510	3530
Specialized centers	3	200	0	200	300	100
Specialized hospitals	2	750	400	350	750	0
Infectious disease hospitals	5	180	180	0	180	0



**Table 5.2. Secondary and tertiary hospitals/health centers under the DGHS (as of March 2011) (Continued...)**

Type of hospitals	No.	Functional beds	Revenue beds	Development beds	Proposed beds	No. of beds to be increased
District hospitals	53	7,800	5,720	2,080	9,100	1,300
General hospitals	9	1,250	1150	100	1,400	150
Chest diseases/TB hospitals	12	546	546	0	796	250
Leprosy hospitals	3	130	130	0	130	0
Other hospitals	5	305	150	155	355	50
<b>Hospitals currently functional</b>	<b>120</b>	<b>23,065</b>	<b>18,181</b>	<b>5,134</b>	<b>28,795</b>	<b>5,480</b>
<b>Proposed new hospitals</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,600</b>	<b>1,600</b>
<b>Total</b>	<b>124</b>	<b>23,315</b>	<b>18,181</b>	<b>5,134</b>	<b>30,395</b>	<b>7,080</b>

\*Hospitals have not been established yet in four new medical colleges (Cox's Bazar, Jessore, Noakhali, and Pabna). Hence, the actual number of medical and dental college hospitals is 17)

### Bangabandhu Sheikh Mujib Medical University

The Ministry of Health and Family Welfare provides financial assistance to Bangabandhu Sheikh Mujib Medical University (BSMMU) as well as to its affiliated hospital. BSMMU is the only Medical University in Bangladesh. Therefore, BSMMU Hospital is the only Medical University Hospital in Bangladesh. Both university and the hospital are autonomous. BSMMU Hospital has 1,212 beds, of which 452 are free beds. The BSMMU Hospital has 48 clinical departments, 105 cabins, and 18 operation theaters.

### Distribution of hospitals and hospital-beds by division

Table 5.3 shows the distribution of the secondary and tertiary hospitals by administrative division. Dhaka division has the highest number (40) of secondary and tertiary hospitals, followed by Chittagong division with 18 such hospitals. Barisal division has the lowest number (8) of such hospitals. Of the total 21 medical colleges, 8 are in Dhaka division (38.10%), followed by 4 in Chittagong division (19.05%), 3 in Rajshahi division (14.29%), 2 each in Khulna and Rangpur divisions (9.52%), and one each in Barisal and Sylhet divisions (4.76%). There is no infectious disease hospital in Barisal and Rangpur divisions but each of the other 5 divisions has one infectious disease hospital. Rajshahi division has the highest number of chest hospitals (3 out of 12 in the country). Each of Chittagong, Khulna, and Sylhet divisions has 2 chest hospitals. Each of Barisal, Dhaka, and Rangpur divisions has one chest hospital.

**Table 5.3. Distribution of secondary and tertiary public hospitals under the DGHS by division (2010)**

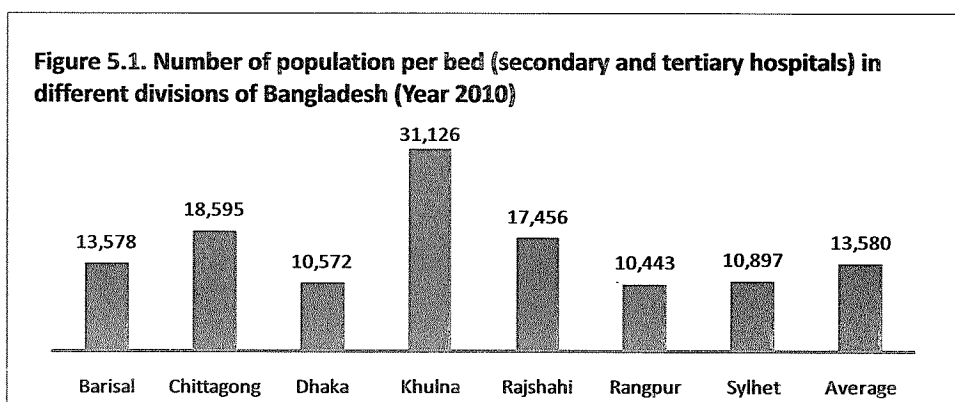
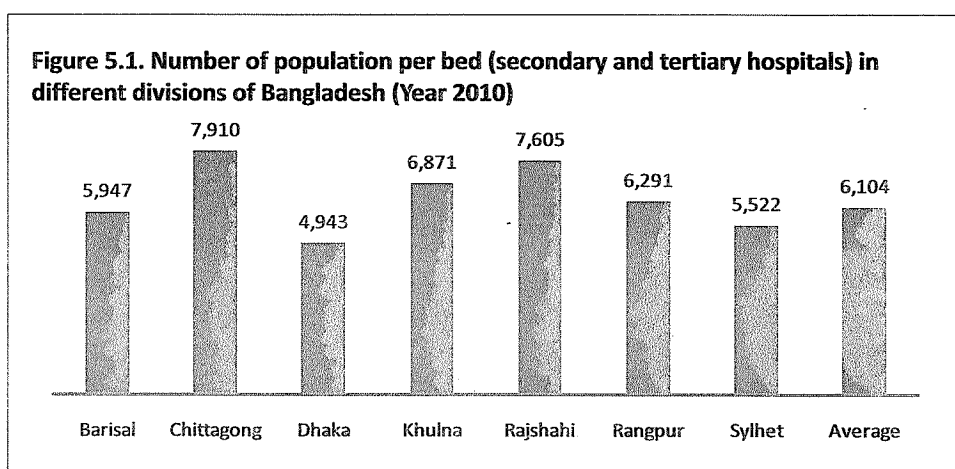
Type of hospitals	No. and %	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
All secondary and tertiary hospitals	No.	8	18	40	17	16	12	9	120
	%	6.67	15.00	33.33	14.17	13.33	10.00	7.50	100.00
Medical college hospitals	No.	1	2	8	1	2	2	1	17
	%	5.88	11.77	47.06	5.88	11.77	11.77	5.88	100.00
Infectious disease hospitals	No.	0	1	1	1	1	0	1	5
	%	0.00	20.00	20.00	20.00	20.00	0.00	20.0	100.00
Chest hospitals	No.	1	2	1	2	3	1	2	12
	%	8.33	16.67	8.33	16.67	25.00	8.33	16.67	100.00

Available number of beds for the population in the catchment areas is one of the good proxies for measuring the strength of healthcare infrastructure. Table 5.4 shows the distribution of medical college hospitals and also of secondary- and other tertiary-care hospitals with total bed-capacity in each division.

**Table 5.4. Distribution of beds among the secondary and tertiary public hospitals under the DGHS by division (2010)**

Type of hospitals	Indicator	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
Medical college hospitals	No.	1	2	8	1	2	2	1	17
	No. of beds	600	1,510	4,420	500	1,050	1,500	900	10,480
Secondary and other tertiary hospitals	No.	8	18	40	17	16	12	9	120
	No. of beds	1,370	3,550	9,454	2,265	2,410	2,490	1,776	23,315

Figure 5.1 shows the population:bed ratio for the medical college hospitals and Figure 5.2 for the secondary- and other tertiary-care hospitals in different divisions. It is revealed from these figures that Khulna division has the paucity of beds in medical college hospitals (only one bed per 31,126 people) compared to other divisions, the national average being one bed per 13,580 people. However, two new medical colleges have been established in this division (in Jessore and Satkhira districts). The number of people per bed in medical college hospitals in other divisions varies between 10,572 (Dhaka) and 18,595 (Chittagong).



### Private hospitals

As of 2010, there were 7,623 registered hospitals, clinics, and diagnostic centers in the private sector, of which 2,501 were registered hospitals and clinics, and 5,122 were registered diagnostic centers. The total number of beds in the registered private hospitals and clinics was 42,237. The MIS-Health received information on the number of sanctioned beds, free beds, departments, wards, cabins, and operation theaters in some of the private and non-profit hospitals. Table 5.5 summarizes the information.

**Table 5.5. Number of sanctioned beds, free beds, departments, wards, cabins, and operation theaters in some private hospitals arranged in alphabetical order (2010)**

Name of private hospital	Sanctioned bed (N)	Free bed (N)	Department (N)	Ward (N)	Cabin (N)	Operation theater (N)
Ad-din Medical College Hospital	500	290	23	15	98	07
Apollo Hospitals, Dhaka	304	0	31	15	49	08
Ayesha Memorial Specialized Hospital (Pvt. Ltd.)	50	0	6	24	40	3
BIRDEM	596	118	0	27	117	11
Christian Hospital, Chandraghona	125	0	10	10	10	03
Delta Medical College Hospital	250	15	03	200	50	02
Dhaka Community Hospital	250	75	14	03	20	02
East West Medical College Hospital, Dhaka	400	80	14	14	29	6
Fashion Eye Hospital	20	05	01	05	05	02
ICDDR,B Hospital	300	300	2	15	29	13
Islami Bank Hospital	160	0	09	08	76	05
Jalalabad Ragib-Rabeya Hospital, Sylhet	890	9	14	18	120	10
Lions Eye Institute & Hospital	84	10	06	06	10	04
Meditech General Hospital	10	0	10	2	6	1
Metropolitan Medical Centers Ltd.	70	0	8	40	30	05
Monowara Hospital	74	04	06	26	48	03
North Bengal Medical College Hospital	250	25	10	0	0	0
Pan Pacific Hospital	62	0	10	20	42	3
Rushmono General Hospital	200	05	12	76	75	04
Samarita Hospital Ltd.	200	05	12	76	75	04
Shahid Mansur Ali Medical College Hospital	500	200	19	13	20	6
Uttara Adhunik Medical College Hospital	500	0	12	12	0	11
Z.H. Sikder Women's Medical College Hospital, Dhaka	100	0	0	2	17	2
Total	7,107	1,593	280	675	1,071	133

This chapter reveals that the population:bed ratio in the secondary- and tertiary-care facilities in the country is inadequate. The number of private hospital beds is also quite low. Therefore, to ensure better healthcare for the citizens, the number of higher-level health facilities should be increased.

# Utilization of Health Facilities

The public hospitals and health centers are increasingly participating in sending patients-related data to the MIS-Health. For 2010 (January to December), we received data from quite a good number of hospitals and health centers. In these health facilities, reportedly 52,035,866 patients received healthcare from the outpatient departments. The number of children (both sexes) was 11,932,632. The number of male adult patients was 17,209,849, and that of female adult patients was 22,279,861. The number of reported admissions was 3,470,963, which included 1,553,381 male patients and 1,893,920 female patients. The number of hospital-deaths was 69,620, of which males were 46,025 and females were 37,434. The average hospital-death rate was 2.01%. The detailed information for each hospital is given in the annexure.

**Table 6.1. Number of admissions, deaths, and out-patient visits in different types of government health facilities (Jan-Dec 2010)**

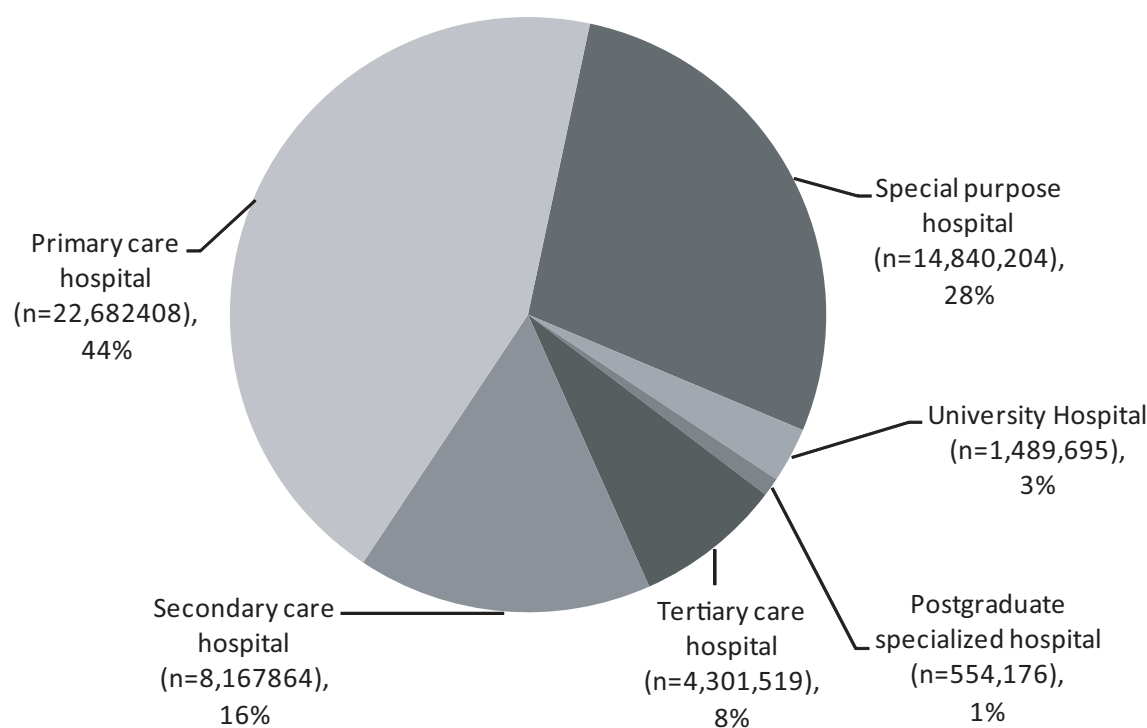
Type of facility	No. of facilities	No. of admissions			No. of hospital deaths			No. of OPD visits			
		Male	Female	Total	Male	Female	Total	Male	Female	Children	Total
University Hospital	1	25,473	15,324	40,797	646	319	965	804,436	685,259		1,489,695
Postgraduate Teaching and Specialized Hospital	7	58,666	22,995	85,664	3,093	1,202	4,504	282,257	171,059	42,951	554,176
Medical College Hospital	12	357,557	337,548	695,251	16,187	13,069	29,267	1,745,054	1,996,581	576,768	4,301,519
District and General Hospital	61	456,244	622,319	1,098,148	22,234	19,529	27,699	2,484,426	3,078,111	2,380,684	8,167,864
Upazila Health Complex	413	647,478	888,948	1,536,342	3,718	3,263	6,986	7,101,149	9,816,956	5,455,466	22,557,461
31-bed Health Complex	3	2,070	2,411	4,486	1	2	3	32,996	48,642	43,309	124,947
Infectious Disease Hospital	2	1,735	1,686	3,421	84	28	112	23,475	9,033	13,744	46,252
Leprosy Hospital	2	229	27	256	0	0	0	4,554	5,926	640	11,120
Drug Addiction Treatment Center	2	-	-	-	-	-	-	-	-	-	-
TB Hospital	9	1,085	429	1,521	38	17	55	4,770	2,195	253	7,218
Government Employees' Hospital	1	381	538	919	0	0	0	42,283	24,329	5,183	71,795
Mental Hospital	1	1,108	313	1,421	5	0	5	10,558	13,050	0	23,608
TB Center	1	-	-	-	-	-	-	-	-	-	-
TB Clinic	33	-	-	-	-	-	-	60,020	48,476	14,218	122,834
Union Sub-center	-	-	-	-	-	-	-	4,385,337	6,134,100	3,238,755	13,910,991
Urban Dispensary	12	-	-	-	-	-	-	27,388	53,453	45,703	126,850
RuraHealth Center	13	1,355	1,382	2,737	19	5	24	50,769	85,572	52,111	188,752
School Health Clinic	16	-	-	-	-	-	-	69,708	90,106	61,138	231,393
Secretariat Clinic	-	-	-	-	-	-	-	80,669	17,013	1,709	99,391
Total		1,553,381	1,893,920	3,470,963	46,025	37,434	69,620	17,209,849	22,279,861	11,932,632	52,035,866



## Chapter 6: Utilization of Health Facilities

Figure 6.1 shows the distribution of the OPD patients among types of health facilities. Of the total 52,035,866 patients reported to be seen in the outpatient departments, 27% were seen in the health facilities having only outpatient services (union sub-center, health and family welfare center, TB clinic, etc.). In the primary-care hospitals (upazila health complex, rural health centers, 10- or 20-bed hospitals), 44% of patients were seen. In the secondary-care hospitals (district or general hospitals), 16% of patients were seen. The tertiary-care hospitals (medical college hospitals) and the postgraduate teaching hospitals served 8% and 1% of the outdoor patients respectively. There are some special-purpose hospitals, such as TB hospitals, leprosy hospitals, infectious disease hospitals, labor hospitals, government employees' hospitals, etc. These special-purpose hospitals provided service to 1% of the total outdoor patients. The Bangabadhu Sheikh Mujib Medical University Hospital served 3% of the total reported outdoor patients. A profile of the patient-visits to community clinics has been given in Chapter 4.

**Figure 6.1. Distribution of the OPD patients between Different types of government-owned hospitals (Year 2010) (n=absoulte number of patients)**



MIS-Health had report on admissions for the primary-, secondary-, tertiary-care, postgraduate specialized teaching and special-purpose hospitals. We received report on 3,470,963 admissions from these hospitals in 2010. Figure 6.2 shows the distribution of the admitted patients. Among the total admitted patients, the primary-care hospitals had 44%; the secondary-care hospitals had 32%; the tertiary-care hospitals and the postgraduate teaching hospitals had 20% and 3% admissions respectively. The special-purpose hospitals had 0.3% of the total admissions. Bangabadhu Sheikh Mujib Medical University Hospital had 1% of the admissions during 2010.

## Chapter 6: Utilization of Health Facilities

**Figure 6.2. Distribution of admission between different type of health facilities (n=3,470,963)**

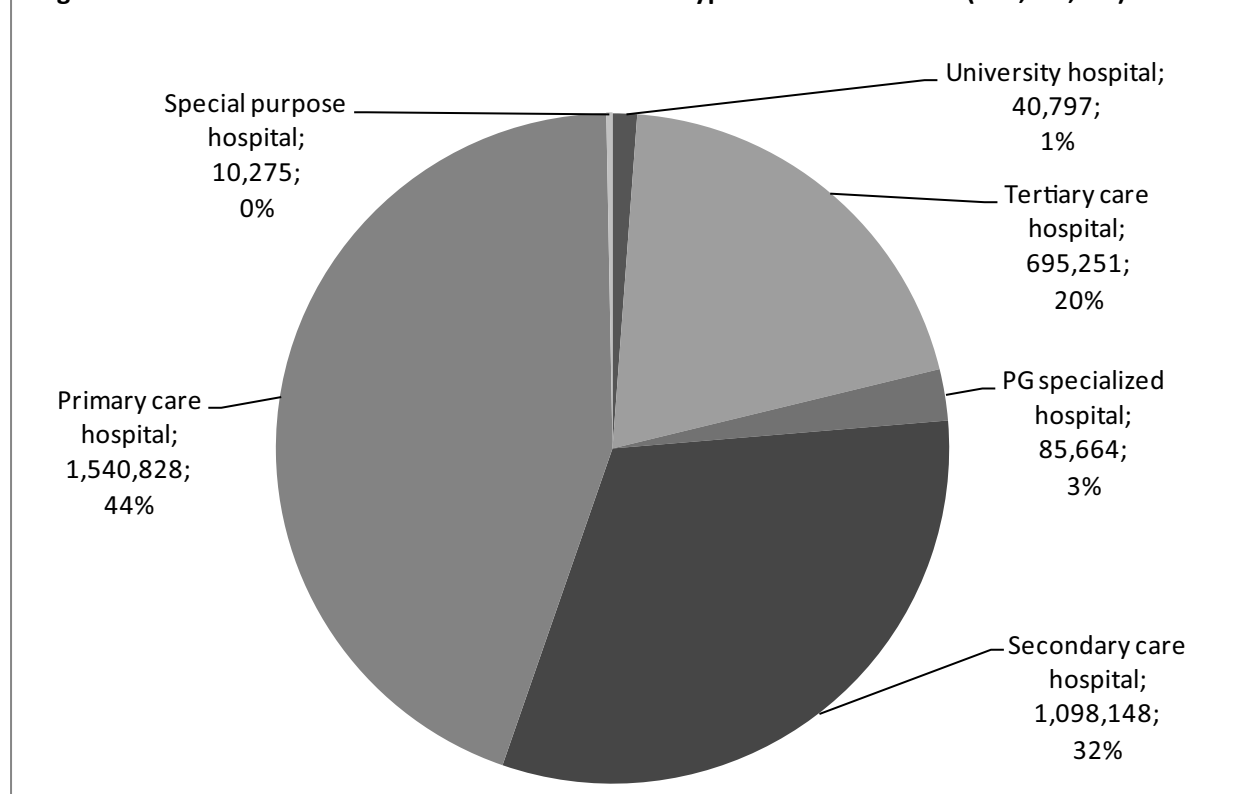


Table 6.2 shows the average length of stay, bed-occupancy rate, hospital-death rate, average daily admission, and average daily OPD visits in different types of hospitals. Detailed information on services by the health facilities is given in the annexure.

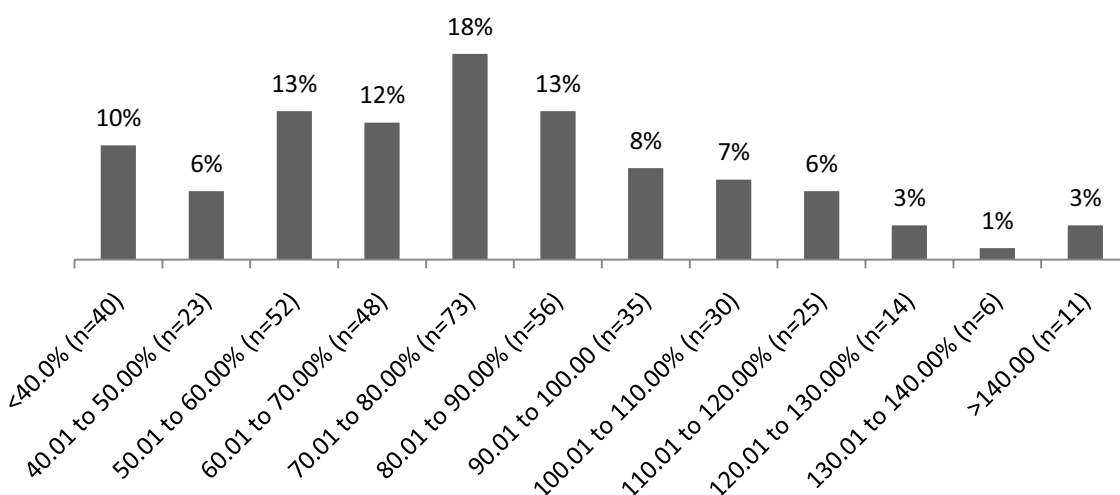
**Table 6.2. Average length of stay, bed-occupancy rate, hospital-death rate, average daily admission, and average daily OPD visits in different types of hospitals (2010)**

Type of health facility	Average length of stay (day)	Bed-occupancy rate (%)	Hospital-death rate (%)	Average daily admission (N)	Average daily OPD visits (N)
Specialized Postgraduate Teaching Hospital	7	71.96	5.48	34	217
Medical College Hospital	3	78.88	3.98	287	918
District Hospital	3	106.64	2.83	54	404
Infectious Disease Hospital	1	4.99	3.76	3	42
Chest Clinics/Hospital	25	7.16	4.15	1	2
TB Segregation Hospital	42	63.04	4.59	0	2
Leprosy Hospital	44	38.45	0.00	0	19

Figure 6.3 shows the distribution of the upazila health complexes by bed-occupancy rates. MIS-Health received data to calculate bed-occupancy rates for 413 upazila health complexes. It is revealed that, in over 63% upazila health complexes, the bed-occupancy rate varies between 50% and 100%. The bed-occupancy rates were seen to vary from below 40% to 140%. Table 6.3 shows a time-series from 2005 up to 2010 of the bed-occupancy rates.

## Chapter 6: Utilization of Health Facilities

**Figure 6.3. Distribution of the upazila health complexes by bed-occupancy rate (Year 2010; n=No. of upazila health complexes)**



**Table 6.3. Distribution of the upazila health complexes by % of bed-occupancy rates in different years**

Bed-occupancy rate (%)	No. and % of upazila health complexes											
	2005		2006		2007		2008		2009		2010	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Below 40.00	8	2.33	14	3.92	11	3.05	10	2.48	8	1.96	40	9.69
40.01– 50.00	9	2.62	20	5.6	14	3.88	42	10.4	23	5.64	23	5.57
50.01– 60.00	17	4.96	26	7.28	27	7.48	59	14.6	36	8.82	52	12.59
60.01– 70.00	45	13.12	36	10.08	48	13.3	74	18.32	75	18.38	48	11.62
70.01– 80.00	58	16.91	62	17.37	80	22.16	76	18.81	113	27.7	73	17.68
80.01– 90.00	97	28.28	75	21.01	69	19.11	61	15.1	60	14.71	56	13.56
90.01– 100.00	73	21.28	70	19.61	67	18.56	48	11.88	48	11.76	35	8.47
100.01– 110.00	27	7.87	36	10.08	37	10.25	16	3.96	20	4.9	30	7.26
110.01– 120.00	22	6.41	15	4.2	7	1.94	16	3.96	12	2.94	25	6.05
120.01– 130.00	3	0.87	2	0.56	1	0.28	0	0	9	2.21	14	3.39
130.01– 140.00	1	0.29	1	0.28	0	0	0	0	4	0.98	6	1.45
Above 140	0	0.0	0	0.0	0	0.0	2	0.5	0.0	0.0	11	2.66
Total	343	100.0	357	100.0	361	100.0	404	100.0	408	100.0	413	100.0

It is welcoming that MIS-Health received data on admissions, hospital-deaths, and outdoor visits from some private hospitals. Table 6.4 summarizes the data.

**Table 6.4. Number of admissions, hospital-deaths and outdoor visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order)**

Health facility	No. of beds	Admission (N)			Death (N)			Outdoor visit (N)			
		Male	Female	Total	Male	Female	Total	Male	Female	Children	Total
ABC Complex Eye Clinic, Salna, Sadar, Gazipur	10	649	853	1502	0	0	0	22942	18306	8150	49398
Ahsan Clinic, Dinajpur	10	153	316	469	0	0	0	0	0	0	0
Alam General Eye Hospital, Kapasia, Gazipur	20	336	504	840	0	0	0	5110	6387	1277	12775
Al-Baraka General Hospital, Gazipur	10	300	360	660	0	0	0	200	260	100	560

## Chapter 6: Utilization of Health Facilities

**Table 6.4. Number of admissions, hospital-deaths and outdoor visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order) (Continued...)**

Health facility	No. of beds	Admission (N)			Death (N)			Outdoor visit (N)			
		Male	Female	Total	Male	Female	Total	Male	Female	Children	Total
Al-Fahim Hospital, Kapasia, Gazipur	10	57	110	167	0	0	0	725	885	515	1825
Al-Hera Hospital, Sreepur Gazipur	10	278	277	555	0	0	0	276	312	123	711
Al-Noor Islami Hospital, Gazipur	10	94	477	571	0	0	0	425	2030	98	2553
Aloha Swasto Kandro Hoapital Balubari, Dinajpur	5	11	100	111	0	0	0	127	166	0	293
Aurobindo Shishu Hospital, Dinajpur	10	1578	1141	2719	17	10	27	4602	2606	7208	14416
Ayesha Memorial Hospital, Dhaka	50	8760	5840	14600	263	175	438	9034	7391	5475	21900
BNSB Base Eye Hospital, Sirajganj		45208	4978	9186	1	0	1	16635	19014	6673	42322
BRAC Shushastho, Dinajpur	10	663	673	4	0	0	0	325	2298	29	2652
BRAC Shushostho, Gazipur	5	3	903	906	0	0	0	3335	9322	2674	15331
Central Hospital, Kaliganj, Gazipur	10	250	682	932	0	0	0	522	892	103	1517
Chandra Mallika Society Hospital, Gazipur	10	340	430	770	0	0	0	900	2100	61	3061
Christian Hospital, Chadrakhona, Kaptai, Rangamati	100	2209	3273	5482	62	41	103	6756	17543	4465	28764
Cosmos General Hospital, Gopalpur, Lalpur, Natore	20	380	700	1080	0	0	0	1100	2500	500	4100
Desh Eye Hospital, Sadar, Gazipur	10	140	133	273	0	0	0	650	600	50	1300
Dewan General Hos. & Diagnostic Centre, KaliaKair, Gaipur	10	64	67	131	0	0	0	311	536	132	979
ENT KSG Hospital, Dinajpur	10	120	130	250	0	0	0	1000	1200	1000	3200
Green Hospital, Gazipur	10	264	352	616	0	0	0	1284	1648	329	3221
Holy Home Hospital & Diagnostic Centre, Kapasia, Gazipur	8	168	371	539	0	0	0	229	397	101	727
ICDDR, Dhaka		91300	65990	157290	122	86	208	17462	10920	25685	54067
Insaf Hospital, Joydebpur, Gazipur	20	279	680	959	0	0	0	226	501	0	727
Jalalabad Ragib-Rabeya Hospital, Sylhet	890	17601	19607	37208	364	464	828	61001	69715	43572	174288
Jalchatra Hospital, Madhupur, Tangail	80	634	215	849	19	5	24	8741	8709	3138	20588
Jamil Eye & General Hospital, Kaliganj, Gazipur	20	395	690	1085	0	0	0	14402	18001	3602	36005
Jobaida Memorial Hospital & Diagnostic Centre, Sadar, Gazipur	10	405	555	960	0	0	0	2104	2893	263	5260
Kaliakair General Hospital & Diagnostic Center, Gazipur	20	152	530	682	0	0	0	1000	1400	785	3185
Kazi Hospital Complex, Gazipur	10	521	729	1250	0	0	0	898	1225	598	2721
Khaza Yunus Ali Medical College & Hospital, Sirajganj		6175	3706	9881	170	109	279	38379	27828	66207	20
Konabari Clinic & Diagnostic Center, Gazipur	10	321	403	724	0	0	0	211	345	102	658
Kumudini Hospital, Tangail	750	8358	11852	20210	155	154	309	49931	62811	21756	134498
Lion Eye Institute and Hospital, Dhaka		3182	2320	5502				38743	36431	3020	78194
Lutheran Health Care, Bangladesh (LHCB) Dumki, Patuakhali	40	392	962	1354	12	13	25	1259	7902	5726	14887
M.A. Akbar Clinic, Sadar, Gazipur	10	157	338	495	0	0	0	1146	1107	34	2287
Mathree Seba Clinic & Diagnostic Center, Konabari, Gazipur	10	56	142	198	0	0	0	256	312	104	672
Mawna General Hospital, Sreepur, Gazipur	10	37	148	185	0	0	0	840	1160	431	2431
Meher Hospital & Diagnostic Center, Gazipur	10	65	230	268	0	0	0	415	630	95	1140
Metropolitan Medical Center Ltd., Dhaka	70			3872			265	0	0	0	0
Model Polly Hospital, Kapasia, Gazipur	10	180	452	632	0	0	0	1244	3054	1836	6134
Modern Hospital & Diagnostic Center, Sreepur, Gazipur	10	230	332	562	0	0	0	1020	1400	300	2720
Nagaric Hospital, Barmi, Sreepur, Gazipur	10	209	687	896	0	0	0	413	653	105	1171
New Turag General Hospital, Tongi, Gazipur	20	319	527	891	0	0	0	521	815	218	1534
North Bengal Medical College Hospital, Sirajganj		5800	5241	11041	55	16	71	29023	8811	7447	63251
Poly Clinic, Dinajpur	12	73	115	188				0	0	0	0
Rajmukti Nursing Home, Dinajpur	10	314	1663	1977	0	0	0	0	0	0	0
Rawnak Jahan Eye Hospital Pvt. Ltd., Mauna, Sreepur, Gazipur	10	215	332	547	0	0	0	4210	4825	1842	10877



## Chapter 6: Utilization of Health Facilities

**Table 6.4. Number of admissions, hospital-deaths and outdoor visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order) (Continued...)**

Rushmono General Hospital Ltd., Dhaka	57	1077	995	2072	8	8	16	3	4	2	9
Safa Marwa General Hospital, Kapasia, Gazipur	10	260	767	1027	0	0	0	1141	3890	1343	6374
Safe Way Medical Services, Dinajpur		1	46	47	0	0	0	0	0	0	0
Seba General Hospital, Gazipur	20	202	414	616	0	0	0	1102	2570	648	4320
Sevenday Clinic & Nursing Home, Dinajpur	10	162	244	406	0	0	0	0	0	0	0
Shafipur General Hospital, Konabari, Gazipur	10	172	205	377	0	0	0	215	321	106	642
Shaheed Asadullah Ideal Hospital, Dinajpur	10	368	181	549	0	0	0	0	0	0	0
Shapla Medicine & Diagnostic Center, Mauna, Sreepur, Gazipur	10	478	982	1460	0	0	0	1735	1995	0	3730
Sharif General Hospital, Konabari, Gazipur	20	720	900	1620	0	0	0	3650	5475	1825	10950
Shitalakhya G.H. & Diagnostic Center, Kapasia, Gazipur	10	230	610	840	0	0	0	7325	6128	1907	15360
St. Marys Catholic Mother & Child Hospital, Kaliganj, Gazipur	10	0	108	108	0	0	0	300	4000	2700	7000
St Vincent's Hospital, Dinajpur	20	164	173	337	0	0	0	3745	5145	30	8920
Sufia Hospital & Diagnostic Center, Gazipur	10	266	932	1198	0	0	0	521	727	203	1451
Sultan General Hospital, Gazipur	10	330	350	680	0	0	0	315	411	102	828
Surjer Hashi Clinic, Dinajpur	20	8	2268	2276	0	0	0	26656	84767	31196	142619
Syeam Clinic Housing Roundabout, Dinajpur	10	61	182	243	0	0	0	0	0	0	0
The Modern Hospital, Sreepur, Gazipur	10	212	645	857	0	0	0	398	723	189	1310
Tongi Adhunik Eye Hospital, Gazipur	10	225	473	698		0	0	529	745	195	1469
United General Hospital, Hossain Market, Tongi, Gazipur	10	312	525	837	0	0	0	442	581	203	1236
Upasom Hospital & Diagnostic Center, Gazipur	10	234	345	579	0	0	0	213	289	103	605
Zia Heart Foundation & Research institute, Dinajpur	50	2456	1324	3780	260	112	372	6400	4317	316	11033
Islami Bank Central Hospital, Dhaka	160	8192	7554	15746	117	80	197	0	0	0	267286
Total	2927	215924	162299	339781	1625	1273	3163	408905	494882	268859	1325159

Table 6.4 summarizes the data on bed-occupancy rate, hospital-death rate, average daily admission, and average daily outdoor visits in the private hospitals which provided data.

**Table 6.5. Percentages of the average length of stay, bed-occupancy rate, hospital-death rate, average daily admission, and average daily outpatient visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order)**

Facility	No. of beds	Bed-occupancy rate (%)	Hospital-death rate (%)	Average daily admission (N)	Average daily OPD visit (N)
ABC Complex Eye Clinic, Salna, Sadar, Gazipur	10	48.96	0.00	4	135
Alam General Eye Hospital, Kapasia, Gazipur	20	29.92	0.00	2	35
Al-Baraka General Hospital, Gazipur	10	41.75	0.00	1	2
Al-Fahim Hospital, Kapasia, Gazipur	10	12.68	0.00	0	5
Al-Hera Hospital, Sreepur, Gazipur	10	47.23	0.00	2	2
Al-Noor Islami Hospital, Gazipur	10	32.58	0.00	2	7
Aloha Swasto Kandro Hospital, Balubari, Dinajpur	5	0.00	0.00	0	1
Aurobindo Shishu Hospital, Dinajpur	10	0.00	1.00	7	39
Ayesha Memorial Hospital, Dhaka	50	0.00	3.09	39	60
Banesha Memorial Hospital, Tongi, Gazipur	10	28.77	0.00	1	1
BNSB Base Eye Hospital, Sirajgonj		0.00	0.01	25	116
BRAC Shushastho, Dinajpur	10	0.00	0.00	0	7
BRAC Shushostho, Gazipur	5	147.95	0.00	2	42

## Chapter 6: Utilization of Health Facilities

**Table 6.5. Percentages of the average length of stay, bed-occupancy rate, hospital-death rate, average daily admission, and average daily outpatient visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order) (Continued...)**

Facility	No. of beds	Bed-occupancy rate (%)	Hospital-death rate (%)	Average daily admission (N)	Average daily OPD visit (N)
Central Hospital, Kaliganj, Gazipur	10	53.73	0.00	3	4
Chandra Mallika Society Hospital, Gazipur	10	84.38	0.00	2	8
Christian Hospital, Chadraghona, Kaptai, Rangamati	100	73.31	1.93	15	79
Cosmos General Hospital, Gopalpur, Lalpur, Natore	20	44.38	0.00	3	11
Desh Eye Hospital, Sadar, Gazipur	10	19.37	0.00	1	4
Dewan General Hospital & Diagnostic Center, KaliaKair, Gaipur	10	11.37	0.00	0	3
Dianjpur Clinic, Dinajpur	10	0.00	0.00	0	0
ENT KSG Hospital, Dinajpur	10	6.85	0.00	1	9
G.C. Memorial Hospital, Dinajpur	10	0.00	0.00	0	0
Green Hospital, Gazipur	10	42.77	0.00	2	9
Holy Home Hospital & Diagnostic Center, Kapasia, Gazipur	8	49.62	0.00	1	2
ICDDRB, Dhaka	-	0.00	0.13	432	148
Insaf Hospital, Joydebpur, Gazipur	20	71.18	0.00	3	2
Jalalabad Ragib-Rabeya Hospital, Sylhet	890	0.12	2.30	99	478
Jalchatra Hospital, Modhupur, Tangail	80	0.00	2.91	2	56
Jamil Eye & General Hospital, Kaligonj, Gazipur	20	31.85	0.00	3	99
Janata Clinic & Nursing Home, Dinajpur	10	0.00	0.00	1	0
Jobaida Memorial Hospital & Diagnostic Center, Sadar, Gazipur	10	52.60	0.00	3	14
Kaliakoir General Hospital & Diagnostic Center, Gazipur	20	26.19	0.00	2	9
Kazi Hospital Complex, Gazipur	10	92.74	0.00	3	7
Khaza Yunus Ali Medical College & Hospital, Sirajganj	-	0.00	2.86	27	0
Konabari Clinic & Diagnostic Center, Gazipur	10	53.84	0.00	2	2
Kumudini Hospital, Tangail	750	40.51	1.54	55	368
Lion Eye Institute and Hospital, Dhaka	-	0.00	0.00	15	214
Lutheran Health Care, Patuakhali Bangladesh (LHCB) Dumki, Patuakhali	40	0.00	1.85	4	41
M. A. Akbar Clinic, Sadar, Gazipur	10	27.23	0.00	1	6
Mathree Seba Clinic & Diagnostic Center, Konabari, Gazipur	10	16.25	0.00	1	2
Mauna General Hospital, Sreepur, Gazipur	10	15.48	0.00	0	7
Meher Hospital & Diagnostic Center, Gazipur	10	21.84	0.00	1	3
Metropolit an Medical Center Ltd., Dhaka	70	0.00	6.81	11	0
Model Polly Hospital, Kapasia, Gazipur	10	39.01	0.00	2	17
Modern Hospital & Diagnostic Center, Sreepur, Gazipur	10	34.52	0.00	2	7
Nagaric Hospital, Barmi, Sreepur, Gazipur	10	47.89	0.00	2	3
New Turag General Hospital, Tongi, Gazipur	20	31.84	0.00	2	4
North Bengal Medical College Hospital, Sirajganj	-	0.00	0.65	30	173
Poly Cilnic, Dinajpur	12	4.29	0.00	0	0
Rajmukti Nursing Home, Dinajpur	10	0.00	0.00	5	0
Rawnak Jahan Eye Hospital Pvt. Ltd., Mauna, Sreepur, Gazipur	10	5.29	0.00	1	30
Rushmono General Hospital Ltd., Dhaka	57	0.03	0.78	6	0
Safa Marwa General Hospital, Kapasia, Gazipur	10	53.86	0.00	3	17
Safe Way Medical Sarvices, Dinajpur	-	0.00	0.00	0	0
Seba General Hospital, Gazipur	20	41.37	0.00	2	12
Sevenday Clinic & Nursing Home, Dinajpur	10	0.00	0.00	1	0
Shafipur General Hospital, Khonabari, Gazipur	10	30.99	0.00	1	2
Shaheed Asadullah Ideal Hospital, Dinajpur	10	15.04	0.00	2	0
Shapla Medicine & Diagnostic Centre, Mauna Sreepur, Gazipur	10	120.00	0.00	4	10
Sharif General Hospital, Konabari, Gazipur	20	47.53	0.00	4	30
Shitalakhya G.H. & Diagnostic Center, Kapasia, Gazipur	10	59.78	0.00	2	42
St. Marys Mother & Child Hospital, Kaligonj, Gazipur	10	9.10	0.00	0	19
St. Vincent's Hospital, Dinajpur	20	125.71	0.00	1	24
Sufia Hospital & Diagnostic Center, Gazipur	10	91.18	0.00	3	4
Sultan General Hospital, Gazipur	10	46.58	0.00	2	2
Surjer Hashi Clinic, Dinajpur	20	105.78	0.00	6	391

## Chapter 6: Utilization of Health Facilities

**Table 6.5. Percentages of the average length of stay, bed-occupancy rate, hospital-death rate, average daily admission, and average daily outpatient visits in some private hospitals (during 2010) (names of hospitals are shown in alphabetical order) (Continued...)**

Syeam Clinic Housing Roundabout, Dinajpur	10	0.00	0.00	1	0
The Modern Hospital, Sreepur, Gazipur	10	40.41	0.00	1	4
Tongi Adhunik Eye Hospital, Gazipur	10	47.15	0.00	2	4
United General Hospital, Hossain Market, Tongi, Gazipur	10	60.30	0.00	2	3
Upasom Hospital & Diagnostic Center, Gazipur	10	20.36	0.00	2	2
Zia Heart Foundation & Research institute, Dinajpur	50	0.00	11.00	9	30
Islami Bank Central Hospital, Dhaka	160	0.00	1.29	42	732

### Smiling Sun Franchise Program

The Smiling Sun Franchise Program (SSFP) is a project funded by the United States Agency for International Development (USAID). It is intended to complement the wide network of health and family planning facilities of the Government of Bangladesh, resorting to an innovative approach to healthcare franchising. To achieve relevant health outcomes, the SSFP jointly works with partnering NGOs to convert the existing network into a viable social health franchise. The project uses a build-operate-transfer (BOT) methodology to set a plan for developing the Franchise Manager Organization into an operational entity so that it can fully assume franchise operations by the end of the project. Currently, 28 NGOs are providing healthcare services to women, children, and youths through 320 static and 8,500 satellite clinics in 61 districts of Bangladesh; 34 clinics of this network are providing Emergency Obstetric Care (EmOC) services. This network will continue to expand the volume and types of quality healthcare under ESD provided to the able-to-pay customers as well as underserved and poor clients. During the first and the second year of the project, the SSFP worked with local implementing partners and increased their ability to cover operational expenses from 25% to 31%, and currently, sustainability is approximately 41%. By the fourth year of this project, the SSFP aims to generate sufficient income to support approximately 70% of the operational cost while maintaining access to those who cannot afford to pay for services. During 2010, three hundred twenty (320) smiling sun clinics treated 29,182,131 outdoor patients while 17,145 patients were admitted and discharged in 34 EmOC (ultra) clinics. As in previous years, no patient died in smiling sun clinics during 2010. In 34 ultra clinics, patients stayed, on an average, for 3 days while their bed-occupancy rate was 52%, which is 5 percent-point higher than the previous year. In 34 EmOC clinics, on an average, 47 patients were admitted per day while the SSFP network treated, on an average, 99,418 outdoor patients per day. During 2010, twenty comprehensive EmOC clinics conducted 5,772 major surgeries (c-sections), which is 6% higher than that in the previous year.

**Table 6.6. Number of patients served in Smiling Sun Franchise Program (SSFP) partners in 2010**

Month	Total (N)	Admission (N)	Death (N)	Average length of stay (day)	Bed-occupancy rate (%)	Hospital -death rate (%)	Average daily admission (N)	Average daily OPD visits (N)	Cesarean section
January	3651936	1549	0	3	56	0	49	140307	510
February	3486468	1347	0	3	53	0	48	156015	422
March	2044047	1505	0	3	54	0	48	79767	507
April	2024952	1260	0	3	47	0	42	83288	430
May	3453924	1279	0	3	46	0	41	138903	477

## Chapter 6: Utilization of Health Facilities

**Table 6.6. Number of patients served in Smiling Sun Franchise Program (SSFP) partners in 2010 (Continued...)**

Month	Total (N)	Admission (N)	Death (N)	Average length of stay (day)	Bed-occupancy rate (%)	Hospital -death rate (%)	Average daily admission (N)	Average daily OPD visits (N)	Cesarean section
June	2057732	1315	0	3	49	0	43	79305	441
July	2035454	1364	0	3	49	0	44	81063	471
August	2057864	1585	0	3	57	0	51	79926	544
September	2048843	1503	0	3	56	0	50	93537	509
October	2113913	1582	0	3	57	0	51	85338	534
November	2097036	1524	0	3	56	0	50	91880	495
December	2109962	1332	0	3	48	0	42	87734	432
Total	29182131	17145	-	3	52	0	47	99418	5772
Note: Only female patients; the SSFP operates emergency obstetric care facilities with 270 sanctioned beds									



## *Morbidity Profile*

During 2010, the Management Information System (MIS-Health) of the DGHS continued using the same format of the list of 156 diseases/conditions for collecting morbidity profile from various hospitals. One of the categories in the list was 'other' (the list is provided in the annexure). For the year 2010 (January-December), data on indoor morbidity profile were received from 376 upazila health complexes (out of 418), 57 district and general hospitals (out of 62), 6 medical college hospitals (out of 18), and 4 postgraduate institute hospitals (out of 7). Data were also received from the only medical university hospital, affiliated with the Bangabandhu Sheikh Mujib Medical University (Table 7.1).

**Table 7.1. Type of government hospitals from which indoor morbidity data were received (2010)**

Type of hospital	Total	No. and % of hospitals which provided indoor morbidity data	
		No.	%
Upazila health complex	418	376	90.0
District and general hospital	62	57	91.9
Medical college hospital	18	6	28.6
Postgraduate teaching institute hospital	7	4	57.1
Bangabandhu Sheikh Mujib Medical University	1	1	100.0
Total	509	444	-

### **Limitations**

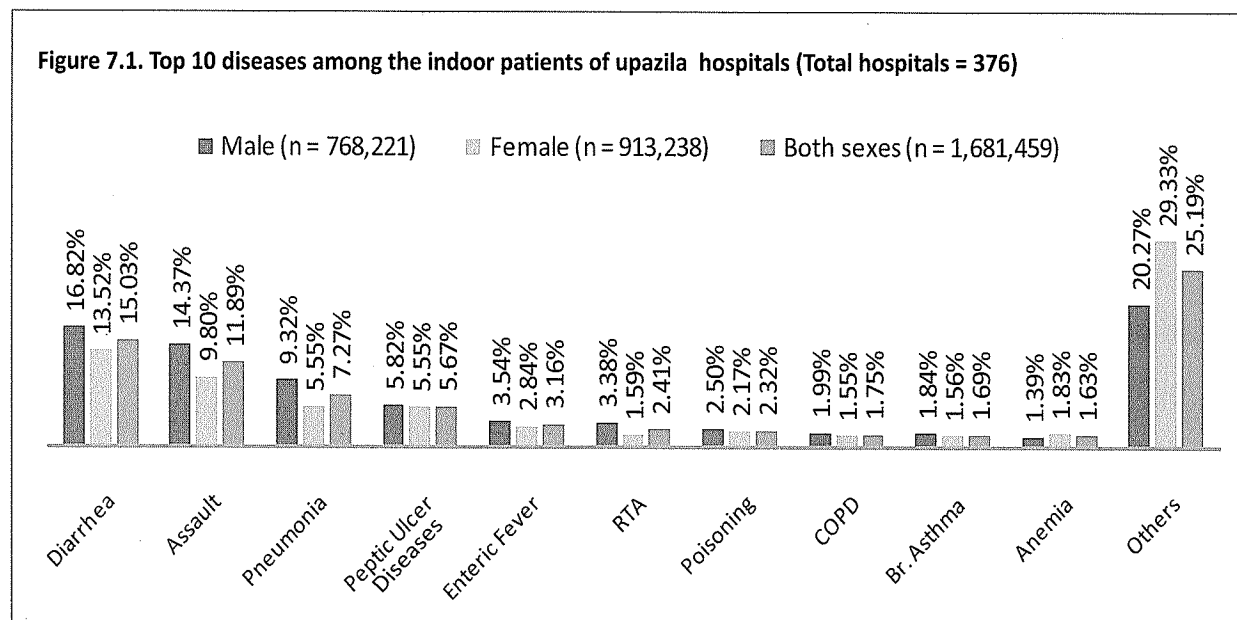
Some limitations have to be considered while interpreting the morbidity report. The hospitals provided compiled disease profile reports for the whole year. It was uncertain whether all hospitals included data for all months of the year and for all days of each month. For the large hospitals, such as medical college hospitals or postgraduate institute hospitals, it was also uncertain whether data of all wards of the hospitals were included in the compilation for each month and each day. Time did not permit rechecking the quality of data from so many hospitals. Precision of diagnosis may not be equally sound among types of hospitals as we used the diagnoses made in the hospitals by their own clinicians entirely for clinical purposes. In the upazila and district hospitals, diagnoses mainly depend upon clinical judgment as diagnostic facility is limited. On the other hand, hospitals of academic institutions, such as medical college hospitals and postgraduate institute hospitals, possess more qualified consultants, a wider range of laboratory investigations is available, and patients remain relatively for longer periods in this type of hospitals. Therefore, precision of diagnosis is better in these hospitals. Use of the same data-collection format, irrespective of the type of hospital, appeared as another limitation. For some types of hospitals, particularly the specialized hospitals, many of the

diagnoses, constituting large percentage of the disease burden, fell under 'other' category. Without provision for specifying the diseases/conditions under the 'other' category, it was not known how many cases which with diseases/conditions (outside the list of 156 specified diseases/conditions) were included in this category. MIS-Health is trying to introduce ICD-10 (International Classification of Diseases version 10) in the hospitals. This initiative is expected to improve the situation gradually. However, it is believed that the available data may partially fulfill the working need of the morbidity data from the hospitals. Therefore, the data received have been summarized to estimate the top 10 or 20 diseases for each type of hospitals. Detailed summaries are presented in the annexure.

It is obvious that the type of morbidities will vary among types of hospitals. It has also been explained above that the precision of diagnosis varies among the levels of the hospitals, i.e. lower-level hospitals have lower precision. Based on this consideration, summaries have been made separately for upazila hospitals, district hospitals, and medical college hospitals. As the postgraduate institute hospitals are specialized in nature, and one treats only one specialized discipline of diseases, summary for each specialized hospital has been made individually. The summaries contain details of age and sex differentials, which are presented in the annexure.

### Morbidity profile in upazila hospitals

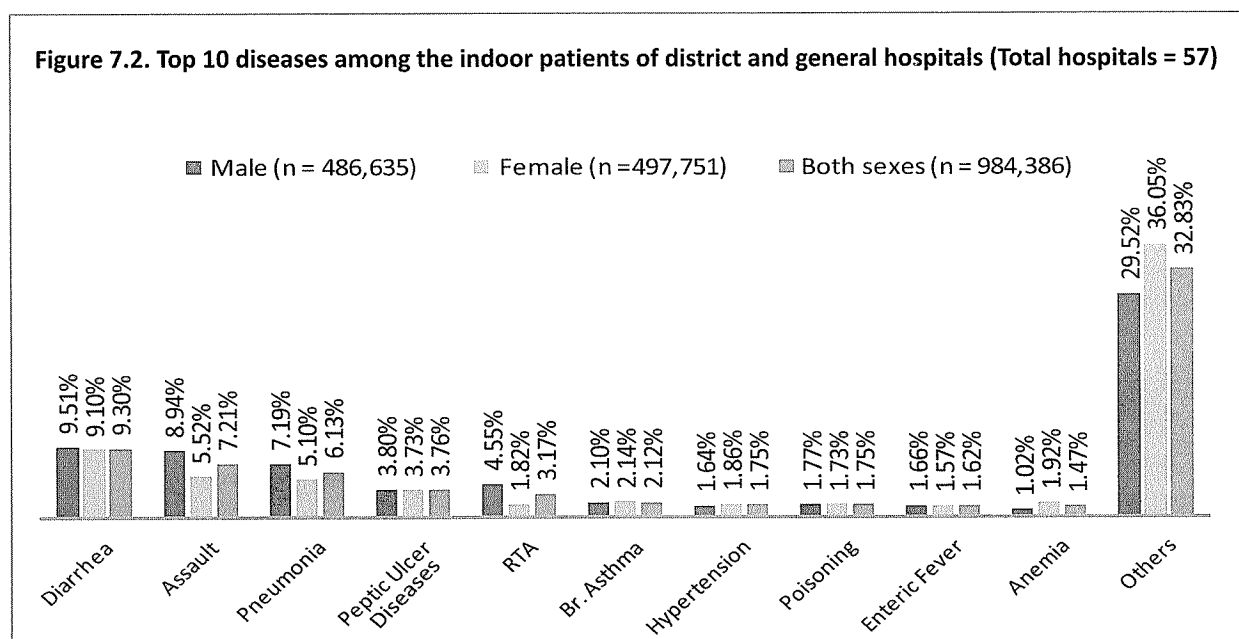
Figure 7.1 shows the morbidity profiles of the top 10 diseases/conditions among the patients admitted in the upazila hospitals. We received data from 376 upazila hospitals out of 418. Total number of patients included in the analysis was 1,681,459, of whom 768,221 were males and 913,138 were females.



Females were 54.31% of the total patients. Diarrhea (15.03%) was the commonest cause, for which the patients were admitted; this was followed by assault (11.89%). The other three most-common diseases were pneumonia (7.27%), peptic ulcer diseases (5.67%), and enteric fever (3.16%). A detailed breakdown of the age- and sex-specific diseases/conditions among the admitted patients in upazila hospitals can be seen in the annexure.

### Morbidity profile in the district and general hospitals

Figure 7.2 shows the morbidity profiles of the top 10 diseases/conditions among the indoor patients in the district and general hospitals. We received data from 57 district and general hospitals out of 62. Total number of patients included in the analysis was 984,386, of whom 486,635 were males and 497,751 were females. Females were half (50.56%) of the total patients. As in the upazila hospitals, diarrhea (9.30%) was also the commonest cause, for which the patients were admitted; this was followed by assault (7.21%). The next three diseases/conditions in order of frequencies were pneumonia (6.13%), peptic ulcer diseases (3.76%), and road-traffic accident (3.17%). Morbidity is lower in female patients than their male counterparts in case of assault and road-traffic accident (RTA). A detailed breakdown of the age- and sex-specific diseases/conditions among the admitted patients in the district and general hospitals is presented in the annexure.

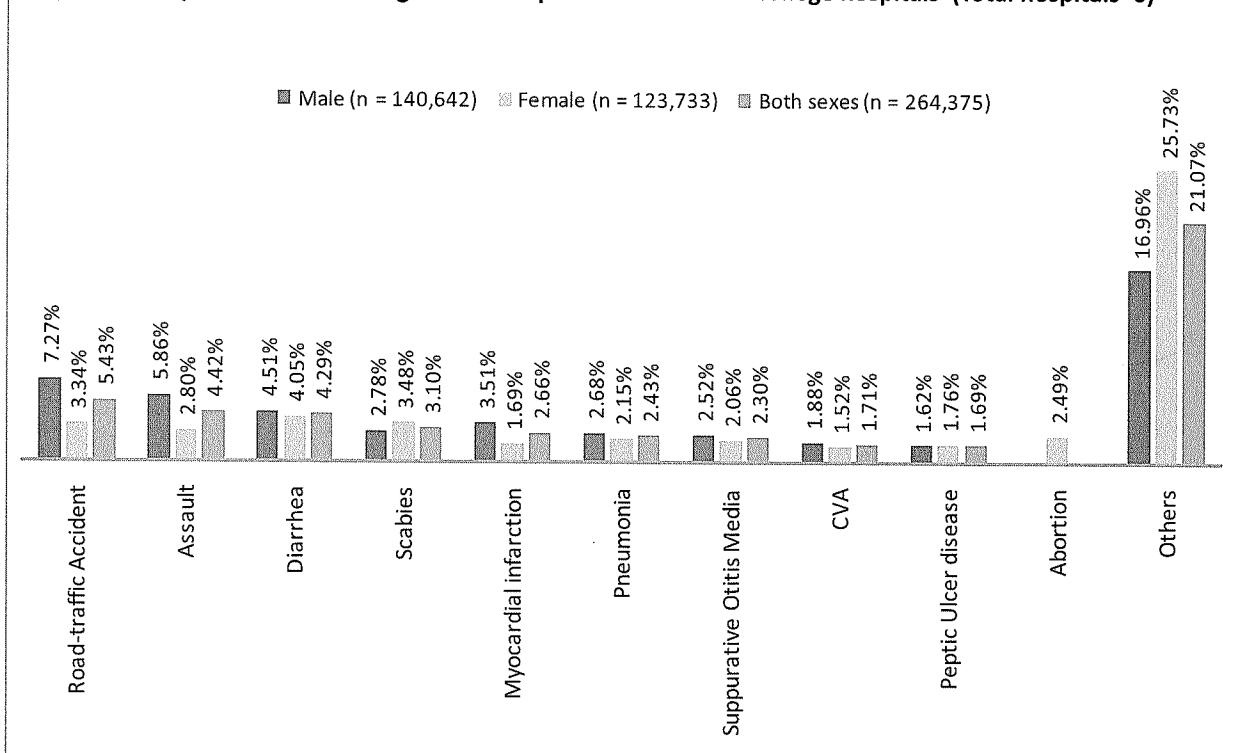


### Morbidity profile in medical college hospitals

Figure 7.3 shows the morbidity profile of the top 10 diseases/conditions among the patients admitted in the medical college hospitals. At the time of analysis, we received data from 6 medical college hospitals (Sir Salimullah Medical College and Mitford Hospital, Dhaka; Shaheed Suhrawardy Medical College Hospital, Dhaka; Shaheed Ziaur Rahman Medical College Hospital, Bogra; Rangpur Medical College Hospital; Dinajpur Medical College Hospital; and MAG Osmani

Medical College Hospital, Sylhet) out of 18. Total number of patients included in the analysis was 264,375, of whom 140,642 were males and 123,733 were females. Females constituted 46.80% of the total patients. The most frequent cause for admission (both sexes) was road-traffic accident (5.43% but females constituted only 3.34%), followed by assault (4.42%), diarrhea (4.29%), scabies (3.10%), myocardial infarction (2.66%), pneumonia (2.43%), and Carebro-vascular accident (2.82%). Distribution of diseases/conditions varied between sexes. A detailed breakdown of the age- and sex-specific diseases/conditions among the admitted patients in these six medical college hospitals is presented in the annexure.

**Figure 7.3. Top 10 diseases among the indoor patients of medical college hospitals (Total hospitals=6)**



### Morbidity profile in Bangabandhu Sheikh Mujib Medical University Hospital

Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital is the only multi-disciplinary university hospital in the country. It caters to the full range of multi-specialty medical services for ordinary as well as complicated and advanced medical conditions in a variety of disciplines. We received a disease profile for 11,062 admitted patients for the year 2010. Table 7.2 shows the top 25 diseases/conditions. Among the males, fracture topped the conditions/diseases (12.21%). The next three diseases were chronic obstructive pulmonary disease (12.31), myocardial infarction (7.98%), and anal fistula (7.82%). Among the females, arthritis (7.32%) topped the diseases/conditions. The next three diseases/conditions were fracture (7.30%), congenital heart disease (6.33), and anal fistula (5.93%). Among both the sexes, fracture was at the top (9.88%), followed by chronic obstructive pulmonary disease (8.21%), anal fistula (6.92%), myocardial infarction (6.51%), arthritis (5.94%), and congenital heart disease (5.25%).

In the annexure, a detailed breakdown of the age- and sex-specific diseases/conditions among the indoor patients of BSMMU has been presented.

**Table 7.2. Percent distribution of the indoor patients in Bangabandhu Sheikh Mujib Medical University (BSMMU) (all ages) (2010)**

Male		Female		Both sexes	
Diagnosis	%	Diagnosis	%	Diagnosis	%
Fracture	12.21	Arthritis	7.32	Fracture	9.88
COPD	12.31	Fracture	7.30	COPD	8.21
Myocardial infarction	7.98	Congenital heart disease	6.33	Anal fistula	6.92
Anal fistula	7.82	Anal fistula	5.93	Myocardial infarction	6.51
Others	5.00	Others	4.98	Arthritis	5.94
CVA	4.83	Myocardial infarction	4.88	Congenital heart disease	5.25
Arthritis	4.69	Ca-cervix	3.95	Others	4.99
Congenital heart disease	4.28	Cholilithiasis	3.79	CVA	3.87
Head injury	2.54	COPD	3.66	Cholilithiasis	2.89
Tuberculosis (Extra-pulmonary)	2.27	Hypertension	2.97	Head Injury	2.66
Retinal problem	2.10	Diabetes mellitus	2.88	Hypertension	2.10
Cholilithiasis	2.08	CVA	2.80	Tuberculosis (Extra-pulmonary)	2.06
Meningitis	1.77	Head injury	2.78	Bacillary dysentery	1.99
Ca-prostate	1.63	Bacillary dysentery	2.48	Valvular heart disease	1.49
Urinary tract infection	1.62	Postpartum hemorrhage (PPH)	2.23	Meningitis	1.44
Bacillary dysentery	1.55	Pelvic infectious disease	2.14	Diabetes mellitus	1.37
Hypertension	1.31	Tuberculosis (Extra-pulmonary)	1.83	Urinary tract infection	1.27
Nasal folyp	1.27	Valvular heart disease	1.81	Disc prolepse	1.21
Valvular heart disease	1.20	Ca-breast	1.77	Retinal problem	1.21
Osteomyelitis	1.15	Hepatitis	1.49	Osteomyelitis	1.13
Disc prolapse	1.13	Disc prolapse	1.30	Nasal polyp	1.11
Prostatic tumor	1.12	Anemia	1.28	Anemia	1.07
Ca-bladder	1.07	Hypothyroidism	1.18	Pelvic inflammatory disease	1.07
Ca-rectum and anal canal	1.03	Osteomyelitis	1.11	Ca-rectum and anal canal	0.98
Urinary stone	0.96	Antepartum hemorrhage (APH)	1.09	Urinary stone	0.81
Total patients=5,817		Total patients=5,245		Total patients=11,062	

### Morbidity profile in postgraduate institute hospitals

Data were available on morbidity profiles of indoor patients from four postgraduate teaching hospitals, namely National Institute of Traumatology, Orthopedics and Rehabilitation (NITOR); National Institute of Kidney Diseases and Urology (NIKDU); National Institute of Diseases of Chest and Hospital (NIDCH); and National Institute of Ophthalmology (NIO). As each of these institutes treats only cases from one specialized discipline, morbidity profiles in these institutes have been shown separately.

Table 7.3 summarizes the morbidity profile of the indoor patients in the National Institute of Traumatology, Orthopedics and Rehabilitation (NITOR). A detailed breakdown of the age- and



sex- specific morbidity profile has been presented in the annexure. The following table shows that among the 20,735 patients, 15,707 were males and 5,028 were females (only 24.25%). Road-traffic accident was the leading cause for admission (39.21%), followed by fracture (5.56%) among both the sexes. Assault and spinal-cord injury were responsible for 4.16% and 1.92% of admissions respectively.

**Table 7.3. Morbidity profile of the indoor patients in the National Institute of Traumatology, Orthopedics and Rehabilitation (NITOR) (all ages) (2010)**

Disease/Condition	Male (%)	Female (%)	Both sexes (%)
Road-traffic accident	41.08	33.37	39.21
Fracture*	4.98	7.36	5.56
Assault	5.13	1.13	4.16
Spinal-cord injury	1.99	1.69	1.92
Burn (Others)	0.64	0.72	0.66
Tuberculosis (Extra-pulmonary)	0.51	0.54	0.52
Gangrene	0.48	0.26	0.42
Disc prolapse	0.29	0.36	0.30
Osteomyelitis	0.13	0.08	0.12
Osteosarcoma	0.11	0.02	0.09
Bone tumor	0.03	0.06	0.03
Poliomyelitis	0.03	0.06	0.03
Rickets	0.02	0.00	0.01
Others	44.60	54.36	46.96
	Total patients=15,707	Total patients=5,028	Total patients=20,735
*Some cases of fracture are included in road-traffic accident, thus showing a lower percentage than assault in the table			

Table 7.4 summarizes the morbidity profile of the indoor patients in the National Institute of Kidney Diseases and Urology (NIKDU). A detailed breakdown of the age- and sex-specific morbidity profile has been presented in the annexure. The following table shows that, among the 3,381 patients, 2,058 were males and 1,323 were females (39.13%). Renal failure was the leading cause for admission (39.84%), followed by renal stone (11.98%) among both the sexes. Nephrotic syndrome and glomerulonephritis were responsible for 8.10% and 6.74% of admissions respectively.

**Table 7.4. Morbidity profile of the indoor patients in the National Institute of Kidney Diseases and Urology (NIKDU) (all ages) (2010)**

Disease/Condition	Male (%)	Female (%)	Both sexes (%)
Ca-kidney	1.31	2.12	1.63
Ca-prostate	1.75	-	-
Glomerulonephritis	4.57	10.13	6.74
Hypertrophied prostate	3.30	-	-
Nephrotic syndrome	7.58	8.92	8.10
Prostatic tumor	1.51	-	-

**Table 7.4. Morbidity profile of the indoor patients in the National Institute of Kidney Diseases and Urology (NIKDU) (all ages) (2010) (Continued...)**

Disease/Condition	Male (%)	Female (%)	Both sexes (%)
Renal failure	37.71	43.16	39.84
Renal stone	14.14	8.62	11.98
Urinary stone disease	2.24	2.95	2.51
Urinary tract infection	3.11	4.08	3.49
Others	22.79	11.87	18.52
	Total patients=2,058	Total patients=1,323	Total patients=3,381

Table 7.5 summarizes the morbidity profile of the indoor patients in the National Institute of Diseases of Chest and Hospital (NIDCH). A detailed breakdown of the age- and sex-specific morbidity profile can be seen in the annexure. The table shows that, among the 8,929 patients, 5,135 were males and 3,794 were females (42.59%). Pulmonary tuberculosis was the leading cause for admission (19.62%), followed by bronchial asthma (17.44%) among both the sexes. Extra-pulmonary tuberculosis and COPD were responsible for 16.16% and 14.67% of the admissions respectively.

**Table 7.5. Morbidity profile (%) of the indoor patients in the National Institute of Diseases of Chest and Hospital (NIDCH) (all ages) (2010)**

Disease/Condition	Male (%)	Female (%)	Both sexes (%)
Tuberculosis (Pulmonary)	19.73	19.48	19.62
Bronchial asthma	15.99	19.40	17.44
Tuberculosis (Extra-pulmonary)	18.44	13.07	16.16
COPD	15.31	13.81	14.67
Pleural effusion	6.23	8.38	7.15
Bronchiolitis	7.69	5.40	6.72
Bronchiectasis	6.27	6.91	6.54
Ca-oesophagus	4.97	7.59	6.08
Ca-lungs	4.38	5.22	4.74
Pneumothorax	0.62	0.34	0.50
Pulmonary fibrosis	0.37	0.40	0.38
	Total patients=5135	Total patients=3794	Total patients=8929

We summarized the data on morbidity profiles of the indoor patients at the National Institute of Ophthalmology (NIO) for 2010. Table 7.6 summarizes the results. The table shows that, among the 9,783 admitted patients, 4,603 were males (47.05) and 5,180 were females (52.95%).

**Table 7.6. Morbidity profiles of the indoor patients in the National Institute of Ophthalmology (NIO) (all ages) in 2010**

Disease/Condition	Male (%)	Female (%)	Both sexes (%)
Cataract	31.91	34.58	33.32
Eye injury	17.01	16.53	16.75
DCR	9.62	16.12	13.06
Oculo plasty	13.45	11.56	12.45
Corneal problems	5.39	3.80	4.55
TRAB	4.82	3.51	4.13
RD surgery	2.17	2.59	2.39
Vitreous	0.52	0.27	0.39
Others	15.10	11.04	12.95
	Total patients=4,603	Total patients=5,180	Total patients=9,783

Table 7.7 summarizes the morbidity profile of the indoor patients in the National Institute of Mental Health (NIMH). Schizophrenia was the leading cause for admission (37.58%), followed by bipolar mood disorder (28.94%) and depressive illness (16.94%) among both the sexes.

**Table 7.7. Morbidity profiles of the indoor patients in the National Institute of Mental Health (NIMH) (all ages and both the sexes) in 2010**

Disease/Condition	No. of cases (both sexes)	Percentage (both sexes)
Schizophrenia	539	37.58
Bipolar mood disorder	415	28.94
Depressive illness	283	16.94
Suicide and parasuicide	9	0.62
Mental disorder	43	2.99
Extra-pyramidal syndrome (EPS)	18	1.25
Substance abuse with complications	112	7.81
Conversion and dissociative disorder	15	1.04
	Total patients=1,434	

# Mortality Profiles

Data on mortality for the year 2010 were received from 468 government health facilities, with a total of 51,550 deaths among the in-patients. The distribution of the types of health facilities and the said death cases is summarized in Table 8.1.

**Table 8.1. Distribution of the types of government health facilities and reported death cases in 2010**

Type of health facility	Facility		Death	
	No.	%	No.	%
Upazila health complexes	390	81.25	5,775	11.20
District-level hospitals (district and general hospitals)	62	12.92	14,111	27.37
Medical college hospitals	14	2.92	27,255	52.87
Infectious disease hospitals (Dhaka, Rajshahi, and Khulna)	3	0.63	129	0.25
National Institute of Diseases of Chest and Hospital (NIDCH) and other chest hospitals (Bogra, Rajshahi, Jessore, Barisal, and Brahmanbaria)	6	1.25	876	1.70
Other postgraduate specialized teaching hospitals (NICVD, NIKDU, NIRCH, NITOR and NIMHR)	5	1.04	3,404	6.60
Total	480	100.00	51,550	100.00

## Mortality related to involvement of body-systems

The upazila health complexes, district hospitals, and medical college hospitals treat patients with diseases involving any body-system. Therefore, an attempt was made to categorize the top causes of mortality in these hospitals by involved body-systems or major causes of mortality. For the sake of more accuracy, deaths reported as 'cardio-respiratory failure' have been excluded this year from analysis. However, deaths reported from the National Institute of Diseases of Chest and Hospital and other chest hospitals comprised a larger proportion from cardio-respiratory failure. We did not remove cardio-respiratory failure for this specific group of hospitals. Table 8.2 summarizes the results.

**Table 8.2. Causes of mortality by body-system or major causes in upazila health complexes, district hospitals, general hospitals, and medical college hospitals of Bangladesh (2010)**

Body-system involved	Upazila health complex (n=390)		District and general hospital (n=62)		Medical college hospital (n=14)	
	No.	%	No.	%	No.	%
Cardiovascular system	1,339	23.19	3,911	27.72	8,817	32.35
IMCI diseases*	1,132	19.60	1,223	8.67	586	2.15
Respiratory system	869	15.05	1,082	7.67	1,109	4.07
Poisoning	419	7.26	635	4.50	806	2.96
Newborn-related problem	322	5.58	2,848	20.18	4,072	14.94
Injury	196	3.39	642	4.55	1,757	6.45
Acute abdomen	140	2.42	269	1.91	583	2.14

**Table 8.2. Causes of mortality by body-system or major causes in upazila health complexes, district hospitals, general hospitals, and medical college hospitals of Bangladesh (2010) (Continued...)**

Body-system involved	Upazila health complex (n=390)		District and general hospital (n=62)		Medical college hospital (n=14)	
	No.	%	No.	%	No.	%
Other infective conditions	139	2.41	897	6.36	2,076	7.62
Nervous system	99	1.71	365	2.59	1,412	5.18
Nutritional problem	90	1.56	139	0.99	120	0.44
Gastro-intestinal system	86	1.49	68	0.48	107	0.39
Pregnancy-related problem	79	1.37	263	1.86	412	1.51
Malignant condition	73	1.26	124	0.88	503	1.85
Hepatic problem	46	0.80	137	0.97	591	2.17
Renal problem	45	0.78	101	0.72	493	1.81
Others	701	12.14	1,407	9.97	3,811	13.98
Total deaths analyzed	5,775	100	14,111	100.00	27,255	100.00
*Refer to Chapter 4 for a list of IMCI diseases						

### Causes of mortality in upazila hospitals

Figure 8.1 shows the percent distribution of the top 10 causes of mortality among cases of all ages and both sexes in the upazila health complexes for the year 2010. The analysis includes 5,775 deaths reported from 390 upazila health complexes. IMCI diseases (20.30%) were found to be the leading causes of deaths, followed by cerebro-vascular accident (10.08%), bronchial asthma (8.25%), and poisoning (7.52%).

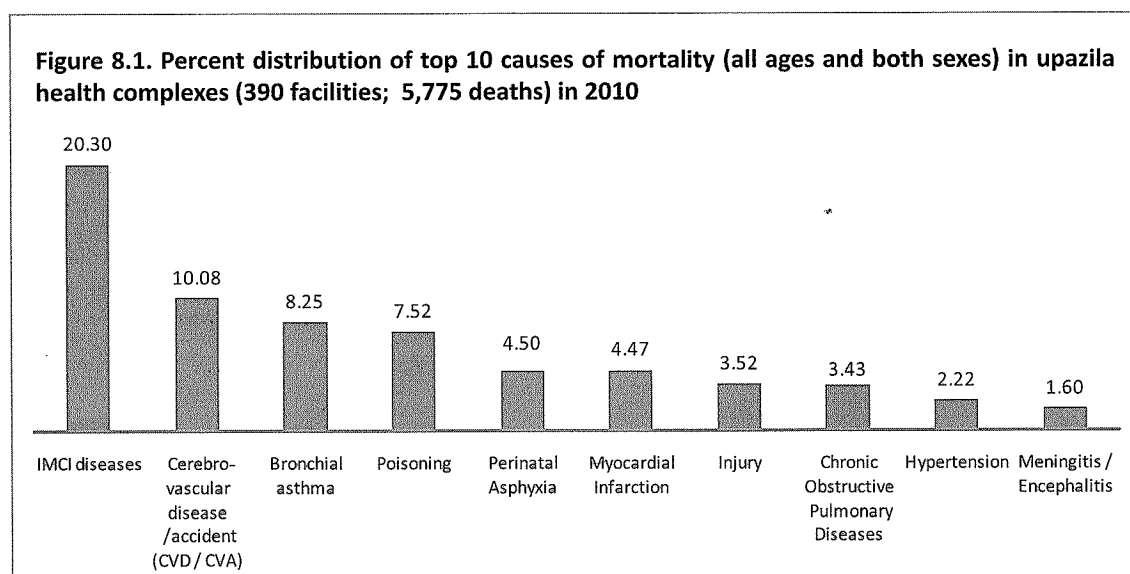


Table 8.3 shows the sex distribution for the top 10 causes of mortality in the upazila health complexes. If this table of mortality profile is compared with that of the previous year (as published in Health Bulletin 2010), some differences in the percentage distribution would be



observed. This is mainly due to the fact that the IMCI diseases (which include pneumonia, very severe disease, diarrhea, and some other conditions among patients aged 0 to 5 year(s) are grouped as a single entity in Health Bulletin 2011. Detailed age and sex distribution of mortality has been shown in the annexure.

**Table 8.3. Percent distribution of the top 10 causes of mortality (all ages) in upazila health complexes (n=390) (2010)**

Male		Female		Both sexes	
IMCI diseases	16.67	IMCI diseases	23.45	IMCI diseases	19.60
Asthma	9.83	Cerebro-vascular accident	10.92	Cerebro-vascular accident	9.73
Cerebro-vascular accident	8.82	Poisoning	9.24	Asthma	7.97
Poisoning	5.74	Asthma	5.52	Poisoning	7.26
Myocardial infarction	5.65	Perinatal asphyxia	4.44	Perinatal asphyxia	4.35
COPD	4.55	Pregnancy-related cause	3.16	Myocardial infarction	4.31
Perinatal asphyxia	4.27	Injury	2.92	Injury	3.39
Injury	3.75	Myocardial infarction	2.56	COPD	3.31
Hypertension	1.95	Hypertension	2.40	Hypertension	2.15
Meningitis/Encephalitis	1.34	Septicemia	1.92	Meningitis/Encephalitis	1.54
Total deaths	3,276	Total deaths	2,499	Total deaths	5,775

### Causes of mortality in the district-level hospitals

Figure 8.2 shows the percent distribution of the top 10 causes of mortality among cases of all ages and both sexes in the district-level hospitals for the year 2010. The statistics include 14,111 deaths reported from 62 district-level (sadar and general) hospitals. Perinatal asphyxia (15.36%) was found to be the leading cause of deaths, followed by cerebro-vascular accident (10.90%), IMCI diseases (8.67%), and myocardial infarction (6.38%).

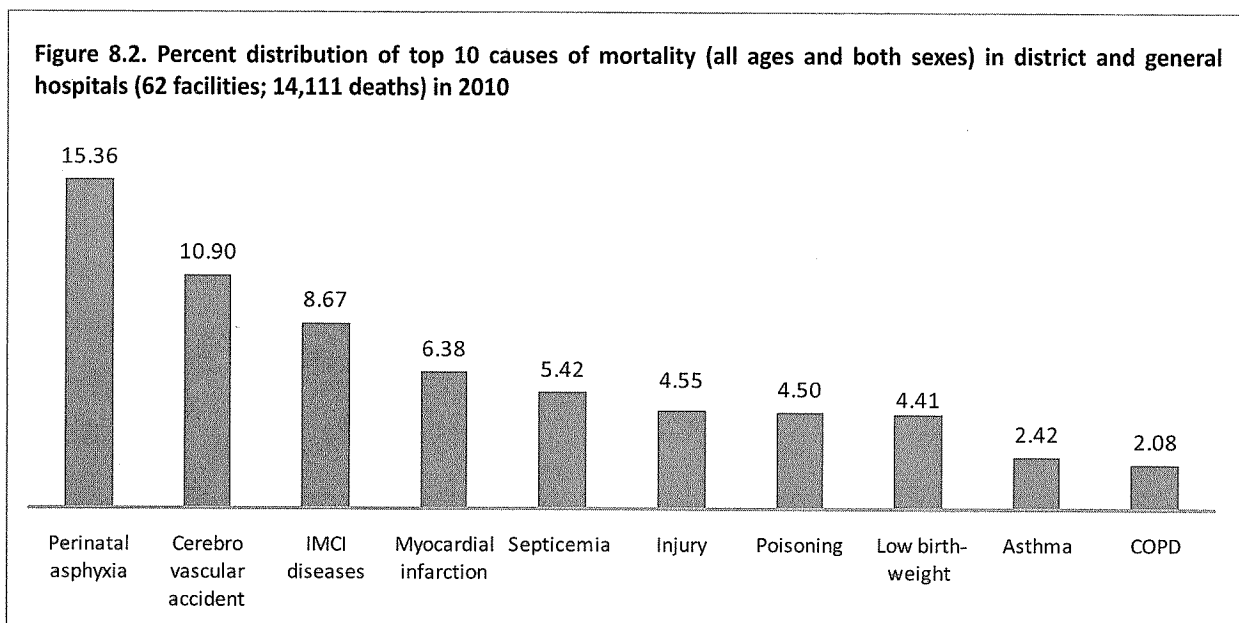


Table 8.4 shows the sex distribution of the top 10 causes of mortality in the district hospitals. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.4. Percent distribution of the top 10 causes of mortality (all ages) in the district and general hospitals (n=62) (2010)**

Male		Female		Both sexes	
Perinatal asphyxia	14.56	Perinatal asphyxia	16.51	Perinatal asphyxia	15.36
Cerebro-vascular accident	11.72	Cerebro-vascular accident	14.06	Cerebro-vascular accident	10.90
IMCI diseases	8.78	IMCI diseases	8.51	IMCI diseases	8.67
Myocardial infarction	8.26	Septicemia	5.78	Myocardial infarction	6.38
Injury	5.62	Poisoning	5.57	Septicemia	5.42
Septicemia	5.17	Low birthweight	4.71	Injury	4.55
Low birthweight	4.05	Pregnancy-related cause	4.52	Poisoning	4.50
Poisoning	3.75	Myocardial infarction	3.70	Low birthweight	4.41
COPD	2.77	Injury	3.03	Asthma	2.42
Asthma	2.63	Asthma	2.13	COPD	2.08
Total deaths	8,295	Total deaths	5,816	Total deaths	14,111

Figure 8.3 shows the percent distribution of the top 10 causes of mortality among cases of all ages and both sexes in the medical college hospitals for the year 2010. The statistics include 27,255 deaths reported from 14 medical college hospitals. Carebro-vascular accident or stroke (14.86%) was found to be the leading reported cause of deaths, followed by perinatal asphyxia (8.96%), injuries (6.44%), other cardiovascular diseases (6.24%), myocardial infarction (6.09%), septicemia (5.61%), low birthweight (4.49%), meningitis / encephalitis (4.14%), poisoning (2.96%), and hypertension (2.60%).

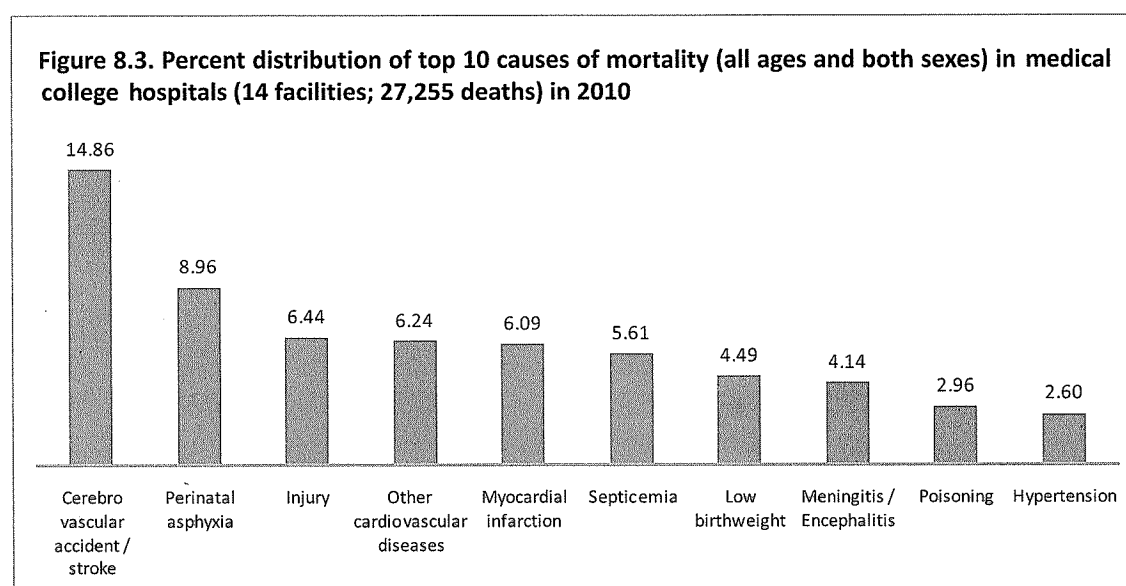


Table 8.5 shows the sex distribution of the top 10 causes of mortality in the medical college hospitals. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.5. Percent distribution of the top 10 causes of mortality (all ages) in medical college hospitals (n=14) (2010)**

Male		Female		Both sexes	
Cerebro-vascular accident/stroke	14.87	Cerebro-vascular accident/stroke	14.86	Cerebro-vascular accident/stroke	14.86
Injury	8.10	Perinatal asphyxia	11.86	Perinatal asphyxia	8.96
Myocardial infarction	7.64	Septicemia	6.12	Injury	6.44
Perinatal asphyxia	6.97	Low birthweight	5.79	Other cardiovascular diseases*	6.24
Other cardiovascular diseases*	6.73	Other cardiovascular diseases*	5.52	Myocardial infarction	6.09
Septicemia	5.26	Meningitis/Encephalitis	4.23	Septicemia	5.61
Meningitis/Encephalitis	4.08	Injury	3.99	Low birthweight	4.49
Low birthweight	3.60	Myocardial infarction	3.83	Meningitis/Encephalitis	4.14
COPD	2.79	Pregnancy-related cause	3.73	Poisoning	2.96
Poisoning	2.68	Poisoning	3.36	Hypertension	2.60
Total deaths analyzed	16,204	Total deaths analyzed	11,051	Total deaths analyzed	27,255

\*Include all cardiovascular diseases except CVD, hypertension, myocardial infarction, and left ventricular failure

### Causes of mortality in infectious disease hospitals

Figure 8.4 shows the percent distribution of the top causes of mortality among cases of all ages and both sexes in the infectious disease hospitals for the year 2010. The statistics include 129 deaths reported from 3 infectious disease hospitals of Dhaka, Khulna, and Rajshahi. Tetanus (79.07%) was the most frequent cause of deaths, followed by chicken pox (10.08%).

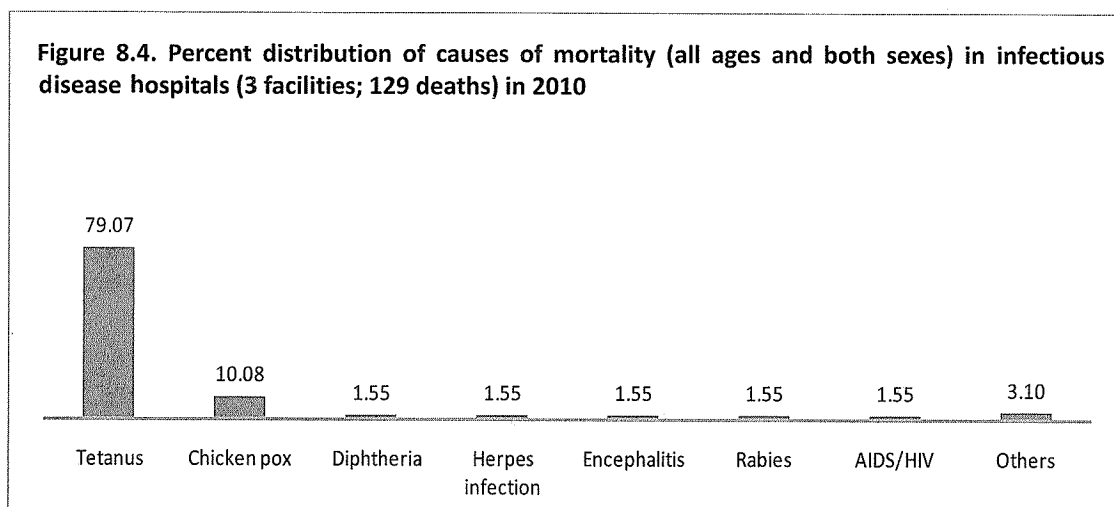


Table 8.6 shows the sex distribution of the top causes of mortality in the infectious disease hospitals. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.6. Percent distribution of causes of mortality (all ages) in infectious disease hospitals (n=3) (2010)**

Male		Female		Both sexes	
Tetanus	78.79	Tetanus	80.00	Tetanus	79.07
Chicken pox	11.11	Chicken pox	6.67	Chicken pox	10.08
Diphtheria	1.01	Diphtheria	3.33	Diphtheria	1.55
Herpes infection	2.02	Encephalitis	3.33	Herpes infection	1.55
Encephalitis	1.01	HIV/AIDS	3.33	Encephalitis	1.55
Rabies	2.02	Herpes infection	0	Rabies	1.55
HIV/AIDS	1.01	Rabies	0	HIV/AIDS	1.55
Others	3.03	Others	3.33	Others	3.10
Total patients=99		Total patients=30		Total patients=129	

### Causes of mortality in the National Institute of Diseases of Chest and Hospital and other chest hospitals

Figure 8.5 shows the percent distribution of the top causes of mortality among cases of all ages and both sexes in the National Institute of Diseases of Chest and Hospital and 5 other chest hospitals from the districts of Brahmanbaria, Barisal, Bogra, Jessore, and Rajshahi for the year 2010. The statistics include 876 deaths reported from these hospitals. Cardio-respiratory failure (65.75%) was the leading reported cause of deaths, followed by pulmonary tuberculosis (7.53%), type I and II respiratory failure (6.62%), chronic obstructive pulmonary disease (COPD) (4.00%), malignancy (2.74%), cardiovascular diseases (1.71%), other pulmonary lesions (1.37%), bronchial asthma (1.03%), and pneumonia (0.91%).

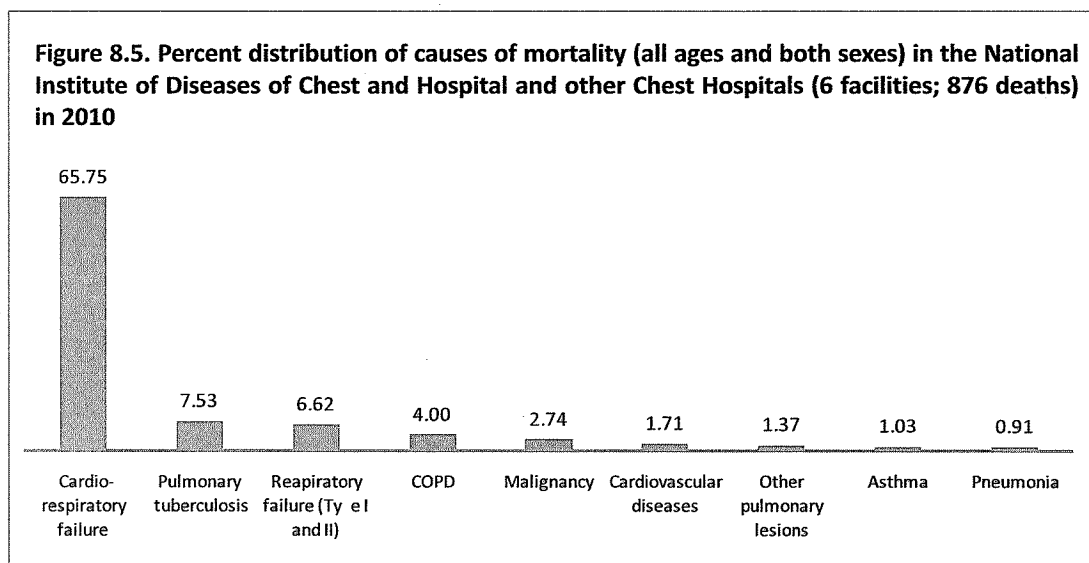


Table 8.7 shows the sex distribution of the top causes of mortality in these hospitals. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.7. Percent distribution of the top causes of mortality (all ages) in NIDCH and other chest hospitals (n=6) (2010)**

Male		Female		Both sexes	
Cardio-respiratory failure	64.05	Cardio-respiratory failure	71.96	Cardio-respiratory failure	65.75
Pulmonary tuberculosis	7.57	Pulmonary tuberculosis	7.41	Pulmonary tuberculosis	7.53

**Table 8.7. Percent distribution of the top causes of mortality (all ages) in NIDCH and other chest hospitals (n=6) (2010) (Continued...)**

Male		Female		Both sexes	
Respiratory failure (Type I and II)	6.55	Respiratory failure (Type I and II)	6.88	Respiratory failure (Type I and II)	6.62
COPD	5.09	Malignancy	2.65	COPD	4.00
Malignancy	2.77	Cardiovascular diseases	2.65	Malignancy	2.74
Other pulmonary lesions	1.46	Bronchial asthma	2.12	Cardiovascular diseases	1.46
Cardiovascular diseases	1.46	Pneumonia	1.06	Other pulmonary lesions	1.46
Pneumonia	0.87	Other pulmonary lesions	1.06	Bronchial asthma	0.73
Bronchial asthma	0.73	COPD	0.00	Pneumonia	0.87
Total patients=687		Total patients=189		Total patients=876	

### Causes of mortality in the National Institute of Cardiovascular Diseases & Hospital

Figure 8.6 shows the percent distribution of the top 10 causes of mortality among cases of all ages and both sexes in the National Institute of Cardiovascular Diseases & Hospital for the year 2010. The statistics include 3,110 deaths reported from this hospital. Acute myocardial infarction (32.41%) was the leading cause of deaths, followed by left ventricular failure (22.93%), unstable angina (6.46%), non-ST elevation myocardial infarction (6.14%), valvular diseases (4.18%), atrial or ventricular septal defects (3.63%), old myocardial infarction (3.25%), rheumatic heart disease (3.05%), recurrent myocardial infarction (2.60%) and ischemic cardiomyopathy (1.99%).

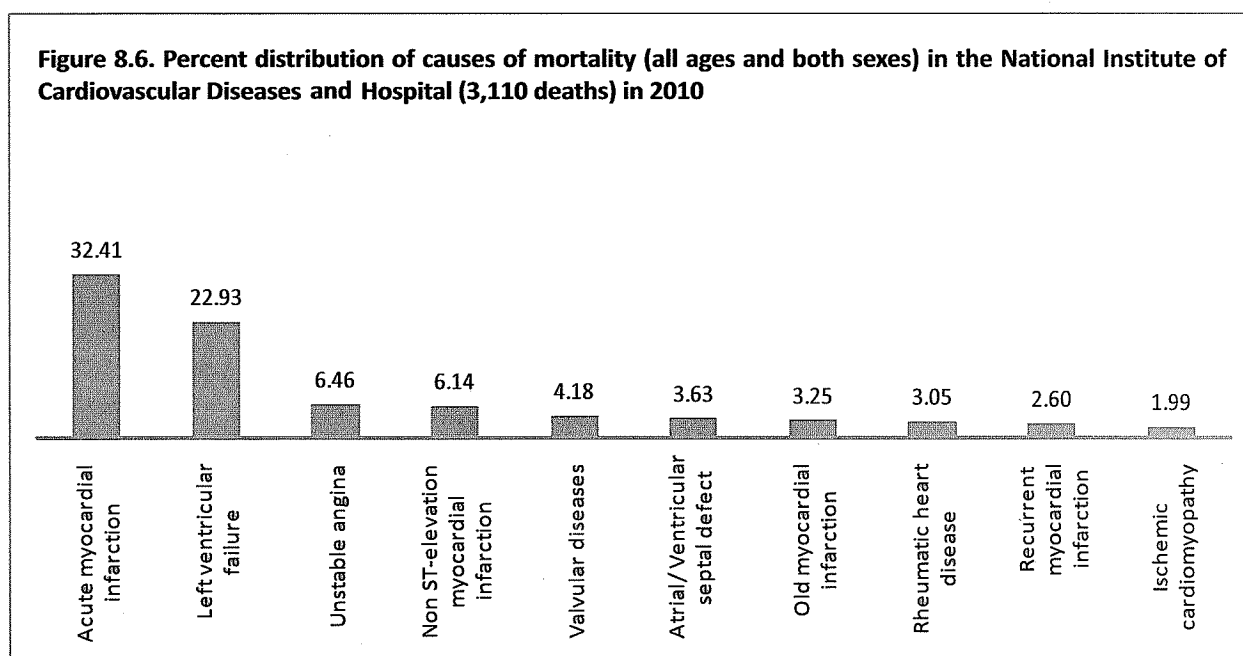


Table 8.8 shows the sex distribution of the top causes of mortality in the same hospital. Detailed age and sex distribution of the mortality has been shown in the annexure.



**Table 8.8. Percent distribution of the top 10 causes of mortality (all ages) in the National Institute of Cardiovascular Diseases & Hospital (2010)**

Male		Female		Both sexes	
Acute myocardial infarction	35.63	Acute myocardial infarction	24.20	Acute myocardial infarction	32.41
Left ventricular failure	23.55	Left ventricular failure	21.35	Left ventricular failure	22.93
Unstable angina	6.45	Valvular diseases	7.42	Unstable angina	6.46
Non ST-elevation myocardial infarction	5.95	Non ST-elevation myocardial infarction	6.62	Non ST-elevation myocardial infarction	6.14
Old myocardial infarction	3.58	Unstable angina	6.51	Valvular diseases	4.18
Atrial/Ventricular septal defect	3.09	Rheumatic heart disease	6.28	Atrial/Ventricular septal defect	3.63
Recurrent myocardial infarction	2.91	Atrial/Ventricular septal defect	5.02	Old myocardial infarction	3.25
Valvular diseases	2.91	Tetralogy of Fallot	2.51	Rheumatic heart disease	3.05
Ischemic cardiomyopathy	2.15	Old myocardial infarction	2.40	Recurrent myocardial infarction	2.60
Rheumatic heart disease	1.79	Dilated cardiomyopathy	2.28	Ischemic cardiomyopathy	1.99
Total patients=2,234		Total patients=876		Total patients=3,110	

### Causes of mortality in the National Institute of Kidney Diseases and Urology Hospital

Figure 8.7 shows the percent distribution of the top 10 causes of mortality among cases of all ages and both sexes in the National Institute of Kidney Diseases and Urology Hospital for the year 2010. The statistics include 145 deaths reported from this hospital. Complications of hypertension (35.86%) was the leading cause of deaths, followed by chronic kidney diseases (19.31%), acute renal failure (10.34%), complications of diabetes mellitus (10.34%), glomerulonephritis (7.59%), end-stage renal disease (4.83%), obstructive uropathy (3.45%), nephrotic syndrome (2.76%), renal injury (2.07%), and graft rejection (1.38%).

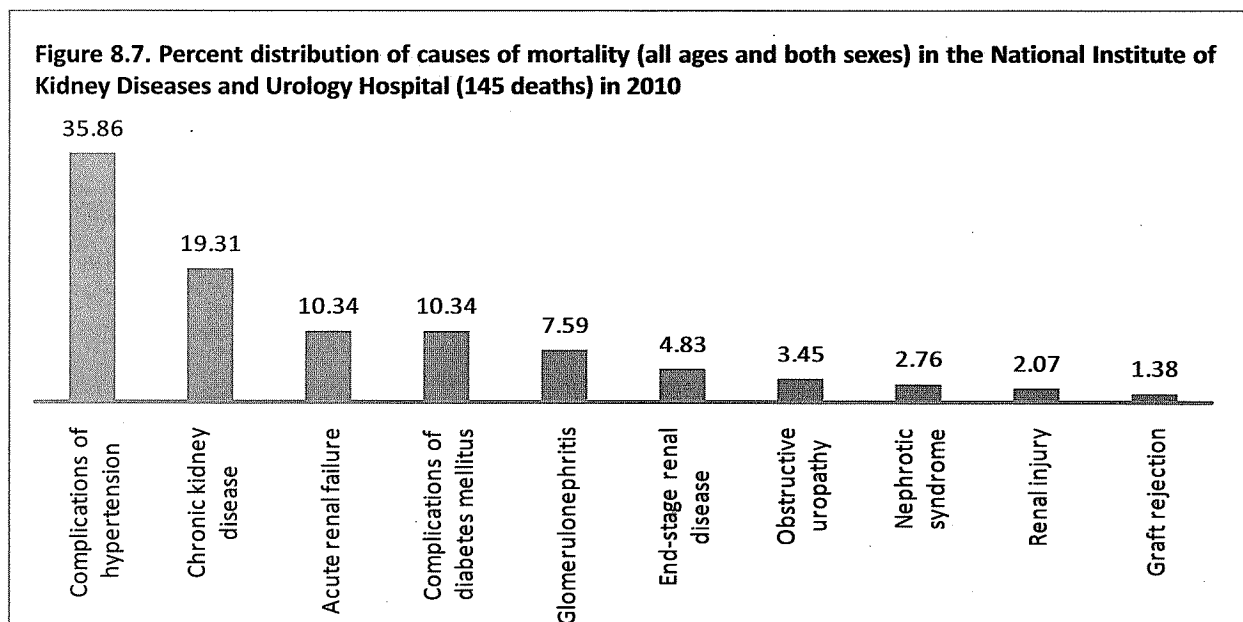


Table 8.9 shows the sex distribution of the top 10 causes of mortality in the same hospital. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.9. Percent distribution of the top 10 causes of mortality (all ages and both sexes) in the National Institute of Kidney Diseases and Urology Hospital (2010)**

Male		Female		Both sexes	
Complications of hypertension	37.78	Complications of hypertension	32.73	Complications of hypertension	35.86
Chronic kidney diseases	24.44	Acute renal failure	10.91	Chronic kidney diseases	19.31
Acute renal failure	7.78	Complications of diabetes mellitus	14.55	Acute renal failure	10.34
Complications of diabetes mellitus	8.89	Chronic kidney diseases	12.73	Complications of diabetes mellitus	10.34
Glomerulonephritis	5.56	Glomerulonephritis	10.91	Glomerulonephritis	7.59
End-stage renal disease	5.56	End-stage renal disease	3.64	End-stage renal disease	4.83
Obstructive uropathy	3.33	Obstructive uropathy	3.64	Obstructive uropathy	3.45
Nephrotic syndrome	3.33	Renal injury	1.82	Nephrotic syndrome	2.76
Renal injury	1.11	Nephrotic syndrome	3.64	Renal injury	2.07
Graft rejection	1.11	Graft rejection	1.82	Graft rejection	1.38
Total patients=90		Total patients=55		Total patients=145	

### Causes of mortality in the National Institute of Cancer Research and Hospital

Figure 8.8 shows the percent distribution of the top causes of mortality among cases of all ages and both sexes in the National Institute of Cancer Research and Hospital for the year 2010. The statistics include 85 deaths reported from this hospital. Carcinoma of lungs (30.59%) was the leading cause of deaths, followed by acute myeloid leukemia (5.88%), Non-Hodgkin's lymphoma (5.88%), carcinoma of stomach (5.88%), adenocarcinoma (4.71%), carcinoma of colon and rectum (3.53%), acute lymphatic leukemia (2.35%), squamous cell carcinoma (2.35%), carcinoma of gallbladder (2.35%), and fibrosarcoma (2.35%).

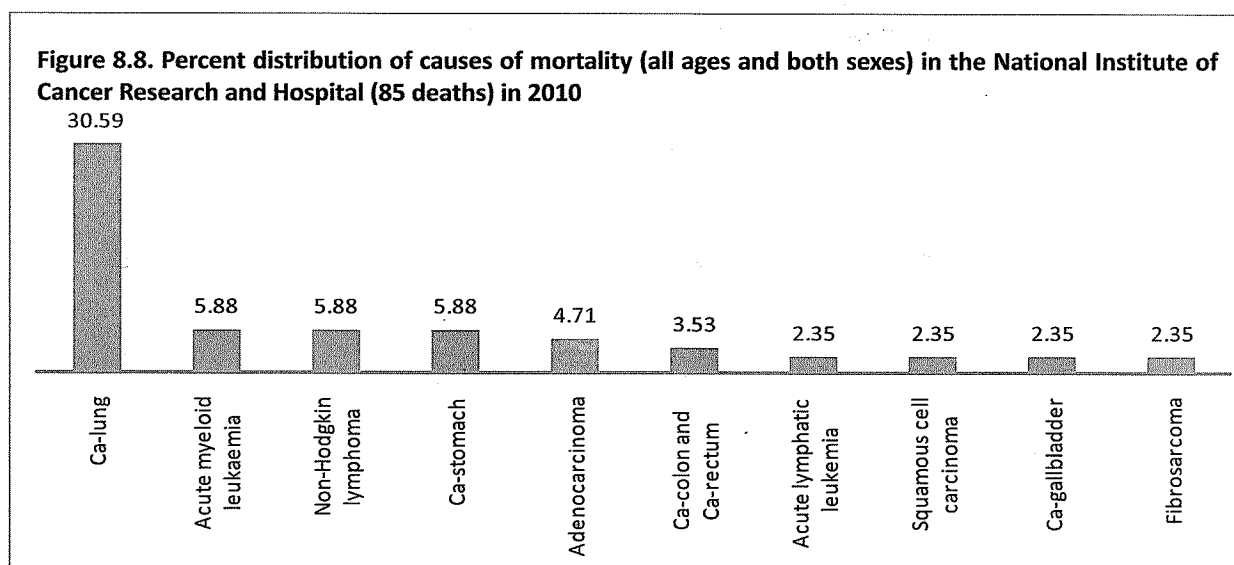


Table 8.10 shows the sex distribution of the top causes of mortality in the same hospital. Detailed age and sex distribution of the mortality has been shown in the annexure.

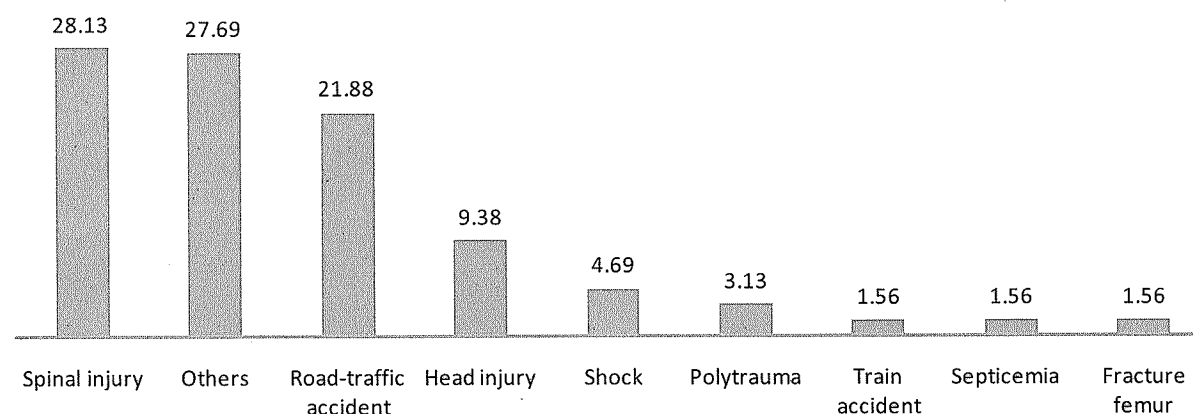
**Table 8.10. Percent distribution of the top causes of mortality (all ages) in the National Institute of Cancer Research and Hospital (2010)**

Male		Female		Both sexes	
Ca-lung	44.44	Ca-breast	16.13	Ca-lung	30.59
Acute myeloid leukemia	7.41	Chorio-carcinoma	9.68	Acute myeloid leukemia	5.88
Non-Hodgkin lymphoma	5.56	Adenocarcinoma	6.45	Non-Hodgkin lymphoma	5.88
Ca-stomach	5.56	Ca-colon and Ca-rectum	6.45	Ca-stomach	5.88
Adenocarcinoma	3.70	Ca-lung	6.45	Adenocarcinoma	4.71
Ca-prostate	3.70	Non-Hodgkin lymphoma	6.45	Ca-colon and Ca-rectum	3.53
Ca-gallbladder	3.70	Ca-stomach	6.45	Acute lymphatic leukemia	2.35
Acute lymphatic leukemia	1.85	Acute lymphatic leukemia	3.23	Squamous cell carcinoma	2.35
Ca-colon and Ca-rectum	1.85	Acute myeloid leukemia	3.23	Ca-gallbladder	2.35
Ca-gallbladder	1.85	Ca-gallbladder	3.23	Fibrosarcoma	2.35
Total patients=54		Total patients=31		Total patients=85	

### Causes of mortality in the National Institute of Traumatology, Orthopedics and Rehabilitation

Figure 8.9 shows the percent distribution of the top causes of mortality among cases of all ages and both sexes in the National Institute of Traumatology, Orthopedics and Rehabilitation for the year 2010. The report includes 64 deaths. Spinal injury (28.13%) was the leading cause of deaths, followed by road-traffic accident (21.88%), head injury (9.38%), shock (4.69%), polytrauma (3.13%), train accident (1.56%), septicemia (1.56%), and fracture femur (1.56%).

**Figure 8.9. Percent distribution of causes of mortality (all ages and both sexes) in the National Institute of Traumatology, Orthopedics and Rehabilitation (64 deaths) in 2010**



## Chapter 8: Mortality Profiles

Table 8.11 shows the sex distribution of the top causes of mortality in the same hospital. Detailed age and sex distribution of the mortality has been shown in the annexure.

**Table 8.11. Percent distribution of the top causes of mortality (all ages and both sexes) in the National Institute of Traumatology, Orthopedics and Rehabilitation (2009)**

Male		Female		Both sexes	
Spinal injury	29.63	Others	50.00	Spinal injury	28.13
Road-traffic accident	24.07	Spinal injury	20.00	Others	27.69
Others	24.07	Head injury	10.00	Road-traffic accident	21.88
Head injury	9.26	Road-traffic accident	10.00	Head injury	9.38
Shock	5.56	Fracture femur	10.00	Shock	4.69
Polytrauma	3.70			Polytrauma	3.13
Train accident	1.85			Train accident	1.56
Septicemia	1.85			Septicemia	1.56
Total patients=54		Total patients=32		Total patients=64	

No patient died in the National Institute of Mental Health and Research during 2010.

# Communicable Diseases

Communicable diseases are those that are caused by different types of transmissible infectious agents, including bacteria, virus, parasite, and fungus. Every year new infectious diseases are included as emerging diseases; also, some diseases eradicated or controlled earlier may start to reappear that are designated as re-emerging diseases. The emerging and re-emerging diseases include pandemic influenza, avian influenza, Nipah virus infection (encephalitis), HIV/AIDS, viral hepatitis, poliomyelitis, dengue, kala-azar, enteric fever, anthrax, leptospirosis, etc. while diarrhea and ARI are most common in this country. One human case of avian influenza was detected in Bangladesh in 2008, with no report of death. In late 2009 and early 2010, there was a great panic due to global pandemic of swine flu. A few positive cases were also detected. However, there were only two recorded deaths in Bangladesh. In this chapter, an overview of the communicable disease situation in Bangladesh is presented.

## Malaria

Malaria is now a localized disease of Bangladesh—endemic in 13 districts of eastern and northern parts of the country. Among these, the districts of Rangamati, Khagrachhari, Bandarban, Chittagong, and Cox's Bazar are hyper-endemic, the districts of Mymensingh, Sherpur, Netrokona, Kurigram, Sylhet, Maulvibazar, Sunamganj, and Habiganj are prone to low epidemic. The three hilly districts account for 80% of the total burden of malaria in Bangladesh. During the last decade, the annual average number of reported cases was 57,230, of whom 45,569 (>90%) contracted the disease due to *Plasmodium falciparum*. The rest were due to *Plasmodium vivax*, and a few cases were due to mixed infection. The overall prevalence of malaria in the 13 endemic districts was 3.1% (Malaria Baseline Socioeconomic and Prevalence Survey 2007). Over 10.9 million people of Bangladesh are at high risk of malaria. Most vulnerable groups are under-five children and pregnant women. About 0.03% annual deaths in Bangladesh are attributed to malaria. The country has a malaria-control program and has achieved remarkable success in terms of reduction in the number of malaria cases and deaths. Early diagnosis and prompt treatment through doorstep facilities provided by GO-NGO partnership with support of GFATM has been proved effective. The use of insecticide-treated bednets has supplemented the effort. The program under Communicable Disease Control Division of the DGHS has been moving forward with the aim of zero death and substantial reduction in malaria cases by 2015. Table 9.1 summarizes year-wise epidemiological data on malaria from the endemic districts.

**Table 9.1. Epidemiological data on malaria (2000-2010) from the endemic districts**

Year	Clinical case (No.)	Positive case		<i>P. falciparum</i>		<i>P. vivax</i>		Death	
		No.	%	No.	%	No.	%	No.	%
2000	294,358	54,223	18.4	39,272	72.4	14,951	27.6	478	0.2
2001	276,901	54,216	19.6	39,274	72.4	14,942	27.6	490	0.2



Table 9.1. Epidemiological data on malaria (2000-2010) from the endemic districts (Continued...)

Year	Clinical case (No.)	Positive case		<i>P. falciparum</i>		<i>P. vivax</i>		Death	
		No.	%	No.	%	No.	%	No.	%
2002	305,738	62,269	20.4	46,418	74.5	15,851	25.5	588	0.2
2003	279,439	54,654	19.6	41,356	75.7	13,298	24.3	577	0.2
2004	224,003	58,894	26.3	46,402	78.8	12,492	21.2	535	0.2
2005	242,247	48,121	19.9	37,679	78.3	10,442	21.7	501	0.2
2006	313,794	32,857	10.5	24,828	75.6	8,029	24.4	307	0.1
2007	458,775	59,857	13.0	46,791	78.2	13,066	21.8	228	0.0
2008	526,478	84,690	16.1	70,281	83.0	14,409	17.0	154	0.0
2009	553,787	63,873	11.5	56,912	89.1	6,853	10.7	47	0.0
2010	461,262	55,873	12.1	52,049	93.2	3,824	6.8	37	0.0
Average per year	357,889	57,230	16.0	45,569	79.6	11,651	20.4	358	0.1

Figure 9.1 gives an idea about the share of total malaria burdens by endemic districts.

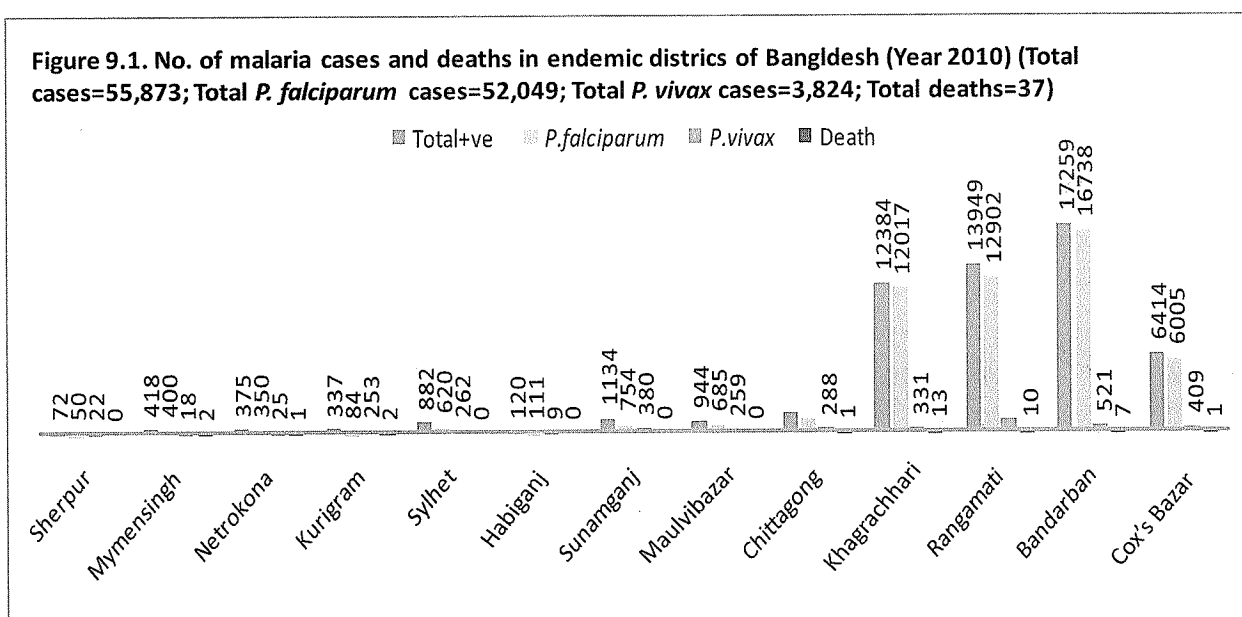
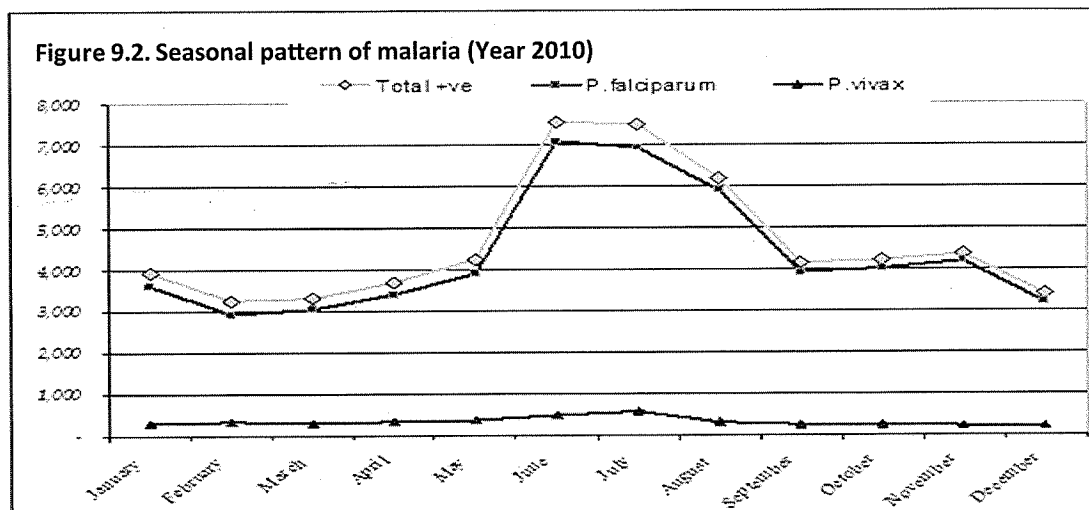


Figure 9.2. shows the seasonal pattern of malaria in Bangladesh in 2010.



### Kala-azar (Visceral leishmaniasis)

Kala-azar has been prevailing in Bangladesh for centuries as an endemic disease, with epidemic outbreaks in around 20 years. With the use of DDT as a control measure for malaria, prevalence of kala-azar was also reduced remarkably. However, re-emergence of the disease was noticed since 1994-1995. From 1999 to 2010, a total of 72,023 cases and 327 deaths were reported from 34 districts of Bangladesh (Figure 9.3). The country has set a target of kala-azar elimination by 2015 through early diagnosis, effective treatment, and integrated vector management.

Figure 9.3. Year-wise distribution of reported number of kala-azar cases and deaths (parentheses show the number of districts from which cases were reported) (Total cases=72,023; Total deaths=327)

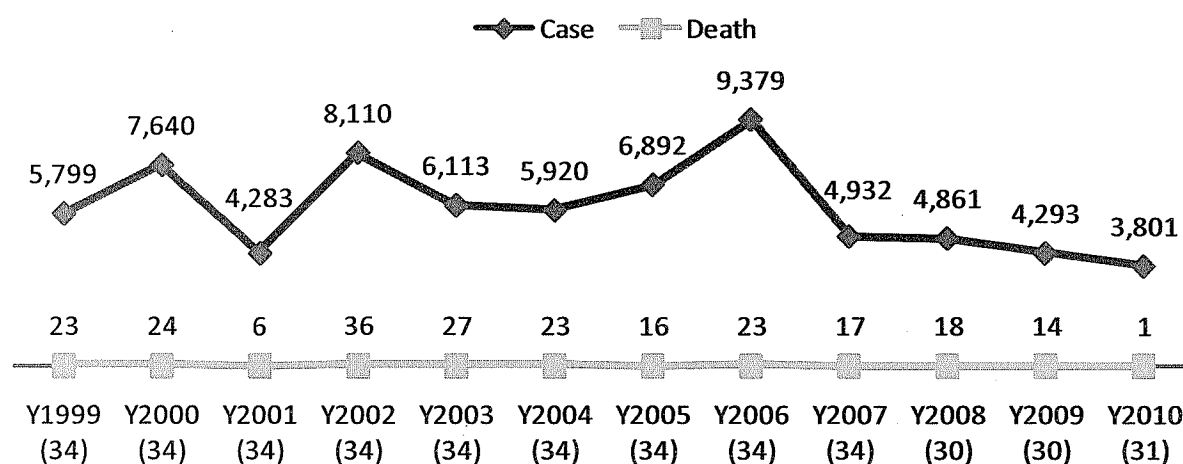


Table 9.2 shows that only eight upazilas of the country—seven under Dhaka division and one under Rajshahi division—are hyper-endemic ( $\geq 25$  cases per 100,000 population) for kala-azar. Of the seven upazilas under Dhaka division, five are in Mymensingh district, one in Gazipur district, and one in Jamalpur district. The only upazila under Rajshahi division is in Rajshahi district.

Table 9.2. Hyper-endemic areas of kala-azar ( $\geq 25$  cases/100,000 population) (2009)

Division	Dhaka							Rajshahi
District	Mymensingh					Gazipur	Jamalpur	Rajshahi
Upazila	Trishal	Fulbaria	Gafargaon	Bhaluka	Muktagachha	Gazipur Sadar	Madarganj	Godagari
Prevalence/100,000 population	278	155	70	73	71	63	33	29

### Dengue

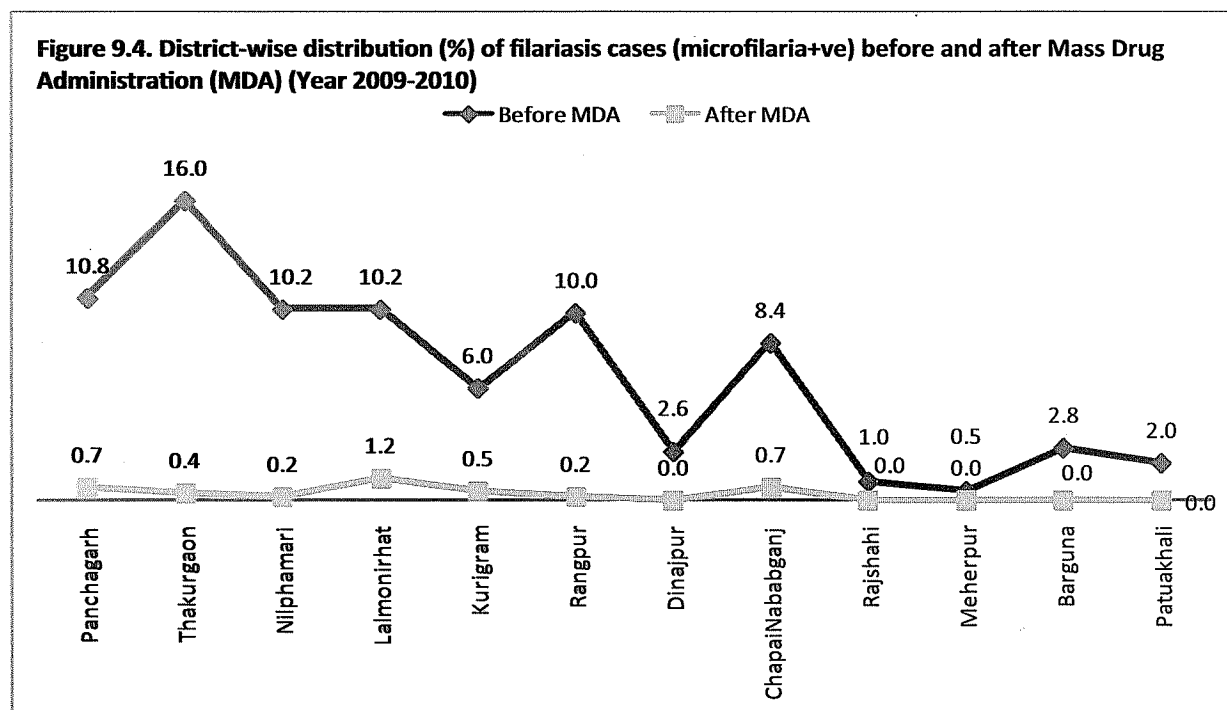
The reported number of cases and deaths from dengue from 2003 to 2010 are shown in Table 9.3. The medical communities of Bangladesh were fairly unfamiliar with the presence of dengue in the country before 2000. The outbreak started in the summer of 2000, and since then every year some cases are being reported. However, case-fatality rate has been decreased.

**Table 9.3. Division-wise reported dengue cases and deaths**

Division	2003		2004		2005		2006		2007		2008		2009		2010	
	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
Barisal	0	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0
Chittagong	21	1	9	0	2	0	0	0	0	0	0	0	0	0	0	0
Dhaka	450	9	3,875	13	1,033	4	2,144	472	0	11	465	0	1,151	0	409	0
Khulna	15	0	41	0	11	0	53	2	0	0	1	0	2	0	0	0
Rajshahi	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0
Sylhet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	486	10	3,934	13	1,048	4	2,200	474	0	11	466	0	1,153	0	409	0

### Filariasis

Filariasis is a mosquito-borne parasitic disease causing swelling of limbs, urogenital organs, breasts, etc. It is a major social and economic burden in the tropics and subtropics of Asia, Africa, Western pacific, and parts of Americas, affecting over 120 million people in 83 countries. In Bangladesh, the disease is prevalent all over the country, with the highest endemicity in northern part of the country. The exact figures of filariasis in Bangladesh are not known but it is endemic in 19 out of 64 districts of the country. Mass Drug Administration (MDA) is going on in all of the 19 districts with an aim to eliminate the disease by 2015. Figure 9.4 shows filaria situation in some of the districts. The country is working with the WHO in a program to eliminate the disease from the world by 2020. There are also 15 low-endemic districts as revealed by immunochromatographic test done in 2002 and 2004. There is high endemicity of filariasis in Nilphamari, Thakurgaon, Dinajpur, Rangpur, Panchagarh, Kurigram, Gaibandha, ChapaiNababganj, Rajshahi, and Lalmonirhat. It is estimated that about 70 million people are at risk of infection. Recent Microfilaria (Mf) Survey 2009-2010 revealed that the disease is in the stage of elimination in 5 districts and is now endemic only in 12 districts out of 19.



Currently, Transmission Assessment Survey (TAS) is going on in 5 districts, in accordance with WHO protocol. Based on the findings, the districts will be declared filariasis-free. These 5 districts are Meherpur, Barguna, Patuakhali, Dinajpur, and Rajshahi. MDA home-based morbidity control program is also ongoing in the endemic districts to reduce the sufferings of disabled patients.

### Soil-transmitted helminths

Nationwide school program for de-worming has been started in 2008 with an aim to regularly de-worm 75% to 100% school-age children recommended by World Health Assembly Resolution 54.19 adopted in 2001. The first National De-worming Day was observed on 1 November 2008. Subsequently, the program was implemented every six months (May and November). From the year 2010, de-worming is being conducted for a week instead of a single National De-worming Day. Single dose of albendazole (400 mg) or mebendazole (500 mg) is being administered to school children with the help of their teachers. More than 19 million children studying in grade 1 to 5, or aged 5 to 12 years, are targeted. All types of academic institutions, such as government, non-government, NGO's, private, English medium schools, madrasas, etc., are included in the program.

**Table 9.4. Details of school de-worming program and reported coverage (2010)**

Month	Year	No. of districts	No. of schools	No. of students targeted	No. of students treated	Treatment coverage (%)
November	2008	64	92,270	15,743,159	15,482,778	94
May	2009	64	92,270	19,303,404	19,101,496	98
November	2009	64	92,274	19,303,404	18,782,212	97
May	2010	64	92,289	19,837,612	19,440,860	98
November	2010	64	165,579	21,971,611	21,745,757	99

Source: Director, Disease Control, DGHS, Mohakhali, Dhaka

An indication of the impact of the school-based MDA program is available from several follow-up studies conducted by the program and other independent organizations. The studies reveal considerable decrease of soil-transmitted helminths from 80% (baseline) to a range between 0.2% and 32%.

### Diarrhea

Diarrhea is a highly-prevalent communicable disease in Bangladesh. Table 9.5 shows the year-wise reported number of diarrhea cases and deaths from different divisions of Bangladesh.

**Table 9.5. Year-wise reported diarrhea cases and deaths by division**

Division	Status	2003	2004	2005	2006	2007	2008	2009	2010
Barisal	Attack	14,412	17,986	15,078	29,072	31,695	42,584	47,118	28,611
	Death	11	19	12	5	5	12	6	6
Chittagong	Attack	379,276	432,829	405,446	363,710	446,965	410,195	366,092	367,202
	Death	265	277	162	84	148	123	79	95
Dhaka	Attack	700,525	720,705	717,296	654,172	770,972	808,390	1,064,279	1,026,813
	Death	471	275	400	46	180	160	214	215
Khulna	Attack	455,683	401,339	428,502	413,268	445,631	476,231	585,667	456,591
	Death	82	98	81	32	37	26	27	18

**Table-9.5. Year-wise reported diarrhea cases and deaths by division (Continued...)**

Division	Status	2003	2004	2005	2006	2007	2008	2009	2010
Rajshahi	Attack	528,211	474,848	441,132	349,203	461,969	372,203	355,095	252,854
	Death	285	382	247	49	88	38	26	2
Rangpur	Attack	Rangpur was not a division before 2010. It was part of Rajshahi division							110,743
	Death								3
Sylhet	Attack	209,156	198,650	144,467	152,425	178,094	185,376	200,347	184,574
	Death	168	119	27	23	79	34	8	6
Total	Attack	2,287,263	2,246,357	2,151,921	1,961,850	2,335,326	2,294,979	2,618,598	2,427,388
	Death	1282	1170	929	239	537	393	360	345

Source: Director, Disease Control, DGHS, Mohakhali, Dhaka

Table 9.6 shows the year-wise case-fatality rates calculated based on the reported numbers of cases and deaths from different divisions of Bangladesh.

**Table 9.6. Year-wise reported diarrheal case-fatality rate by division**

Division	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Barisal	0.13	0.10	0.08	0.11	0.08	0.02	0.02	0.03	0.01	0.021
Chittagong	0.05	0.06	0.07	0.06	0.04	0.02	0.03	0.03	0.02	0.026
Dhaka	0.02	0.02	0.04	0.03	0.03	0.01	0.02	0.02	0.02	0.021
Khulna	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.005	0.004
Rajshahi	0.02	0.02	0.05	0.08	0.06	0.01	0.02	0.01	0.01	0.001
Rangpur	Rangpur was not a division before 2010. It was part of Rajshahi division									0.003
Sylhet	0.05	0.04	0.08	0.06	0.02	0.02	0.04	0.02	0.01	0.003
Average	0.03	0.03	0.05	0.05	0.03	0.01	0.02	0.02	0.01	0.014

Source: Director, Disease Control, DGHS, Mohakhali, Dhaka

The Dhaka Hospital of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) provides services to a large number of diarrhea patients each year. The Hospital has a diarrhea surveillance system which draws 2% systematic random sample of all patients regardless of their severity of illness. The demographic, etiologic, clinical and therapeutic aspects of these patients are studied in detail. In 2009, stool-samples were drawn from 2,697 patients, of which 1,545 (57.3%) were from males and 1,152 (42.7%) were from females. According to age-group, 1,228 (45.5%) patients belonged to <5 years and 1,469 (54.5%) to 5+ years. Within the <5 year group, 745 (60.7%) were boys, and 483 (39.3%) were girls. Within the 5+ years group, 800 (54.4%) were males, and 669 (45.5%) were females. Out of the 2,697 stool-samples, 1,053 (39.0%) had no pathogen, 1,250 (46.3%) had a single pathogen, and 394 (14.6%) had mixed pathogens (Table 9.7).

**Table 9.7. Distribution of the diarrheal stool-samples from ICDDR,B's Dhaka Hospital (2009) by presence or absence of pathogen**

Presence of pathogen	All ages		<5 years		5+ years	
	No	%	No.	%	No.	%
No pathogen	1,053	39.0	417	34.0	636	43.3
Single pathogen	1,250	46.3	644	52.4	606	41.3
Mixed pathogens	394	14.6	167	13.6	227	15.5
Total	2,697	99.9	1,228	100.0	1,469	100.1

Source: ICDDR,B's Dhaka Hospital, 2009

Table 9.8 shows the distribution of the samples by presence of the type of pathogens.



Table 9.8. Distribution of the diarrheal stool-samples from ICDDR,B's Dhaka Hospital (2009) by type of pathogen

Causative organism	All ages (n=2,697)		<5 years (n=1,228)		5+ years (n=1,469)	
	No.	%	No.	%	No.	%
<i>Vibrio cholerae</i> O1	600	22.2	125	10.2	475	32.3
<i>Shigella</i>	82	3.0	42	3.4	40	2.7
<i>Salmonella</i>	39	1.4	8	0.7	31	2.1
<i>Campylobacter</i>	230	8.5	107	8.7	123	8.4
ETEC	276	10.2	110	9.0	166	11.3
Rotavirus	627	23.2	538	43.8	89	6.1
<i>E. histolytica</i>	25	0.9	1	0.1	24	1.6
<i>Giardia lamblia</i>	46	1.7	14	1.1	32	2.2
No pathogen	1,053	39.0	417	34.0	636	43.3

Source: ICDDR,B's Dhaka Hospital, 2009

### HIV/AIDS

The first case of HIV/AIDS in Bangladesh was detected in 1989. Since then, 2,088 HIV+ve cases have been identified as of December 2019, among whom, 850 developed AIDS (Fig. 9.5). Out of the total HIV/AIDS cases, 241 deaths have been reported. Although HIV prevalence among the general population as well as among the most-at-risk population remains at a very low level (<0.01% and <1.0% respectively), the UNAIDS/WHO (2008) estimates that there can be about 12,000 (ranging between 7,700 and 19,000) persons living with HIV as of 2007. The worrying fact about Bangladesh is that the prevalence of HIV is much higher among the injecting drug-users (IDUs), which is over 10% in some parts of Dhaka city. MIS-Health has information on sex distribution of AIDS cases detected during 1989-2000. During this period, a total of 157 AIDS cases were identified. Among them, 127 (80.9%) were males, and 30 (19.1%) were females.

Figure 9.5. Year-wise cumulative number of HIV+ve cases, AIDS cases, and death from HIV/AIDS

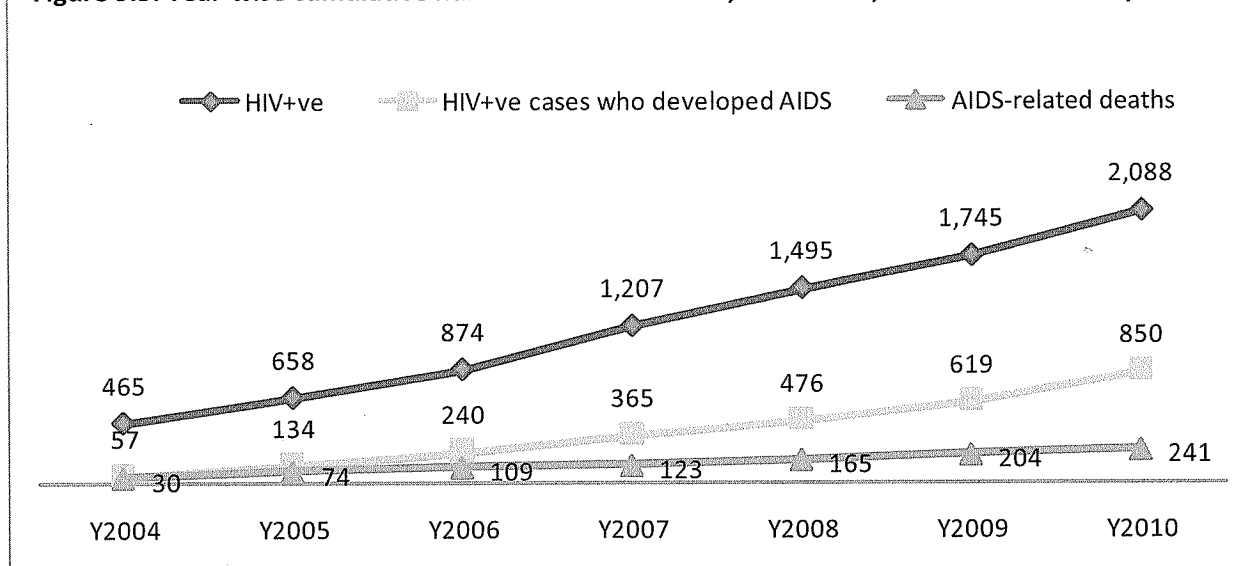
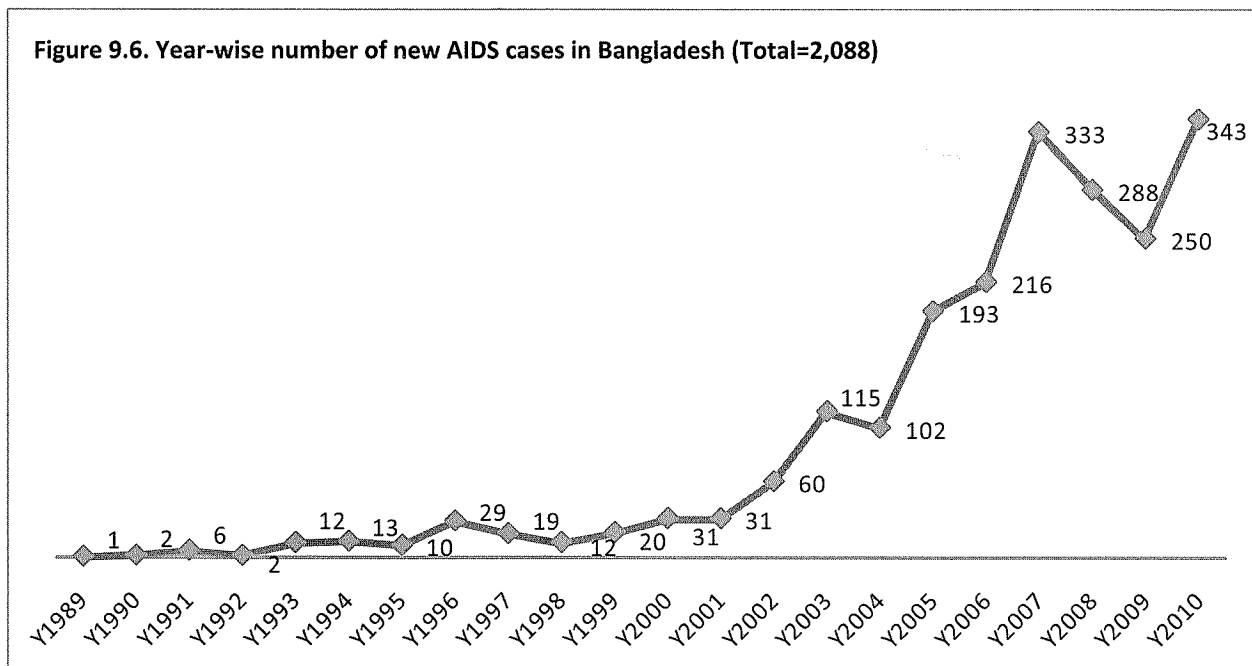
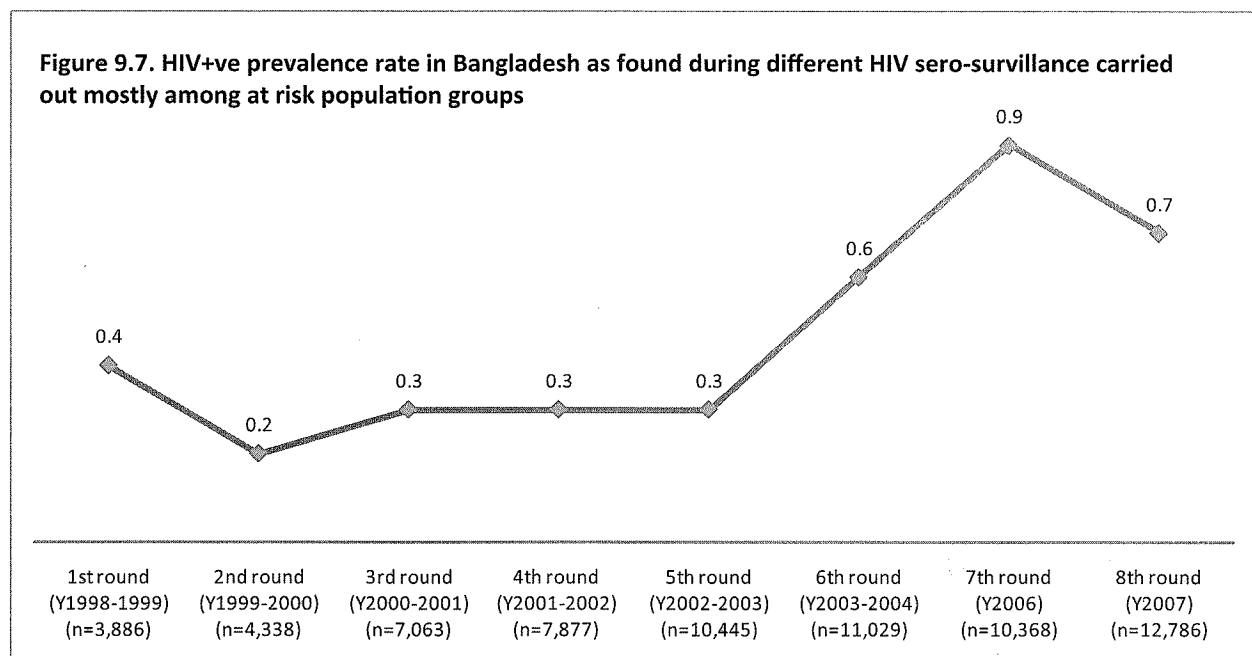


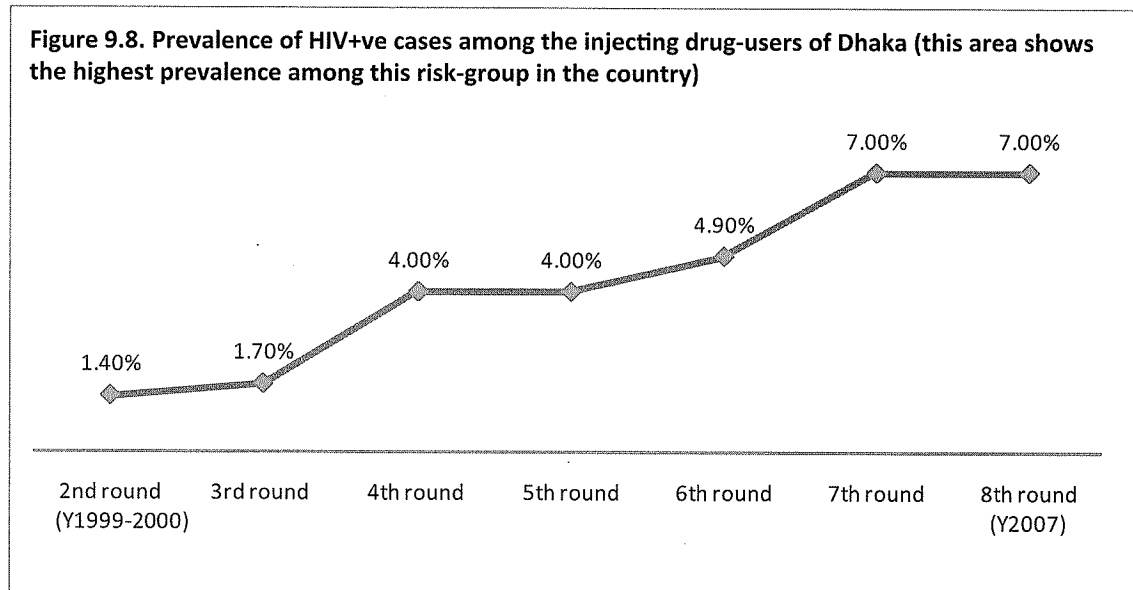
Figure 9.6 shows the year-wise number of new AIDS cases in Bangladesh from 1989 to 2010. The cumulative number of new AIDS cases is 2,088.



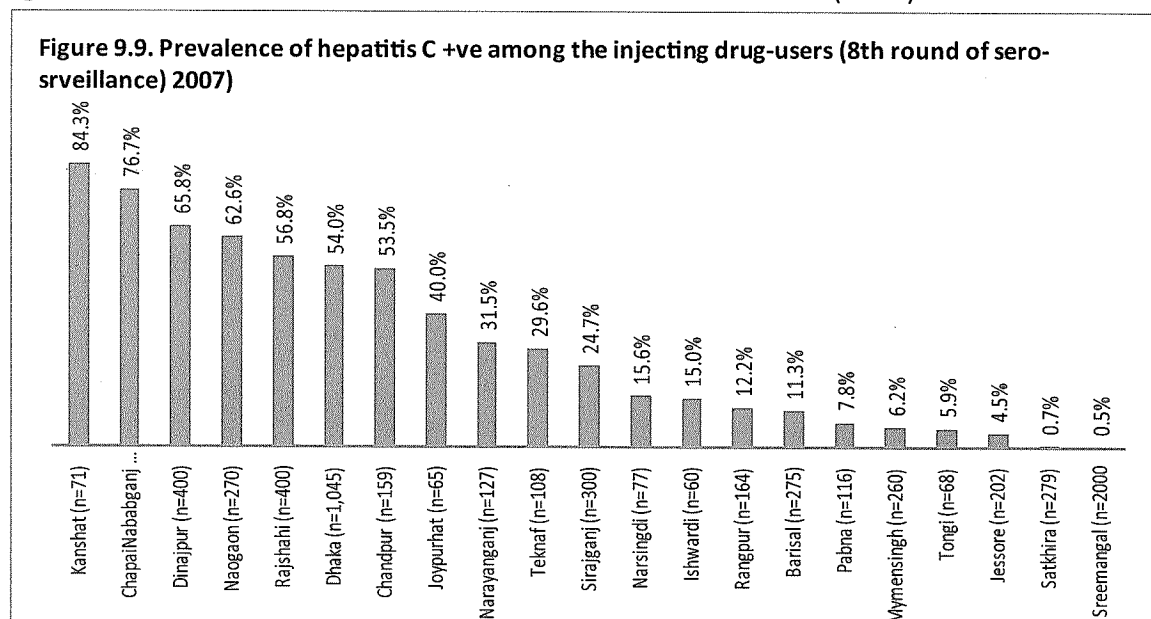
The National AIDS/STD Program introduced a surveillance system since 1998 based on facilities of HIV/AIDS and STD service providers. The most-at-risk population (MARF) which includes female and male sex workers (FSW and MSW), men who have sex with men (MSM), transgendered individuals (Hijra), injecting drugs-users, etc., and other bridging population with risky behaviors are covered in the surveillance. Figure 9.7 summarizes the HIV prevalence rates as found in different HIV sero-surveillance rounds.



In the 8th round of HIV sero-surveillance, 6,508 drug-users were included from 26 cities of Bangladesh. HIV+ve cases were detected only in drug-users of five cities, viz. Dhaka, Narayanganj, Chandpur, Ishwardi, and Teknaf. Four cities among these five (other than Dhaka) showed the prevalence of HIV+ve cases among the drug-users to be between 0.0% and 1.7%. In Dhaka city, there was a prevalence of 7.0% HIV+ve cases among the injecting drug-users. Among the heroin-smokers of Dhaka city, this prevalence was 0.2%. Figure 9.8 shows the round-wise prevalence of HIV+ve cases among the injecting drug-users in Dhaka city.



A number of studies (Mathers, *et al.* 2008, National AIDS Committee 2006, Hoque and Kelly 2008) have estimated that there can be between 20,000 and 40,000 injecting drug-users in Bangladesh, with the largest concentration in Dhaka city (~7,400). Injecting drugs through needles-sharing also carry the risk of hepatitis C virus. Figure 9.9 shows the prevalence of hepatitis C-positive cases among the injecting drug-users in different cities and towns of Bangladesh as found in the 8th round of the HIV sero-surveillance (2007).



Female sex workers are the potential sources of HIV infections. Data show that there is a declining trend in brothel-based sex trade. It is known that, in 1998-1999, there were 18 brothels which were reduced to 14 by 2007. Figure 9.10 shows the number of brothel-based sex workers recorded under HIV sero-surveillance during different rounds.

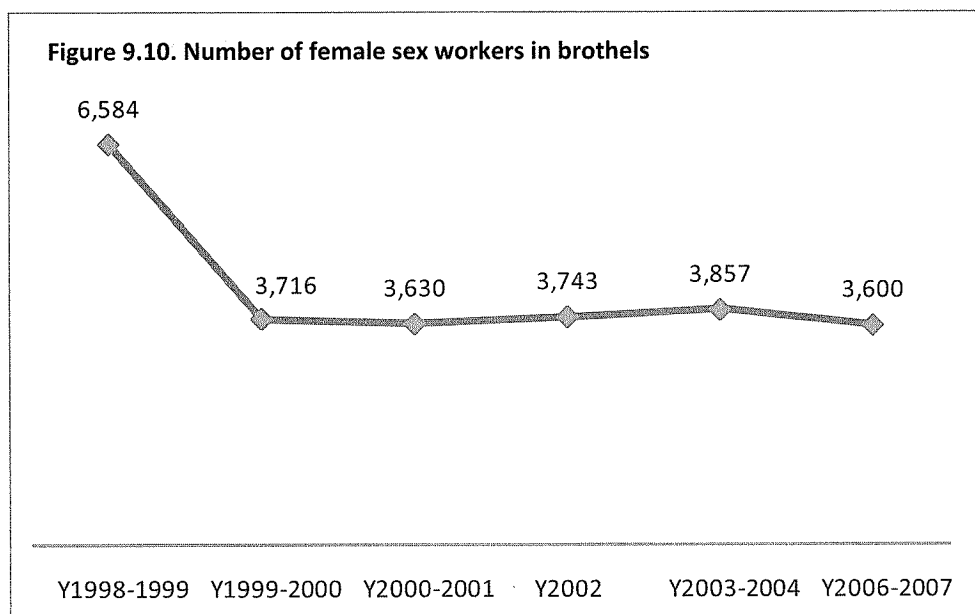


Table 9.9 shows the HIV prevalence among the female sex workers (FSW) as found during the 2007 HIV sero-surveillance. The behavior component of HIV surveillance (2007) shows percentage of female sex workers who complained of sexually transmitted infections (STI) during the last year of the survey. The results are shown in Table 9.10.

**Table 9.9. HIV prevalence among the female sex workers in 2007 HIV sero-surveillance**

Type of sex workers	Dhaka	Chittagong	Khulna	Rangpur	Sylhet	Hill	Barisal	Narayanganj	Tangail	Jessore
Street	0.2%	0.0%	0.4%	0.4%	-	-	-	-	-	-
Hotel	0.0%	0.0%	-	-	0.6%	-	-	-	-	-
Casual	-	-	-	-	-	2.7%	0.3%	-	-	-
Residence +Hotel	-	-	-	-	-	-	-	0.4%	0.0	0.5%

**Table 9.10. Percentage of female sex workers complaining of sexually transmitted infections during the past years (2007 HIV behavior surveillance)**

Type of sex workers	Year	National (%)	Dhaka (%)	Chittagong (%)	Khulna (%)	Sylhet (%)
Brothel	2002	69.6	-	-	-	-
	2003-04	54.3	-	-	-	-
	2006-07	63.1	-	-	-	-
Street	2002	-	85.6	79.6	89.4	-
	2003-04	-	76.2	84.3	67.2	-
	2006-07	-	43.7	19.4	-	-
Hotel	2002	-	84.3	-	-	-
	2003-04	-	85.8	86.5	-	-
	2006-07	-	78.5	80.6	-	68.2

### Youth-friendly health services

“Prevention of HIV/AIDS among Young High-risk Population and Vulnerable Young People in Bangladesh.” is a collaborative project between National AIDS/STD Program (NASP), Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare (MOHFW), and Save the Children-USA. The project was started in 2004. Currently, there are 13 packages under this project. “Provision of HIV/AIDS Orientation, Training and Services to Young People through Scale-up Youth-friendly Health Services (YFHS) and Life Skill Education (LSE) including Support to Access to Condom (ACY) (package 902)” is one of these being implemented all over Bangladesh by HASAB Consortium. The HASAB Consortium consists of 4 partners, namely HASAB, Ad-din, Young Power in Social Action (YPSA), and Association for Community Development (ACD). Youth-friendly Health Services (YFHS) is one of the major components of the package. Other components are Life Skill Education (LSE) and Accessing Condom for Young (ACY). HASAB is the leading organization and is also responsible for implementing the program in Dhaka and Sylhet division. Ad-din Welfare Center leads the YFHS planning, management, monitoring, quality assurance and reporting, and works for implementing the program in Khulna and Barisal division. ACD is responsible for implementing the program in Rajshahi division, and YPSA in Chittagong division. Youth-friendly Health Services intends to resolve the health-related issues (physical, mental, psycho-social, and sexual) encountered by 15-24 years old population of Bangladesh, in a friendly manner through the existing government, NGO and private Health Service Delivery Points (HSDPs). Since 2004, YFHS is being implemented in selected 224 HSDPs of 41 districts. For mainstreaming and institutionalization of this service, a separate age-segregated line has been introduced in the relevant MIS forms of the DGHS. MIS officials from the government and private facilities have received orientation on the required record-keeping and reporting procedures. Complete reports kept coming from October 2008. The number of 15-24 years old patients receiving services from HSDPs under YFHS from January 2010 to December 2010 is presented in Table 9.11.

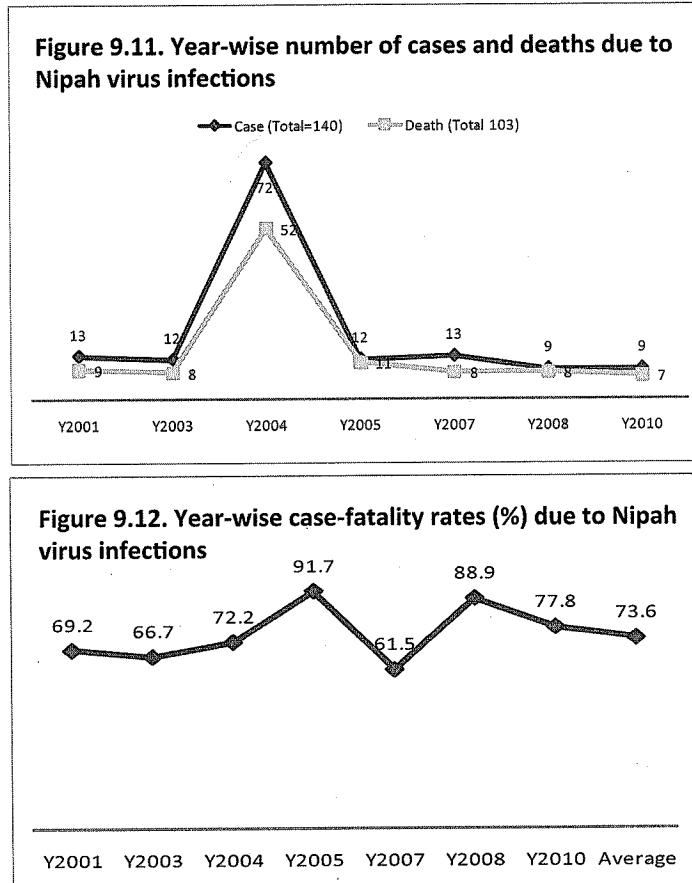
**Table 9.11. Number of young patients (aged 15 to 24 years) receiving service from Health Service Delivery Points (HSDPs) (total 224 centers) under Youth-friendly Health Services (YFHS) in 2010**

Month	Male	Female	Total
January	59,441	77,678	137,119
February	62,255	76,203	138,458
March	82,789	96,547	179,336
April	70,350	94,138	164,488
May	69,587	90,207	159,794
June	81,436	96,563	177,999
July	73,758	99,275	173,033
August	72,405	96,639	169,044
September	67,919	91,740	159,659
October	79,910	106,958	186,868
November	76,712	105,330	182,042
December	74,651	101,092	175,743
Total	871,213	1,132,370	2,003,583



### Nipah virus infection

Nipah virus infection has becoming endemic in Bangladesh as cases are continued to be detected since 2001. Figure 9.11 shows year-wise distribution of the number of cases and deaths. This disease is a highly fatal one, and average case-fatality rate was found to be 73.6% (Fig. 9.12). Figure 9.12 also shows the year-wise case-fatality rates of Nipah virus infections.



### Human anthrax

Human anthrax was not reported earlier in the country, except the report of 19 cases of cutaneous anthrax in a study among 624 tannery workers of Dhaka city in 1997 (Report: IEDCR). In 2009, three outbreaks of human anthrax were reported from northern part of Bangladesh with 55 infections [Ahmed B *et al.* JOPSOM 2001; 20(2): 45-50]. Though leptospirosis was not recognized in Bangladesh, it was detected in 2001 among 18% of the dengue-suspected patients [Morshed MG *et al.* 1994; E&I. 112(3), LaRocque RC *et al.* EID: Volume 11, Number 5, May 2005].

### Influenza Pandemic 2009

The world is experiencing the first influenza pandemic of the 21st century caused by Influenza A (H1N1) 2009. The novel virus started to infect human in Mexico and the USA from April 2009. It started to spread rapidly to countries across the world, and eventually WHO declared the pandemic on 11 June 2009. In Bangladesh, the first case was detected on 18 June 2009. There

are hundreds (819) of laboratory-confirmed cases and thousands of probable cases, with 6 deaths (update as of 03 January 2010). The disease started to enter into the country through travellers coming from affected countries. At the earlier stage, the disease was concentrated in the capital and then started to spread to different parts of the country. The country took steps on containment measures initially and then gradually shifted to mitigation measures, keeping containment measures in operation. The number of cases started to decline in the last part of the previous year and, presently, almost no case is being reported. Bangladesh started to take preparation following outbreaks of avian influenza in Korea and Viet Nam during 2003-2004. Though the activities were aimed towards avian influenza initially, those were subsequently applied for pandemic influenza. Bangladesh started early containment measures following spread of the disease from Mexico, the USA, and Canada through initiation of screening at the international airport at Dhaka and other points of entry.

### Tuberculosis

Tuberculosis (TB) has been a major public-health problem and one of the leading causes of adult mortality in Bangladesh. The WHO estimates on an assumed population of 162 million that every year about 83,000 (between 60,000 and 110,000) people die due to tuberculosis in Bangladesh. National Tuberculosis Control Program (NTP) under the Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare (MOHFW) performs tuberculosis-control activities and provides service through 800 DOTS centers, 1,000 microscopy centers, and 35 external quality assurance centers all over the country.

The World Health Organization estimated that, in 2009, there were approximately 426 TB cases per 100,000 people (between 198 and 696), of which 225 new cases per 100,000 people (between 183 and 270) were observed each year in Bangladesh. It is further estimated that about 51 per 100,000 people (between 37 and 67) die of TB every year. Although the HIV prevalence is still low, HIV poses a threat to TB control. The HIV prevalence in adult TB patients was about 0.1% as revealed in three limited surveys conducted in 1999, 2001, and 2006-2007. The multidrug-resistant tuberculosis (MDR-TB) rate among the new cases of TB was estimated to be 3.5%. This rate among the re-treatment cases was estimated at 20%.

Table 9.12 summarizes the tuberculosis situation in Bangladesh. Table 9.13 shows the year-wise tuberculosis case-finding situation.

**Table 9.12. Tuberculosis situation in Bangladesh**

Country ranking among the 22 high-burden countries	6th
Estimated incidence of all forms of TB per 100,000 population per year	225
Percentage of smear-positive cases among pulmonray tuberculosis patients	81%
Estimated mortality from all forms of TB per 100,000 population per year	51
Estimated prevalence of all forms of TB cases per 100,000 population	426
Proportion of MDR-TB among new cases	3.5%
Proportion of MDR-TB among re-treatment cases	20%
DOTS population coverage	100%
Notification rate (new and relapses)	99%
Treatment success rate for new smear-positive cases	92%
Source: National Tuberculosis Control Program 2010 and Global Tuberculosis Control, WHO Report 2010	

**Table 9.13. Year-wise tuberculosis case-finding**

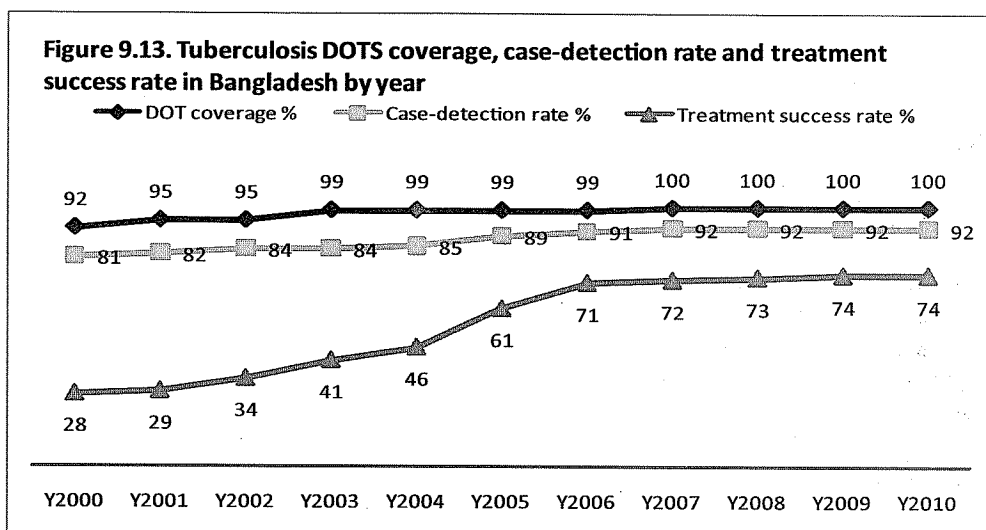
Year	Area	Smear+ve		Smear-ive	Extra-pulmonary	Total
		New	Relapse	New	New	
2006	Rural/Upazila	89,704	2,645	16,717	9,707	118,773
	Urban/Metro	9,255	1,279	5,409	3,499	19,442
	CDC	2,806	287	2,375	1,155	6,623
	Total	101,765	4,211	24,501	14,361	144,838
2007	Rural/Upazila	91,606	2,517	15,852	10,861	120,836
	Urban/Metro	10,264	1,049	5,449	4,164	20,926
	CDC	2,437	222	1,934	1,093	5,686
	Total	104,307	3,788	23,235	16,118	147,448
2008	Rural/Upazila	93,659	2,753	15,069	12,825	124,306
	Urban/Metro	10,289	1,165	5,660	4,486	21,600
	CDC	2,425	220	1,463	1,048	5,156
	Total	106,373	4,138	22,192	18,359	151,062
2009	Rural/Upazila	96,333	2,692	17,759	15,768	132,552
	Metro	10,390	1,136	5,829	4,872	22,227
	CDC	2,171	150	1,548	1,225	5,094
	Total	108,894	3,978	25,136	21,865	159,873
2010	Rural/Upazila	93,937	2,101	15,539	17,255	128,832
	Metro	9,977	770	4,788	4,943	20,478
	CDC	1,858	129	1,298	1,308	4,593
	Total	105,772	3,000	21,625	23,506	153,903

Table 9.14 shows the estimated number of new smear+ve cases, detected number of new smear-positive cases, and estimated incidence of new smear+ve cases per 100,000 population.

**Table 9.14. Estimated number of new smear+ve TB cases, detected number of new smear+ve TB cases, TB case-detection rate, and estimated incidence of new smear+ve TB cases per 100,000 population**

Year	Estimated number of new smear+ve TB cases	Detected number of new smear+ve TB cases	Estimated incidence of new smear+ve cases per 100,000 population
2006	143,514	101,765	102
2007	144,390	104,307	101
2008	145,280	106,373	100
2009	147,640	108,894	100

Figure 9.13 gives a picture of the progress in Bangladesh on DOTS coverage, tuberculosis case -detection rate, and tuberculosis treatment success rate. The progress is quite impressive as global achievement for case-detection and treatment success is 63% and 86% respectively (as of 2009).



### **Multidrug-resistant tuberculosis (MDR-TB) in Bangladesh**

The emergence of resistance to anti-TB drugs, particularly the multidrug-resistant tuberculosis (MDR-TB) has become a significant public-health threat globally against effective TB control. Globally, among TB patients notified in 2009, an estimated 250,000 (range 230,000 to 270,000) had multidrug-resistant TB (MDR-TB). Of these, slightly more than 30,000 (12%) were diagnosed with MDR-TB and notified. Diagnosis and treatment of MDR-TB need to be rapidly expanded. As it is primarily a man-made phenomenon, the threat can be halted through efficient implementation of STOP TB STRATEGY by the National TB Control Programs throughout the world. There are no nationally-representative data on drug resistance in Bangladesh. According to WHO Report 2009 on Global Tuberculosis Control, there were 14,506 estimated MDR-TB cases in Bangladesh in 2007, among which 7,694 were smear-positive. Recognizing this burden of MDR-TB, Bangladesh Government adopted a 5-year DOTS-Plus Pilot Project approved by the Green Light Committee (GLC) in 2006 for implementation of programmatic management of MDR-TB cases. Patient enrolment started since August 2008, and a total of 286 cases have been registered and are being managed by external quality-assured second-line drugs (SLD) till the end of 2009. To coordinate the overall MDR-TB control activities, the National TB Control Program of Bangladesh formed a DOTS-Plus Coordination Committee. A National Guideline has also been developed to manage all registered patients under DOTS-Plus Project through approved standardized regimen. On the other hand, to diagnose and follow up cases, a National TB Reference Laboratory has been established and functionalized in the National Institute of Diseases of Chest and Hospital (NIDCH). Based on this set-up, NTP is going to launch Drug Resistance Survey (DRS) in 2010 to estimate the current resistance pattern.

### **Public-Private Mix (PPM) Strategy for TB Control in Bangladesh**

Public-Private Mix is a strategy which aims to link the resources of public and private healthcare providers to achieve national TB control targets. The PPM approaches for TB control in Bangladesh involve partnership of Public with Private (for example: NTP collaborating with NGOs and private sector), Public with Public (for example, NTP collaborating with Defense, Police Health Services, etc.), and Private with Private healthcare providers (for example, NGOs working with private practitioners). Private care providers for TB have important and strategic roles in reaching groups of the population, particularly those who bypass the public healthcare delivery system. Private practitioners (both graduate and non-graduate), pharmacists, NGOs, and private health facilities and other non-NTP public-health institutions are widely accessible to patients and are often perceived to provide better-quality services. Patients trust private doctors and usually go to them for initial consultation. Consequently, private doctors and pharmacies pose to be the best to initiate first-level screening for effective case-detection, an essential element in TB control. From 2002, NTP expanded its collaboration with other public and private healthcare providers. The DOTS strategy was rolled out to all metropolitan cities in collaboration with various NGOs. DOTS coverage is considered universal in the country. NTP has already developed effective collaboration with the health authorities of city corporations to mobilize the staff of the city corporations in six metropolitan areas in the TB control program.

NTP has established the Memorandum of Understanding with the largest association—Bangladesh Garments Manufacturing and Exporters Association (BGMEA) and started TB control program in garments industries throughout Bangladesh. At present, NTP established DOT centers in other public and private health facilities, such as in all public medical college hospitals, 12 private medical college hospitals, all sadar (district) hospitals, all chest disease hospitals, two specialized institute/university hospitals, two NGO hospitals, and two city corporation hospitals, Armed Forces Hospital, BDR Hospital, and Prison Hospitals, with support from partner NGOS.

### **Advocacy Communication and Social Mobilization (ACSM)**

As an important component of STOP TB STRATEGY, NTP has developed a national strategic plan for Advocacy Communication and Social Mobilization (ACSM) in collaboration with partners to conduct ACSM activities countrywide. It includes distribution of leaflets, pamphlets, flipcharts, and flash-cards to the community, display of billboards, and cinema-slides, airing of TV and radio-spots, etc. In addition, a significant number of street-drama, talk-show, and concert has been arranged to raise public awareness and sensitize the people against tuberculosis. A Knowledge, Attitude, Practices and Behavior (KAPB) Survey is also conducted to measure outcome of the ACSM activities provided previously through different health service centers.

### **Leprosy**

Bangladesh has achieved leprosy elimination at the national level by 1998. It was two years ahead of the target year set by WHO. The elimination is defined by WHO to reduce registered prevalence to less than 1 case per 10,000 population. After achieving elimination at the national level (national average below the critical threshold), the National Leprosy Elimination Program (NLEP) is consolidating its effort to achieve sub-national (district-level) elimination (each district should have level below the critical threshold). The NLEP is experiencing a very slow decline in leprosy prevalence, although grade-2 deformity is still remaining high at around 12% among the newly-detected cases per year whereas the desired target is to reduce grade-2 deformity to less than 5%. Integration of leprosy services into the general health services and involvement of the NGOs in leprosy services have created ample scope for sustainability of the services. However, integration still needs a firm foundation to continue routine leprosy services. Further challenges remain in some pockets of endemic areas in the country, in the reduction of fund-flow for capacity-building of the service providers, and in activities of awareness-raising of the community. Figure 9.14 shows the year-wise trend in the prevalence of leprosy per 10,000 people in Bangladesh.



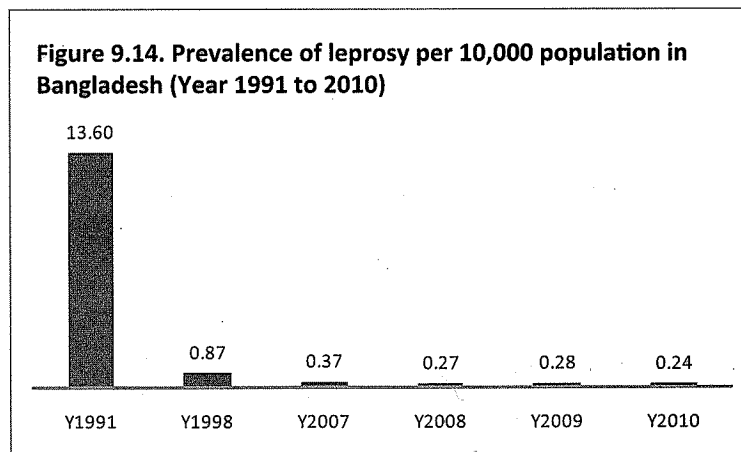


Table 9.15 shows the division-wise profile of the newly-detected leprosy cases in Bangladesh in 2009 and 2010.

**Table 9.15. Division-wise profile of the newly-detected leprosy cases in Bangladesh (2009 and 2010)**

Division	Year	Population (N)	Multibacillary (MB) leprosy (N)	Paucibacillary (PB) leprosy (N)	Total (N)	Prevalence/10,000 population
Barisal	2009	9,170,109	10	1	11	0.01
	2010	9,254,080	4	0	4	0.00
Chittagong	2009	28,901,453	400	358	758	0.19
	2010	29,387,800	226	202	428	0.16
Dhaka	2009	47,845,021	652	930	1,582	0.26
	2010	48,795,514	542	897	1,439	0.24
Khulna	2009	17,163,458	50	15	65	0.34
	2010	17,410,525	52	16	68	0.03
Rajshahi	2009	35,208,052	916	1,537	2,453	0.53
	2010	35,702,832	697	1,269	1,966	0.44
Sylhet	2009	9,350,784	218	151	369	0.45
	2010	9,496,717	199	79	278	0.41
Total	2009	147,638,877	2,246	2,992	5,238	0.28
	2010	150,047,468	1,720	2,463	4,183	0.24

Table 9.16 shows the status of completed multidrug therapy (MDT) treatment from 2008 to 2010.

**Table 9.16. Completed MDT from 2008 to 2010**

Division	MB (>5 lesions)			PB (2 to 5 lesions)			Single lesion			Total		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
Dhaka	736	603	644	845	796	580	3	13	3	1,584	1,412	1,227
Barisal	15	12	2	-	-	-	-	-	-	15	12	2
Chittagong	377	454	281	380	408	220	-	1	-	757	863	501
Sylhet	209	166	172	129	98	121	-	-	-	338	264	293
Khulna	86	64	42	21	21	16	-	-	-	107	85	58
Rajshahi	889	906	826	1,333	1,360	1,295	133	93	130	2,355	2,359	2,251
Total	2,312	2,205	1,967	2,708	2,683	2,232	136	107	133	5,156	4,995	4,332
%	44.8	44.1	45.4	52.5	53.7	51.5	2.6	2.1	3.1	100.0	100.0	100.0

The cumulative number of leprosy cases detected from 1985 to 2010 is 195,210, and the cumulative number of leprosy cases cured in the same period is 187,221. The number of new leprosy cases detected in 2010 is 4,183. On the other hand, the number of leprosy cases cured in 2010 is 4,332.

# *Emergency Preparedness and Response*

While writing this report, Emergency Preparedness and Response (EPR) Program is operated under the wing of Control of Communicable Diseases of the Directorate General of Health Services. It is an active unit in terms of developing disaster preparedness activities and to respond adequately during an emergency. While the regular activities of the program are smoothly functioning for capacity-building of the health managers and for the community as well, the program also works 24 hours all seven days a week, i.e. round-the-clock, during emergencies. Emergency Humanitarian Action (EHA) program of WHO stands beside to support all these activities of the program. BAN-EHA provides technical and logistic support to the EPR program for strengthening disease surveillance, supplying emergency drugs for replenishing buffer stock, medical supplies, laboratory reagents, and other supplies for proper investigation and better case management. Preparedness and response activities on disaster management are strengthened through regular capacity-building, training, and simulation exercises, thereby averting deaths and disabilities in a large scale across the country. Director, Control of Communicable Diseases wing under the DGHS, is the Program Director of BAN-EHA, and National Professional Officer (CD) is the responsible officer of the program from WHO. There is a strong coordination prevailing among the Directorate General of Health Services, Armed Forces, UN agencies, development partners, and selected NGOs to response during and following emergencies.

## **Objectives**

1. Strengthen the overall capacity/capability to reduce the risk of the health sector to prevent and/or mitigate the adverse health consequences of emergencies/disasters
2. Strengthen institutional coordination and cooperation by establishing a National Health Emergency Preparedness and Response Center as an institute
3. Achieve the Government Vision as per MDG, WCDR, and the recommendations "Option for Flood Risk and Damage Reduction in Bangladesh" of 17 April 2005
4. Supply essential medicines, including WPT and ASV, emergency response vehicles, equipment, and other logistics for emergency response
5. Review and update the SOP and training manuals.

## **Strategy**

1. Conducting workshops, seminars, advocacy meetings/training and simulation exercise at all operational levels in the health sector
2. Procurement of essential medicines, emergency response vehicles, equipment, and other logistics for emergency response
3. Maintaining 'buffer stock' for emergency management
4. Hiring a house to establish disaster management institute for the health sector.

**Activities**

1. Conducting workshops on vulnerability and capacity assessment for health personnel for various tiers throughout the country
2. Conducting orientation course for field-staff on Disaster Mitigation
3. Organizing orientation course for Disaster Focal Points from divisional and district health managers
4. Workshop on Search, Rescue, Evacuation and First-aid for community-level peripheral health workers and health volunteers
5. Training course on Mass-casualty Management for hospital staff
6. Workshop on Preparedness and Response in Emergency (natural and man-made) for health personnel
7. Organizing joint simulation exercise with BDRCS in the most cyclone-prone districts (multi-sectoral approach)
8. Procurement of essential medicines, emergency response vehicles, equipment, and other logistics for emergency response, including bleaching powder and WPT.

**Table 10.1. Recent capacity-building activities at a glance (July 2010-June 2011)**

Activity	Source	Training/Workshop			No. of persons trained
		Target (No.)	Physical	Financial	
TOT on Emergency Preparedness	HPNSP/WHO	0/ 01	100%	100%	32
Vulnerability and Capacity Assessment	HPNSP/WHO	39 / 0	100%	100%	1227
Preparedness and Response in Emergency	HPNSP/WHO	39 / 0	100%	100%	1227
Emergency Healthcare in Emergency	WHO	5	100%	100%	138
Mass-casualty Management	HPNSP/WHO	0 / 03	100%	100%	105
Psychosocial Support	WHO	02	100%	100%	68
Risk Communication in Emergency	WHO	02	100%	100%	68
Simulation Exercise on Disaster Management and Lessons Learnt from Activities for Senior Health Professionals	WHO	02	100%	100%	70
Regional Meeting on Primary Health Care (PHC) Approach in Emergencies	WHO	01	100%	100%	48
Training on Comprehensive Health-sector Emergency Preparedness and Response for Health Professionals	WHO	03	100%	100%	100
Training on Acute Burn Case Management	WHO	7	100%	100%	293
Assessment of Health Facilities	WHO	04	50%	50%	-
Develop 4 Guidelines for Best Public-health Practices in Emergencies (2 in Bangla and 2 in English Version)	WHO	4	75%	75%	-
Development and Printing of Desk and Wall Calendar for the Year 2012	WHO	-	50%	50%	-
Updated Guideline on Emergency Healthcare	WHO	1	100%	100%	-
Printing of Hospital Emergency Preparedness and Response Plan	WHO	1000 Copies	100%	100%	-

**Table 10.1. Recent capacity-building activities at a glance (July 2010-June 2011) (Continued...)**

Activity	Source	Training/Workshop			No. of persons trained
		Target (No.)	Physical	Financial	
Printing of Contingency Plan for Earthquake Preparedness and Response	WHO	1000 Copies	100%	100%	-
Procurement of Emergency Medicines	HPNSP	Tk. 1138.76 (in lakh)	-	-	-
Procurement of Emergency Medicines and Medical Supplies (Emergency Medicines for Burn Management, Anti-rabies Vaccine-Inj Rabipur and Verorub, ICU Ventilator, Plasma and Blood Bank Refrigerator for Burn Management)	WHO	Tk. 166.50 (in lakh)	100%	100%	-

**Table 10.2. Financial allocation and progress at a glance (Taka in Lakh) (July 2010-June 2011)**

Source	Training/Workshop and Supplies and Equipment			Achievement (%)
	Allocation	Released	Expenditure	
HPNSP	1143.00	1143.00	1138.76	54
WHO	245.00	245.00	230.30	94

**Plan of future activities of EPR and BAN-EHA**

- Formation of 'Core Group' for health-sector disaster management at all levels
- Simulation and tabletop exercises on mass-casualty management
- Review of strategic plan, policy, and SOP
- Response plan for earthquake and building collapse
- Capacity-building
- Procurement
- Web-based Emergency Disease Surveillance System
- Review and upgrade training modules.

# Non-communicable Diseases (NCD)

As in the previous years, data on causes of mortality available from the public hospitals of Bangladesh and published in this bulletin reveal that non-communicable diseases in Bangladesh occupy a major share of the disease burden leading to mortality. This indicates that many people are living with non-communicable diseases. The middle-age population, i.e. the economically-productive workforce bears the brunt of these diseases. Various factors are responsible for this. To name a few, these include changing dietary habits and lifestyle, rapid infusion of urban culture, growth of commuting, tobacco-use, uncontrolled growth of processed food and beverage industries, indoor air pollution, road-traffic injuries, and widespread lack of awareness about healthful behavioral patterns. This chapter summarizes data from several hospitals that deal with patients suffering from various kinds of non-communicable diseases.

## National Institute of Cardiovascular Diseases and Hospital

Table 11.1 presents data from the National Institute of Cardiovascular Diseases (NICVD) and Hospital. These data reveal that the number of both admissions and outdoor visits have been increased in the NICVD during 2002-2010,. The efficiency of the hospital in terms of average length of stay is found to improve. However, the bed-occupancy rate was at its peak in the year 2006.

**Table 11.1. Number of admissions, outdoor visits, average length of stay, and bed-occupancy rate in the NICVD (2002-2010)**

Year	Admission		Outdoor visits					Average length of stay (d)	Bed-occupancy rate (%)
	Total	Daily average	Male	Female	Children	Total	Daily average		
2002	17081	47	52740	29532	4674	86944	238	6.91	129.63
2003	20083	55	54550	31939	5150	91639	251	7.07	157.76
2004	21522	59	56482	31250	4857	92589	253	6.90	164.03
2005	22419	62	59950	34608	5497	100055	274	6.46	160.39
2006	24376	67	61565	34861	6060	102486	281	6.47	175.80
2007	29147	80	76732	41792	7417	125941	345	5.48	174.80
2008	33946	93	91147	47889	8534	147570	403	5.21	147.70
2009	41554	114	99102	51539	9367	160008	438	5.16	141.83
2010	42779	117	100868	51364	9726	161958	444	5.35	152.82

Figure 11.1 shows the number of ETTs performed in the NICVD from 2001 to 2010. The proportion of female patients appears to be much lower compared to the male patients.



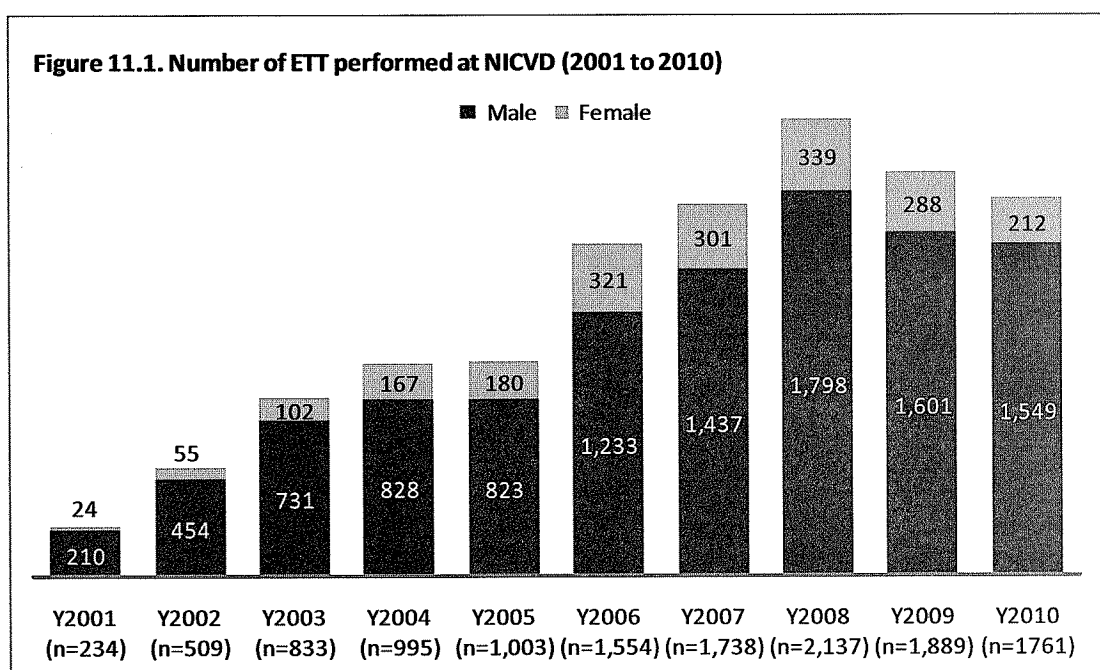


Table 11.2 gives a summary of the number of cathlab procedures performed in the NICVD from 2003 to 2010.

**Table 11.2. Number of cathlab procedures done in the NICVD (2003-2010)**

Procedure		2003	2004	2005	2006	2007	2008	2009	2010	Total
Coronary angiography		2,827	3,210	2,780	3,105	3,266	3,980	4,437	4,711	28,316
Cardiac cath		308	225	227	229	295	380	340	334	2,338
Angiography	Renal	13	69	6	0	0	0	1	6	95
	Peripheral	42	93	85	106	87	112	112	124	761
	Total	55	162	91	106	87	112	113	130	856
Angioplasty	Renal	0	0	0	0	0	0	9	7	16
	Peripheral	0	0	4	7	43	23	3	18	98
	Total	0	0	4	7	43	23	12	25	114
Other interventions	PCI	371	599	488	584	574	889	1,149	1,312	5,966
	PTMC	189	273	295	280	20	130	154	187	1,528
	TPM	646	715	708	675	850	741	950	647	5,932
	PPM	320	333	368	321	359	414	487	402	3,004
	EPS and RFA	0	0	0	161	204	113	177	66	721
	Device closure	0	0	0	1	0	0	0	0	1
	Other	12	13	11	4	0	18	40	56	154
	Total	1,538	1,933	1,870	2,026	2,007	2,305	2,957	2,670	17,306

Table 11.3 shows the number of heart and vascular surgeries performed in the NICVD from 2000 to 2010.

Table 11.3. Heart and vascular surgeries performed in the NICVD (2000-2010)

Year	Open heart surgery					Closed heart surgery	Vascular surgery		
	CABG	Valve	Congenital	Other	Total		Routine	Emergency	Total
2000	44	133	88	26	291	186	74	213	287
2001	60	134	133	3	330	157	100	193	293
2002	112	89	210	4	415	151	114	232	346
2003	170	142	162	22	496	140	69	153	222
2004	180	159	205	17	561	95	92	208	300
2005	267	102	237	20	626	93	90	206	296
2006	226	113	255	28	622	70	95	405	500
2007	188	165	256	46	655	58	121	447	568
2008	233	182	327	21	763	63	152	840	992
2009	218	264	364	11	854	71	219	1,001	1,220
2010	152	304	365	37	859	88	254	1,036	1,290
Total	1,850	1,787	2,602	235	6,472	1,172	1,380	4,934	6,314

### National Center for Control of Rheumatic Fever and Heart Diseases

The National Center for Control of Rheumatic Fever and Heart Diseases (NCCRF&HD) takes care of the patients suffering from rheumatic heart diseases and related conditions. There were 31,646 outdoor visits in 2010, of which 11,120 were made by new patients and 20,526 by old patients. Figure 11.2 shows the month-wise distribution of the patients.

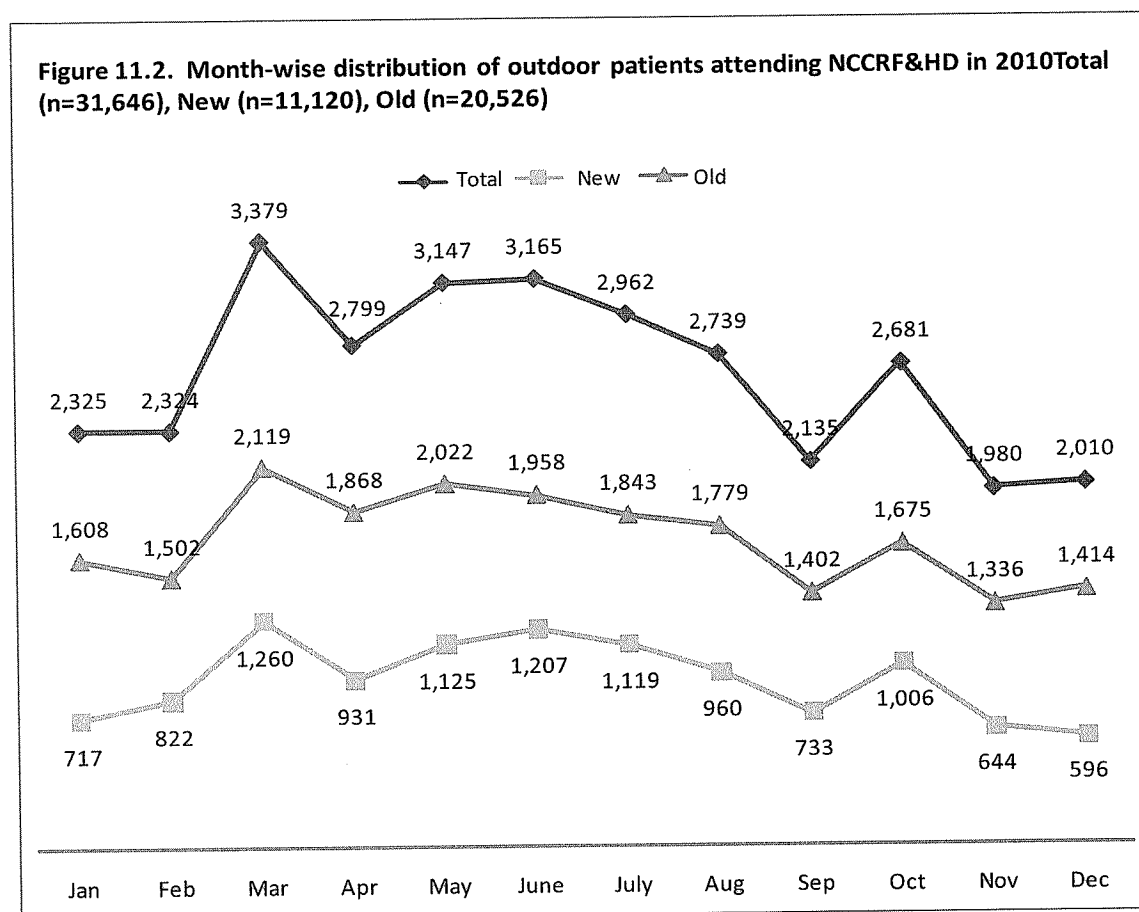
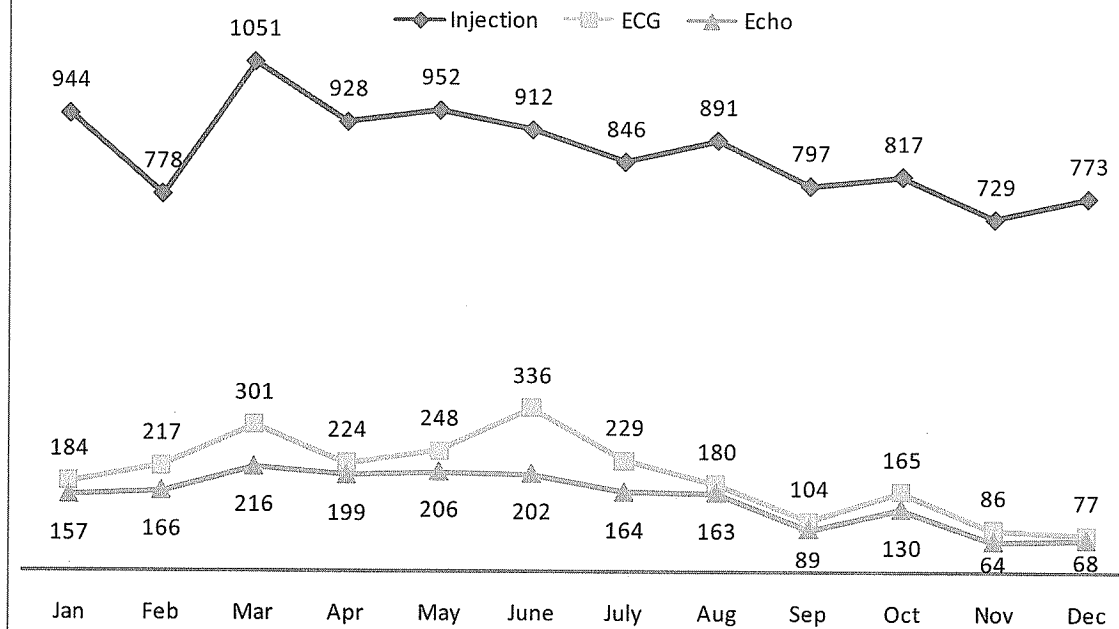


Table 11.4 shows the age and sex distribution of patients attending the outdoors of the NCCRHFD in different months of 2010. Figure 11.3 shows the number of patients given prophylactic antibiotic injections and also the number of ECGs and echocardiograms done in different months of 2010.

**Table 11.4. Age and sex distribution of the patients attending the outdoors of the NCCRH&FD in different months of 2010**

Month	1-4 year(s)			5-14 years			15-49 years			50+ years			Grand total		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Jan	1	11	12	319	508	827	451	955	1,406	32	48	80	803	1,522	2,325
Feb	1	33	34	306	399	705	506	989	1,495	26	64	90	839	1,485	2,324
Mar	3	28	31	555	513	1,068	830	1,330	2,160	52	68	120	1,440	1,939	3,379
Apr	1	39	40	426	527	953	463	1,266	1,729	41	36	77	931	1,868	2,799
May	23	14	37	466	440	906	741	1,366	2,107	46	51	97	1,276	1,871	3,147
June	12	25	37	484	686	1,170	581	1,327	1,908	27	23	50	1,104	2,061	3,165
July	17	28	45	436	532	968	591	1,274	1,865	40	44	84	1,084	1,878	2,962
Aug	15	16	31	338	502	840	621	1,154	1,775	29	64	93	1,003	1,736	2,739
Sep	11	11	22	268	395	663	494	892	1,386	31	33	64	804	1,331	2,135
Oct	1	29	30	384	477	861	506	1,208	1,714	33	43	76	924	1,757	2,681
Nov	11	8	19	275	352	627	441	835	1,276	25	33	58	752	1,228	1,980
Dec	7	12	19	242	343	585	459	872	1,331	16	59	75	724	1,286	2,010
Total	103	254	357	4,499	5,674	10,173	6,684	13,468	20,152	398	566	964	11,684	19,962	31,646

**Figure 11.3. Number of patients given prophylactic antibiotic injections and number of ECGs and Echocardiograms done in NCCRF&HD in different months of 2010** Injections (n=10,418), ECG (n=2,351), Echo (n=1,824)



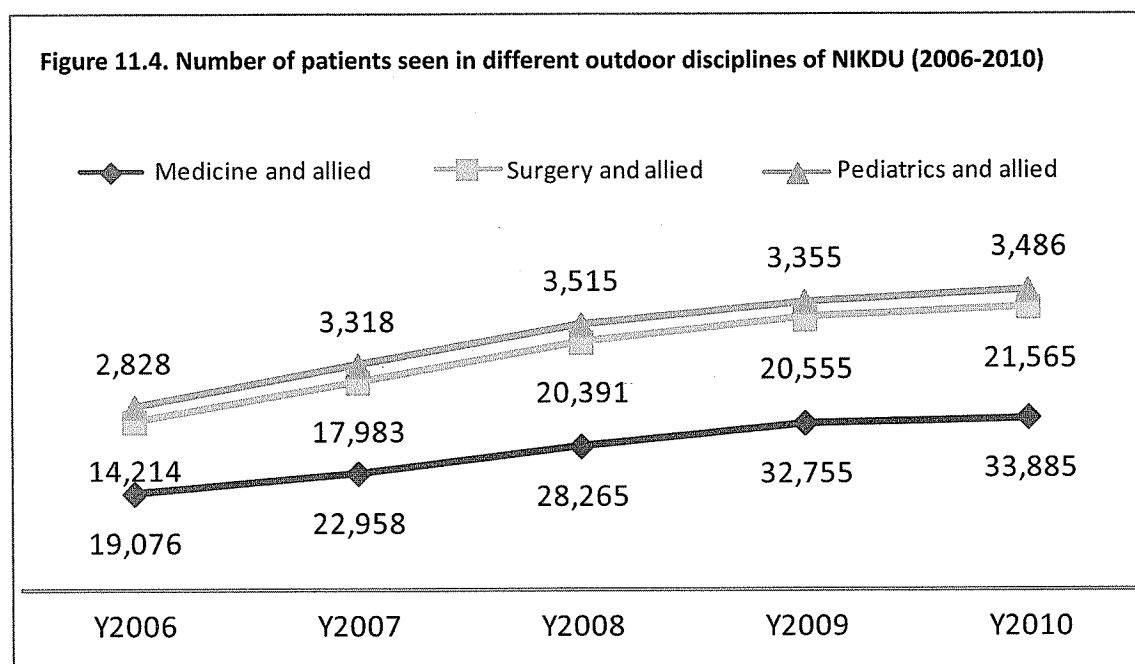
### National Institute of Kidney Diseases and Urology

Table 11.5 shows the number of outdoor and indoor patients during 2007-2010 at the National Institute of Kidney Diseases and Urology (NIKDU).

**Table 11.5. Number of outdoor and indoor patients in the NIKDU (2007-2010)**

Patient Type	2007			2008				2009				2010			
	Male	Female	Total	Male	Female	Total	Male	Female	Child	Total	Male	Female	Child	Total	
OPD (new)	18,951	9,107	28,058	22,445	11,091	33,536	23,160	12,240	3,584	38,984	25,579	13,510	3,036	42,125	
OPD (old)	6,382	3,169	9,551	7,748	3,830	11,578	7,777	3,961	495	12,233	7,667	3,866	20	11,553	
Indoor	2,479	1,343	3,822	1,610	1,583	3,193	2,497	1,462	520	4,479	2,294	1,356	421	4,071	

Figure 11.4 shows the number of patients seen in different disciplines of outdoors of the NIKDU from 2006 to 2010. The numbers of patients belonging to medicine and allied disciplines are higher compared to surgery or pediatrics and allied disciplines. In all disciplines, the hospital provided services to increasingly more patients from previous year to the next year.



### National Institute of Cancer Research and Hospital

The National Institute of Cancer Research and Hospital (NICRH) is the national focal point and referral center for cancer treatment in Bangladesh. In 2010, the Institute's hospital provided services to 33,518 outdoor patients and 3,355 indoor patients. Figure 11.5 shows the number with sex distribution.

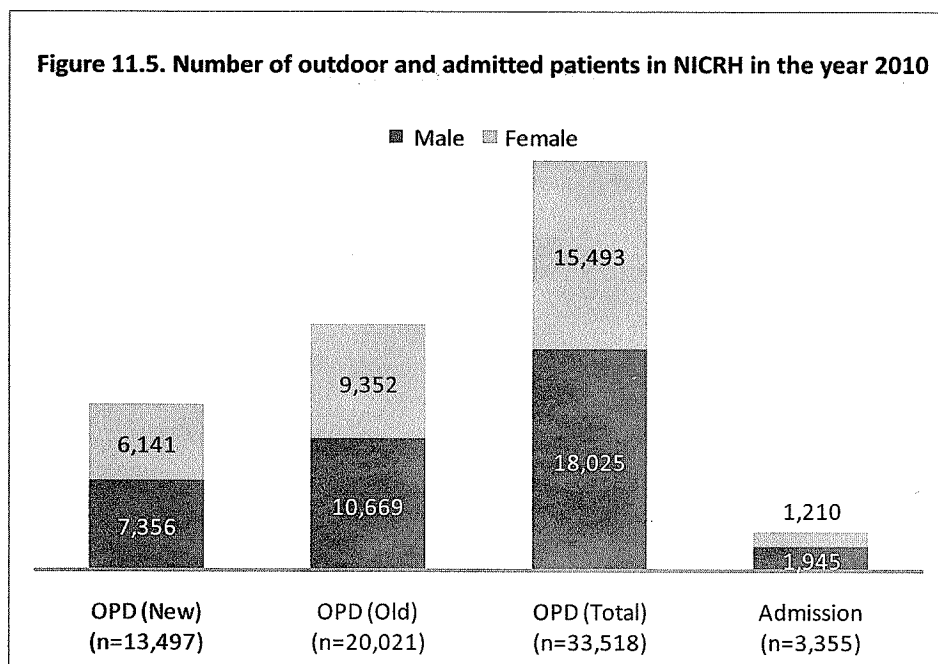


Figure 11.6 shows the indoor patients in the NICRH (2010) by discipline. It reveals that majority of the total admitted patients (n=3,355) belonged to the discipline of medical oncology (51.03%), followed by surgical oncology (12.55%) and radiation oncology (11.51%).

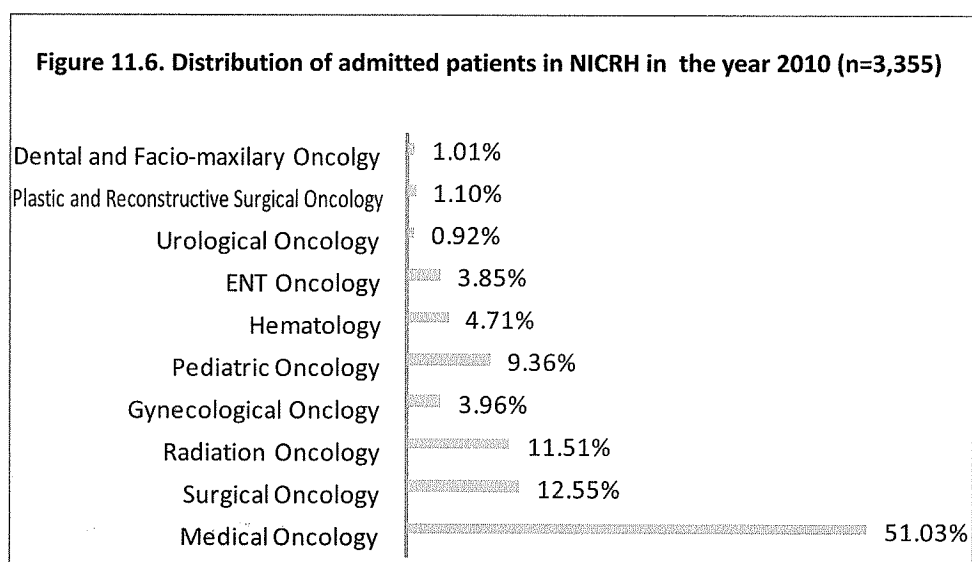


Figure 11.7 shows the distribution of outdoor patients in the NICRH in 2010 by age-group. About one-fourth (23.61%) of the total patients (n=10,067) were aged 45 to 54 years, followed by 55 to 64 years (21.21%), and 35 to 44 years (17.12%).

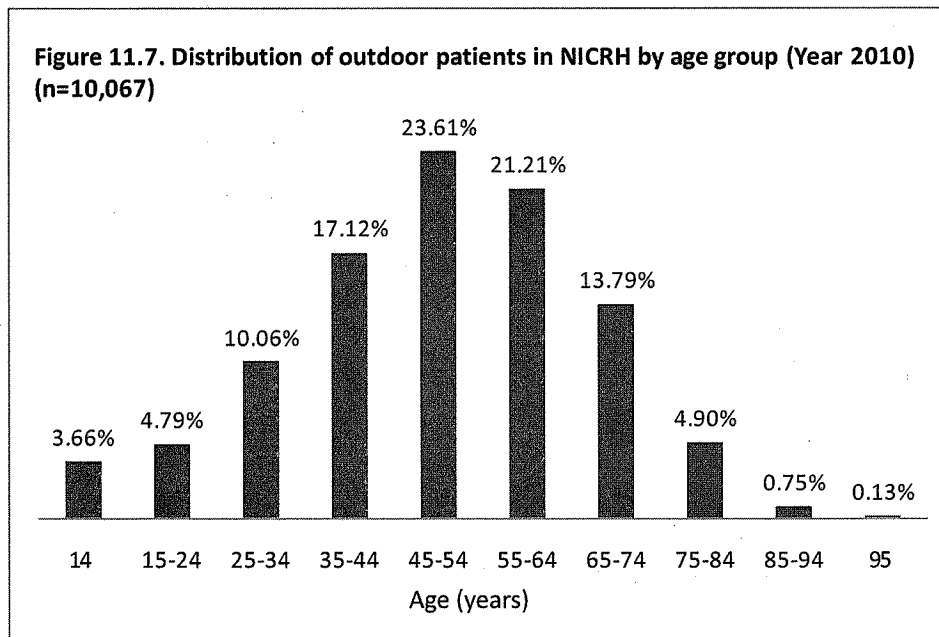


Table 11.6 shows the distribution of outdoor patients of the NICRH in 2010 by top 10 cancer-affected organs. Among males, lungs, lymph-nodes, and esophagus were the most frequently-affected organs (26.7%, 10.3%, and 6.9% respectively). Unlike in the males, the most-frequently cancer-affected organs in females were breasts (27.7%), cervix (20.1%), lymph-node, and lymphatics (4.7%).

**Table 11.6. Distribution of patients at OPD of the NICRH by top 10 cancer-affected organs (2010)**

Male		Female	
Affected organ	%	Affected organ	%
Lungs	26.7	Breast	27.7
Lymph-node and lymphatic	10.3	Cervix	20.1
Esophagus	6.9	Lymph-node and lymphatic	4.7
Stomach	5.4	Esophagus	4.0
Liver	4.4	Ovary	3.7
Connective tissue	3.8	Stomach	3.3
Larynx	3.5	Gall bladder	3.0
Rectum	2.4	Connective tissue	2.5
Unknown primary	2.2	Uterus	2.1
Tongue	1.9	Liver	1.8

### National Institute of Mental Health and Research

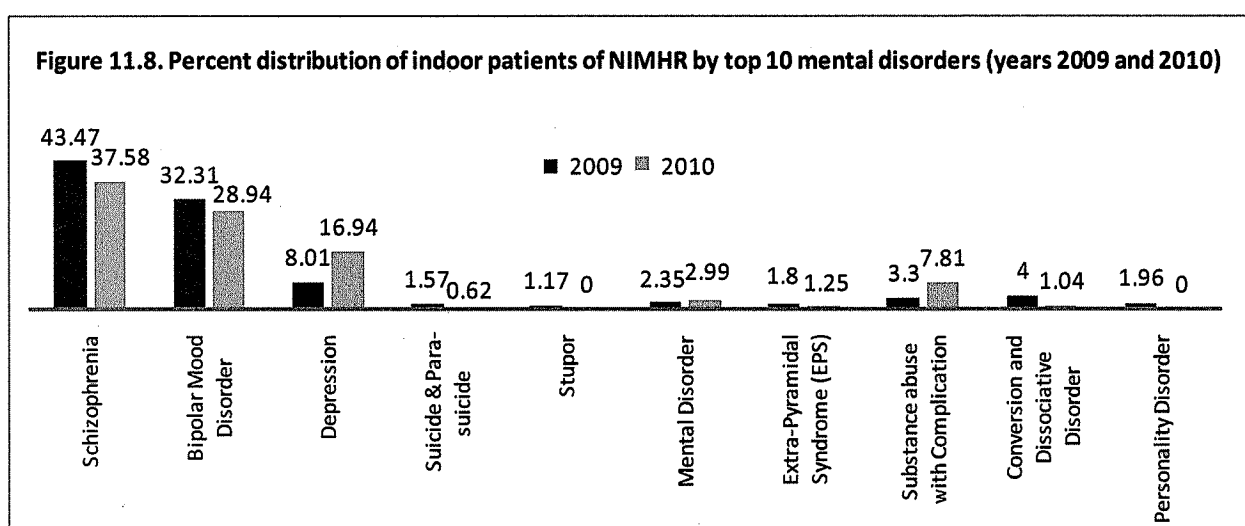
Table 11.7 shows the number of new patients visiting outdoors of the National Institute of Mental Health and Research (NIMHR) and also the number of admissions in 2006 through 2010. It reveals from the table that both outdoor attendances and admissions for mental diseases are increasing each year compared to the previous year.



**Table 11.7. Number of new patients visiting outdoor and the number of admissions in the NIMHR from 2007 to 2010**

Patients	2007			2008			2009			2010		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
OPD (new patients)	8,959	5,175	14,134	12,692	9,209	21,901	12,427	9,478	21,905	6,506	4,710	11,216
Indoor patients	671	349	1,020	749	427	1,176	876	527	1,403	489	300	789
Emergency patients	-	-	-	-	-	-	-	-	-	382	242	624

Figure 11.8 shows the percent distribution of indoor patients in the NIMHR by top 10 mental disorders both in 2009 and 2010. The general pattern of distribution of the diseases appears almost similar in both the years. Schizophrenia took the first place in both of the years (43.47% and 37.58% respectively).



### Arsenic in groundwater: Mitigation program of the DGHS

The presence of arsenic in harmful level unsuitable for human consumption was first detected in 1993 by the Department of Public Health Engineering (DPHE) in 4 tubewells of Chamagram village of Chapai Nababganj sadar upazila. According to a report published by the National Arsenic Mitigation Center in 2003, water-samples from 4.95 million tubewells were tested for the presence of arsenic. Of these, 1.44 million (29.1%) showed the evidence of arsenic contamination. The DPHE (2006) reported that arsenic contamination in tubewell-water is present in 62 of the 64 districts of Bangladesh. The first detection of human cases with health problems due to drinking of arsenic-contaminated water was recorded in 1994 by the Department of Occupational and Environmental Health (OEH) of the National Institute of Preventive and Social Medicine (NIPSOM). The number of identified cases was 8. The National Arsenic Program of the DGHS is carrying out detection of arsenic-affected patients with the Department of OEH of NIPSOM, and the cumulative numbers of arsenic patients were 23 in 1996; 42 in 1997; 86 in 1998; 24,389 in 2008; 38,320 in 2009; and 56,758 in 2010 (Figure 11.9).

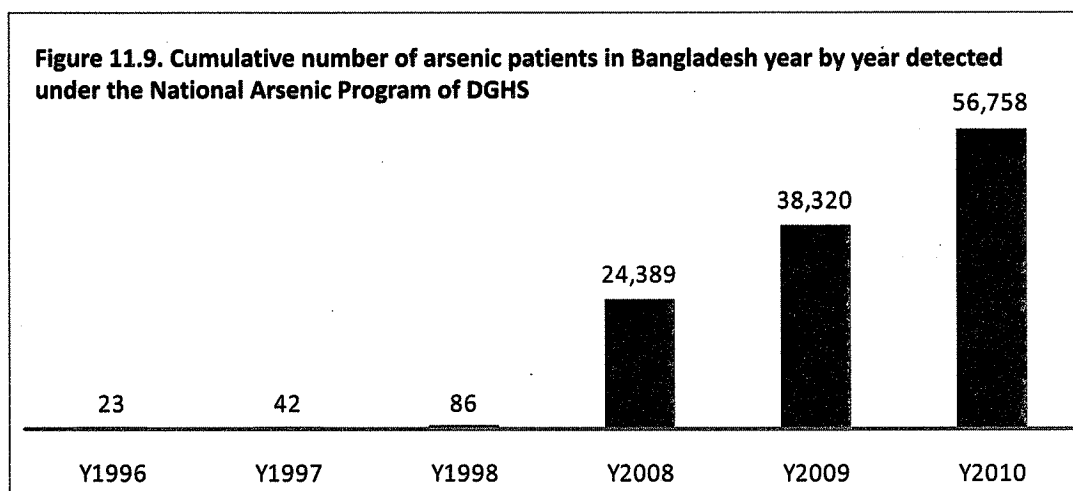
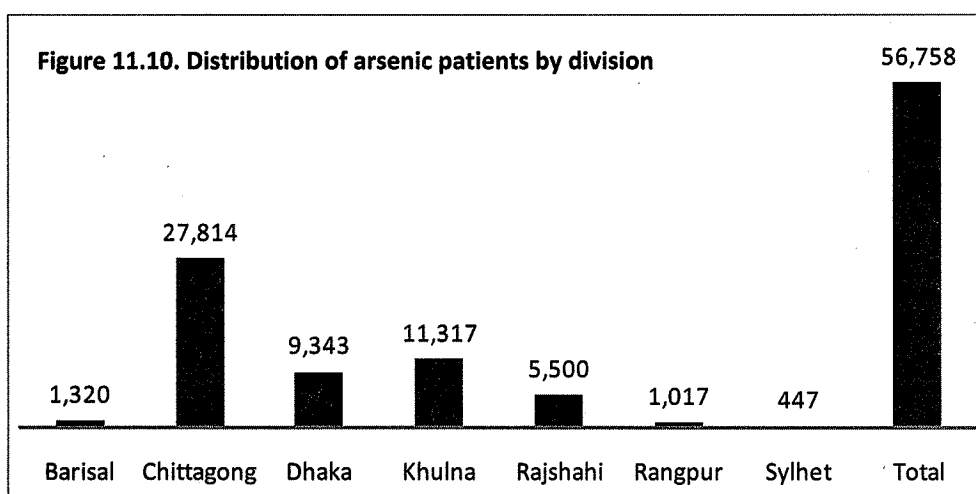


Figure 11.10 shows the distribution of arsenic-affected patients among different divisions of Bangladesh. Chittagong division shows the highest number of identified patients (n=27,814), followed by Khulna (n=11,317), Dhaka (n=9,343), and Rajshahi (n=5,500). The Barisal, Rangpur, and Sylhet divisions have 1,320; 1,017; and 447 detected arsenic-affected patients respectively.



The National Arsenic Program of the Directorate General of Health Services conducts several key activities which include: Community awareness-raising; Capacity-building on arsenic mitigation; Arsenicosis patient-searching; Identification and management of arsenicosis patients; Awareness-raising about alternative sources of water; Research and development; and Coordination with government organizations and NGOs.

## *Safe Blood Transfusion*

Blood transfusion service in Bangladesh was started in 1950 in Dhaka Medical College Hospital. To ensure supply of safe blood for humans through screening, the Safe Blood Transfusion Program (SBTP) was launched in 2000 with the assistance of UNDP under the Health and Population Sector Program (HPSP) 1998-2003. Under this program, blood-screening facilities were developed in 99 blood transfusion centers. In 2004, the activities of the Safe Blood Transfusion Program received financial support from the World Bank and DFID through IDA credit. A Memorandum of Understanding (MoU) was signed between MOHFW and WHO under HIV/AIDS Prevention Project (HAPP) with technical assistance from the latter. This continued till 2007. Since then, the activities are being implemented under the Health, Nutrition and population Sector Program (HNPSPP) 2003-2011. The activity will also continue under the Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016.

The Safe Blood Transfusion Program made a good progress over the past years through reduction in the number of paid donors from 70% to 0%, capacity-building for blood-screening in all blood transfusion centers for HIV, hepatitis B and C, syphilis and malaria, and expansion of activities up to the upazila health complex level. Currently, 203 blood transfusion centers, with 89 in the upazila level, are functional under the program. Blood-component separation facilities have been developed in 18 blood transfusion centers. Six centers have been equipped with modern mobile vans for outdoor blood-collection. Following is a profile of the SBTP as of 2010:

No. of blood transfusion centers supported currently by SBTP .....	203
No. of blood transfusion centers at the upazila level .....	89
No. of centers where blood-component separation facilities exist .....	18
No. of centers with mobile vans for blood-collection .....	6

During 2001 to 2010, a total of 2,439,856 units of blood were tested, out of which 28,947 units were rejected (1.5%) due to the evidence of transfusion-transmitted infections (TTIs). Of the rejected units, 21,709 were for hepatitis B; 3,161 for hepatitis C; 2,799 for syphilis, 1,149 for malarial parasites, and 126 for HIV (Figure 12.1). A total of 119,476 units of blood-components were produced by 18 blood transfusion centers during 2008-2010.

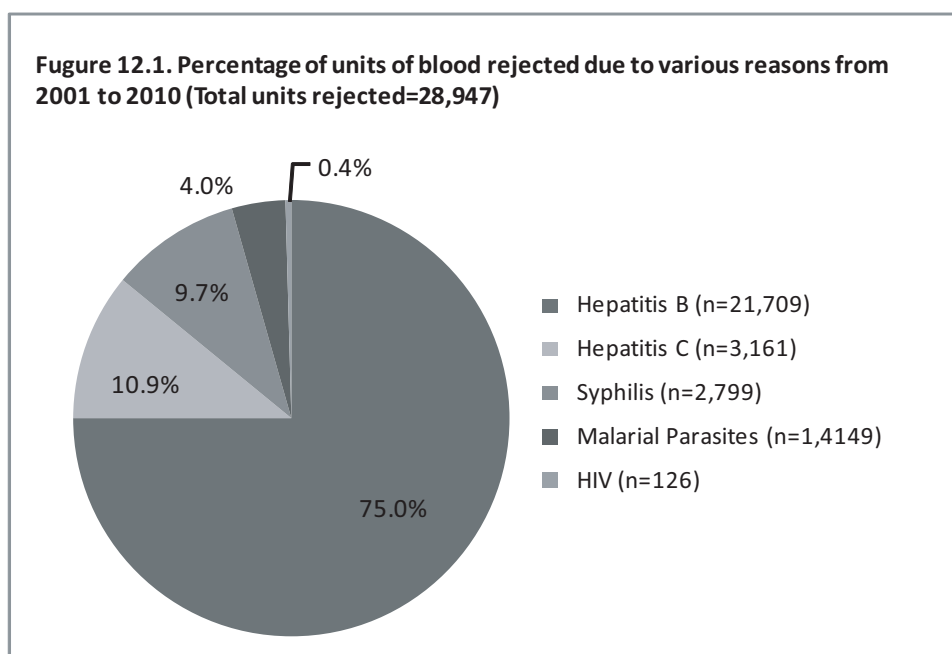


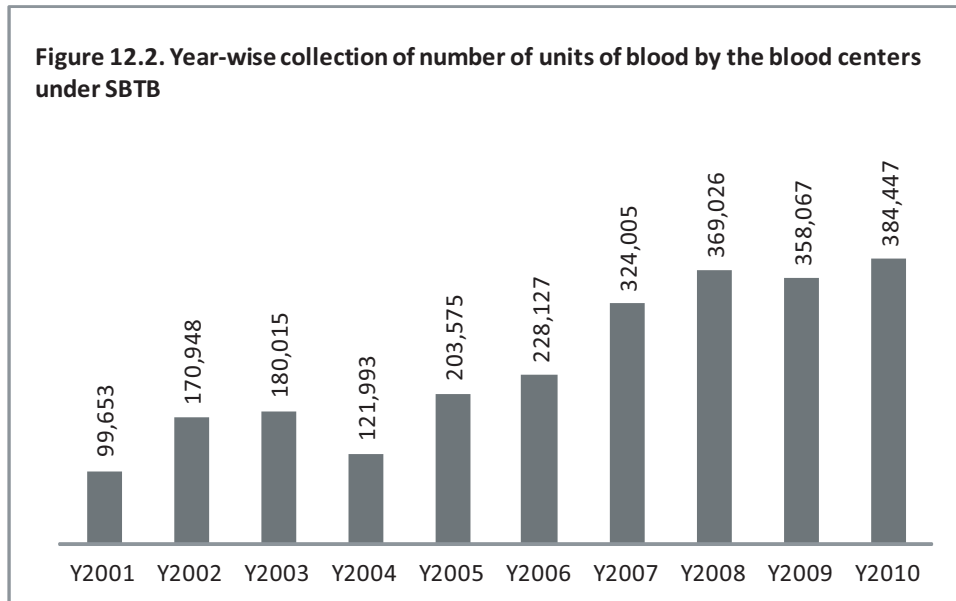
Table 12 shows the year-wise distribution of the number of units of rejected blood due to various reasons based on the screening tests.

**Table 12. Cumulative screening report for blood with TTIs 2001-2010**

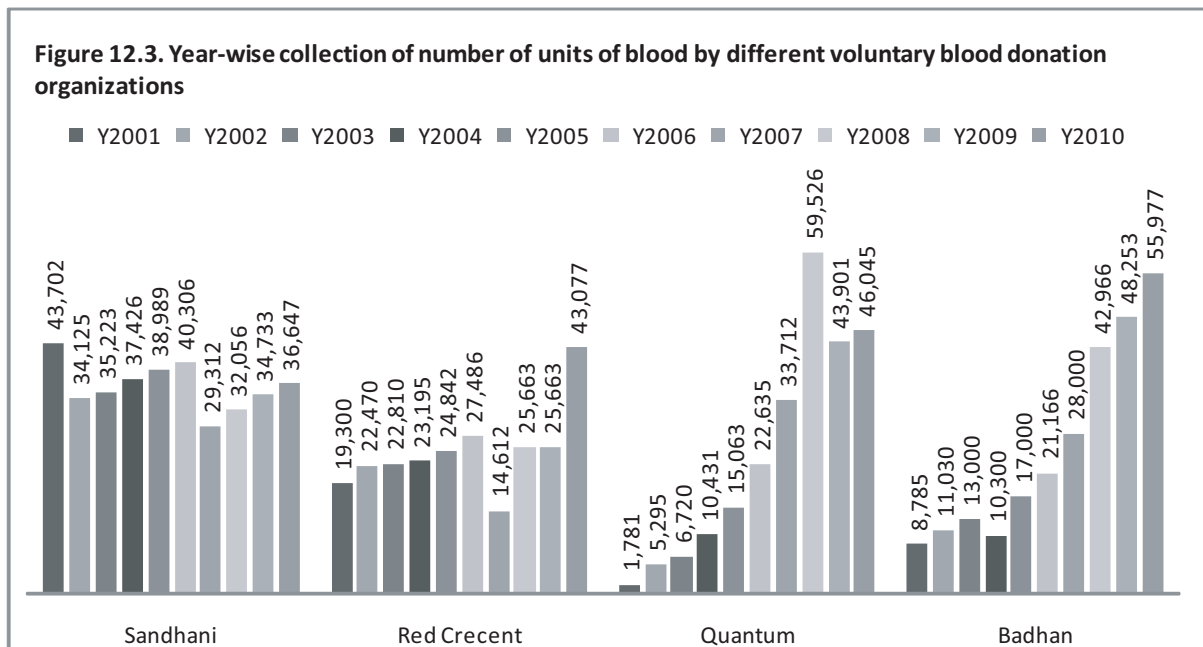
Year	No. of units tested	HIV+ve	Hepatitis B+ve	Hepatitis C+ve	Syphilis+ve	Malarial parasite+ve
2001	99,653	2	1,381	82	290	7
2002	170,948	4	2,433	246	655	53
2003	180,015	1	1,900	1,024	428	13
2004	121,993	36	1,284	251	257	8
2005	203,575	8	1,689	201	305	6
2006	228,127	20	1,814	242	209	1
2007	324,005	27	2,764	251	215	1,013
2008	369,026	13	2,996	309	143	4
2009	358,067	9	2,135	181	115	7
2010	384,447	6	3,313	374	182	37
Total	2,439,856	126	21,709	3,161	2,799	1,149

In 2010, a total of 40,242 units of blood-components were produced by the blood centers. These included 21,254 units of red blood cell concentrate, 11,680 units of fresh frozen plasma, 7,269 units of plate concentrate, and 39 units of cryoprecipitate.

The Safe Blood Transfusion Act 2002 of Bangladesh was in place, the rules and regulations were circulated in 2008. There is a reference laboratory for blood transfusion at the new annex building of Dhaka Medical College Hospital. The functions of the reference laboratory are to support various organizations for training and monitoring. The reference laboratory is also testing the referred samples and validation of kits. The professionals engaged in the safe blood transfusion program deeply feel that a National Blood Center should be established as soon as possible to further streamline the stewardship role and coordination functions for the current fragmented blood transfusion services operating throughout the country.



The blood centers under the Safe Blood Transfusion Program collectively gathered a total of 2,439,856 units of blood from 2001 to 2010. In 2010, the program personnel collected 384,447 units of blood. Figure 12.2 shows the year-wise collection of the number of units of blood by the blood centers under SBTP.



A number of voluntary or non-profit organizations also contribute to encourage healthy donors for donating blood voluntarily. Some of these organizations have their own set-up for collecting, testing, storing, and distributing blood or blood products. Figure 12.3 shows the year-wise collection by the major voluntary blood-donation organizations.

## *Nutrition*

The public-health nutrition program under the Ministry of Health and Family Welfare of Bangladesh is operated through the Institute of Public Health Nutrition (IPHN) and two major programs under the Health, Nutrition and Population Sector Program (HNPSPP) 2003-2011. These two programs are Micronutrient Supplementation (MS) and National Nutrition Program (NNP). However, these two programs will be mainstreamed in the new name "National Nutrition Services (NNS)" with the health and family-planning services under the Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016.

In the HNPSPP 2003-2011, the IPHN and MS worked under the Directorate General of Health Services (DGHS), and the NNP worked directly under the Ministry.

Conventionally, the director of IPHN works as the line director of MS and head of nutrition programs of the IPHN. The programs include: (a) Control of micronutrient deficiencies focusing on nutritional blindness due to vitamin A deficiency; (b) Control of protein-energy malnutrition (PEM); (c) Control and prevention of iron-deficiency and other nutritional anemia; (d) Control of iodine-deficiency disorders and other micronutrient problems; (e) School health nutrition education program targeting school children; and (f) Revitalization of existing baby-friendly hospitals. The programs of the IPHN and MS cover the entire country.

The NNP, on the other hand, covers 172 upazilas. In the NNP area, satellite community nutrition centers are operated 6 days a week, one per 1,200 people. One lady community nutrition worker runs the nutrition center. There are 36,764 community nutrition workers for 172 upazilas, 3,732 community nutrition organizers, 960 field supervisors, and 172 upazila managers. The target populations of the NNP are: (a) under-2 children; (b) pregnant and lactating mothers; (c) newly-married couples; (d) adolescent boys and girls; (e) in-laws; and (f) husbands of pregnant women. The latter two target-groups are for advocacy services. The services include nutrition supplementation to malnourished children and all pregnant and lactating women; monitoring weight of under-2 children and pregnancy weight-gain; training; behavior change communication; and food-security interventions through vulnerable group feeding as well as through encouraging people for home-gardening and poultry-farming.

The nutrition activities carried out by the IPHN and MS have been summarized below:

**Vitamin A program:** Every year two rounds of vitamin A capsule supplementation to children aged 12 to 59 months are done. On 8 January 2011, the first round of the 19th National Immunization Day (NID) for 2011 took place, and the second round took place on 12 February 2011. Health workers and volunteers administered oral polio vaccine to 22 million children aged 0-59 months and vitamin A capsule to 20 million children aged 12-59 months at 140,000 sites located in health facilities and health centers, schools as well as mobile sites (bus, boat, and



railway-stations) throughout the country. Moreover, a four-day house-to-house immunization by mobile teams followed in order to make sure that no child be missed. In the 18th NID held in January 2010, the coverage of vitamin A capsule was 96%. Along with the vitamin A supplementation, anti-helminthic tablet albendazole (400 mg) are also administered to children aged 24 to 59 months. About 86% of the children who receive vitamin A fall under this age-group, who received albendazole in the past rounds.

**Protein-energy malnutrition (PEM):** IPHN undertook efforts for creating awareness about the improvement of protein-energy malnutrition situation in the country through using data and resources, such as Child Nutrition Survey (CNU) 1995 and 2000, Child and Mother Nutrition Survey (CMNS) 2005, and statistical databases of UNICEF and WHO. The organization also worked with the National Nutrition Program (NNP) to improve nutritional status of pregnant and lactating women, malnourished children, and adolescent girls to improve PEM situation. Figure 13.1 shows the rate (%) of under-5 children with underweight in Bangladesh from 1980 to 2008 (UNICEF and WHO have data available only up to 2008).

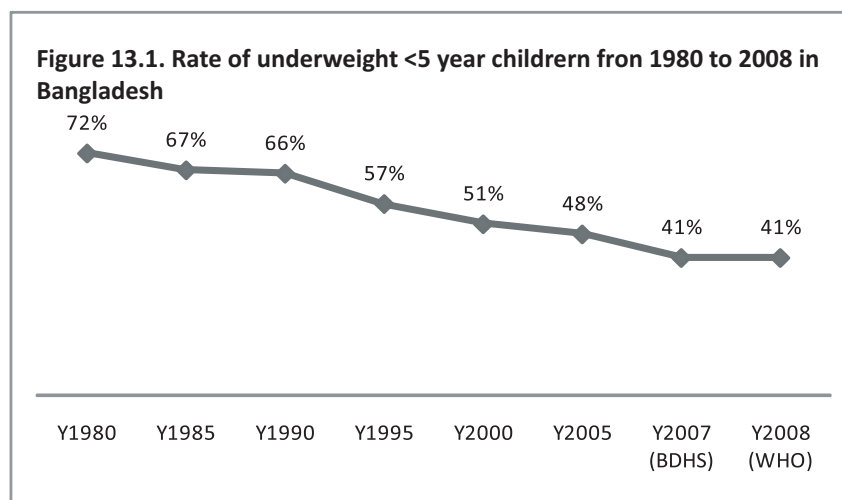


Table 13.1 shows the trend in the prevalence of underweight, stunting, and wasting among the under-5 children over the years. Data from Bangladesh show the urban and rural trends in the prevalence.

**Table 13.1. Prevalence of malnutrition among <5 children (2000 to 2008; no source provide data for period beyond 2008)**

Source and year	Location	Underweight (%)	Stunted (%)	Wasted (%)
Child Nutrition Survey 2000	Urban	41.8	37.5	10.9
	Rural	52.6	50.2	12.2
	National	51.0	48.3	12.0
Child and Maternal Nutrition Survey 2005	Urban	38.5	32.5	10.8
	Rural	50.0	44.9	13.1
	National	47.8	42.4	12.7

## Chapter 13: Nutrition

**Table 13.1. Prevalence of malnutrition among <5 children (2000 to 2008; no source provide data for period beyond 2008) (Continued...)**

Source and year	Location	Underweight (%)	Stunted (%)	Wasted (%)
UNICEF 2000-2006	National	48.0	43.0	13.0
Bangladesh Demographic and Health Survey 2007	Urban	33.4	14.4	36.4
	Rural	43.0	18.2	45.0
	National	41.0	43.0	17.0
WHO 2008	National	41.0	43.0	17.0

It is estimated that about 59% of women in Bangladesh have normal BMI while 30% are undernourished or thin (BMI less than 18.5), and 12% are overweight or obese (BMI 25 or higher). Rural women are more likely to be undernourished than urban women (33% and 20% respectively) while urban women are about three times more likely to be overweight or obese than rural women (24% and 8% respectively).

**Control and prevention of iron-deficiency and other nutritional anemia:** No recent survey report on iron-deficiency anemia in Bangladesh is available. A joint IPHN/HKI (Helen-Keller International) survey carried out in 1999 showed 49.2% of pregnant women and 52.7% of the preschool children of rural Bangladesh to suffer from iron-deficiency anemia. Control and prevention of iron-deficiency and other nutritional anemia is broadly operated through country's entire health service-delivery network and National Nutrition Program with key components of distribution of iron-folate supplements to the target, vulnerable and anemic groups. Control of intestinal parasites through distribution of albendazole tablets is done, along with vitamin A capsules distribution program. The IPHN continued advocacy for food fortification. The National Nutrition Program undertook dietary improvement interventions and production of micronutrient-rich foods.

**Control of iodine-deficiency disorders and other micronutrient problems:** Table 13.2 summarizes the available data on iodine-deficiency disorders in the country. The IPHN provides training to doctors and other health staff on control of iodine-deficiency disorders. Training is also given to managers, chemists, and others in salt factories of three zones (Chittagong, Patia, Cox's Bazar) in collaboration with Bangladesh Small and Cottage Industries Corporation (BSCIC). The IPHN also tests the samples in its laboratory.

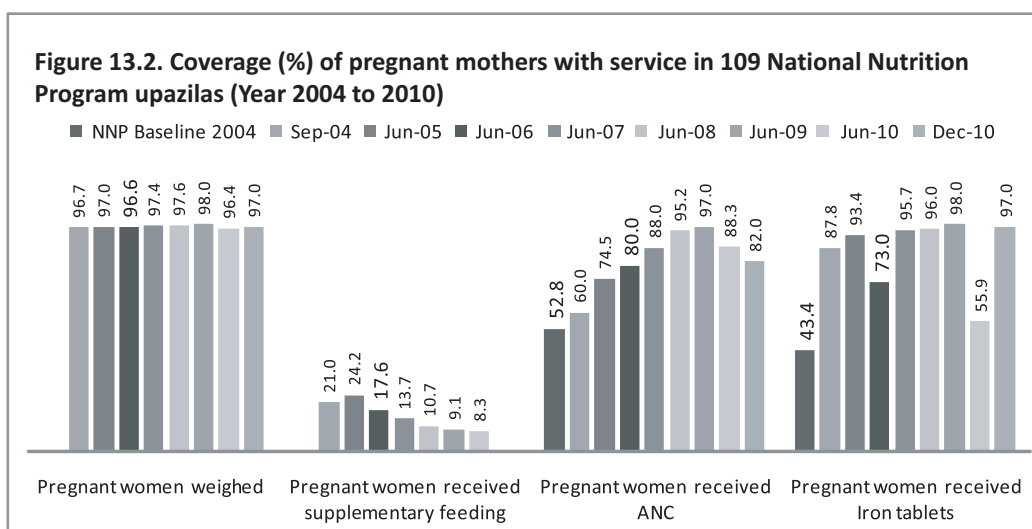
**Table 13.2. Iodine nutritional status based on available national data**

Biochemical iodine-deficiency among children (<100 µg/L)					Biochemical iodine-deficiency among general population (<100 µg/L)				Prevalence of goiter among children (6-12 years)	Prevalence of goiter among women (15-44 years)
1993	1995	2004-05	2006	2009	1993	2005	1993	2004-05	1993	2004-05
71.0%	44.0%	33.8%	84.0%	84.0%	70.2%	38.6%	49.8%	6.2%	55.6%	11.7%

**Child nutrition program of IPHN:** The IPHN has a school health nutrition education program targeting school children. It also has an "Infant and Young Child Feeding (IYCF)" program. For the latter program, the Institute developed a strategy paper. It trains doctors, senior staff nurses, sanitary inspectors, health inspectors, and other officers on Breastmilk Substitutes Codes (BMS codes) for baby-food (Sweet Baby II). The Institute also performs the regulatory function on BMS codes, under which registration was denied to several marketing companies of breastmilk substitutes due to lack of necessary papers. The Institute operates child nutrition units (CNU), one at the IPHN and 19 in upazila health hospitals of 19 districts.

**Breastfeeding and complementary feeding:** Practice of breastfeeding is universal in Bangladesh, and exclusive breastfeeding practice has problems. Almost all Bangladeshi children are breastfed for the first year of life. Even among children aged 20-23 months, 91% still receive breastmilk. However, Only 43% children aged less than six months are exclusively breastfed. Among infants of less than 2 months, only two-thirds (64%) are exclusively breastfed. On the other hand, among children aged 6-9 months, only three in four children receive complementary food. About 78% of the youngest children aged 6-35 months living with the mothers consume foods rich in vitamin A. Breastfed children are less likely to consume vitamin A-rich foods than non-breastfed children. About 58% of children aged 6-35 months living with the mothers consume foods rich in iron.

Figure 13.2 to 13.5 show the coverage of services by the National Nutrition Program (NNP) in the 109 upazilas from 2004 to 2009. Figure 13.2 summarizes the coverage for pregnancy-care service. It reveals that pregnancy weight-gain was measured among 97% to 98% pregnant women. Need for distribution of supplementary feeding reduced from 21% in 2005 to 8.3% in 2010. Antenatal care coverage was 53% in 2004 and 82% in 2010 whereas 43.4% of the pregnant women received iron tablets in 2004; the figure was 97% in 2010.



## Chapter 13: Nutrition

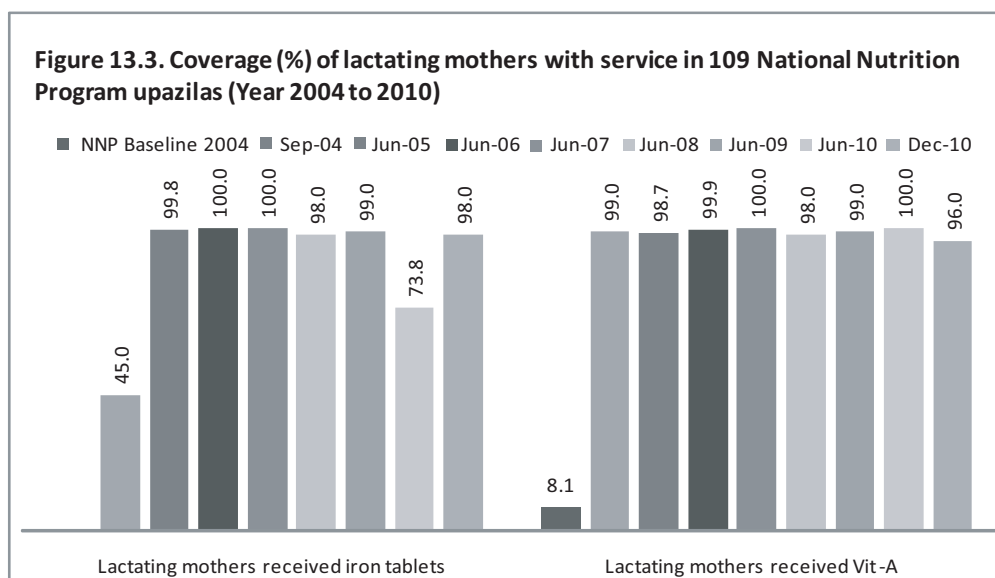


Figure 13.3 shows the service given to lactating mothers in the 109 NNP upazilas. In 2004, 45% of the lactating mothers were recorded to receive iron tablets. This figure rose to 100% in 2006, and the same coverage was maintained also in 2007. By the end of 2010, it was 98%. In 2004, only 8.1% of the lactating mothers received vitamin A capsules. In 2009, 99% of them were receiving vitamin A capsules, although the coverage was 96% by the end of 2010.

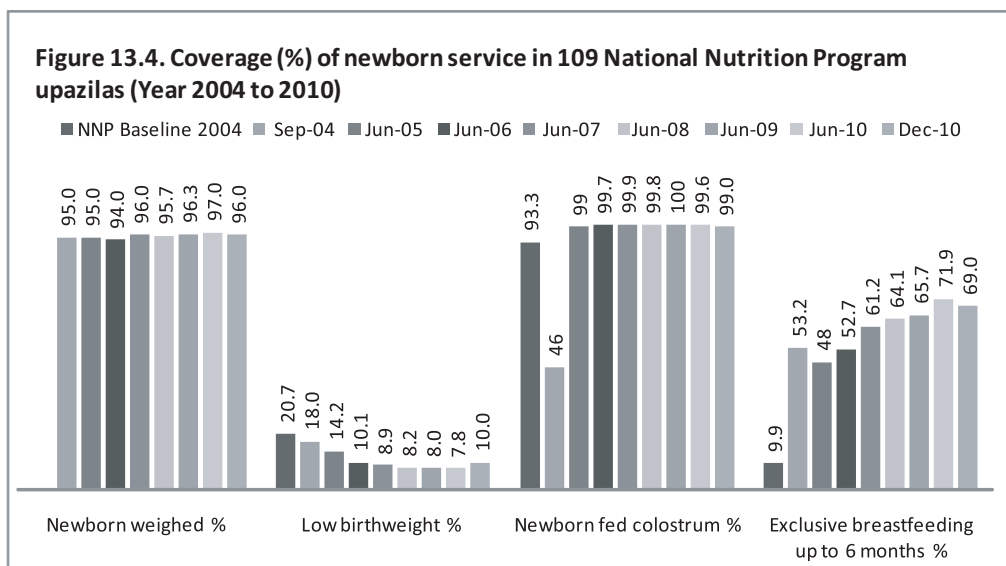


Figure 13.4 shows the coverage of services provided to newborns and young children by the NNP in 109 upazilas. In 2010, birthweights of 96% of the newborns were measured. In December 2010, 10% of the newborns in the program area were found to have low birthweight, which was 20.7% in 2004. In 2010, 99% of all newborns were reported to be fed colostrum, which was 93.3% in 2004. Exclusive breastfeeding rate was markedly increased from 9.9% in 2004 to between 69% and 72% in 2010.

## Chapter 13: Nutrition

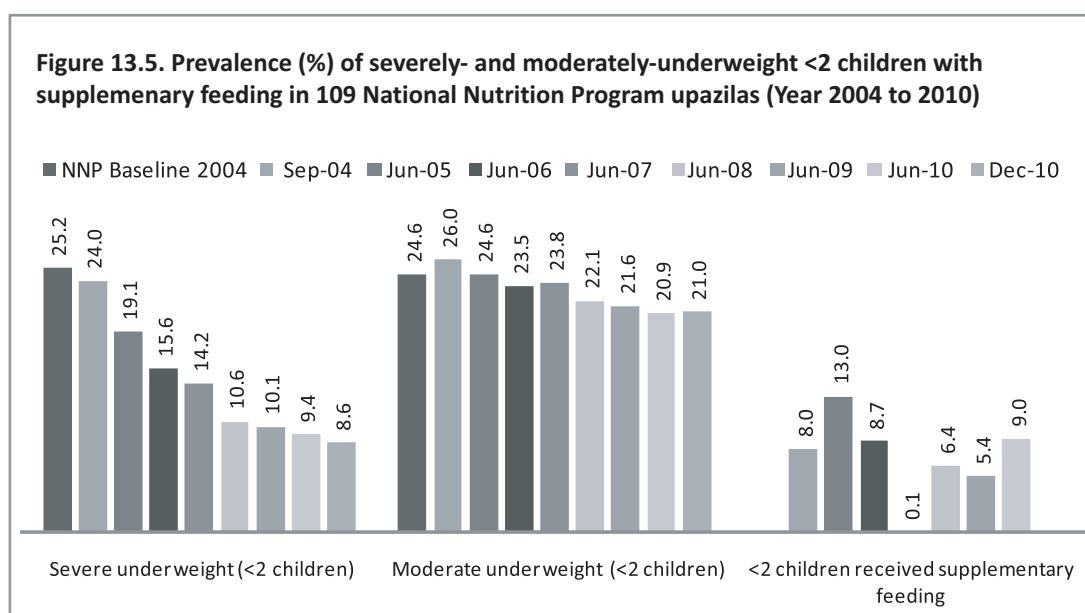


Figure 13.5 shows the prevalence of severely- and moderately-underweight children of less than 2 years of age in the NNP program area. Prevalence of severe underweight among under-2 children dropped from 25.2% in 2004 to 8.6% in 2010. Prevalence of moderate underweight among under-2 children dropped from 24.6% in 2004 to 21.0% in 2010. In 2004, 8.0% of the under-2 children with underweight were given supplementary feeding from the program. This figure was 9.9% by the end of 2010.

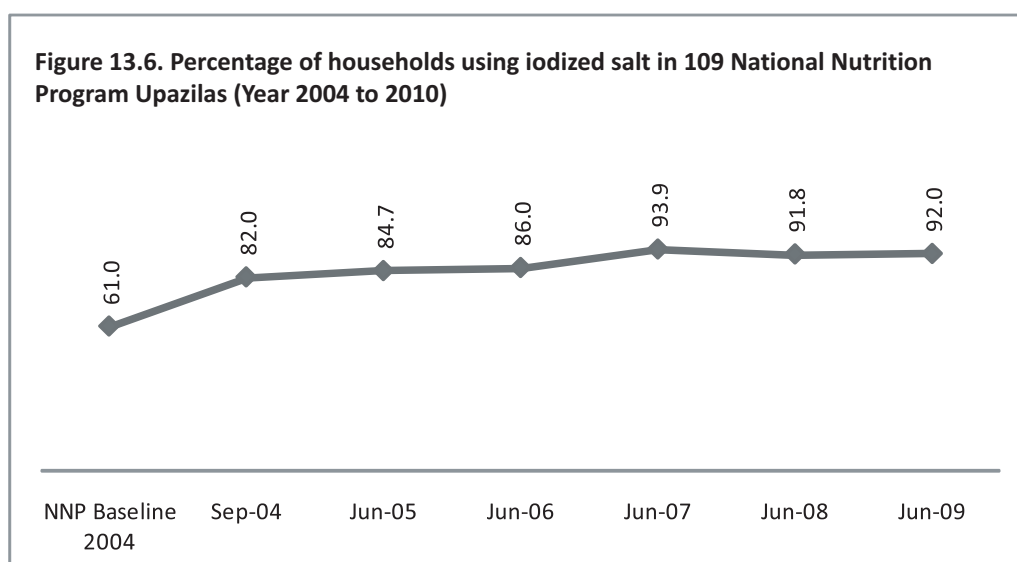


Figure 13.6 shows the trend in the household iodized salt-use in 109 program upazilas of the NNP. As of 2009, 92% of the households were consuming iodized salt, which was 61% in 2004. A sharp increase (to 82%) in the household iodized salt consumption was noticed in later part of 2004 and, thereafter, a steady increasing rate was maintained.

# *Public Health Interventions*

## *by selected institutions*

The Institute of Epidemiology, Disease Control and Research (IEDCR) and the Institute of Public Health (IPH) are two national institutes with significant public health interventions. This chapter describes some of the performances of these two institutions in 2010.

### **Institute of Epidemiology, Disease Control and Research (IEDCR)**

Established in 1976, the IEDCR is the national institute for conducting disease surveillance and outbreak investigation. The IEDCR is also the National Influenza Center (NIC) of Bangladesh, designated by WHO in 2007. Staffed with 115 employees, the IEDCR is made up of eight departments, viz. biostatistics, epidemiology, medical entomology, medical social science, microbiology, parasitology, virology, and zoonoses. The principal objectives are disease surveillance, outbreak investigation and response, and research and training.

The Institute established a biosafety level 3 (BSL-3) laboratory. The other laboratories of the Institute are medical entomology, microbiology, parasitology, virology, zoonosis, BSL-2 lab, and RT-PCR lab. The laboratories have wide range of diagnostic facilities for parasitic and fungal diseases, such as visceral leishmaniasis (kala-azar, PKDL), malaria, intestinal parasites, dermatophytes, candida, etc.), viral diseases (Nipah; hepatitis HAV, HBV, HCV, and HEV), HIV, influenza, dengue, chikungunya, etc.), bacterial diseases (enteric fever, brucellosis, rickettsial diseases, other aerobic and anaerobic bacterial infections and also for biochemical tests. The IEDCR also performs biological efficacy tests of insecticides regularly.

The IEDCR is the government-mandated institute for conducting outbreak investigation of public-health emergency of international concern (PHEIC) in the country. Number of outbreak investigations carried out in 2007 and 2008 was 17 and 5 respectively, and several in 2009. The outbreak investigations in 2007 are notable for Nipah virus, mass-psychogenic illness in 18 districts and toxic (*Ghagra shak*) outbreak in Sylhet. The 2008 outbreak investigations are notable for Nipah, puffer-fish poisoning, mass-psychogenic illness, first human case of avian influenza, and chikungunya. The 2009 outbreak investigations are notable for pandemic Influenza A H1N1 (Swine flu), chikungunya, cutaneous anthrax, pesticide-poisoning, and mass-psychogenic illness.

The outbreak investigations conducted in 2010 are Nipah virus in Algi, Vanga, and Faridpur in January; pneumonia in Cox's Bazar in January; chicken pox in Lama and Bandarban in March; Nipah in Faridpur Medical College Hospital in March; bronchiolitis in Ashulia in March; suspected water contamination in Barapukuria Power Plant in June; anthrax in Ghatail, Bhupur,



Shajadpur, Kamarkhund and Belkuchi of Sirajganj and Shathia of Pabna during April to August; suspected insecticide-poisoning in Naogaon in July; mass-psychogenic illness in Ishwarganj in July; RSV bronchiolitis in Meherpur in July; cholera in Tangail in November; mass-psychogenic illness in Gaibandha in November; bronchiolitis in Cox's Bazar in December; and rabies in Narsingdi in December.

The Institute also provides training and organizes workshops. A list of training and workshops organized in 2010 is given below:

- Orientation workshop on wet market surveillance of medical officers of six city corporations with technical assistance from World Health Organization (WHO)
- Training of statistical assistants on establishment of Integrated Disease Surveillance (IDS) at the district and upazila level with technical assistance from WHO
- Workshop for development of surveillance and response-capacity in medical colleges and specialized hospitals, involving resident medical officers and professors of medicine with technical assistance from WHO
- Orientation workshop of the civil surgeons and upazila health and family planning officers (UHFPO) on cutaneous anthrax with technical assistance from WHO
- Training of the UHFPOs on seasonal pandemic and avian influenza with technical assistance from WHO
- Training of the UHFPOs on outbreak investigation with technical assistance from WHO
- Training of civil surgeons on cutaneous anthrax with funding from the Centers for Disease Control and Prevention, Atlanta, USA
- Training of resident medical officers, pathologists, medicine and pediatric consultants on influenza surveillance with HNPSF funding
- Training of the upazila health and family planning officers on outbreak investigation with HNPSF funding.

The IEDCR have some routine as well as disease-specific surveillances. The routine surveillances are: Priority Communicable Diseases; Sentinel Surveillance; and Institutional Disease Surveillance. The disease-specific surveillances are: National HIV/AIDS Sero- and Behavioral Surveillance in collaboration with ICDDR,B; Nipah Surveillance in collaboration with ICDDR,B; Community-based Avian/Human Influenza Surveillance among poultry workers in H5-infected poultry farms; AI surveillance among the live bird-handlers in wet markets of city corporations; Acute Meningo-Encephalitis Surveillance (AMES), including Japanese B encephalitis in collaboration with IPH and ICDDR,B with technical assistance from WHO; Hospital-based influenza surveillance in collaboration with ICDDR,B; Surveillance for hospital-acquired respiratory infections in patients and healthcare workers in three tertiary-care facilities in collaboration with ICDDR,B; and Salmonella surveillance funded by IANPHI (2009-2010).

Other regular activities done by the IEDCR include: Avian Influenza Pandemic Preparedness Plan

(2009-2011); Development of Standard Operating Procedures (SOPs) for Avian Influenza (11 SOPs); Public Health Emergency of International Concern (PHEIC); Outbreak Investigation; International Health Regulation (IHR): National Strategy and Guideline; Training Manuals Development; Multi-sectoral Orientation on Avian and Pandemic Influenza in 64 districts; Biological efficacy of insecticides; and DAT and ICT test on kala-azar.

### Web-based disease surveillance

The IEDCR completed e-connection with 64 districts through wireless-connectivity and established web-based disease surveillance covering whole of Bangladesh. The IEDCR is also planning to extend web-based disease surveillance up to the upazila level.

### Institute of Public Health

Established in 1953 in Dhaka, the Institute of Public Health (IPH) is engaged in quality control of drugs, food and water; production of vaccines, intravenous fluids, anti-sera and diagnostic reagents; diagnosis of infectious diseases; and related research facilities. The activities are performed in different units of five major sections.

Table 14.1 shows the quantity of different types of intravenous fluids produced by IPH from 2002 to 2010.

**Table 14.1. Number of units of intravenous fluids by IPH (2002 to 2010)**

Item	Pack-size (mL)	2002	2003	2003	2004	2005	2006	2007	2008	2009	2010
Glucose saline	1,000	66,780	39,735	80,904	81,238	81,238	6,754	13,242	130,799	107,724	87040
	500	3,497	243,610	241,043	221,026	221,026	285,145	217,758	110,179	180,489	1,39,630
Glucose aqua	1,000	56,055	42,569	84,455	72,429	72,429	7,823	11,325	134,416	86,243	85894
	500	333,213	248,265	233,086	211,607	211,607	277,329	204,345	110,006	154,894	1,25,044
Normal saline	1,000	9,291	17,662	9,783	17,930	17,930	5,029	-	-	50,978	64471
	500	77,319	68,492	50,536	52,518	52,518	58,338	67,831	54,379	91,854	93291
Cholera saline	1,000	118,519	129,986	192,907	10,409	10,409	1,627	25,304	108,521	80,665	67440
	500	308,536	246,718	472,545	280,402	280,402	182,789	240,473	69,401	135,443	1,21,350
P.D. fluid	1,000	93,384	57,657	68,421	53,666	53,666	61,391	38,109	52,481	46,085	30110
	500	20,278	-	-	-	-	-	10,291	3,640	-	-
3% Normal saline	1,000	-	-	-	-	-	-	-	-	-	-
	500	5,022	5,107	4,578	6,888	6,888	6,939	8,456	7,700	10,674	7740
Baby saline	1,000	-	-	-	-	-	11,000	12,600	-	-	-
	500	6,717	4,689	14,307	8,245	8,245	500	-	-	26,120	21560
Hemodialysis fluid	1,000	33,510	14,200	21,100	20,650	20,650	1,000	-	10,500	12,600	8150
	-	-	-	-	-	500	8,700	18,680	-	-	-
Hartman's solution	1,000	-	-	-	-	-	1,000	-	-	-	-
	500	31,694	42,710	47,520	70,676	70,676	500	21,014	97,752	144,943	124040

Table 14.2 shows the number of blood-bags and related accessories produced by IPH from 2002 to 2010.

**Table 14.2. Number of blood-bags and accessories produced by IPH (2002 to 2010)**

Item	Pack-type	2002	2003	2003	2004	2005	2006	2007	2008	2009	2010
CPD blood-bag	Single	101,844	107,437	87,586	59,827	59,827	65,936	74,435	55,060	85,800	83890
Baby-bag	150 mL	-	150	-	-	-	-	-	-	-	-
Transfusion set	-	37,060	15,650	51,775	34,775	34,775	31,860	24,060	7,925	-	-
Infusion set	-	130,200	107,350	190,300	188,750	188,750	86,710	42,200	30,400	-	-

Table 14.3 shows the quantity of anti-rabies vaccines produced by IPH from 2006 to 2010.

**Table 14.3. Production of anti-rabies vaccine by IPH (2002 to 2010)**

Year	For man (5 mL)			For animal (10 mL)		
	mL	No. of ampoules	No. of courses	mL	No. of ampoules	No. of courses
2006	2,730,400	546,080	39,005	418,600	41,860	996
2007	2,446,900	489,380	34,955	483,750	48,375	1,166
2008	3,017,125	2,848,440	83,793	619,620	51,990	15,570
2009	2,895,500	579,100	41,365	543,800	54,380	1,295
2010	2296100	459220	32,802	324500	32450	773

Table 14.4 shows the quantity of different types of diagnostic reagents produced by IPH from 2001 to 2010.

**Table 14.4. Quantity of diagnostic reagents by IPH (2002 to 2010)**

Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Benedict's solution (L)	420	600	555	470	460	294	480	560	457	460
ESR fluid (L)	60	160	160	150	160	110	237	380	155	160
20% Sulfuric acid solution (L)	40	40	95	95	30	-	20	40	-	30
N/10 Hydrochloric acid solution (L)	70	60	90	10	60	70	80	190	60	50
Acetone alcohol (L)	Nil	Nil	55	20	10	-	10	-	25	Nil
5% Acetic acid solution (L)	60	60	80	100	60	20	70	170	80	40
WBC Fluid (L)	60	50	80	40	60	20	40	100	70	100
RBC fluid (L)	20	50	80	70	30	-	20	80	-	30
30% Sulfosalicylic acid (L)	10	Nil	Nil	10	11.6	-	10	07	-	04
20% Sodium hydroxide solution (L)	Nil	Nil	Nil	20	Nil	-	-	-	-	Nil
20% Potassium hydroxide solution (L)	Nil	02	11.5	Nil	Nil	-	-	-	-	Nil
Semen analysis fluid (L)	20	Nil	36.5	20	10	-	05	-	-	Nil
Normal saline (L)	60	100	90	70	40	30	80	60	90	20
Methylene blue (L)	20	35	57	30	10	10	05	25	20	05
Crystal violet (L)	15	15	30	10	10	-	-	05	27	05
Basic fuchsin (L)	05	10	33	10	05	32	-	22	5	Nil
Carbol fuchsin (L)	22	22	66	44	11	10	-	-	22	Nil
Gram iodine (L)	10.5	05	35	10	05	05	10	-	20	Nil
Lugol's iodine (L)	15.5	20	40	15	15	15	16	40	50	05
Leishman stain (L)	44	96	69	47	62	29	65.1	104	61.8	43
Giemsa stain (L)	29	48	39.5	Nil	36	16	51.8	60	71.9	34
Glucose kit	100	47	78	100	48	98	-	100	100	Nil
Bilirubin kit	62	6	152	97	Nil	99	44	151	96	97
Creatinine kit	Nil	Nil	54	51	Nil	-	-	69	47	49
Uric acid kit	Nil	Nil	27	60	Nil	-	-	-	-	Nil
EDTA vial	Nil	Nil	Nil	Nil	Nil	500	-	-	511	Nil

Figure 14.1 shows the quantity of oral rehydration salt (ORS) produced and distributed by IPH from 2001 to 2010.

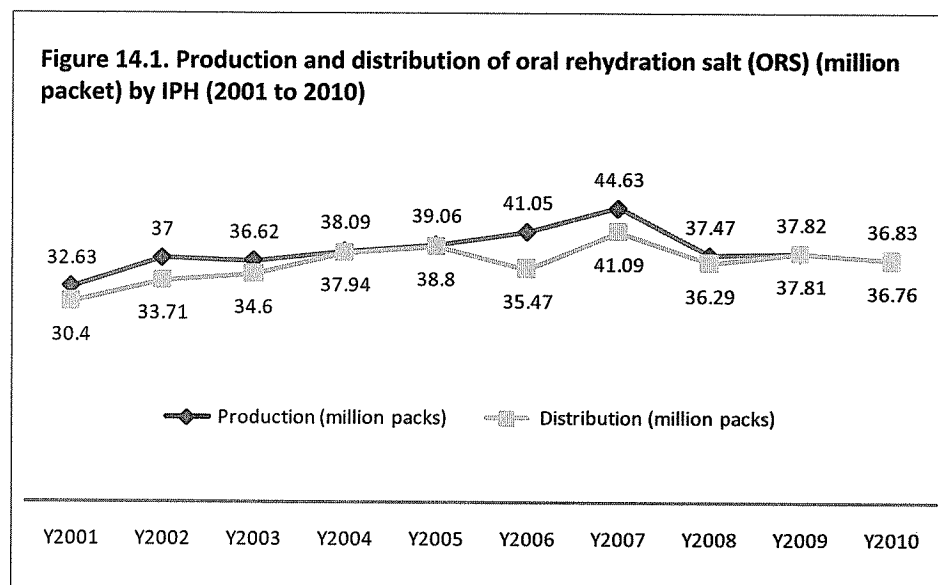


Table 14.5 shows the number of food-samples tested by IPH from 2001 to 2010. The table also shows the distribution of the genuine and adulterated samples out of the total samples tested each year.

**Table 14.5. Food-samples tested by IPH (2001 to 2010)**

Year	Total samples	Genuine		Adulterated	
		No.	%	No.	%
2001	3,280	1,692	51.6%	1,588	48.4%
2002	4,300	2,110	49.0%	2,190	51.0%
2003	5,120	2,515	49.1%	2,605	50.9%
2004	4,413	2,214	52.0%	2,119	48.0%
2005	6,337	3,200	50.5%	3,137	49.5%
2006	2,779	1,405	50.6%	1,374	49.4%
2007	5,992	3,488	58.2%	2,504	41.8%
2008	8,734	5,066	58.0%	3,668	42.0%
2009	6,338	3,356	52.9%	2,982	47.1%
2010	5,749	2,759	48%	2,990	52%

Figure 14.2 shows the number of water-samples tested by chemical means by IPH each year from 2001 to 2010 and distribution of satisfactory and unsatisfactory samples each year (Figures in parentheses show the total number of samples tested).

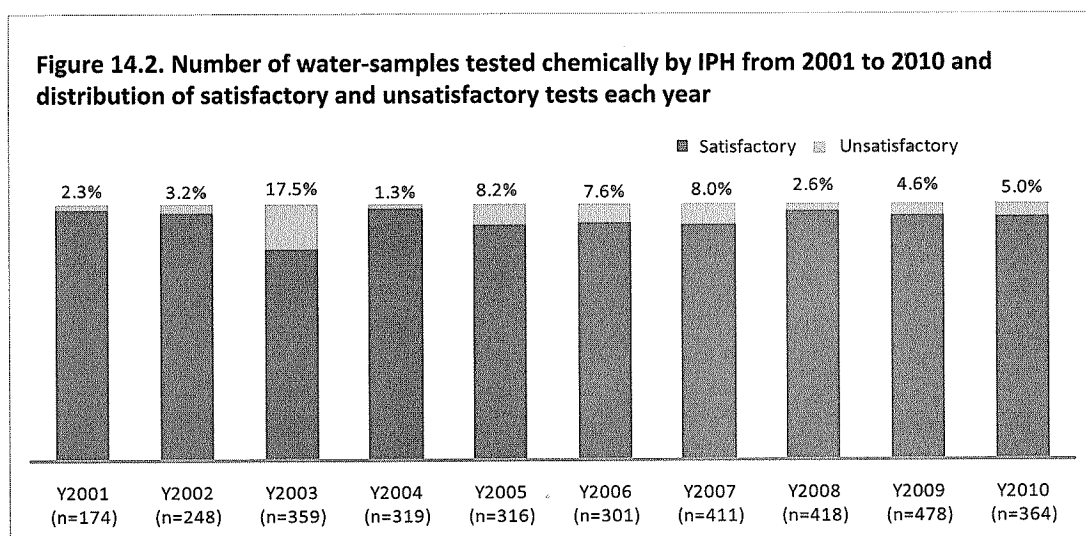


Figure 14.3 shows the number of water-samples tested bacteriologically in IPH each year from 2001 to 2010 and distribution of satisfactory and unsatisfactory samples each year (Figures in parentheses show the total number of samples tested).

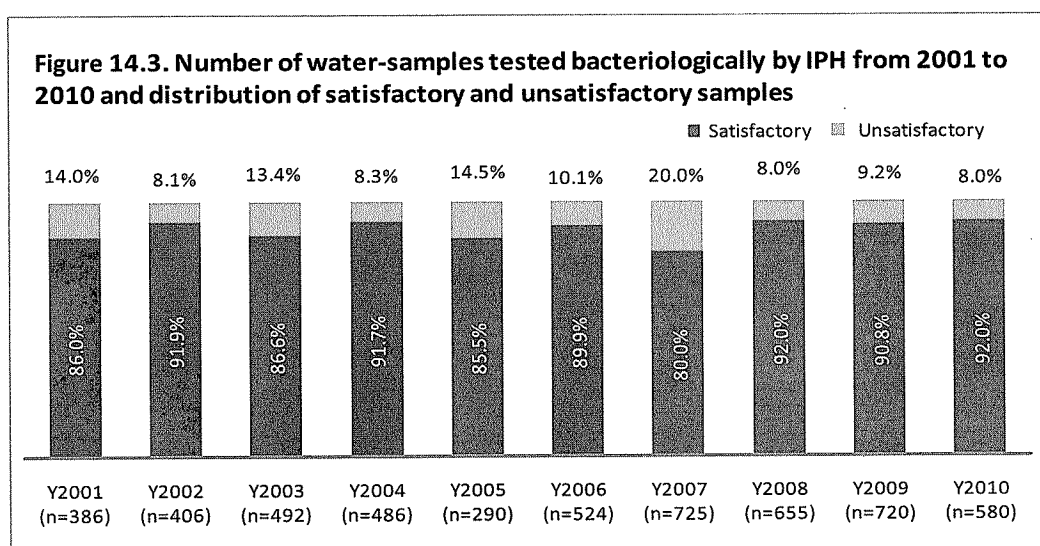


Table 14.6 shows the number of drug-samples received by IPH and their test results from 2001 to 2010.

**Table 14.6. Number of drug-samples tested by IPH and their results (2001 to 2009)**

Year	Samples received (N)	Satisfactory (N)	Unsatisfactory (N)	Not analyzed	Feedback given to senders
2001	3625	3533	30	0	62
2002	3159	3017	26	0	113
2003	3842	3763	28	0	51
2004	3719	3641	45	0	33
2005	3472	3056	89	127	200
2006	2708	2664	44	-	-
2007	3097	2978	119	-	-
2008	4589	3639	100	-	-
2009	3145	3078	67	-	-
2010	5006	3833	82	1091	-

The National Polio Laboratory of IPH is a WHO-accredited laboratory established to assist with the eradication of wild polio virus from the country. It is a partner of SEARO-WHO Polio Network. Table 14.7 shows the number of stool-samples tested by IPH for polio virus from 2001 to 2010 and the results of the tests.

**Table 14.7. Number of stool-samples tested by IPH for polio virus from 2001 to 2010 and their results**

Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
AFP case (N)	1,287	1,365	1,128	1,301	1,458	1,619	1,844	1,809	1,522	1541
Sample (N)	2,728	2,931	2,388	2,631	2,910	3,185	3,611	4,356	3,483	3,464
Polio virus isolate (N)	74	93	91	118	59	253	181	80	56	72
Wild polio virus (N)	-	-	-	-	-	18	-	-	-	-
Vaccine (Sabin) Virus (N)	74	93	91	118	59	187	193	76	56	72
NPEV (Non-polio ntero-virus) (N)	804	815	565	517	574	473	553	1,012	684	645
Negative sample (N)	1,850	2,023	1,732	1,996	2,277	2,492	2,910	3,264	2,743	2746
Total (N)	6,817	7,320	5,995	6,681	7,337	8,227	9,292	10,597	8,544	8,540

The Measles Laboratory of IPH is involved with the serological study of measles and rubella to support measles control program of the country. Table 14.8 shows the numbers of measles+ve, rubella+ve and negative blood samples tested by the Measles Laboratory of the Institute from 2003 to 2010.

**Table 14.8. Number of measles+ve, rubella+ve (IgM antibody) and total negative blood-samples (both measles and rubella) tested by the Measles Laboratory of IPH from 2003 to 2009**

Test	2003	2004	2005	2006	2007	2008	2009	2010
Measles+ve	59	404	769	170	6	16	35	51
Rubella+ve	-	55	609	164	432	243	1,133	1,425
Total-ive	12	157	453	77	149	529	769	817
Total sample	71	616	1,831	411	587	788	1,937	2293

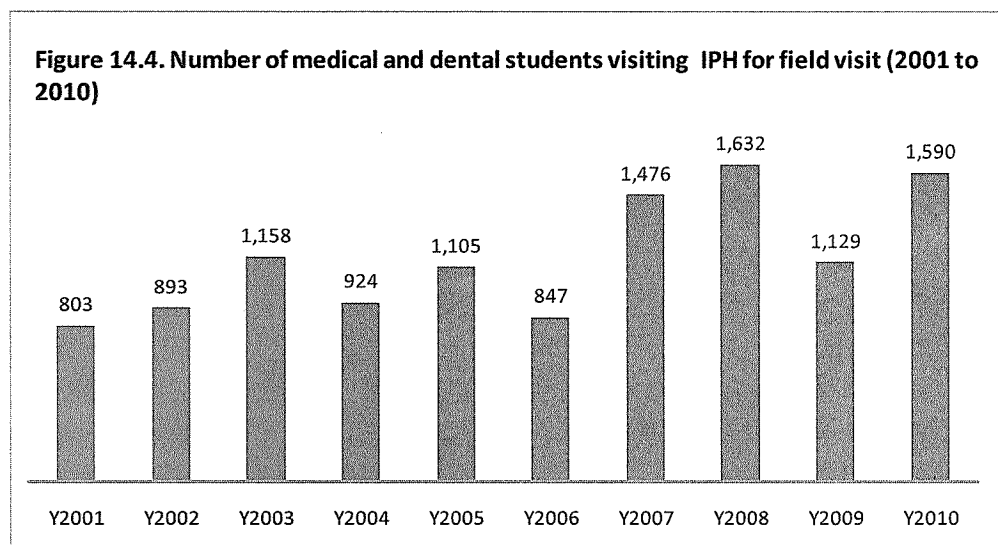
IPH also performs routine tests on blood, serum, stool, urine, sputum, throat-swab, ear-swab, etc. Table 14.9 shows a summary of the tests done by the Institute from 2001 to 2010.

**Table 14.9. Numbers of routine tests done by IPH from 2003 to 2009**

Test	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Biochemical (blood)	189	182	176	45	-	-	-	-	-	-
Serological	-	70	19	871	3,333	923	2051	3,293	-	-
Routine examination (stool, blood-CP, urine, sputum)	970	840	395	456	341	192	133	123	82	162
Culture and sensitivity (stool, blood, urine, sputum, throat-swab, ear-swab)	222	231	381	146	121	161	108	98	78	30



IPH is a designated field-visit site for the medical students of the country. Undergraduate medical and dental students from almost all medical colleges come to see the activities of IPH for learning. Figure 14.4 shows the number of medical/dental students who visited IPH in different years (2001 to 2010).



IPH also provides training to human resources. Table 14.10 shows a snapshot of the training programs and number of participants in different training programs organized during 2008 to 2010.

**Table 14.10. Training of human resources provided by IPH (2008 to 2010)**

Training Course	Duration (days)	2008				2009				2010			
		Class				Class				Class			
		I	II	III	IV	I	II	III	IV	I	II	III	IV
Computer (Basic)	28	40	55	220	-	11	5	19	-	27	8	33	-
Computer (Refresher)	14	-	25	50	-	27	19	161	-	30	39	153	-
Computer (Advanced)	28	-	-	-	-	-	3	29	-	5	13	44	-
Good Laboratory Practice	10	-	50	140	-	-	-	-	-	-	-	-	-
Good Laboratory Practice	25	-	-	-	-	-	-	-	-	-	-	-	-
Good Laboratory Practice	20	-	-	-	-	-	-	-	-	-	-	-	-
Good Laboratory Practice	14	-	-	-	-	-	-	-	-	-	-	-	-
Good Laboratory Practice	5	-	-	-	240	-	-	-	-	-	-	-	-
Security Management	5	-	-	-	30	-	-	-	-	-	-	-	-
English Language	28	40	51	-	-	21	-	-	-	21	-	-	-

## *Research and Development*

For the year 2010, MIS-Health received information on research from several public, private and autonomous institutions which include Bangladesh Medical Research Council (BMRC), National Institute of Preventive and Social Medicine (NIPSOM), Institute of Mother and Child Health (ICMH), ICDDR,B, and the James P. Grant School of Public Health of BRAC University. This chapter provides a brief introduction of the Bangladesh Medical Research Council and the lists of research activities done in different institutions.

### **Bangladesh Medical Research Council**

Bangladesh Medical Research Council (BMRC) was established in 1972 by Father of the Nation Bangabandhu Sheikh Mujibur Rahman. The BMRC is as an autonomous body under the Ministry of Health and Family Welfare (MOHFW). As per resolution of the Government, the BMRC is the only authorized body for giving clearance of health research in Bangladesh. The objectives of the BMRC are to identify problems and issues relating to medical and health sciences and to determine priority areas in research on the basis of healthcare needs, goals, policies, and objectives. The mission of the Council is to create effective and quality healthcare facilities for the whole population of the country by promoting health research through strengthening of research facilities, training, and dissemination of research results. Honorable Prime Minister Sheikh Hasina inaugurated the newly-built BMRC Bhaban on 14 October 2010.

The activities of the BMRC are mentioned below:

**A. Research Funding:** The BMRC organizes and promotes scientific research in various fields of medicine, public health, reproductive health, and nutrition, with specific references to primary healthcare needs for the application and utilization of the results of health research. The BMRC provides research funds both from revenue budget and from grants received from development partners.

**B. Publication:** The BMRC publishes the internationally-recognized quarterly journal 'BMRC Bulletin' covered by various indexing agencies; RICH (Research Information and Communication on Health) twice yearly, where abstracts of important research works are published; and CAS (Current Awareness Service) annually containing the titles collected from different Journals published in Bangladesh.

**C. Training:** The BMRC conducts training courses on research methodology, data-analysis, project development and report writing, biostatistics, scientific writing, health systems research, ethical issues in health research, use of statistical package in research (SPSS), with technical support from WHO, Government, and NGOs.

**D. Ethical Clearance:** The BMRC is the only government-approved organization for ethical clearance and has a National Research Ethics Committee for this task.

### **BMRC activities in 2010-2011**

A. Granting research funds to 28 research protocols in the following topics:

1. Serum zinc in vitiligo patients-a comparison with normal subject
2. Correlation of the outcome of transurethral resection of the prostate (TURP) with preoperative degree of bladder outlet obstruction and detrusor function
3. Arsenic in human milk and assessment of human milk intake in children living in arsenic-contaminated areas in Bangladesh
4. Prevalence of occupational asthma in sericulture workers
5. Evaluation of the role of end-range mobilization technique in the management of patients with adhesive capsulitis of the shoulder-joint
6. Relationship between dental diseases and coronary heart disease in diabetic patients
7. Retinopathy in older persons without diabetes mellitus
8. Risk factors of impaired glucose tolerance (IGT) and impaired fasting glucose (IFG) among urban population
9. Ocular injuries in patients with major trauma
10. Role of uric acid and dyslipidemia in ischemic stroke
11. Prevalence of NCD-related risk factors among population aged 35-60 years in Dhaka city
12. Epidemiological feature and economic burden of road-traffic accidents
13. Underlying factors of attempted suicides: experience from rural Bangladesh
14. Quality of healthcare services provided to the patients at the Medical Outpatient Department of Dhaka Shishu Hospital
15. Efficacy of polymerase chain reaction for rapid diagnosis of pulmonary tuberculosis from sputum
16. Plasma androgens levels in women with acne vulgaris
17. Prevalence of secretor and non-secretor among the random blood-donors
18. Non-communicable diseases among the shopkeepers in Dhaka city
19. A study on the effect of prolonged drinking of saline water on pregnancy outcome
20. Hepatitis B virus infection among the blood-donors in Dhaka city
21. Knowledge, attitude and practice on tobacco-related cancer among the general population of Sharisahabari, a rural area of Bangladesh
22. Effect of targeted food supplementation through National Nutrition Program on pregnancy weight-gain and birth-weight in different chronic energy-deficiency groups.
23. Study of risk factors of primary hemorrhagic and ischemic subtypes of acute stroke among patients admitted in a tertiary-level hospital in Bangladesh
24. Association between smokeless tobacco consumption and adverse pregnancy outcome among rural women in Bangladesh
25. Spectrum of clinical manifestation of post-kala-azar dermal leishmaniasis (PKDL) in kala-

## Chapter 15: Research and Development

azar-endemic areas of Bangladesh

26. Early outcome of off-pump coronary artery bypass graft (OPCAB) surgery in women

27. Risk factors of suicide and para-suicide in rural Bangladesh

28. Studies of bioactive secondary metabolites of various indigenous plant materials for natural food preservation.

B. Publishing 20 original articles and 3 letters-to-editor in BMRC Bulletin in August 2010, December 2010, and April 2011 issues as shown below:

### *Issue 36 (2), August 2010: Original Articles*

1. Topical tazarotene cream (0.1%) in the treatment of facial acne: An open clinical trial
2. Impaired fasting glucose and impaired glucose tolerance in rural population of Bangladesh
3. Recurrence of cancer cervix in patients treated by radical hysterectomy followed by adjuvant external beam radiotherapy
4. Study on association of cutaneous tuberculosis with pulmonary tuberculosis
5. Oral health status of disabled children
6. Serum triglyceride level in type 2 diabetes mellitus patients with or without frozen shoulder
7. Preoperative detection of ovarian cancer by color doppler ultrasonography and CA 125.

### *Issue 36 (3), December 2010: Original Articles*

8. Effect of single-dose intravenous zoledronic acid on bone mineral density in post-menopausal osteoporosis of Bangladeshi women
9. Feeding practice in acute stroke patients in a tertiary-care hospital
10. Protective effects of the dietary supplementation of turmeric (*Curcuma longa* L.) on sodium arsenite-induced biochemical perturbation in mice
11. Role of computed tomography in the evaluation of pediatric brain tumor
12. Evaluation of myocardial protection in off-pump vs on-pump coronary bypass surgery by troponin I estimation
13. Lipoprotein (a) level in pre-eclampsia patients.

### *Letter- to- Editor*

1. Obesity in the north of Iran (south east of Caspian Sea)
2. Surgical management of ventricular septal defect with pulmonary stenosis with idiopathic thrombocytopenic purpura.

### *Issue 37 (1), April 2011: Original Articles*

1. Health-related quality of life among the people living with HIV
2. Usefulness of Light Emitting Diode (LED) fluorescent microscopy as a tool for rapid and effective method for the diagnosis of pulmonary tuberculosis
3. Evaluation of management, control, complications and psychosocial aspects of diabetics in Bangladesh: DiabCare Bangladesh 2008
4. Birthweight of the babies delivered by chronic energy-deficient mothers in National Nutrition Program (NNP) intervention area

## Chapter 15: Research and Development

5. Lipid profile in minor thalassemic patients: A historical cohort study
6. Higher prevalence of Cytomegalovirus pp65 antigenemia associated with lower CD4+ T lymphocyte count
7. Safety and efficacy of the supracostal access for percutaneous nephrolithotomy: Our initial experience.

### *Letter-to-Editor*

1. Free Health Camps at 476 upazilas in Bangladesh.

### C. Issuance of ethical clearance of the following research projects:

1. Nutrition impact on Monga
2. Study of the effectiveness of long-lasting insecticide-treated mosquito net (LN) against visceral leishmaniasis vector *Phlebotomus argentipes* in highly-endemic area of Bangladesh
3. Chemoprevention of arsenic-induced skin cancer
4. Indoor air pollution: Extent, impact and prevention
5. Essential Health Hygiene and Nutrition Package by six contracted scale fund NGOs, 2009-2010
6. Essential Health Hygiene and Nutrition Package for Innovation fund NGO (NDP) 2010-2011
7. A prospective, non-interventional, cohort survey on VTE risk patients receiving new chemotherapy for cancer
8. Psychotic disorders among Yaba/methamphetamine (MA)-dependent subjects
9. Subcutaneous contraceptive injection Depo SubQ Provera 104 TM Depo SubQ/SAYANA acceptability study
10. Assessing acceptability of Sino-implant (II) among Bangladeshi married women of reproductive age
11. Effect of antioxidant vitamins intervention on oral Leukoplakia in selected population of Bangladesh
12. Burden of diabetes mellitus: Experience from urban and rural communities of Bangladesh
13. Phase-III randomized study of luteal phase versus follicular phase surgical oophorectomy and Tamoxifen in premenopausal women with metastatic hormonal receptor-positive breast cancer
14. The 2011 Bangladesh Demographic and Health Survey (BDHS)
15. Efficiency of fund-use in public and private hospitals: A comparative study in relation to attaining MDGs
16. A comparison of costs associated with maternal health in connection with home-based child births (delivery) with hospital-based child births
17. Usefulness and application of the monitoring and evaluation toolkit for indoor residual spraying by the national vector control program
18. Treatment of early neuritis in leprosy
19. Evaluation of an educational intervention in arsenic-exposed school children in Araihaazar,

## Chapter 15: Research and Development

### Bangladesh

20. Folic acid and creatine as therapeutic approaches for lowering blood arsenic
21. Community participation to lower arsenic exposure more effectively in Bangladesh
22. Comparative bioavailability study of 22.5% Omeprazole pellets preparation with 8.5% pellets preparation in Bangladeshi population
23. A Phase III Open-label randomized study of three short-course combination regimens (AmBiosme Miltefosine, Paromomycin) compared to AmBisome alone for the treatment of visceral leishmaniasis (VL) in Bangladesh (amended version)
24. The role of Government, NGOs, and the private sector in Bangladesh's National Tuberculosis Control Program
25. Effect of nutrition education on adolescent overweight girls to reduce excess weight in urban area
26. Impact evaluation of behavior change communication and micronutrient supplementation interventions on infant and young child feeding (IYCF) practices and on childhood stunting and anemia
27. Design implementation and evaluation of a parent support/counseling program with a focus on responsive stimulation for infants and young children in rural Bangladesh
28. Efficacy and safety of liposome amphotericin B in Bangladeshi patients with visceral leishmaniasis (amended version)
29. Dietary assessment and characteristics of health and nutritional impact of vegetable diet among rural elderly vegetarian and non-vegetarian
30. Effects of nutritional education on people living with HIV/AIDS in Bangladesh
31. Enzyme-linked immunosorbent assay for the diagnosis of *Wuchereria bancrofti* infection using urine samples and its application in Bangladesh
32. Intervention with dietary education for improving pregnancy outcome
33. Measuring the impact of lymphatic filariasis-related disability: The development of a rapid assessment tool
34. A study on the impact of nutrition education of lactating mothers to improve nutritional status of breastfed babies in selected hospitals in Dhaka city in Bangladesh
35. Evaluation of LED microscopes and staining techniques for acid fast smear fluorescence microscopy
36. Study for cephalometric evaluation of craniofacial variation in normal Bangladeshi population (age-group 21-27 years) according to Steiner analysis
37. Nutritional status and dietary pattern of adolescent girls between upper and lower socioeconomic status in Dhaka city
38. Epidemiological surveillance of *Burkholderia pseudomallei*, *Orientia tsutsugamushi*, and *Rickettsia typhi* based on serology in Bangladesh
39. The relationship of Maxillary Canines to the Facial Anatomical Landmarks in groups of Thai and Bangladeshi people
40. Effect of nutrition education on LBW and pregnancy weight-gain at selected hospitals in



## Chapter 15: Research and Development

Dhaka city

41. A descriptive study of the pharmacogenomics of Tamoxifen in Bangladeshi women with breast cancer
42. Seroprotection against hepatitis B with and without birth-dose hepatitis B vaccine among Bangladeshi children
43. Evaluation of mineral trioxide aggregate and calcium hydroxide cement as pulp-capping agents in human teeth
44. Pharmacokinetic and bioequivalence study of Esomeprazole 20 mg capsule in healthy Bangladeshi volunteers
45. Pharmacokinetic and bioequivalence study of Esomeprazole 35 mg capsule in healthy Bangladeshi volunteers
46. The influence of maternal factors on birthweight in different socioeconomic levels
47. A study of the dietary intake and nutritional status in elderly people at urban area in Bangladesh (Dhaka city)
48. Comparison of inappropriate infants and young child feeding (IYCF) practices and its effect on nutritional status between lower and higher socioeconomic groups in Dhaka city
49. The impact of the quality and quantity of complementary food on nutritional status of children (7-24 months) in families of lower socioeconomic status
50. Comparison of the nutritional status and diarrheal duration between breastfed and non-breastfed infants
51. Comparison of risk factors, nutritional status, and morbidity rate between breastfed and bottlefed infant in a selected area of Dhaka city
52. Comparison of nutritional status and dietary intake pattern between child laborers and non-working children (5 to 14 years) in selected areas of Dhaka city
53. Consanguinity recessive genes and the risk of breast cancer
54. Consequences of arsenic and manganese exposure on childhood intelligence in Bangladesh (amended version)
55. Validation study for diagnosis of smear-positive tuberculosis cases.

### Research of NIPSOM students (2010)

*Research by M. Phil. (Preventive and Social Medicine) students*

- Health-related quality of life in patients with diabetes mellitus
- Factors affecting maternal mortality in a selected rural area of Bangladesh
- Factors associated with infant mortality in a selected rural area of Bangladesh
- Selected indoor air-pollutants and respiratory problems among Dhaka city-dwellers.

*Research by MPH (Nutrition) students*

- Lifestyle and food-habit of the overweight children attending a health center of Dhaka city
- Nutritional status of under-5 children in a rural community
- Nutritional status of the infertile patients attending the Infertility Outdoor of a tertiary-care hospital

## Chapter 15: Research and Development

- Assessment of nutritional status and related behavioral risk factors among government high officials
- Maternal nutrition and nutritional status of breastfed children attending a selected health center
- Nutritional status of street-adolescents in some selected shelter homes in Dhaka city.

### *Research by MPH (Maternal and Child Health) students*

- Blood transfusion status among emergency obstetric patients in comprehensive EmOC center
- Risk factors for bacterial vaginosis during first trimester of pregnancy in a selected union of Bangladesh
- Tetanus-toxoid immunization status among unmarried female college students in rural area of Bangladesh
- Knowledge about HIV/AIDS among female floating sex workers in Dhaka city
- Gender role on contraceptive-use among affluent and poor society
- Knowledge on NSB among the couples attending a selected MCH-HP center
- Reasons of relapse of drug-dependency among the drug-dependent individuals of rehabilitation centers
- Teachers' and students' views regarding the reproductive and child health-related contents in community medicine at undergraduate-level medical studies in Bangladesh
- Reasons for repeated menstrual regulation (MR) among the clients attending NGO clinics
- Patterns of climacteric symptoms and its severity among the rural menopausal women
- Awareness of the community stakeholders towards the barriers to access safe delivery care in a selected rural area
- Maternal anemia and pregnancy outcome in a maternity hospital
- Cost of maternal care among the mothers attending a selected non-government MCH-FP center
- Mothers' awareness of tuberculosis (TB) of under-5 children
- Reasons of drop-out of tetanus-toxoid vaccination in a selected urban area
- Pattern of accidents among the under-five children and working status of their mothers.

### *Research by MPH (Health Promotion and Health Education) students*

- Educational intervention on dental caries among the primary school children
- Healthcare cost of patients attending out-patient departments of public hospitals and private chambers
- Food-habit and dental caries among secondary school students
- Effects of community intervention program on HIV/AIDS prevention in Nigeria
- Knowledge about inhaler-use among the chronic asthma patients in a selected hospital
- Health education intervention on handwashing after defecation in a selected slum area
- Oral health status among 10 years old school children
- Status of anemia among under-five children in anemia reduction program in a Rohingya refugee camp

## Chapter 15: Research and Development

- Knowledge and practice of senior staff nurses about post-operative infection control
- Maternal characteristics and birthweight of the newborns
- Oral hygiene practice of school children exposed and non-exposed to Pepsodent oral hygiene awareness program
- Periodontal status among gestational diabetic women
- Nutritional status and dietary pattern of non-primary school-going children
- Knowledge regarding human immunodeficiency virus infection among secondary school students
- Nutritional status of pulmonary TB patients attending Shaymoli TB clinic, Dhaka
- Knowledge of senior staff nurses regarding bed sore and its preventions
- Pattern of tobacco consumption among household members in a selected upazilla
- Smoking-habit among secondary school students
- Oral health condition among tobacco-users and non-users
- Food-habit and oral hygiene status among under-5 children
- Knowledge and practice of physical exercise among diabetes mellitus patients
- Obesity status among the diabetes mellitus patients
- Nutritional knowledge among lactating mothers exposed and non-exposed to nutrition education
- Educational intervention on sexually transmitted infections among secondary school students
- Tetanus toxoid vaccine coverage among girls students in a rural college
- Educational intervention about importance of dental check-up during pregnancy
- Knowledge on oral cancer among medical internee doctors
- Oral health status and practice among pregnant women
- Knowledge on adverse effect of tobacco among the users in a community.

### *Research by MPH (Hospital Management) students*

- Management of neuro-surgical emergencies in Bangabandhu Sheikh Mujib Medical University
- Factors of tooth-extraction among adult patients attending endodontics department of Dhaka Dental College and Hospital
- Oral health status of the street-children of Dhaka metropolitan city
- Management of patients in Surgical in-Patient Department at Rangpur Medical College Hospital
- Satisfactions of indoor patients in a selected secondary-level government hospital
- Hospital preparedness for emergency in a selected hospital in Dhaka city
- Infection control practices of dental surgeons in some selected dental clinics of Dhaka city
- Job-satisfaction of dental surgeons working in some selected upazila health complexes of Bangladesh
- Practices of patients' safety care in Dhaka Dental College and Hospital
- Oral hygiene practices among the students of selected secondary school in Dhaka city
- Management status of radiological services in Combined Military Hospital (CMH), Dhaka

## Chapter 15: Research and Development

- Level of satisfaction of patients attending some selected private dental clinics in Dhaka city
- Low back-pain (LBP)- its management and patients' satisfaction at the OPD of BSMMU.

### *Research by MPH (Occupation and Environmental Health) students*

- Leptospirosis among sewage-cleaners in Dhaka City Corporation
- Effluents from selected industries and surface-water quality
- Occupational health problems among the brickfield workers
- Respiratory problems among the shoot-based cotton industry workers
- Awareness, practice, and toxicity symptoms associated with pesticide-use among farmers in a selected area of Bangladesh
- Health problems of Jhum cultivators in a selected area of Chittagong Hill Tracts
- Work-related health problems and personal protective equipment-use among the workers of a glass industry
- Occupational health problems among foundry workers
- Voice problems in primary school teachers of some selected schools in Bangladesh
- Occupational health problems among the workers in silk industries
- Clinico-histopathological characteristics of skin lesions among arsenicosis patients
- State of arsenicosis patients in an arsenic-endemic area
- Water-use and sanitation status among the tribal people in Chittagong Hill tracts
- Occupational health problems and salary measures among the poultry workers
- Health problems among the urea fertilizer factory workers
- Health problems among handloom workers.

### *Research by MPH (Public Health Administration) students*

- Preference of contraceptive methods among women attending the family-planning services in selected hospitals in Dhaka
- Occupational health problems and safety measures among female garment workers
- Body mass index and menopause-related quality of life among the menopausal women
- A study on clinical status and socio-demographic pattern of Beta-thalassemia in Bangladesh
- Nutritional status and lifestyle of old hypertensive patients ( 60 years and above)
- The role of public health in mental health promotion
- Barrier to adherence of tuberculosis treatment at selected DOTS center in Dhaka city
- Perceptions of adolescents on health and gender issues
- Lipid profile of gestational diabetic mellitus patients
- Key factors determining the motivation and retention of intern doctors in rural area
- Knowledge and attitude about maintenance of personal hygiene among the cleaners of some clinics in Dhaka city
- Nutritional status of chronic arsenic-exposed women in a selected area of Bangladesh
- Gender discrimination and care-seeking behavior of tuberculosis patients attending the selected DOTS centers
- Perception of university students regarding smoking in public places
- Tobacco-use and body mass index among rural population.

### List of research titles conducted on maternal health in Bangladesh (Compiled by ICDDR,B)

The Reproductive Health Unit of ICDDR,B has recently compiled a list of research protocols conducted on reproductive health in Bangladesh between 2000 and 2010. The list is given below:

1. Inequalities around childbirth and related maternal healthcare services in rural Bangladesh (A proposal for "the reaching the poor" program of the World Bank)
2. Plateauing of the Bangladesh fertility decline
3. Incidence of HIV, hepatitis, and syphilis infections and risk behavior in injecting drug-users in Dhaka, Bangladesh
4. Changes in use of health and family-planning services in two rural upazilas during the transition to a new system of service delivery: 1998-2002
5. The socio-cultural and behavioral component for dysentery study
6. Evaluation of a six-month pilot to introduce depot holders in three types of urban areas
7. Monitoring the disparity in health status and access to and utilization of healthcare services: Bangladesh health equity gauge (phase-1)
8. The effectiveness and utility of a green banana diet in the home-management of acute and persistent childhood diarrhea
9. Unmet need for major obstetric interventions in Bangladesh
10. Operations research on strategies to improve reproductive health services for adolescents by NGOs
11. Economic evaluation of shigellosis in an urban area of Dhaka, Bangladesh
12. Modeling the impact and incremental cost-effectiveness of introducing vaccines against hepatitis B, hemophilus influenza type b, and rotavirus into routine infant immunization programs in Bangladesh and Peru
13. The acceptability, effectiveness, and cost of strategies designed to improve access to basic obstetric care in rural Bangladesh
14. Combined interventions to promote maternal and infant health
15. Population-based evaluation of *Shigella* infections in an urban area of Dhaka, Bangladesh
16. Scaling up zinc as a treatment for childhood diarrhea in Bangladesh: Monitoring the impact of public, private and NGO delivery strategies
17. Sexuality and risky heterosexual behavior in rural Bangladesh
18. Time since pregnancy and mortality in women of reproductive age in Matlab, Bangladesh
19. Infertility: A lens to see women's situation in the context of Bangladesh
20. Evaluation of the effects of community-based interventions on maternal behaviors and morbidity during labor, delivery, and the early postpartum period in rural Bangladesh
21. Effectiveness of large-scale supplementation activities for pregnant women: The role of community nutrition promoters
22. Health needs and healthcare-seeking behaviors of street-dwellers in Dhaka city
23. Field evaluation of simple rapid tests in the diagnosis of syphilis
24. Studies on GUD in males: A hospital-based study in Dhaka, Bangladesh
25. Meeting additional family health needs of clients by addressing missed opportunities at

the ESP clinics

26. Rapid assessment tool (RAT) for better health: Helping essential service package (ESP) managers to be more effective
27. The identification of factors influencing and determining nurses' behavior in the delivery of hands-on patient-care
28. Operations research on strategies to improve reproductive health services for adolescents in the public sector
29. Use of ESP services and other factors associated with neonatal survival in rural areas of Bangladesh served by a large NGO program (BPHC)
30. Management of tuberculosis by private practitioners and healthcare-seeking behavior of symptomatic adults/TB suspects
31. Study to understand reproductive health practices and sexual network among men in general population of Bangladesh
32. Reinitiating fertility decline in Bangladesh by meeting the needs of high-parity couples
33. Vulnerability to HIV/AIDS of migration-affected families
34. Perceptions, attitudes, and practices relating to gender and their linkages to low birthweight
35. HIV/AIDS prevention project: Brothel-based sex workers in Bangladesh
36. A comparison of two methods (Enhanced Syndromic Management and Periodic Presumptive Treatment) of systematic prevention and control of STIs among hotel-based female sex workers in Dhaka, Bangladesh
37. Examining the associations between maternal blood, umbilical cord-blood arsenic and its metabolites
38. Rapid assessment of youths' perspectives on health services: Modification of World Health Organization guidelines for youth-friendly services in Bangladesh
39. Assessing unmet need for major obstetric interventions in different districts of Bangladesh to improve coverage of maternal healthcare services
40. A baseline assessment of existing laboratory services in urban and rural primary health care (PHC)/essential services package (ESP) delivery facilities of partner NGOs of the National Service Delivery Program (NSDP) in Bangladesh
41. Baseline and endline HIV/AIDS surveys among youths in Bangladesh
42. The impact of violence against women on reproductive outcome and child survival: A secondary data-analysis
43. Feasibility, acceptability, and program effectiveness of misoprostol in preventing postpartum hemorrhage (PPH) in rural Bangladesh
44. Epidemiology of postnatal depression in rural Bangladesh
45. Case studies for safe motherhood: Learning from South Asian programs
46. Understanding the patterns of chronic obstetric morbidity and validation of the self-report by women living in an urban slum district of Dhaka, Bangladesh
47. Demand-based reproductive health commodity project (DRHCP)



48. Using management information system to improve quality of services through strengthening supportive supervision in a community-based intervention in rural Bangladesh
49. An analysis of social, behavioral and biomedical risk factors of adolescents and young clients of female sex workers: Implications for STI/HIV interventions in Bangladesh
50. Study to understand barriers to condom-use among female sex workers in Bangladesh
51. Better understanding of recognition and response to postpartum hemorrhage
52. Formative research on healthy fertility practices and postpartum care in Sylhet district, Bangladesh
53. Evaluation of two home-based skilled birth attendant programs in rural Bangladesh
54. Cost-effectiveness of long-lasting insecticidal nets in the prevention of kala-azar project acronym: KALANET
55. Determining the burden of maternal ill-health and death and its programmatic implications in rural Bangladesh: Understanding the incidence of moderate/severe obstetric complications and maternal death, their physical consequences; psychological, economic and social impact; and determinants in rural Bangladesh
56. Causes of and healthcare-seeking in relation to neonatal deaths in rural Bangladesh: The use of verbal autopsy
57. Evaluation of partner notification for sexually transmitted infections by service providers in Bangladesh
58. Epidemiology of human papillomavirus (HPV) infection among females in Bangladesh
59. Does counseling of abused women using primary-level healthcare promoters help the women?
60. Extent and consequence of catastrophic cost for caesarean section delivery among poor households
61. Improving the utilization of healthcare services through community empowerment and participatory monitoring in a rural area of Bangladesh
62. Future health systems—making health systems work for the poor, Phase I: Situation of health services in Chakaria, Bangladesh
63. Situation analysis of unsafe abortion in Bangladesh: Magnitude, populations at risk, resources, and consequences
64. Monitoring the impact of the SUZY project roll out of zinc as a treatment for childhood diarrhea
65. Comprehensive maternal, neonatal and child healthcare (MNCH) to reduce mortality: A programmatic approach through a continuum of care in a rural community in Matlab, Bangladesh, with a package of known effective interventions
66. Private sector engagement: Feasibility of engaging unlicensed practitioners in STI counseling and referral through guidelines dissemination
67. Reproductive health of religious minorities in India and Bangladesh
68. Strengthening service-delivery system of World Vision Bangladesh
69. Association between arsenic exposure and age at menarche and physical growth of

## Chapter 15: Research and Development

adolescent girls: A cross sectional study in Matlab, Bangladesh

70. Role of nurses in maternal and neonatal healthcare programs in Bangladesh

71. Maternal and neonatal care configurations in Bangladesh: Availability and use

72. Evaluation of the ACCESS/Bangladesh Program: Population-based survey in the Sylhet district of Bangladesh

73. Menstrual regulation and abortion in Bangladesh: Generating evidence and stimulating action

74. Pilot study on caesarean section among urban women working at ICDDR,B

75. Improving low child immunization coverage in rural hard-to-reach areas of Bangladesh

76. Making health systems work for the poor, phase II: Interventions to prevent harmful practices by the healthcare providers and enhance accountability through local-level health watch

77. Exploring acceptable and appropriate interventions to promote correct and consistent condom-use among young male clients of hotel-based female sex workers in Dhaka, Bangladesh

78. Improving recognition of and initial response to prolonged/obstructed labor and birth asphyxia in settings characterized by homebirth with unskilled attendants: A multi-site study and academic partnership development project

79. Impact of an NGO training and support intervention on private sector providers for the diarrhea management practices

80. Community-based maternal, newborn and child health program (Manoshi) for urban Bangladesh

81. An assessment of public-health effectiveness of approaches to promote key family and community behaviors for child survival

82. Helping Manoshi to achieve its goals: Rapid monitoring for results

83. Acceptability and feasibility of mifepristone-misoprostol for menstrual regulation in Bangladesh: A collaborative project between Gynuity and ICDDR,B

84. An evaluation of expansion of the Community-IMCI Village Health Worker service package to improve utilization, care-seeking, quality of care, and community satisfaction

85. Improvement of maternal and neonatal health by operationalizing an integrated evidence-based intervention package through strengthening of the health system in Bangladesh

86. Exploring the use of oxytocin during labor at home-setting in urban slums

87. Performance of community health workers (CHW) of Manoshi

88. Shasthya Sena Pilot Phase-A strategy for engaging with the informal healthcare providers for improving health of children from poor families in rural Bangladesh

89. Retention and performance of BRAC health volunteers: Role of incentives and disincentives

90. Production cost estimation of child healthcare services in Bangladesh

91. Scaling up of a local health watch model and measuring its impact on the utilization and

## Chapter 15: Research and Development

performance of the health system

92. Effect of oral phage application to pregnant mothers on the transmission of *Staphylococcus aureus* (*S. aureus*) colonization from mother-to-child and the neonatal route of *S. aureus* infection

93. Develop and test strategies for providing essential healthcare services to urban street-dwellers in Bangladesh

94. Strengthening health system capacity to monitor and evaluate programs targeted at reducing abortion-related maternal mortality

95. Characterization of "Hysterical Conversion Reaction" as an admitting diagnosis in women's wards of Bangladeshi hospitals

96. Socio-cultural aspects and women's perceptions on menstrual regulation and menstrual regulation services in Bangladesh

97. Formative research on maternal, neonatal and child-care knowledge and practices among indigenous people of Bandarban and Sunamganj districts in Bangladesh

98. Improving knowledge, recognition, referral, and prevention practices for sexually transmitted infections among medicine-sellers in Bangladesh

99. Use of mobile phone to strengthen the health systems for improving maternal and newborn healthcare in rural Bangladesh

100. Assessment of behavior change communication (BCC) interventions of Manoshi in slums of Dhaka city

101. Good Health at Low Cost 2010: Identifying factors within health systems and the wider policy context, which influence health outcomes

102. Evaluation of a Community-based management of neonatal sepsis

103. Delineation of optimum catchment of community health workers for community case management of childhood illness in rural Bangladesh: A GIS-based approach

104. Vulnerability to HIV/AIDS among Bangladeshi street-children: A situation analysis

105. Impact of measles eradication activities on routine immunization services and health systems in Bangladesh

106. Promoting better infant and young child feeding practice in the slums through performance-based payment

107. Demand assessment of 4% chlorhexidine solution among potential users and promoters in rural Bangladesh

108. Impact of drop-out of Shasthya Shebika of Manoshi in Dhaka urban slums

109. Examining birth-planning and responses to delivery complications: A qualitative investigation to supplement the Bangladesh Maternal Mortality Survey (BMMS) 2010

110. Developing a toolkit to measure the effectiveness of development activities which target or include people with disabilities

111. Evaluation of teachers' training program of curriculum-based HIV and AIDS education among teachers and students in Bangladesh

112. Safeguarding consent, combating coercion: Securing young women's rights to health

## Chapter 15: Research and Development

and freedom from violence in Bangladesh

113. Women's empowerment and intimate partner violence in Bangladesh: A multilevel study

114. Measuring the impact of changes in the modalities for delivering STI services and selling and distributing condoms among female sex workers in Dhaka

115. Enhancing capacity to apply research evidence in policy making for reproductive health in Bangladesh

116. Genital human papillomavirus infection among females in Bangladesh: Burden and risk factors

117. Reducing tobacco-use by cellphone messaging to the community, motivating women, young men, school and college students, and counseling patients through village doctors

118. Assessment of knowledge, attitudes and practices (KAP) with respect to eclampsia and pre-eclampsia among first-line healthcare providers and beneficiaries in rural Bangladesh

119. Quality of care and IUD uptake in family-planning clinics of Bangladesh

120. Caesarean delivery in urban slums of Dhaka city: Indications and consequences

121. Influence of maternal factors on birthweight in different socioeconomic levels

122. Nutritional status and dietary pattern of adolescent girls between upper and lower socioeconomic status in Dhaka city

123. Effect of nutrition education on low birthweight and pregnancy weight-gain in a selected hospital in Dhaka city

124. Intervention with dietary education for improving pregnancy outcome

125. Effect of nutrition education on people living with HIV/AIDs in Bangladesh

126. Quantifying the unmet need for family planning among most-at-risk population in Asia

127. Introducing medical MR in Bangladesh

128. Introducing mepipreston and mesoprostol for MR in public-sector facilities in Bangladesh

129. Examination of participation in community development for HIV prevention with MSM in Bangladesh

130. Factors influencing contraceptive-use and plan for number of children among couples in Bangladesh

131. Impact evaluation of MNCH program of BRAC

132. Community-based postnatal care in Bangladesh

133. Women's experience and recall of delivery and neonatal care: A study of terms, concepts and questions

134. Sexual behavior relating to HIV, STI among the rickshaw-pullers in Dhaka city in Bangladesh

135. Assessment on the availability and routine use of AMTSL for prevention of PPH in Bangladesh

136. Assessing acceptability of two-rod progesterone-only contraceptive implant (Jaddle) among Bangladeshi women of reproductive age

## Chapter 15: Research and Development

137. Study on right-based approach about women's access to healthcare with reference to safe motherhood at government facilities
138. Operations research to address unmet need for contraception in the post-partum period in Sylhet district, Bangladesh.

### **Research at the Institute of Child and Mother Health (ICMH)**

#### *Clinical Research in 2010*

1. Safety and efficacy of simplified antibiotic regimens for outpatient treatment of suspected sepsis in neonates and young infants in Bangladesh
2. Effect of maternal oral hydration therapy in oligo-hydramnios
3. Association between iron-deficiency and febrile seizure in children
4. Effect of intravenous iron sucrose complex versus oral iron therapy in iron-deficiency anemia in pregnancy
5. A comparative study on the efficacy of cefixime, ceftriaxone, and azithromycin in the treatment of typhoid fever in children
6. Medical Record & Data Management System of ICMH
7. Antenatal counseling improves early initiation of EBF
8. Characteristics of breastfeeding and complementary feeding practices among the under-two children with their nutritional status in a selected periurban area of Bangladesh

#### *Major areas of ongoing clinical research in ICMH*

1. Asthma
2. Bronchiolitis
3. Complementary feeding
4. Early childhood development
5. Nutrition
6. Neuro-disability
7. Anemia in pregnancy

#### *Major Areas of Health Systems Research in ICMH*

1. Maternal and perinatal morbidity and mortality
2. Emergency obstetric care
3. Essential newborn care.

### **James P. Grant School of Public Health (BRAC University)**

James P. Grant School of Public Health conducts multidisciplinary studies on various development issues of national and global importance in close link with ICDDR,B and the Research and Evaluation Division (RED) of BRAC. The fields of studies include poverty alleviation, socioeconomic development, agriculture, nutrition, health equity, education, reproductive health, environment, gender and related disciplines.

Some of the notable studies/research projects conducted by the School are listed below:

1. Urban Gates Manoshi Project

## Chapter 15: Research and Development

2. Communicable disease: Vulnerability risk and poverty
3. Globalization as social determinant of health
4. Revitalizing Health for All: Developing a comprehensive primary healthcare model for Bangladesh
5. National Food Security Nutritional Surveillance Program (FSNSP)
6. District Investment Case Analysis
7. Study on the Pay for Performance (P4P) Approach to increase utilization of maternal, newborn and child health services in Bangladesh
8. Study on universal access to health/neglected sexual and reproductive health rights of married men and women in a rural village in Bangladesh
9. PLHAs Index Study in Bangladesh
10. Study on HIV/AIDS Program: Successes and challenges
11. Study on the improvement of reproductive health in Bangladesh
12. Study on the barriers to adequate and equitable access in the provision of menstrual regulation services in Bangladesh
13. Revealing the challenges of periurban and district town TB Control Program of BRAC in Bangladesh.



# Human Resource

This chapter describes the status of human resource (as of June 2011) with respect to sanctioned posts, filled-up posts, and vacancies under the Directorate General of Health Services (DGHS) and also depicts the said status in allied departments (viz. Directorate General of Family Planning, Directorate General of Drug Administration, and Directorate of Nursing Services). The profile of the medical teaching/training institutions is also presented. A list of the training courses given under the Operational Plan of In-service Training under the Health, Nutrition and Population Sector Program (HNPS) 2003-2011 is also added.

## Sanctioned, filled-up and vacant posts

The lists of sanctioned posts, filled-up posts, and vacancies have been prepared in June 2011. Human resource deployment and redeployment are ongoing processes; and retirement, placement, transfer are constantly occurring. Therefore, the picture may not remain the same by the time this bulletin is published. However, the readers will get a closely approximate assumption through reading this chapter. Table 16.1 shows the overall human resource status of the DGHS. Table 16.2 shows the division-wise distribution of the human resource under the DGHS.

**Table 16.1. Number of sanctioned, filled-up and vacant posts under the DGHS (June 2011)**

Class		Sanctioned	Filled-up				Vacant	
			Male	Female	Total	Sanctioned %	No.	Sanctioned %
Class I	Doctors	22120	12380	3655	16035	72%	6085	28%
	Non-Doctors	474	163	50	213	45%	261	55%
Class II		1607	379	731	1110	69%	497	31%
Class III		65284	33260	21165	54425	83%	10859	17%
Class IV		26045	14976	5997	20973	81%	5072	19%
<b>Total</b>		<b>115530</b>	<b>61158</b>	<b>31598</b>	<b>92756</b>	<b>80%</b>	<b>22774</b>	<b>20%</b>

**Table 16.2. Division-wise number of sanctioned, filled-up and vacant posts under the DGHS (June 2011)**

Division	Class		Sanctioned	Filled-up				Vacant	
				Male	Female	Total	Sanctioned %	No.	Sanctioned %
Barisal division	Class I	Doctors	1579	838	172	1010	64%	569	36%
		Non-Doctors	25	4	0	4	16%	21	84%
	Class II		111	11	71	82	74%	29	26%
	Class III		5064	2333	1945	4278	84%	786	16%
	Class IV		1825	1127	331	1458	80%	367	20%
	<b>Total</b>		<b>8604</b>	<b>4313</b>	<b>2519</b>	<b>6832</b>	<b>79%</b>	<b>1772</b>	<b>21%</b>

**Table 16.2. Division-wise number of sanctioned, filled-up and vacant posts under the DGHS (June 2011)**  
(Continued...)

Division	Class		Sanctioned	Filled up				Vacant	
				Male	Female	Total	Sanctioned %	No.	Sanctioned %
Chittagong division	Class I	Doctors	3745	2072	519	2591	69%	1154	31%
		Non-Doctors	55	12	0	12	22%	43	78%
	Class II		213	35	102	137	64%	76	36%
	Class III		12024	6221	3337	9558	79%	2466	21%
	Class IV		4204	2051	1186	3237	77%	967	23%
	Total		20241	10391	5144	15535	77%	4706	23%
Dhaka division	Class I	Doctors	8203	4920	1784	6704	82%	1499	18%
		Non-Doctors	240	100	39	139	58%	101	42%
	Class II		695	230	298	528	76%	167	24%
	Class III		21004	10162	7854	18016	86%	2988	14%
	Class IV		9686	5794	2146	7940	82%	1746	18%
	Total		39828	21206	12121	33327	84%	6501	16%
Khulna division	Class I	Doctors	2250	1189	288	1477	66%	773	34%
		Non-Doctors	44	19	5	24	55%	20	45%
	Class II		166	27	90	117	70%	49	30%
	Class III		7276	3599	2495	6094	84%	1182	16%
	Class IV		2436	1330	590	1920	79%	516	21%
	Total		12172	6164	3468	9632	79%	2540	21%
Rajshahi division	Class I	Doctors	4883	2544	734	3278	67%	1605	33%
		Non-Doctors	87	26	6	32	37%	55	63%
	Class II		321	66	144	210	65%	111	35%
	Class III		15406	8476	4401	12877	84%	2529	16%
	Class IV		6113	3578	1336	4914	80%	1199	20%
	Total		26810	14690	6621	21311	79%	5499	21%
Sylhet division	Class I	Doctors	1460	817	158	975	67%	485	33%
		Non-Doctors	23	2	0	2	9%	21	91%
	Class II		101	10	26	36	36%	65	64%
	Class III		4510	2468	1134	3602	80%	908	20%
	Class IV		1781	1096	408	1504	84%	277	16%

Table 16.3 shows the number of sanctioned, filled-up and vacant posts at managerial, teaching and certain clinical positions.

**Table 16.3. Number of sanctioned, filled-up and vacant posts at managerial, teaching and some clinical positions (June 2011)**

Post	Sanctioned	Filled-up		Vacant	
		No.	Sanctioned %	No.	Sanctioned %
Director/Principal/equivalent	70	65	93%	5	7%
Deputy Director/equivalent	102	80	78%	22	22%
Assistant director/Civil surgeon/equivalent	204	166	81%	38	19%
Deputy civil surgeon/ UHFPO	505	446	88%	59	12%
Vice-principal	15	13	87%	2	13%
Professor	465	279	60%	186	40%
Associate professor	681	393	58%	288	42%
Assistant professor	942	754	80%	188	20%
Senior consultant	425	214	50%	211	50%
Senior lecturer	8	6	75%	2	25%
Junior lecturer	32	27	84%	5	16%
Junior consultant/equivalent	3536	1493	42%	2043	58%
Assistant surgeon/equivalent	15135	12099	80%	3036	20%
<b>Total</b>	<b>22120</b>	<b>16035</b>	<b>72%</b>	<b>6085</b>	<b>28%</b>

Table 16.4 shows the number of sanctioned, filled-up and vacant posts of the medical technologists as of June 2011.

**Table 16.4. Number of sanctioned, filled-up and vacant posts of medical technologists by discipline**

Discipline	Pharmacy	Laboratory	Radiography	Radiotherapy	Physiotherapy	Dental	Total
Sanctioned	2903	1779	715	56	199	525	6177
Filled-up	2133	1349	634	31	32	495	4674
Filled-up as % of sanctioned posts	73%	76%	89%	55%	16%	94%	76%
Vacant	770	430	81	25	167	30	1503
Vacant as % of sanctioned posts	27%	24%	11%	45%	84%	6%	24%

Table 16.5 shows the number of sanctioned, filled-up and vacant posts of medical assistant and of the domiciliary staff, viz. health inspector, assistant health inspector, and health assistant under the DGHS as of June 2011.

**Table 16.5. Number of sanctioned, filled-up and vacant posts of medical assistant and domiciliary staff (health inspector, assistant health Inspector, and health assistant) as of June 2011**

Category of post	Medical assistant	Domiciliary staff			
		Health inspector	Assistant health inspector	Health assistant	Total
Sanctioned	5411	1399	4198	20815	26412
Filled-up	4215	1125	3655	19274	24054
Filled up as % of sanctioned	78%	80%	87%	93%	91%
Vacant	1196	274	543	1541	2358
Vacant as % of sanctioned	22%	20%	13%	7%	9%

Table 16.6 shows the number of sanctioned, filled-up and vacant posts in the alternative medicine under the DGHS as of June 2011.

**Table 16.6. Number of sanctioned, filled-up and vacant posts in alternative medicines (June 2011)**

Name of post	Sanctioned	Filled-up		Vacant	
		No.	Sanctioned %	No.	Sanctioned %
Medical officers for unani medicine	66	15	23%	51	77%
Medical officers for ayurvedic medicine	66	15	23%	51	77%
Medical officers for homeopathic medicine	66	15	23%	51	77%
Compounders for alternative medicine	64	64	100%	0	0%
Herbal assistants for herbal gardens	467	467	100%	0	0%
<b>Total</b>	<b>729</b>	<b>576</b>	<b>79%</b>	<b>153</b>	<b>21%</b>

Table 16.7 shows the number of sanctioned, filled-up and vacant posts under the Directorate General of Family Planning (DGFP) as of June 2011.

**Table 16.7. Number of sanctioned, filled-up and vacant posts under the Directorate General of Family Planning (June 2011)**

Class	Sanctioned (No.)	Filled-up (No.)	Filled-up as % of sanctioned posts	Vacant (No.)	Vacant as % of sanctioned posts
Class I	1,943	1,049	53.99	894	46.01
Class II	1,017	401	39.43	616	60.57
Class III	16,916	11,982	70.83	4,934	29.17
Class IV	32,491	26,814	82.53	5,677	17.47
Total	52,367	40,246	76.85	12,121	23.15

Table 16.8 shows the number of sanctioned, filled-up and vacant posts under the Directorate General of Drug Administration (DGDA) as of June 2011.

**Table 16.8. Number of sanctioned, filled-up and vacant posts under the Directorate General of Drug Administration (June 2011)**

Class	Sanctioned (No.)	Filled-up (No.)	Filled-up as % of sanctioned posts	Vacant (No.)	Vacant as % of sanctioned posts
Class I	118	27	22.88	91	77.12
Class II	25	7	28	18	72
Class III	115	55	47.83	60	52.17
Class IV	112	40	35.71	72	64.29
Total	370	129	34.86	241	65.14

Table 16.9 shows the number of sanctioned, filled-up and vacant posts under the Directorate of Nursing Services (DNS) as of June 2011.

**Table 16.9. Number of sanctioned, filled-up and vacant posts under the Directorate of Nursing Services (June 2011)**

Class	Category	Sanctioned (No.)	Filled-up (No.)	Filled-up as % of sanctioned posts	Vacant (No.)	Vacant as % of sanctioned posts
Class I	Nursing	167	2	1.20	165	98.80
	Non-nursing	1	0	0	1	100.00
Class II	Nursing	465	127	27.31	338	72.69
	Non-nursing	20	7	35.00	13	65.00
Class III	Nursing	17116	14911	87.12	2205	12.88
	Non-nursing	353	207	58.64	146	41.36
Class IV	Non-nursing	863	625	72.42	238	27.58
Total		18985	15879	83.64	3106	16.36

### **Institutions offering postgraduate medical degrees**

Table 16.10a shows the list of institutions both in government and private sector, with postgraduate medical courses. The table also shows the titles of the courses offered by each institution, along with the number of seats in each course. This report is based on information provided by Director, Medical Education, as of March 2011. For the fellowship and membership courses offered by the Bangladesh College of Physicians and Surgeons (BCPS), there is no fixed number in the annual intake of candidates. The college offers FCPS (Fellow of the College of Physicians and Surgeons) and MCPS (Member of the College of Physicians and Surgeons) degrees to the candidates. Any eligible candidate can sit for the examinations, and results depend on the candidate's competence shown in the examinations.

**Table 16.10a. Institutions offering postgraduate medical courses and titles of courses, with the number of seats in each course (March 2011)**

Name of institution	MS	MD	M. Phil	Diploma	MPH	MTM	MMED	Total
Government (autonomous) (No. of institutions: 1)								
Bangabhandu Sheikh Mujib Medical University, Shahbag, Dhaka	140	150	70	106	0	10	0	476
Total	140	150	70	106	0	10	0	476
Government (No. of institutions: 22)								
Centre for Medical Education (CME), Mohakhali, Dhaka	0	0	0	0	0	0	15	15
Chittagong Medical College, Chittagong	37	48	29	48	03	0	0	165
Dhaka Dental College, Mirpur 14, Dhaka	22	0	0	0	0	0	0	22

**Table 16.10a. Institutions offering postgraduate medical courses and titles of courses, with the number of seats in each course (March 2011) (Continued...)**

Name of institution	MS	MD	M. Phil	Diploma	MPH	MTM	MMED	Total
Dhaka Medical College, Dhaka	70	110	86	82	06	0	0	354
Institute of Child & Mother Health (ICMH), Matuail, Dhaka	10	10	0	30	0	0	0	50
Institute of Nuclear Medicine and Ultrasound, Block D, BSMMU Campus, Shahbag, Dhaka	0	0	0	10	0	0	0	10
Mymensingh Medical College, Mymensingh	22	40	33	59	0	0	0	154
National Institute of Cancer Research and Hospital, Mohakhali, Dhaka	06	12	0	0	0	0	0	18
National Institute of Cardiovascular Diseases (NICVD), Sher-e-Bangla Nagar, Dhaka	20	20	0	14	0	0	0	54
National Institute of Chest Diseases and Hospital (NIDCH), Mohakhali, Dhaka	06	15	0	20	0	0	0	41
National Institute of Child Health, Sher-e-Bangla Nagar, Dhaka	10	15	0	15	0	0	0	40
National Institute of Kidney Diseases and Urology (NIKDU), Sher-e-Bangla Nagar, Dhaka	06	09	0	0	0	0	0	15
National Institute of Mental Health, Sher-e-Bangla Nagar, Dhaka	0	06	0	0	0	0	0	06
National Institute of Ophthalmology, Sher-e-Bangla Nagar, Dhaka	10	0	0	10	0	0	0	20
National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka	0	0	07	0	166	0	0	173
National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), Sher-e-Bangla Nagar, Dhaka	20	0	0	10	0	0	0	30
Rajshahi Medical College, Rajshahi	10	19	25	41	05	0	0	100
Rangpur Medical College, Rangpur	08	08	08	22	0	0	0	46
Shahid Ziaur Rahman Medical College, Bogra	0	0	0	10	0	0	0	10
Sher-e-Bangla Medical College, Barisal	04	0	08	22	0	0	0	34
Sir Salimullah Medical College, Dhaka	21	36	18	40	05	0	0	120
M.A.G Osmani Medical College, Sylhet	20	12	28	40	0	0	0	100
Total	302	360	242	473	185	0	15	1577
Private (No. of institutions: 10)								
Bangladesh College of Physicians and Surgeons, Mohakhali, Dhaka*	0	0	0	0	0	0	0	0
Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Shahbag, Dhaka	10	22	15	14	0	0	0	61
Chittagong Maa-O-Shishu & General Hospital, Agrabad, Chittagong	0	0	0	06	0	0	0	06
Institute of Child Health and Shishu (Children) Hospital, Shishu Shasthya Foundation, Bangladesh, Mirpur 2, Dhaka	0	0	0	06	0	0	0	06



**Table 16.10a. Institutions offering postgraduate medical courses and titles of courses, with the number of seats in each course (March 2011) (Continued...)**

Name of institution	MS	MD	M. Phil	Diploma	MPH	MTM	MMED	Total
Institute of Community Ophthalmology, Chittagong	0	0	0	08	0	0	0	08
Institute of Health Sciences (under USTC), Foy's Lake, Chittagong	0	05	0	45	0	0	0	50
Lions Eye Institute and Hospital, Lions Bhaban, Rokeya Sarani, Agargaon, Dhaka	0	0	0	06	0	0	0	06
Mirza Ahmed Ispahani Institute of Ophthalmology and Islamia Hospital, Sher-e-Bangla Nagar, Dhaka	0	0	0	10	0	0	0	10
National Heart Foundation, Mirpur 2, Dhaka	05	05	0	0	0	0	0	10
United Hospital Ltd. Gulshan 2, Dhaka	06	06	0	0	0	0	0	12
Total	21	38	15	95	0	0	0	169
Grand total (No. of institutions: 33)								
Grand total (no. seats)	463	548	327	674	185	25		2,222
*Offers FCPS and MCPS courses. Number of seats are not fixed and not included in this count								

Table 16.10b shows the number of fellowships and memberships offered by Bangladesh College of Physicians and Surgeons in various disciplines from 2006 to 2010.

**Table 16.10b. Number of fellowships and memberships offered by Bangladesh College of Physicians and Surgeons in various disciplines from 2006 to 2010**

Subject	FCPS						MCPS					
	2006	2007	2008	2009	2010	Total	2006	2007	2008	2009	2010	Total
Anesthesiology	5	9	6	7	11	38	9	7	10	10	7	3
Biochemistry	1	1	0	0	0	2	-	-	-	-	0	0
Cardiology	0	2	1	0	3	6	-	-	-	-	0	0
Clinical Pathology	-	-	-	-	0	0	6	5	3	4	2	20
Conservative Dentistry	0	0	0	0	3	3	-	-	-	-	0	0
Dental Surgery	-	-	-	-	0	0	2	4	5	2	6	19
Dermatology & Venereology	8	3	6	3	5	25	2	2	4	10	8	26
Family Medicine	0	0	0	1	0	1	4	2	1	1	1	9
Forensic Medicine	-	-	-	-	0	0	2	0	1	1	0	4
Gastroenterology	0	0	1	0	0	1	-	-	-	-	3	3
Hematology	5	1	3	3	4	16	-	-	-	-	0	0
Histopathology	0	1	1	1	42	5	-	-	-	-	0	0
Medicine	30	13	57	57	34	191	5	3	12	19	13	52
Microbiology	2	1	2	1	2	8	-	-	-	-	0	0
Neonatology	0	1	0	1	0	2	-	-	-	-	0	0
Obstetrics & Gynecology	43	52	46	67	99	307	33	40	32	40	40	185
Ophthalmology	15	23	11	15	12	76	2	4	7	14	5	32
Oral & Maxilla-Facial Surgery	0	3	0	3	5	11	-	-	-	-	0	0
Orthodontics & Dentofacial Orthopedic	0	1	2	3	5	11	-	-	-	-	0	0
Otolaryngology	4	9	14	11	24	62	4	2	1	3	5	15
Pediatric Surgery	0	0	1	0	0	1					7	7
Pediatrics	18	16	33	26	25	118	1	1	5	6	0	13
Physical Medicine & Rehabilitation	4	1	2	4	10	21	-	-	-	-	0	0
Prosthodontics	0	0	1	0	1	2					0	0
Psychiatry	2	3	1	3	5	14	2	4	2	1	2	11

**Table 16.10b. Number of fellowships and memberships offered by Bangladesh College of Physicians and Surgeons in various disciplines from 2006 to 2010 (Continued...)**

Subject	FCPS						MCPS					
	2006	2007	2008	2009	2010	Total	2006	2007	2008	2009	2010	Total
Pulmonology	0	0	0	0	0	0	-	-	-	-	0	0
Radiology & Imaging	6	4	4	9	2	25	2	1	6	2	2	13
Radiotherapy	3	3	0	0	0	6	0	0	0	0	0	0
Surgery	18	25	23	22	35	123	2	4	4	12	7	29
Thoracic Surgery	0	0	0	1	0	1	-	-	-	-	0	0
Urology	0	0	1	1	1	3	-	-	-	-	0	0
Total	164	172	216	239	288	1079	76	79	93	125	108	431

**Institutions offering graduate medical degrees**

Table 16.11 shows the list of institutions in government sector, which offer MBBS degrees, with the number of seats in each institution. This report is based on information provided by Director, Medical Education, as of 31 July 2011.

**Table 16.11. Government institutions offering MBBS degrees, with number of seats (July 2011)**

Division	Name of medical college	Year of establishment	No. of seats
Under the Ministry of Health and Family Welfare			
Barisal	Sher-e-Bangla Medical College, Barisal	1968	175
Chittagong	Chittagong Medical College, Chittagong	1962	175
	Comilla Medical College, Comilla	1992	100
	Cox's Bazar Medical College, Cox's Bazar	2008	50
	Noakhali Medical College, Noakhali	2008	50
Dhaka	Dhaka Medical College, Dhaka	1948	175
	Mymensingh Medical College, Mymensingh	1962	175
	Sir Salimullah Medical College, Mitford, Dhaka	1972	175
	Faridpur Medical College, Faridpur	1992	100
	Shaheed Shuhrawardy Medical College, Sher-e-Bangla Nagar, Dhaka	2005	125
Khulna	Khulna Medical College, Khulna	1992	125
	Jessore Medical College, Jessore	2010	50
Rajshahi	Rajshahi Medical College, Rajshahi	1962	175
	Rangpur Medical College, Rangpur	1972	175
	Dinajpur Medical College, Dinajpur	1992	125
	Shahid Ziaur Rahman Medical College, Bogra	1992	125
	Pabna Medical College, Pabna	2008	50
Sylhet	M.A.G. Osmani Medical College, Sylhet	1966	175
Total no. of medical colleges=18		Total seats	2300
Include 46 seats 'reserved' for the children of freedom fighters (2% ) and 20 seats for tribal students, 99 seats for foreign students (SEARC=54 and non SEAR = 45)			
Under the Ministry of Defense			
Dhaka	Armed Forces Medical Colleges (Total no. of Medical Colleges=1)	Total seats	100
Additional seats 'reserved' for foreign students			
All divisions	Seats for foreign students		99
	seats 'reserved' for the children of freedom fighters (2% )		46
No. of institutions: 19		Grand total (No. of seats)	2,555

Table 16.12 shows the list of institutions in the private sector, which offer MBBS degrees, with the number of seats in each institution. This report is based on information provided by Director, Medical Education, as of 31 July 2011. The readers may read the note in the table to know the status of the private medical colleges.

Table 16.12. Private institutions offering MBBS degrees, with the number of seats (July 2011)

Division	Name of college	Established in the year	No. of seats	Note
Chittagong	BGC Trust Medical College, Kanchan Nagar, Chandanaish, Chittagong	2002	100	Complying with the MOHFW guidelines
	Central Medical College, Bishaw Road, Dhaka-Chittagong Highway, Comilla	2005	50	
	Chottagram, Ma O Shishu Hospital Medical College, Agrabad, Chittagong	2006	75	
	Eastern Medical College, Kabila, Dhaka-Chittagong Highway, Comilla	2005	50	
	Institute of Applied Health Sciences, Foy's lake, Chittagong	1990	200	
	Southern Medical College, East Nasirabad, Chittagong	2006	50	Running under the rule of High Court
Dhaka	Ad-Din Women's Medical College, Dhaka	2008	50	Complying with the MOHFW guidelines
	Anwar Khan Modern Medical College, Dhaka	2008	75	
	Bangladesh Medical College, Dhaka	1985	130	
	Community Medical College, Dhaka	2008	50	
	Dhaka National Medical College, Dhaka	1995	125	
	East West Medical College, Dhaka	2000	75	
	Enam Medical College, Dhaka	2003	100	
	Faridpur Diabetic Association Medical College, Faridpur	2010	50	
	Green Life Medical College, Dhaka	2010	50	
	Holy Family Red Crescent Medical College, Dhaka	2000	110	
	IBN Sina Medical College, Dhaka	2005	50	
	Jahurul Islam Medical College, Bajitpur, Kishoreganj	1992	100	
	Kumudini Medical College, Mirjapur, Tangail	2001	100	
	LabAid Medical College, Dhaka	2010	50	
	Medical College for Women and Hospital, Dhaka	1992	100	
	Shahid Monsur Ali Medical College, Dhaka	1998	75	
	Shahabuddin Medical College, Dhaka	2003	75	
	Tairunnessa Medical College, Board Bazar, Gazipur	2001	50	
	Uttara Adhunik Medical College, Dhaka	2007	75	
	Z.H Sikder Women Medical College, Dhaka	1992	110	
	Community Based Medical College, Mymensingh	1995	100	Running under the rule of High Court
	Delta Medical College, Dhaka	2008	50	
	Ibrahim Medical College, Dhaka	2002	100	
	International Medical College, Tongi, Gazipur	2000	90	
	Nightingale Medical College, Ashulia, Dhaka	2006	0	
	Northern International Medical College, Dhaka	2006	50	
	Samaj Vittic Medical College, Dhaka	1989	100	Running under private university
Rajshahi	Islami Bank Medical College, Rajshahi	2004	50	Complying with the MOHFW guidelines
	North Bengal Medical College, Sirajganj	2000	50	
	Prime Medical College, Rangpur	2008	75	
	Rangpur Community Hospital Medical College, Rangpur	2008	75	
	TMSS Medical College, Bogra	2008	50	
	Northern Medical College, Rangpur	2006	30	Running under the rule of High Court
	Khawja Eunos Ali Medical College, Sirajganj	2005	60	Running under private university

**Table 16.12. Private institutions offering MBBS degrees, with the number of seats (July 2011) (Continued...)**

Division	Name of college	Established in the year	No. of seats	Note
Sylhet	Jalalabad Ragib-Rabeya Medical College, Sylhet	1996	160	Complying with the MOHFW guidelines
	North East Medical College, Sylhet	1998	105	
	Sylhet Women Medical College, Sylhet	2006	75	
	Durra Samad Rahman Red Crescent Women's Medical College, Sylhet	2006	0	Closed by order of the MOHFW
Total medical colleges complying with the MOHFW's guidelines=33; Running by order of High Court=8; Running under private university: 2; Closed=1; Total=44			Total seats	3,345

Table 16.13 shows the list of institutions in government sector, which offer BDS degrees, with number of seats in each institution. This report is based on information provided by Director, Medical Education, as of 30 July 2011.

**Table 16.13. Government institutions offering BDS degrees, with number of seats (July 2011)**

Division	Name of dental college	No. of seats
Chittagong	Chittagong Medical College Dental Unit, Chittagong	50
Dhaka	Dhaka Dental College, Dhaka	110
Rajshahi	Rajshahi Medical College Dental Unit, Rajshahi	50
Total no. of dental colleges=3		Total seats
		210*
*includes 10 seats reserved for children of freedom fighters and 5 seats for tribal students		

Table 16.14 shows the list of institutions in private sector, which offer BDS degrees, with number of seats in each institution. This report is based on information provided by Director, Medical Education, as of 21 July 2011. We draw attention of the readers to the note in the table to know the status of the private medical colleges.

**Table 16.14. Private institutions offering BDS degrees with number of seats (July 2011)**

Division	Name of college	Year of establishment	No. of seats	Note
Chittagong	Chittagong International Dental College, Chittagong	2005	50	Complying with the MOHFW guidelines
Dhaka	Pioneer Dental College, Dhaka	1995	100	
	University Dental College, Dhaka	1996	85	
	Bangladesh Dental College, Dhaka	1997	50	
	Samaj Vittik Medical College, Dhaka	1997	50	
	City Dental College, Dhaka	1998	75	
	Sapporo Dental College, Dhaka	2000	70	
	Marks Dental College, Dhaka	2008	50	
	Update Dental College, Dhaka	2008	50	
	Saphena Women's Dental College, Dhaka	2010	40	
	Mendy Dental College, Dhaka	2010	40	
Rajshahi	Rangpur Dental College, Rangpur	2008	100	
	Udayan Dental College, Rajshahi	2008	50	
Total no of dental colleges=13		Total seats	770	

Table 16.15 shows the list of academic institutions, both in the government and the private sector, which offer degrees and diplomas in alternative medicines, with number of seats.

**Table 16.15. Academic institutions for teaching and training of alternative medicines in Bangladesh**

Name of institution	No.			Duration of course	Duration of internship	Degree offered	No. of seats
	Total	Government	Private				
Government Unani & Ayurvedic Degree College	1	1	0	5 years	1 year	BUIMS (Bachelor of Unani Medicine & Surgery); BAVS (Bachelor of Ayurvedic Medicine & Surgery)	50
Homeopathic Degree College	1	1	0	5 years	1 year	BHIMS (Bachelor of Homeopathic Medicine & Surgery)	50
Unani Diploma College	12	1	11	4 years	6 months	DUMS (Diploma in Unani Medicine & Surgery)	25*
Ayurvedic Diploma College	8	0	8	4 years	6 months	DAVS (Diploma in Ayurvedic Medicine & Surgery)	
Homeopathic Diploma College	41	0	41	4 years	6 months	DHIMS (Diploma in Homeopathic Medicine & Surgery)	-

\*No. of seats in government-owned Tibbia College in Sylhet

### Institutions offering nursing degrees

Table 16.16a shows the list of colleges of nursing under the government sector, which offer diploma or post-diploma nursing degrees, with number of seats in each institution.

**Table 16.16a. Government nursing colleges offering nursing diploma or post-diploma degrees (July 2011)**

Division	Name of nursing college	Degree	No. of seats
Under the Ministry of Health and Family Welfare			
Chittagong	College of Nursing, Chittagong Medical College, Chittagong	Diploma	100
Dhaka	College of Nursing, Dhaka Medical College Hospital, Dhaka	Diploma	100
	College of Nursing, Mymensingh Medical College, Mymensingh	Diploma	100
Rajshahi	College of Nursing, Rajshahi Medical College, Rajshahi	Diploma	100
Rangpur	College of Nursing, Rangpur Medical College, Rangpur	Diploma	100
Sylhet	College of Nursing, M.A.G. Osmani Medical College, Sylhet	Diploma	100
Barisal	College of Nursing, Sher-e-Bangla Medical College, Barisal	Diploma	100
Total no. of nursing colleges under the MOHFW=7			Total seats 700
Under the Ministry of Defense			
Dhaka	Armed Forces Medical Institute, Dhaka Cantonment, Dhaka	Diploma	25
Total no. of nursing colleges under the Ministry of Defense=1			Total seats 25
Total no. of nursing colleges in the government sector=8			Grand total 725

Table 16.16b shows the list of colleges of nursing in the government sector, which offer post-basic BSc nursing courses, with number of seats in each institution.

**Table 16.16b. Government post-basic BSc nursing college (July 2011)**

Division	Name of institution	Degree	No. of seats
Under the Ministry of Health and Family Welfare			
Dhaka	Nursing University, Mohakhali, Dhaka	BSc	125
Chittagong	Foujderhat Nursing College	BSc	125
Rajshahi	Bogra Nursing College, Bogra	BSc	125
Khulna	Khulna Nursing College, Khulna	BSc	125
Total no. of BSc nursing colleges=4			Total seats 500

Table 16.17 shows the list of colleges of nursing in the private sector, which offer diploma or post-diploma nursing degrees, with number of seats in each institution.

**Table 16.17. Private nursing colleges offering nursing diploma or post-diploma degrees (March 2011)**

Division	Name of nursing college	No. of seats	
		Diploma	Post-diploma
Dhaka	International Medical College, Tongi, Gazipur	20	0
	Kumudini Nursing College, Kumudini Hospital, Tangail	30	30
	State College of Health Sciences, Dhanmondi, Dhaka	20	20
	Shahid Monsur Ali Nursing College, Dhaka	25	0
Rajshahi	TMSS Nursing College, Bogra	0	30
Sylhet	Jalalabad Ragib-Rabeya Nursing College, Sylhet	20	0
	North East Nursing College, S. Surma, Sylhet	20	0
Total number of nursing colleges in the private sector=7		Total seats	135
		Grand total	215

Two private institutions run specialized nursing diploma courses on cardiac nursing and rehabilitation nursing. Table 16.18 lists these institutions, with number of seats in each.

**Table 16.18. Private institutions offering specialized nursing diploma courses (March 2011)**

Division	Name of institution	No. of seats	
		Diploma	Post-diploma
Dhaka	National Heart Foundation, Dhaka ( Cardiac Nursing: ICU, CCU, Cathlab)	20	0
	Bangladesh Health Professionals Institution (CRP), Savar, Dhaka (Rehabilitation Nursing)	20	0
Total no. of institutions in the private sector=2		Total seats	40
			0

Besides the colleges of nursing and two private institutions offering specialized nursing diploma, there are 34 nursing institutions in the government sector (seats 1,250) and 20 in the private sector (seats 530). Table 16.19 and 16.20 provide the lists of these institutions.

**Table 16.19. Government nursing institutions, with the number of seats (March 2011)**

Division	Name of institution	No. of seats
Nursing institutions attached with medical college hospitals		
Barisal	1. Nursing institutions attached with Sher-e-Bangla Medical College Hospital, Barisal	50
Chittagong	2. Nursing institutions attached with Comilla Medical College Hospital, Comilla	50
Dhaka	3. Nursing institutions attached with Faridpur Medical College Hospital, Faridpur	50
	4. Nursing institutions attached with SSMC Hospital, Mitford, Dhaka	50
Rajshahi	5. Nursing institutions attached with Rangpur Medical College Hospital, Rangpur	50
Sylhet	6. Nursing institutions attached with M.A.G. Osmani Medical College Hospital, Sylhet	50
Total		300
Nursing institutions attached with general hospitals		
Barisal	1. Nursing institutions attached with Patuakhali General Hospital	50
Chittagong	2. Nursing institutions attached with Noakhali General Hospital	50
	3. Nursing institutions attached with Rangamati General Hospital	50
Dhaka	4. Nursing institutions attached with Tangail General Hospital	50
Khulna	5. Nursing institutions attached with Jessore General Hospital	50
	6. Nursing institutions attached with Khulna General Hospital	50
	7. Nursing institutions attached with Kushtia General Hospital	50
Rajshahi	8. Nursing institutions attached with Bogra General Hospital	50
	9. Nursing institutions attached with Dinajpur General Hospital	50
	10. Nursing Institutions attached with Pabna General Hospital	50
	11. Nursing institutions attached with Sirajganj General Hospital	30
Total		530
Nursing institutions attached with district hospitals		
Barisal	1. Nursing institutions attached with Bhola District Hospital	30
	2. Nursing institutions attached with Pirojpur District Hospital	30
	3. Nursing institutions attached with Barguna District Hospital	30

**Table 16.19. Government nursing institutions, with the number of seats (March 2011) (Continued...)**

Division	Name of institution	No. of seats
Chittagong	4. Nursing institutions attached with Brahmanbaria District Hospital	30
	5. Nursing institutions attached with Cox's Bazar District Hospital	30
	6. Nursing institutions attached with Feni District Hospital	30
	7. Nursing institutions attached with Chandpur District Hospital	30
Dhaka	8. Nursing institutions attached with Munshiganj District Hospital	30
	9. Nursing institutions attached with Netrokona District Hospital	30
	10. Nursing institutions attached with Rajbari District Hospital	30
	11. Nursing institutions attached with Gopalganj District Hospital	30
	12. Nursing institutions attached with Madaripu District Hospital	30
	13. Nursing institutions attached with Jamalpur District Hospital	30
	14. Nursing institutions attached with Kishoreganj District Hospital	30
	15. Nursing institutions attached with Sherpur District Hospital	30
Khulna	16. Nursing institutions attached with Bagerhat District Hospital	30
	17. Nursing institutions attached with Chuadanga District Hospital	30
	18. Nursing institutions attached with Magura District Hospital	30
	19. Nursing institutions attached with Satkhira District Hospital	30
	20. Nursing institutions attached with Jhenaidah District Hospital	30
Rajshahi	21. Nursing institutions attached with Chapai Nababnaganj District Hospital	30
	22. Nursing institutions attached with Joypurhat District Hospital	30
	23. Nursing institutions attached with Naogaon District Hospital	30
	24. Nursing institutions attached with Thakurgaon District Hospital	30
Sylhet	25. Nursing institutions attached with Maulvibazar District Hospital	30
	26. Nursing institutions attached with Habiganj District Hospital	30
Rangpur	27. Nursing institutions attached with Kurigram District Hospital	30
	28. Nursing institutions attached with Nilphamari District Hospital	30
	29. Nursing institutions attached with Panchagarh District Hospital	30
Total seats		870
Grand total		1,700

**Table 16.20. Private nursing institutions, with the number of seats (March 2011)**

Division	Name of nursing institution	No. of seats
Chittagong	1. Nursing Institute attached with Chandraghona Missionary Hospital	30
	2. Nursing Institute, Chottogram Ma O Shishu Hospital, Agrabad, Chittagong	25
	3. Begum Osman Ara College of Nursing, (BGC Trust), Chandanaish, Chittagong	50
Dhaka	4. Fatima Nursing Institute, Moghbazar, Dhaka	50
	5. Kumudini Nursing School, Mirzapur, Tangail	50
	6. Moulana Bhashani Nursing Institute, Uttara, Dhaka	20
	7. Nursing Institute attached with BHPI, CRP, Savar, Dhaka	40
	8. Nursing Institute attached with Diabetic Hospital, Faridpur	40
	9. Nursing Institute attached with Holy Family Red Crescent Hospital, Dhaka	50
	10. Nursing Institute attached with Jahurul Islam Medical College Hospital, Bajitpur, Kishoreganj	50
	11. Nursing Institute, Central Hospital, Dhaka	20
	12. Nursing Institute, Christian Health Project, Joy Ramkura, Haluaght, Mymensingh	20
	13. Nursing Institute, Shishu Shayastha Foundation Hospital, Mirpur, Dhaka	20
	14. Nursing Institute, Uttara Women Medical College Hospital, Dhaka	25
	15. TMMC Nursing Institute, Targas, Board Bazar, Gazipur	50
	16. Green Life Hospital Nursing Institute, Dhanmondi, Dhaka	40
	17. East west Nursing Institute, Dhaka	30
	18. Gramin Calidunian College of Nursing, Mirpur, Dhaka	40
	19. IBN sina Nursing Institute, Dhaka	50
Khulna	20. Ad-Din Nursing Institute, Jessore	30
	21. CSS Nursing Institute, Khulna	30
	22. GMR Nursing Institute, Sonadanga, Khulna	30
	23. Safina Nursing Institute, Kushtia	30
Rajshahi	24. Nursing Institute attached with KY Ali Medical College Hospital, Enayetpur, Sirajganj	50
	25. Nursing Institute attached with Rajshahi Missionary Hospital	20
	26. Nursing Institute, Islami Bank Medical College Hospital, Rajshahi	60
Sylhet	27. TMSS Nursing College, Thengamara, Bagura	30
	28. North East Nursing Institute, Sylhet	75
	29. Begum Rabeya Khatun Chowdhuri Nursing Institute, Sylhet	30
Rangpur	30. Rangpur Community Nursing Institute, Rangpur	50
	31. Institute of Nursing Science, Dinajpur	50
Total seats		1,200



### Private-sector institutions to produce midwives

There are 8 junior midwifery institutions in the private sector, with total seat-capacity of 280, to produce midwifery professionals. Table 16.21 shows the list.

**Table 16.21. Junior midwifery institutions, with the number of seats in each (July 2011)**

Division	Name of junior midwifery institution	No. of seats
Chittagong	1. CR Maternity Hospital, Chandpur	20
	2. Junior Midwifery Institute, Red Crescent Matrisadan Hospital, Chandpur	20
	3. Jemison Red Crescent Midwifery Institute, Agrabad, Chittagong	50
	4. Mamon Hospital, City Corporation, Chittagong	30
Dhaka	5. Junior Midwifery Institute, Holy Family Red Crescent Hospital, Dhaka	60
	6. Kumudini Hospital, Mirzapur, Tangail	20
	7. SMUR Maternity Hospital, Bangla Bazar, Dhaka	20
Khulna	8. Ad-Din Maternity Hospital, Jessore	20
	9. Fatema Hospital, Jessore	20
Rajshahi	10. Christian Hospital, Bogra	20
Total seats		280

### Training facilities for production of community-based skilled birth attendants

To facilitate attendance of childbirths by skilled health personnel, the Ministry of Health and Family Welfare has a program to produce community-based skilled birth attendants. There are 41 facilities, 39 in the government sector and 2 in the private sector, to provide training in this regard. Table 16.22 shows the location of the training facilities.

**Table 16.22. Training institutions for production of community-based skilled birth attendants (July 2011)**

Ownership	Type of facility	Location	No. of facilities
Government	CSBA institution run by civil surgeon and attached with general hospital/district hospital	Narayanganj (WHO), Manikganj, Kishoreganj, Jamalpur, Habiganj, Gopalganj, Narsingdi, Nilphamari, Natore, Naogaon, Kurigram, Panchagarh, Gaibandha, Jhenaidaha, Bagerhat, Rajbari, Madaripur, Munshiganj, Chandpur	19
	Family Welfare Visitor Training Institute	Tangail (WHO), Barisal, Faridpur, Comilla (WHO), Kushtia, Sylhet, Rangamati, Dhaka, Rajshahi, Bogra, Dinajpur, Khulna (WHO)	12
	CSBA Institution attached with nursing institutions	Noakhali, Jessore, Satkhira, Thakurgaon, Feni, Joypurhat, Pabna, Brahmanbaria, Netrakona, Chuadanga, Cox's Bazar, Patuakhali, Chapai Nababganj, Sirajganj	14
Private	CSBA-Institution	Kumudini Hospital, Mirzapur, Tangail; Lamb Hospital, Parbatipur, Dinajpur	2
Total=			41

### Training schools for production of medical assistants

Medical assistants assist the medical doctors posted at the upazila health complexes as well as at the union sub-centers. Medical assistants are produced by Medical Assistant Training School (MATS) through a three-year academic course comprising theoretical and practical classes. Currently, there are 8 MATS in the government sector and 44 in the private sector. Total annual production-capacity is 3,375, of which 700 are produced by the government MATS and 2975 by the private MATS. Table 16.23 and 16.24 show the list of MATS.

**Table 16.23. Government Medical Assistant Training Schools (MATS), with the number of seats (July 2011)**

Division	Name of MATS	No. of seats
Chittagong	Medical Assistant Training School, Comilla (non-functioning)	50
	Medical Assistant Training School, Noakhali	100
Dhaka	Medical Assistant Training School, Faridpur	50
	Medical Assistant Training School, Tangail	100
Khulna	Medical Assistant Training School, Bagerhat	150
	Medical Assistant Training School, Kushtia	100
	Medical Assistant Training School, Jhenaidaha	50
Rajshahi	Medical Assistant Training School, Sirajganj	100
Total seats		700

**Table 16.24. Private Medical Assistant Training Schools (MATS), with the number of seats (July 2011)**

Division	Name of institution	Year of establishment	No. of seats
Chittagong	Thakur Para Medical Assistant Training School, Thakur Para, Comilla	2008	50
	Chandpur Medical Assistant Training School, Chandpur.	2010	50
Dhaka	Advance Medical Assistant Training School, Green Road, Dhaka	2008	100
	AR Medical Assistant Training School, Mohammadpur, Dhaka	2009	75
	Bangladesh Medical Assistant Training School, Uttara, Dhaka	2009	50
	Dhaka Medical Assistant Training School, Mirpur, Dhaka	2008	80
	New Pilot Medical Assistant Training School, Tangail Sadar	2009	50
	Rabeya Medical Assistant Training School, Savar, Dhaka	2008	50
	Rampura Medical Assistant Training School, Rampura, Dhaka	2008	70
	Rumdo Medical Assistant Training School, Mymensingh	2008	60
	SAIC Institute of Medical Assistant, Mirpur, Dhaka	2008	40
	SIMT Medical Assistant Training School, Kalabagan, Dhaka	2008	100
	Spark SIMT Medical Assistant Training Academy, Mirpur, Dhaka	2008	60
	SPKS Medical Assistant Training School, Mirpur, Dhaka	2008	100
	Sumona Medical Assistant Training School, Sadarghat, Dhaka	2007	60
	The Medical Assistant Training School, Mirpur, Dhaka	2008	100
	Trauma Medical Assistant Training School, Mohammadpur, Dhaka	2010	100
	Institute of Medical Assistants, Faridpur	2010	50
	Eden Medical Assistant Training School, Mirpur, Dhaka	2010	50
	Tangail Medical Assistant Training School, Kumudini College Road, Tangail	2010	100
	Shyamoly Medical Assistant Training School, Mohammadpur, Dhaka	2010	100
	Taleb Ali Medical Assistant Training School, Natun Bazar, Mymensingh	2010	50
	Rajbari Community Medical Assistant Training School, Rajbari	2010	50
	National IM&DT MATS, Mohammadpur, Dhaka	2010	50
	Prince Medical Assistant Training School, Saver, Dhaka	2010	50
	Unilab Medical Assistant Training School, Magura	2010	50
Rajshahi	Green International Medical Assistant Training School, Rangpur	2008	150
	Health Ways Medical Assistant Training School, Bogra	2008	50
	Prime Medical Assistant Training School, Rangpur	2008	80
	Rajshahi Medical Assistant Training School, Rajshahi	2008	80
	SIMT Medical Assistant Training School, Nishindhora, Bogra	2008	20
	TMSS Medical Assistant Training School, Bogra	2008	100
	Udayan Medical Assistant Training School, Rajshahi	2008	160
Rangpur	Medical Assistant Training School, Joypurhat	2010	50
	Rangpur Medical Assistant Training School, Rangpur	2010	50
	Anwara Medical Assistant Training School, Dinajpur	2010	50
	Ranine Medical Assistant Training School, Lalmanirhat	2010	50
Sylhet	Jalalabad Medical Assistant Training School, Sylhet	2008	50
	Maulvibazar Medical Assistant Training School, Kushumbag, Maulvibazar	2008	80
	Sylhet Medical Assistant Training School, Sylhet	2008	40
No. of private MATS=44		Total seats	2975

**Institutes of Health Technology (IHT) for production of medical technologists**

Medical technologists are laboratory technologists or staff responsible for technical jobs under the supervision of medical experts. There was an acute shortage of medical technologists in the

country. However, a steady growth of private institutions has been noticed and, as of June 2011, there are 56 private institutions for training in medical technology against only 6 in the government sector. Table 16.25 shows the list of government IHTs, and Table 16.26 shows the list of private IHTs.

**Table 16.25. List of government Institutes of Health Technology, with the number of seats by discipline (July 2011)**

Division	Name of institute with location	Estd.	Discipline								Total
			LAB	RDL	PTY	SI	DENT	PHAR	RTY	FF&TR	
Dhaka	Institute of Health Technology, Mohakhali, Dhaka	1963	50	50	50	50	50	50	20	5+2	327
Rajshahi	Institute of Health Technology, Rajshahi.	1976	50	50	50	50	50	50	20	5+1	326
	Institute of Health Technology, Bogra	2006	65	55	50	50	55	55	20	5+2	357
Chittagong	Institute of Health Technology, Chittagong	2010	50	50	50	50	50	50	20	5+2	327
Barisal	Institute of Health Technology, Barisal	2010	50	50	50	50	50	50	20	5+2	327
Rangpur	Institute of Health Technology, Rangpur	2010	50	50	50	50	50	50	20	5+2	327
Total institutes=6		Total seats	315	305	300	300	305	305	120	41	1991
LAB: Laboratory; RDL: Radiology; PTY: Physiotherapy; SI: Sanitary Inspection; DENT: Dentistry; PHAR: Pharmacy; RTY: Radiotherapy; FF&TR: Children of freedom fighters and tribal students											

**Table 16.26. List of private Institutes of Health Technology, with the number of seats by discipline (July 2011)**

Division	Name of institute with location	Estd.	Discipline							Total
			LAB	RDL	PTY	DENT	PHAR	Other1	Other2	
Chittagong	C.S.C.R. Institute of Medical Technology, Golpahar, Chittagong	2008	35	0	25	25	30	0	0	115
	Chittagong Institute of Medical Technology Halishahar, Chittagong	2005	50	0	0	50	50	0	0	150
	Comilla Institute of Medical Technology, Laksham Road, Comilla	2007	25	25	0	25	25	0	0	100
	Comilla Institute of Medical Technology, Thakurpara, Comilla	2007	25	25	0	0	25	0	0	75
	Ilah College of Medical Technology, Nahar Kutir, East Bank of Ranir Digi, Comilla	2005	25	0	0	0	25	0	0	50
	Institute of Medical Technology, 180 Firingibazar, City Corporation, Chittagong	2003	50	50	0	50	0	0	0	150
	Brahmanbaria Institute of Medical Technology, Baharampur, Brahmanbaria	2010	25	0	0	0	25	0	0	50
	United Care Institute of Medical Technology, Madhyapara, Brahmanbaria	2010	25	0	0	15	0	0	0	40

**Table 16.26. List of private Institutes of Health Technology, with the number of seats by discipline (July 2011)**  
(Continued...)

Division	Name of institute with location	Estd.	Discipline							Total
			LAB	RDL	PTY	DENT	PHAR	Other1	Other2	
Dhaka	A.R. Institute of Medical Technology, Nabodoy Housing Society, Mohammadpur, Dhaka	2008	50	25	50	50	50	0	0	225
	Ahsania Mission Institute of Medical Technology, Mirpur, Dhaka	2008	25	25	25	0	0	0	0	75
	Armed Forces Institute of Medical Technology, Dhaka Cantonment	2010	25	25	25	25	25	10 (OTA)	15 (ICA)	150
	Bangladesh Institute of Medical & Dental Technology, Khiljee road, Mohammadpur, Dhaka	1996	85	20	20	25	0	0	0	150
	Bangladesh Medical College, Dhaka		0	0	25	0	0	0	0	25
	Center for Rehabilitation of the Paralyzed, Savar, Dhaka	1999	50	50	50	0	0	0	Occu -50	200
	Dhaka Institute of Medical Technology, Humayun Road, College Gate, Mohammadpur, Dhaka	2008	50	0	25	30	40	0	0	145
	Fortune Institute of Medical Technology, Jasim uddin Road, Uttara, Dhaka	2007	50	25	0	50	50	0	0	175
	Gonoshaystha Institute of Health Sciences, Tengra, Sreepur, Gazipur	2006	50	0	0	50	0	0	0	100
	Green view IHT, Green Road, Dhanmondi, Dhaka	2002	40	0	0	40	25	0	0	105
	Institute of Medical Technology, Rajbari	2010	50	0	0	0	50	0	0	100
	Institute of British Colombia Medical Technology, Uttara, Dhaka	2008	40	0	25	25	35	0	0	125
	Institute of Community Health Bangladesh, Moghbazar, Dhaka	2005	25	0	0	25	25	0	0	75
	Institute of Health Technology, Dhaka	2000	100	0	0	50	50	0	0	200
	Institute of Medical & Dental Technology, Tangail	2007	30	25	0	25	25	0	0	105
	International Institute of Health Sciences, Shankar Bus-stand, Dhaka	2006	70	0	0	50	40	0	0	160
	Institute of Medical Technology, Tamizuddin Road, Jhiltuli, Faridpur	2005	50	0	0	25	25	0	0	100

**Table 16.26. List of private Institutes of Health Technology, with the number of seats by discipline (July 2011)**  
(Continued...)

Division	Name of institute with location	Estd.	Discipline							Total
			LAB	RDL	PTY	DENT	PHAR	Other1	Other2	
Dhaka	Jefri Institute of Health Sciences & Technology, Dhanmondi, Dhaka	2009	50	50	50	50	50	0	0	250
	Mark's Institute of Medical Technology, Mirpur, Dhaka	2002	50	0	0	50	50	0	0	150
	Millennium Institute of Medical Technology, Bacharam Dewry, Dhaka	2007	25	0	0	25	25	0	0	75
	National Institute of Medical & Dental Technology, Mohammadpur, Dhaka	2005	34	0	0	0	31	0	0	65
	National Institute of Medical Technology, Uttara Model Town, Dhaka	2003	50	0	0	50	50	0	0	150
	New Lab Institute of Medical Tech, Asad Gate, Mohammadpur, Dhaka	2005	70	0	0	30	30	0	0	130
	Prince Institute of Medical Technology, Savar, Dhaka	2008	45	0	0	30	40	0	0	115
	Prof. Shuhrabuddin Institute of Medical Technology, Sabalia, Tangail	2007	75	0	25	45	45	0	0	190
	Radiant Institute of Medical Technology Green Road, Dhaka	2003	40	0	0	40	0	0	0	80
	Rumdo Institute of Medical Technology, Boundary Road, Mymensingh	2007	60	0	0	0	25	0	0	85
	SAIC Institute of Medical Technology Mirpur, Dhaka	2005 & 2008	70	10	25	40	40	0	0	185
	Shahid S.A. Memorial Institute of Medical Technology, Uttara, Dhaka	2007	40	0	0	25	25	0	0	90
	Shyamoly Ideal Institute of Medical Technology, Dhaka	2010	50	0	50	50	50	0	0	200
	State College of Health Sciences, Mohammadpur, Dhaka	2008	0	0	0	0	0	0	50 (Opto-metry)	50
	Sumona Institute of Medical Technology, Sadarghat, Dhaka	2007	50	0	0	30	50	0	0	130
	Trauma Institute of Medical Technology, Shyamoli, Dhaka	2008	25	25	0	25	25	0	0	100
	Khristian Institute of Medical Technology, West Tejturi Bazar, Tejgaon, Dhaka	2010	30	0	0	0	30	0	0	60

**Table 16.26. List of private Institutes of Health Technology, with the number of seats by discipline (July 2011)**  
(Continued...)

Division	Name of institute with location	Estd.	Discipline							Total
			LAB	RDL	PTY	DENT	PHAR	Other1	Other2	
	Rampura Institute of Medical Technology, Rampura, Dhaka	2010	60	0	0	0	50	0	0	110
	Dhaka Microlab Institute of Medical Technology, Shahjampur, Gulshan, Dhaka	2010	30	0	0	15	30	0	0	70
	Institute of Medical Technology, Jhalkuri, Narayanganj	2010	25	0	0	15	25	0	0	65
	Bhairab Institute of Medical Technology, Kishoreganj	2010	25	0	0	15	25	0	0	65
Khulna	Ad-Din Women's Institute of Medical Technology, Jessore	2007	75	50	0	25	50	0	0	200
	SAIC Institute of Medical Technology, Khulna	2010	50	0	30	50	50	0	0	180
Barisal	Advance Institute of Medical Technology, Barisal	2010	25	0	0	0	25	0	0	50
Rajshahi	Bangladesh Institute of Medical Technology Haji Mohsin Road, Dilalpur, Pabna	2007	30	0	30	30	30	0	0	120
	DOD Institute of Medical Technology, Dinajpur	2010	50	50	0	0	0	0	0	100
	Health Ways Institute of Medical Technology, Bogra	2002	100	0	0	31	50	0	0	181
	Islami Bank Institute of Medical Technology, Rajshahi	2007	50	25	0	25	50	0	0	150
	Janata Institute of Medical Technology, Bogra	2002	50	0	0	40	25	0	0	115
	Jaypurhat Institute of Medical Technology, Jaypurhat	2010	50	0	0	0	50	0	0	100
	Prime Institute of Medical Technology, 213/A, Talaimari, Rajshahi	2006	100	0	0	50	50	0	0	200
	Prime Institute of Medical Technology, Rangpur	2007	75	0	0	25	25	0	0	125
	Rajshahi Institute of Medical Technology, Laxmipur, Rajshahi	2002	50	0	0	50	70	0	0	170
	SAIC Institute of Medical Technology, Bogra	2008	50	0	0	25	50	0	0	125
	TMSS Institute of Medical Technology, Thengamara, Bogra	2007	100	40	0	30	50	0	0	220
	City Institute of Medical Technology, Rajshahi	2010	25	0	0	0	25	0	0	50
	Bangladesh Institute of Medical Technology, Boalia, Rajshahi	2010	25	0	0	0	25	0	0	50
	NDC Institute of Medical Technology, Joypurhat, Rajshahi	2010	50	0	0	0	50	0	0	100
	Sirajganj Institute of Medical Technology, Sirajganj	2010	25	0	0	15	25	0	0	70
Total no. institutes=56		Total seats	2,479	520	455	1,486	1,641	10	115	6,706
LAB: Laboratory; RDL: Radiology; PTY: Physiotherapy; SI: Sanitary Inspection; DENT: Dentistry; PHAR: Pharmacy; RTY: Radiotherapy; FF&TR: Children of freedom fighters and tribal students										

Some private institutions are offering certificate courses on medical technology. Table 16.27 lists these institutions.

**Table 16.27. List of private institutions offering certificate courses in medical technology, with the number of seats by discipline (July 2011)**

Division	Name of institution with location	Estd.	Optometry	Refraction	Ophthalmic assistant	Ophthalmic nursing assistant	Cathlab tech	Total
Chittagong	Bangladesh Jatiyo Andho Kallyan Samity, Comilla	2008	25	0	25	0	0	50
Dhaka	Bangladesh Islamia Eye Hospital, Dhaka	2008	25	25	25	25	0	100
	Fashion Eye Hospital Limited, Fashion Tower, 98/6-A, Baro Maghbazar, Dhaka	2008	0	10	10	0	0	20
	NICVD&H	2010	0	0	0	0	10	10
Total institutes=4		Total seats	50	35	60	25	10	180

There are initiatives also to start bachelor's degree courses for medical technology. Three government institutions and 15 private institutions started Bachelor of Science (BSc) course in medical technology. Table 16.28 lists the government institutions and Table 16.29 the private institutions offering BSc courses in medical technology.

**Table 16.28. Government institutions offering BSc courses in medical technology, with the name of discipline and the number of seats (July 2011)**

Division	Name of institution with location	Estd.	Physiotherapy	Laboratory Medicine	Total
Dhaka	NITOR, Sher-e Bangla Nagar, Dhaka	1993	25	0	25
	Institute of Health Technology, Mohakhali, Dhaka	2007	30	30	60
Rajshahi	Institute of Health Technology, Rajshahi	2007	30	30	60
No. of institutions=3		Total seats	85	60	145

**Table 16.29. Private institutions offering BSc course in medical technology (July 2011)**

Division	Name of institution with location	Estd.	Physiotherapy	Lab medicine	Dentistry	Occupational therapy	Other	Total
Dhaka	Bangladesh Health Professionals Institute, Savar, Dhaka	2007	20	0	0	10	15 (Speech therapy)	45
	Bangladesh Medical College, Dhanmondi, Dhaka	2008	50	75	50	0	0	175
	Bangladesh Shishu Shaystha Institute, Sher-e-Bangla Nagar, Dhaka	2008	0	25	0	0	0	25
	Gono Shaystha University, Savar, Dhaka	2005	40	0	0	0	0	40
	Institute of Medical Technology, Mirpur, Dhaka	2007	0	30	30	0	0	60
	International Institute of Health Science, Shewrapara, Dhaka	2010	30	30	30	0	0	90



**Table 16.29. Private institutions offering BSc course in medical technology (July 2011) (Continued...)**

Division	Name of institution with location	Estd.	Physiot herapy	Lab Medicine	Dentistry	Occupational therapy	Other	Total
	Mark's Institute of Medical Technology, Mirpur, Dhaka	2008	0	50	50	0	0	100
	New Lab Institute of Medical Technology, Iqbal Road, Mohammadpur, Dhaka	2010	0	30	30	0	0	60
	SAIC Institute of Medical Technology, Dhaka	2007	50	50	50	0	0	150
	State University, Mohammadpur, Dhaka	2006	50	50	30	0	50 (Opto-metry)	180
	The People's University, Dhanmondi, Dhaka	2007	25	0	0	0	0	25
Chittagong	Chittagong institute of Medical Technology, Halishahar,	2008	0	50	50	0	50 (Ph)	150
Rajshahi	Institute of Health Technology, Tuni Bhaban, Rajshahi	2007	0	25	0	0	0	25
	Prime Institute of Health Technology, Talaimari, Rajshahi	2007	50	0	50	0	0	100
	Prime Institute of Science & Technology, Rangpur	2008	0	50	0	0	0	50
Total institutions=15		Total seats	315	465	370	10	115	1275

**On-the-job training provided under the Operational Plan of In-service Training**

Under the Operation Plan of In-service Training, a large of number of health personnel and support staff receive on-the-job training each year. A summary of the types of training programs and the number of participants in these training programs is given in Table 16.30. The detail information on these training is given in the annexure.

**Table 16.30. Types of training given under Operational Plan of In-service Training Service in 2009 and the number of participants in the training programs**

Location of training	Name of training	No. of participants
Within country	Clinical training	543
	Computer/IT training	2,514
	Management training	13,058
	Six months' training for doctors on anesthesiology (EmOC)	116
	Six months' training for doctors on obstetrics & gynecology (EmOC)	104
	Training complimentary Essential Service Package (ESP)	2,134
	Training on Essential Service Package (ESP)	5,419
Overseas	Overseas training	83
Total		23,970

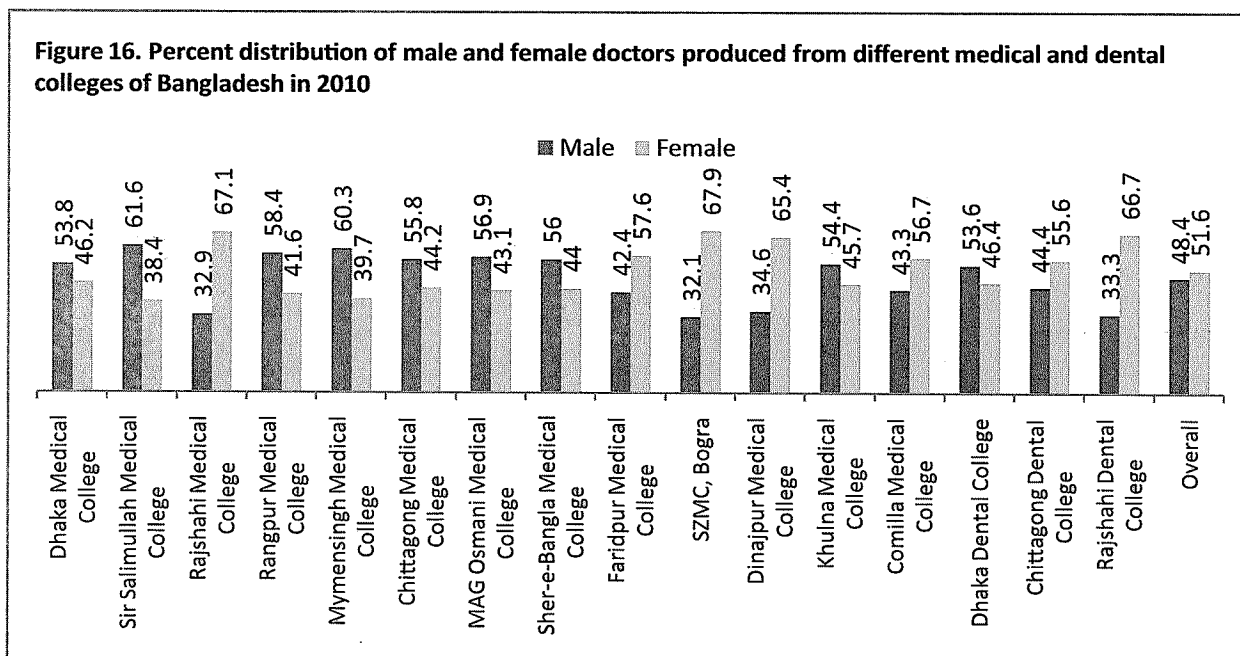
**Yearly output from medical and dental colleges of Bangladesh**

Table 16.31 shows the year-wise number of new doctors produced from various medical and dental colleges of Bangladesh.

**Table 16.31. Number of new doctors produced from various medical and dental colleges of Bangladesh by year**

Name of medical or dental college	2004	2005	2006	2007	2008	2009	2010	Total
Dhaka Medical College	108	158	132	170	207	147	132	922
Sir Salimullah Medical College	197	148	174	142	153	155	146	969
Rajshahi Medical College	284	176	160	130	147	139	170	1,056
Rangpur Medical College	246	192	151	158	83	-	185	997
Mymensingh Medical College	197	181	150	149	124	162	184	963
Chittagong Medical College	208	279	198	174	125	142	181	1,126
M.A.G. Osmani Medical College	148	165	296	197	127	161	160	1,094
Sher-e-Bangla Medical College	253	188	170	149	136	143	166	1,039
Faridpur Medical College	68	38	78	40	42	59	59	325
SZR Medical College	68	67	59	78	46	-	56	318
Dinajpur Medical College	47	39	49	62	41	50	52	288
Khulna Medical College	61	54	48	43	47	61	46	314
Comilla Medical College	68	52	57	54	40	52	60	323
Dhaka Dental College	81	307	309	326	69	79	97	1,171
Chittagong Dental College	13	9	-	-	-	18	36	40
Rajshahi Dental College	13	15	-	-	-	37	33	65
Total	2,060	2,068	2,031	1,872	1,387	1,405	1763	10,990

Figure 16 shows the percent distribution of medical and dental doctors produced from various medical and dental colleges in 2009. Table 16.32 shows the year-wise percent distribution of male and female doctors produced from various medical and dental colleges from 2004 to 2009.



**Table 16.32. Number of new doctors produced from various medical and dental colleges of Bangladesh by year**

Name of medical or dental college	2004		2005		2006		2007		2008		2009		2010	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Dhaka Medical College	53.7	46.3	47.5	52.5	52.3	47.7	57.6	42.4	69.6	30.4	59.2	40.8	53.8	46.2
Sir Salimullah Medical College	55.3	44.7	48.6	51.4	58.6	41.4	48.6	51.4	61.4	38.6	49.7	50.3	61.6	38.4
Rajshahi Medical College	63.7	36.3	55.1	44.9	63.8	36.3	70	45.4	61.2	38.8	49.6	50.4	32.9	67.1
Rangpur Medical College	71.5	28.5	59.9	40.1	47.7	52.3	51.9	48.1	38.6	61.4	46.1	53.9	58.4	41.6
Mymensingh Medical College	51.8	48.2	56.4	43.6	58.7	41.3	47.7	52.3	50.8	49.2	53.1	46.9	60.3	39.7
Chittagong Medical College	67.3	32.7	61.3	38.7	58.6	41.4	57.5	42.5	52	48	50.7	49.3	55.8	44.2
M.A.G. Osmani Medical College	53.4	46.6	53.3	46.7	45.9	54.1	56.9	43.1	48.8	51.2	55.9	44.1	56.9	43.1
Sher-E-Bangla (Check for Cap 'E' Medical College	62.1	37.9	59.6	40.4	56.5	43.5	47.7	52.3	54.4	45.6	42.0	58.0	56.0	44.0
Faridpur Medical College	54.4	45.6	57.9	42.1	50	50	47.5	52.5	50	50	62.7	37.3	42.4	57.6
SZR Medical College, Bogra	50.0	50	52.2	47.8	35.6	64.4	50	50	50	50	50.9	49.1	32.1	67.9
Dinajpur Medical College	48.9	51.1	53.8	46.2	46.9	53.1	56.5	43.5	51.2	48.8	52.0	48.0	34.6	65.4
Khulna Medical College	57.4	42.6	53.7	46.3	64.6	35.4	55.8	44.2	51.1	48.9	47.5	52.5	54.4	45.7
Comilla Medical College	45.6	54.4	30.8	69.2	42.1	57.9	51.9	48.1	27.5	72.5	44.2	55.8	43.3	56.7
Dhaka Dental College	61.7	38.3	51.1	48.9	51.1	48.9	49.1	50.9	49.3	50.7	55.7	44.3	53.6	46.4
Chittagong Dental College	92.3	7.7	66.7	33.3	-	-	-	-	-	-	22.2	77.8	44.4	55.6
Rajshahi Dental College	69.2	30.8	60	40	-	-	-	-	-	-	46.0	54.1	33.3	66.7
Overall	59.9	40.1	54.5	45.5	53.0	47.0	53.4	47.7	54.7	45.3	50.8	49.2	48.6	51.6

## *Information System and eHealth*

As in 2009 and 2010, the Management Information System (MIS-Health) of the Directorate General of Health Services (DGHS) continued its journey in 2011 towards expanding and improving the quality of the health services of the country. The lack of skilled human resources continued and, in some instances, even increased. However, as in the past years, that could not stop the progress, although more could be done if skilled human resources were available. One of the remarkable achievements of MIS-Health is the receipt of the United Nations ICT Award titled “Digital Health for Digital Development” in a ceremony held in the Waldorf Astoria Hotel of New York on 19 September 2011, organized on the occasion of the 66th Assembly of the United Nations. The award was given as recognition of Bangladesh Government’s success in using the information and communication technology for development of health and nutrition, particularly for contributing to improvement of maternal and child health. The digital health program, on behalf of the Government of Bangladesh, is implemented by the Ministry of Health and Family Welfare through MIS-Health.



*“New York, 19 September 2011: Honorable Prime Minister of Bangladesh Sheikh Hasina is seen receiving the United Nations “Digital Health for Digital Development” Award for outstanding contribution of her government in successfully using ICT for development of Health and Nutrition. Dr Hamadoun Ibrahim Toure, Secretary-General of the International Tele-communication Union, is seen handing over the award to the Bangladesh PM”*

Dr Hamadoun Ibrahim Toure, Secretary-General of the International Telecommunication Union (ITU) of the United Nations Organization, formally handed over the award. The Hon'ble Minister for Health and Family Welfare Professor AFM Ruhul Haque, Hon'ble Minister for Foreign Affairs Dr Dipu Moni, and Son of Hon'ble Prime Minister Mr Sajeeb Wajed Joy were present, among others, in the ceremony. Dr Hamadoun visited Bangladesh from 1 to 4 March 2010 when he met with the Hon'ble Minister for Health and Family Welfare at his office and witnessed demonstration on the various digital health initiatives of the MOHFW, including live video-conferencing with district health managers. On 3 March 2010, Dr Hamadoun visited Savar Upazila Health Complex and witnessed working process of digital health in sub-national health facilities. He witnessed live demonstration of rural telemedicine program between community clinic and upazila health complex where a doctor at Savar Upazila Health Complex provided consultation to a poor woman in a distant community clinic. He also witnessed how the Mobile Phone Health Service was functioning. Dr Hamadoun was so impressed that he commented:

"Bangladesh should teach digital health to the whole world." A landmark publication by the World Health Organization titled "mHealth—New horizons for health through mobile technologies" based on the findings of the second global survey on eHealth, probably created a good ground for giving due recognition to the achievements of Bangladesh in digital health. The publication covered detailed story about the activities of MIS-Health in digital health, particularly in mHealth and included case study on "Pregnancy care advice by SMS."



*" Dhaka, 6 July 2011: Hon'ble Prime Minister Sheikh Hasina inaugurates the telemedicine service of MIS-Health at the Digital Innovation Fair 2011, organized by the Access to Information Program of Prime Minister's Office. The Hon'ble Minister for Health and Family Welfare Professor AFM Ruhul haque and Professor Dr Abul Kalam Azad, Director-MIS, DGHS, were present "*

As in the previous year, MIS-Health was one of the most successful participants at the National Digital Innovation Fair 2011 held during 6-8 July 2011 and organized by the Access to Information (A2I) Program of the Prime Minister's Office. Honorable Prime Minister Sheikh Hasina once again expressed her appreciation for the achievements in Health Information System (HIS) and eHealth towards building Digital Bangladesh. MIS-Health received three awards in the National Digital Innovation Fair 2011.

### Health Information System

The activities of MIS-Health relating to health information system include collection of data from various sources and cleaning, analyzing, and summarizing the data to generate and distribute information through routine administrative report, website, yearbook, health bulletin, newsletter, etc. The existing data-flow system comprises wireless Internet network, covering all health facilities and health administrative points from the national to the upazila level. Data from health facilities below the upazila levels are sent to upazila health offices through paper-based forms where these are processed electronically. Several online databases have been created. Database software called District Health Information System (version 2) is used for collecting health service data across the country. However, efforts are undergoing to rapidly transform the remaining data inputs through online databases. Expansion of the Internet backbone to as low as the community clinics will soon be implemented. MIS-Health introduced GIS (Geographical Information System) in the health sector of the country. The GIS device, namely Global Positioning System (GPS), has been provided to each of the six divisional and 64 district health offices of the DGHS. Using these devices, GIS-based HIS data resources are being built gradually.

### **Information on health facilities**

As of April 2011, there were 10,323 independently-running community clinics. Primary healthcare facilities at the upazila and union levels totaled 1,825 (463 hospitals and 1,362 outdoor facilities) and the number of secondary- and tertiary-care hospitals was 124 under the Directorate General of Health Services. MIS-Health created a web-searchable database of the health facilities accessible to the public at its website: [www.dghs.gov.bd](http://www.dghs.gov.bd). All health facilities other than the community clinics have been included in this database. The list of the community clinics will be added soon to the database. Name, location, address, type of facility, and the number of beds, if any, of each facility have been presented. The facilities can be sorted by division, district, and upazila; and automated summary can be prepared. In Chapter 5, more information is provided on the distribution of public-health facilities among divisions. Chapter 5 also shows information on some private health facilities.

### **Health facility utilization**

For the last year (January to December 2010), MIS-Health collected data on health facility utilization from quite a good number of hospitals and health centers. Data were available from 595 hospitals and centers of different types (Bangabandhu Sheikh Mujib Medical University; postgraduate teaching and specialized hospitals: 7; medical college hospitals: 12; district and general hospitals: 61; upazila hospitals: 413; 31-bed hospitals: 3; infectious disease hospitals: 2; labor hospitals: 5; leprosy hospitals: 2; tuberculosis hospitals: 9; government employees hospital: 1; mental hospital: 1; rural health centers: 13). Besides, 2 drug-addiction treatment centers, 33 tuberculosis clinics, 12 urban dispensaries, 16 school health clinics, one tuberculosis center, and secretariat clinic also provided similar data. In these health facilities, reportedly 52,035,866 patients received healthcare from the outpatient departments. The number of children (both sexes) was 11,932,632. The number of male adult patients was 17,209,849, and that of female adult patients was 22,279,861. The number of reported admissions was 3,470,963, which included 1,553,381 male patients and 1,893,920 female patients. Data on health facility utilization were collected from a number of private and non-profit/NGO facilities also. Chapter 6 provides detailed information on health facility utilization.

### **Morbidity profiles**

In 2010, MIS-Health collected data on disease profile of indoor patients from 444 public hospitals. Data on disease profile of outdoor and emergency patients were not collected due to concerns about reliability of the diagnoses. Of the 444 hospitals, 376 were upazila hospitals, 57 were district and general hospitals, 6 were medical college hospitals, 4 were postgraduate teaching institute hospitals, and one was medical university hospital (BSMMU). We included about 2.72 million indoor patients in the analysis of disease profile and tried to identify the top 10 diseases for each type of hospitals. As disease pattern varies by type of hospitals, we performed the analysis for upazila hospitals, district and general hospitals, and for medical college hospitals separately. As the postgraduate teaching institute hospitals are specialty

hospitals and each of them deals with special kinds of patients, we analyzed data on the disease profile from each of the postgraduate teaching institute hospitals separately. We also analyzed data on the disease profile from the medical university hospitals separately. Table 17.1 shows the number of indoor patients by type of hospital, who were included in the analysis of disease profile. Chapter 7 shows results of analysis of the disease profile in details.

**Table 17.1. Number of indoor patients by type of hospital, who were included in the analysis of disease profile (2010)**

Type of hospital	No. of hospitals	No. of indoor patients
Upazila hospitals	376	1,681,459
District and general hospitals	57	984,386
Medical college hospitals	6	2,64,375
Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital	1	11,062
National Institute of Traumatology, Orthopedics & Rehabilitation (NITOR)	1	20,735
National Institute of Kidney Diseases & Urology (NIKDU)	1	3,381
National Institute of Diseases of Chest & Hospital (NIDCH)	1	8,929
National Institute of Ophthalmology (NIO)	1	9,783
Total	444	2,719,735

### Mortality profile

In 2010, we analyzed 51,550 deaths reported from 480 government hospitals of Bangladesh. Among these hospitals, 390 were upazila hospitals, 62 were district and general hospitals, 14 were medical college hospitals, 6 were postgraduate teaching institute hospitals, 3 were infectious disease hospitals, and 5 were chest hospitals. Table 17.2 shows the distribution of death events by type of hospital.

**Table 17.2. Distribution of death events by type of government hospital (2010)**

Type of health facility	No. of facilities	No. of deaths
Upazila health complexes	390	5,775
District-level hospitals (district hospitals and general hospitals)	62	14,111
Medical college hospitals	14	27,255
Infectious disease hospitals (Dhaka, Khulna, and Rajshahi)	3	129
National Institute of Diseases of Chest and Hospital (NIDCH) and other chest hospitals (Bogra, Rajshahi, Jessore, Barisal, and Brahmanbaria)	6	876
Other postgraduate specialized teaching hospitals (NICVD, NIKDU, NIRCH, NITOR and NIMHR)	5	3,404
Total	480	51,550

Chapter 8 shows the summary of data on the causes of death. In the analysis, top 10 causes of death were identified. Like the disease pattern, causes of death also vary by type of hospital. Therefore, analyses of the causes of death were done for upazila hospitals, district hospitals, general hospitals, medical college hospitals, and infectious disease hospitals separately. As the postgraduate teaching institute hospitals are specialty hospitals and each of them deals with



special kinds of patients, we analyzed data on the causes of death recorded in each of the postgraduate teaching institute hospitals separately. However, deaths reported from the National Institute of Diseases of Chest and Hospital and other 5 chest hospitals of the country were analyzed together as they deal with similar types of patients. We also analyzed data on the causes of death recorded in the medical university hospitals separately.

### **Emergency obstetric care profile**

Emergency Obstetric Care (EOC) is an important maternal healthcare service provided by the Ministry of Health and Family Welfare for achieving the Millennium Development Goal 5. All medical college hospitals, 59 district hospitals, 3 general hospitals, 132 upazila health complexes, and 63 maternal and child welfare centers (MCWCs) provide comprehensive emergency obstetric care (CEmOC) services. The rest of the upazila health complexes provide basic emergency obstetric care (BEmOC) services. The NGO and private care providers from a number of districts also provide similar services. For this publication, data from 690 health facilities, including 14 medical college hospitals, 62 district hospitals, 416 upazila health complexes, 63 maternal and child welfare centers (MCWCs), NGO and private hospitals from 64 districts, and 7 other types of hospitals have been used for analysis. The data contained events of 558,712 deliveries in the country's emergency obstetric care facilities in 2010. There were 546,233 livebirths. The number of neonatal deaths in these facilities was 2,280, and that of maternal deaths was 1,700. Chapter 4 shows the results of analysis of emergency obstetric care data.

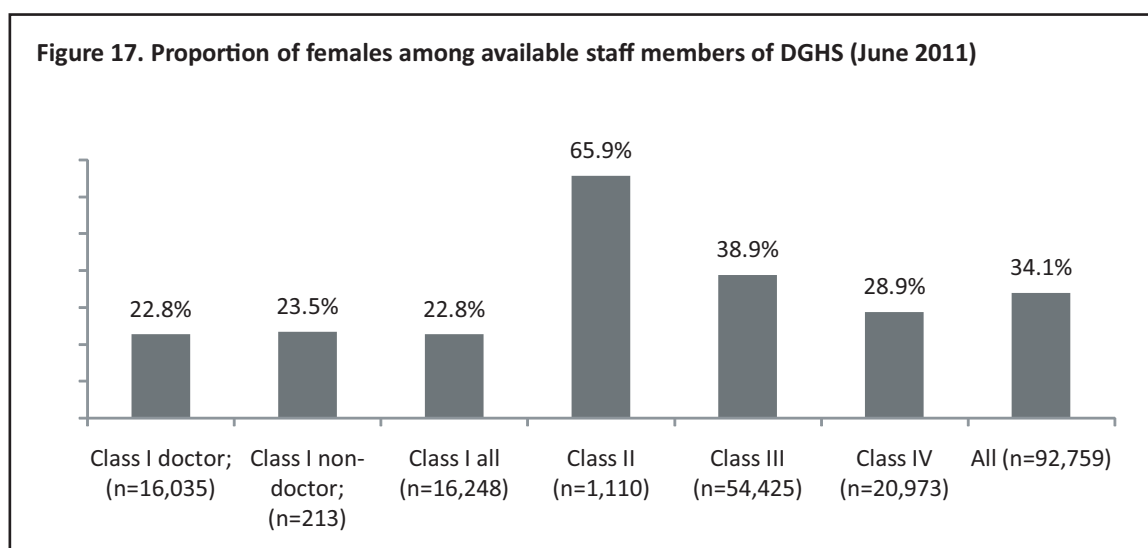
### **Statistics of Integrated Management of Childhood Illness**

Integrated Management of Childhood Illness (IMCI) is a worldwide program supported by UNICEF, WHO, and other development partners. The morbidities included for the integrated management under this program are responsible for almost 75% of under-5 deaths. The Management Information System (MIS) of the DGHS tries to capture the data from IMCI services provided in various IMCI facilities. Community IMCI Program is a newer intervention, and a separate system for data-collection has been developed. An online database-software has been hosted in MIS-Health server to automate the data-collection procedure and generation of report on IMCI. In 2010, data on 1,844,658 patients from the IMCI facilities of 42 districts have been received by MIS-Health.

### **Information on health personnel**

MIS-Health maintains an online database of the health personnel working under the DGHS. Staff members can maintain detailed service-related personal resume in the database under their own control and can access it through the Internet from anywhere. This personal resume is popularly known as PDS which stands for 'personal datasheet'. Due to the inherent staff management processes of the MOHFW and the DGHS, demand to maintain the personal datasheets on staff members other than the medical doctors is less. Therefore, the online personnel database largely contains information on medical doctors. MIS-Health would need policy support to create an

accountability system on the staff members so that they maintain and update the personal data in the database as soon as a service-related event occurs. MIS-Health frequently collects information on staff availability from all health offices, institutions, and facilities. The information works as a basis for understanding the existing staffing pattern of health services from time to time. The status of health personnel is provided in Chapter 16 of this bulletin. The latest available data as of June 2011 state that there are 113,640 sanctioned posts under the DGHS. The distribution of these posts among Class I, Class II, Class III, and Class IV was 20,704 (18.22%); 1,607 (1.41%); 65,284 (57.45%); and 26,045 (22.92%) respectively. The doctors dominate the Class I sanctioned posts than the non-doctors (20,230 vs. 474). Doctors comprise 17.80% of the sanctioned posts of all staff categories. Class I non-doctors constitute only 0.42% of the total sanctioned posts. It is seen that 82% of the total sanctioned posts were filled-up, leaving an overall vacancy of 18%. The vacancy rate was more in Class I positions for non-doctors (55%; 261 vacancies against 474 posts), followed by the positions for doctors (21%; 4,195 vacancies against 20,230 positions). There were 31% vacancies in Class II positions (497 vacancies against 1,607 posts), 17% vacancies in Class III positions (10,859 vacancies against 65,284 posts), and 19% vacancies in Class IV positions (5,072 vacancies against 26,045 posts).



Slightly more than one-third (34.1%) of the total available staff members are female (Figure 17). This proportion is 22.8% for the doctors, 23.5% for the Class I non-doctors, 22.8% for all Class I positions, 65.9% for Class II staff members, 38.9% for Class III staff members, and 28.9% for Class IV staff members. Data collected by MIS-Health on sex distribution of the new medical doctors, with degrees obtained from various medical and dental colleges, show that the percentage of female doctors is gradually increasing, which was 40.1% in 2004 and 49.2% in 2009. However, the percentage of female doctors in government service is still lower compared to their production rate. The high percentage of females among Class II employees is due to the fact that most of the staff nurses who belong to the Class II group are female.

## Chapter 17: Information System and eHealth

One of the limitations of the current personnel management information system is its inability to produce updated personnel status in real time. There are a number of reasons. The personnel deployment system is done through paper-based manual system and in well over 600 places (MOHFW, DGHS, divisional directors' offices; civil surgeons' offices, upazila health offices, and each institutional level). There are many aspects of staff movements, viz. recruitment, leave, transfer, joining, promotion, suspension, termination, retirement, death, etc. If data relating to all these are not fed into personnel information system from the source in real time, assessing a complete real-time status of national health personnel is not possible. Our experience shows that, in the given context of accountability system without full process-automation, only reliance on human compliance for updating data from the multiple points, will not guarantee complete real-time staff profiles. MIS-Health is currently developing a web-based database solution accessible to all health authorities-real time and for full process-automation.

However, functions of MIS-Health in maintaining the human resource information are not at all unsatisfactory. Health personnel status has been analyzed in detail according to staff categories and presented in Chapter 16. Personnel status of other departments of MOHFW, viz. Directorate General of Family Planning (DGFP), Directorate General of Drug Administration (DGDA), and Directorate of Nursing (DNS) was also collected. We gathered information on the academic and training institutions for health and alternative medicine, both in public and private sector, along with the numbers, types of courses, and the number of seats in each course. A profile of on-the-job training given under the Operational Plan of In-service Training has also been provided. There are more opportunities to improve the health personnel information system, integrating the human resource production, training, re-training, and deployment system. However, strong policy support and coordination among MIS-Health, personnel department, and medical education department would be required to achieve this success.

### **Logistics information system**

One of the greatest challenges of the government health system of Bangladesh is the poor maintenance of logistic inventory at the health facility level. At the national level, efforts were made to collect equipment status reports periodically on the numbers of major equipment by type in each institution, their functional status, if non-functional whether repairable or not, etc. However, it remains a difficult task to get periodic data to keep the database updated. Trackable inventory management for institution-wise logistics was not attempted before. The ICT backbone as well as information culture of the Bangladesh health facilities in the public sector are not yet good enough that may create interest for locally-hosted computer-based inventory management system. Under an USAID-supported program, the Management Sciences for Health (MSH) has started building a logistic management database system.

### **Monthly and annual reporting for Cabinet Division**

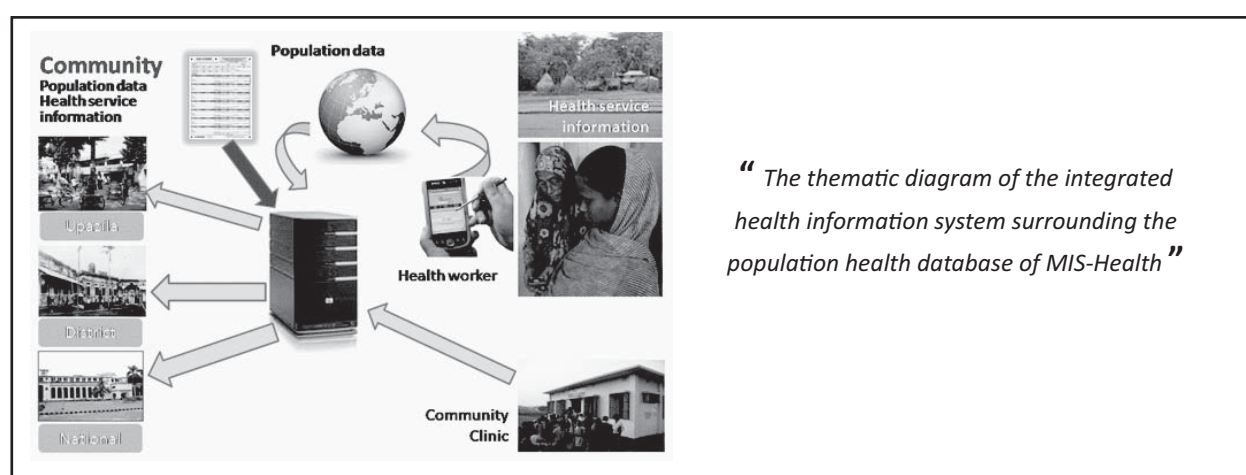
The Cabinet Division of the Government of Bangladesh requires routine reporting from each

ministry each month and an annual report in July each year on many management issues relating to the respective ministries. The items to be reported by the DGHS contain an exhaustive list, and MIS-Health has to carry out this function each month and annually, on behalf of the DGHS. MIS-Health could add better quality to this job than ever.

### **Population information**

There is no routine data source in the country yet to estimate the status of health-related MDGs, especially MDG 4 and MDG 5, to know the child and maternal mortality rates. In our country, most births and deaths occur in the households. There is a strong presence of private and informal sector in healthcare. Owing to these factors, public-health facilities encounter only a proportion of the healthcare-seekers. Therefore, the households are the best source of data to estimate the age, sex, and cause-specific death rates, disease burden, and other population-based health information. The health census by the Bureau of Statistics is carried out once every 10 years, which lacks adequate data on health profiles. Moreover, the health service at the local levels suffers acutely from lack of reliable denominators to plan and execute health programs. There are regularly-paid permanent health workers at the community level in Bangladesh. They provide domiciliary service, hold immunization camps, and run the community clinics. They maintain a lot of registers locally. However, there is an absence of mechanism to document the information on individual citizen to whom the service is offered. Important population indicators, such as child and maternal mortality rates, are estimated through sample surveys at intervals. For example, the last child mortality rate was estimated by Bangladesh Demographic and Health Survey (BDHS) in 2007. The latest maternal mortality survey was done in 2009, the report of which was published in 2010. The prior maternal mortality survey was done in 2001. Fortunately, the DGHS had a historical system of collecting population data annually since 1961. Popularly abbreviated as GR, the Geographical Reconnaissance was once a good source of population data for local-level planning. GR was literally a kind of annual health census, carried out to collect population data by visiting every household each year in the month of January and February. Health workers used to visit the households in the rural areas and collect socio-demographic data on family-size, age and sex distribution, death(s) in the past year, pregnancy, immunization information, drinking-water source, etc. GR was done every year until 2008. However, due to lack of proper supervision and for using manual system of data-collection and entry, GR data lost their credibility; therefore, no report was published after 2004. In 2009, it was felt that GR should not be abandoned as it provides local-level up-to-date health data. The DGHS, due to its large number of health workers spread throughout the rural areas of Bangladesh, has the capability to conduct GR. Moreover, field workers of the DGHS, with experience built over many years to collect the GR data, may be considered to have inherent strength, which should not be allowed to die down. Experts in several workshops of stakeholders have worked out that the use of ICT in the GR process may minimize repetitive work and help develop a computer-based permanent population health database. Accordingly, a machine-readable data form has been designed, printed, and distributed in all divisions for use in

the GR data-collection procedure in rural Bangladesh. The GR form has the provision of providing a unique identification number to each member of the family as well as using the National Identification Number (NID), if any. As of July 2011, training on the GR data-collection has been provided to 24,111 field staff of 480 upazila health complexes and offices of 64 civil surgeons. After data-collection, the job of data-entry will be outsourced. After finalization, data will be stored in national database. Data center, data backup, and other necessary arrangements will be made. It is planned that no annual GR will be conducted subsequently. Rather, the health workers will update household data during their routine visits using mobile devices or from community clinics using mini-laptops. The data will be accessible from any health-points (viz. hospital, immunization camp, etc.) for updating as well as decision-making. The database is expected to be very helpful for both national and local-level decision-making.



### Data from other health programs and organizations

MIS-Health continued collection of data from other programs and organizations for preparation and distribution of reports. Information from programs, like essential service delivery (ESD), communicable disease control (CDC), non-communicable diseases and other public health interventions (NCD&OPHI), micronutrient supplementation (MS), national nutrition program (NNP), mycobacterial disease control program (MBDC) and organizations, like the Institute of Epidemiology, Disease Control and Research (IEDCR), Institute of Public Health (IPH), National Institute of Preventive and Social Medicine (NIPSOM), Institute of Child and Mother Health (ICMH), Directorate General of Family Planning (DGFP), Directorate of Drug Administration (DGDA), Directorate of Nursing Services (DNS) and from a number of non-government organizations has been gathered. Reports have been prepared using those data and information for this bulletin. As the capacity of MIS-Health is improving, reports using data from other organizations will be further enriched in future.

### Geographical Information System (GIS) for mapping of health service and disease pattern

In 2009, MIS-Health undertook a pilot program in Nilphamari district of Bangladesh to see whether GIS can be introduced in health sector through the existing information staff for mapping

of health facilities and services. The pilot was highly successful, and the report was highly appreciated by policy-makers. Being inspired from this pilot, each divisional and district health office has been provided with a GIS device called global positioning system (GPS). The divisional and district information personnel are being assigned to collect geospatial data and present them on maps for easy visualization. Training on this system has by now been completed. One of the objectives of our GIS program, among others, is to build GIS resources for mapping the locations of health facilities in Bangladesh to make these available on the Internet for public use.

### **Dissemination of information and publications**

Several seminars and discussions were held to disseminate information and progress of MIS-Health. Media features and news were frequently published in national newspapers. The website of MIS-Health was a vibrant platform for information dissemination as a focal point for the DGHS. The email and SMS were other stronger tools of information dissemination within the organization. The routine publications, like Health Bulletin, IMCI Newsletter, EOC Newsletter, etc., have been continued.

### **eHealth**

Although health information system is part of eHealth, we described above the health information system separately, given the special importance of health information system in the mandate of MIS-Health. However, eHealth is being given special emphasis due to the Digital Bangladesh campaign of the present government, which gives special preference to delivery of health services to citizens through ICT. MIS-Health introduced a number of eHealth programs and services in the health sector of the country. These are briefly described below.

### **Mobile phone health service**

Launched in May 2009, each of the government upazila health complexes and district hospitals (grand total 482) of the country has been provided a mobile phone to act as a local call center for delivering round-the-clock (non-stop) medical advice to the citizens who make calls to the mobile phone. The contact numbers of the mobile phones have been circulated in the communities, using local channels. The mobile phone numbers are also available on the website of the DGHS ([www.dghs.gov.bd](http://www.dghs.gov.bd)). A doctor on duty in the hospital remains available to answer the phone calls. The service is free of charge and has a number of benefits, viz. wider coverage that reaches everybody everywhere and simplicity of use even by the technologically-lagging people. As a medical doctor is available within distance of a phone call round-the-clock for free, people have a better option to avoid unqualified healers. Mobile phone health service also helps patients to avoid unnecessary visits to health centers, which indirectly benefits the health centers to provide better attention and supplies to the patients who physically visit the health centers. Being local, the service is also culturally responsive and customizable to local situations. Owing to the comfort of people in getting medical advice easily and quickly, it has been planned to roll out mobile phone health service up to community clinics. In 2010, a monitoring cell has been established in



MIS-Health to randomly call several hospitals and check the quality of mobile phone health service (viz., whether the calls are answered; if answered whether it is done warmly; whether a doctor remains available to provide the advice, etc.). The “Union Information and Service Centers” project of the Access 2 Information Program of the Prime Minister’s Office has also been engaged in promoting the mobile phone health service to the rural communities. Mobile phone health service received recognition through ICT 4 Development Award in 2010 and special mention in Manthan India Award in 2011.

### **Telemedicine**

Telemedicine services have now been established in eight hospitals (two tertiary hospitals, three district hospitals, and three upazila hospitals) equipped with high-quality video-conferencing devices. This has created a whole new era in the public-health service of Bangladesh. Honorable Prime Minister of Bangladesh Sheikh Hasina formally inaugurated the telemedicine service on 6 July 2011 from the National Digital Innovation Fair held in Bangabandhu Novo-theater. To further expand the telemedicine service in all hospitals, MIS-Health also provided web-cameras to all upazila hospitals. The telemedicine dream of the MIS-Health and Community Clinics Project is to expand the service up to the community levels. For this purpose, it has been planned to provide mini-laptops and/or mobile devices to the community clinics where health workers will use those to help patients consult upazila hospital doctors by video-conferencing. The laptops in the community clinics will be used for multiple purposes, viz. telemedicine, updating community health data, health education of people, training of health staff, communication, and Internet-browsing. The telemedicine project of MIS-Health received the National ICT 4 Development Award in 2011.

### **Office attendance monitoring system**

Governments in all countries face difficulty in delivering health services to citizens living in the rural or remote areas. The healthcare providers often do not like to do their jobs in those areas. In developing countries, absenteeism of the clinical staff from the health stations is another serious problem. Bangladesh also faces similar difficulties. MIS-Health has introduced an Office Attendance Monitoring System to improve office attendance of health staff. The system uses combination of (i) Telephone-based monitoring; (ii) Surveillance by web-camera; (iii) Web-based attendance monitoring; and (iv) Remote Biometric Time Attendance System. The telephone-monitoring system works in the following way:

A Monitoring Cell works at MIS office from 9:00 am to 5:00 pm every working day. Eight to 10 staff members work there. They randomly choose any hospital or health center and make phone calls to check staff attendance, particularly of doctors. They use both land-phones and mobile phones. The web-camera surveillance works in conjunction with telephone-based monitoring system. While telephone-monitoring continues, the staff members are often asked to show up in front of the web-camera to confirm the presence of staff. Most commonly, the web-camera platform is Skype. The Skype is a free video-conferencing solution. Staff members absent unauthorized are



recorded in database, and the information is reported to the Ministry. The Ministry takes actions, including punishment. For the Web-based monitoring, a simple web-based form has been designed. On each working day, the head of the office ensures filling-up of the web-based form by 9:00 am. The form can only be accessed with a specific user's name and password. The form requires entering information on the number of sanctioned posts, filled-up posts, and the number of staff members absent authorized or unauthorized on a particular day. The form also requires providing names of those staff members absent unauthorized. The Ministry checks the information from central level and takes necessary actions against defaulters to bring discipline. Just in one week after launching, the web form-based monitoring system reduced the rate of unauthorized absence drastically. Currently, the Remote Biometric Time Attendance System is being gradually rolled out across various public-health facilities. Low-cost fingerprint biometric system has been placed in several institutions. Biometric reading of all 10 fingers of each staff member has been taken. Job profile of staff has also been recorded. Staff members need to touch the sensor of the machine during check-in and check-out. The machine itself can keep in memory 30,000 encounters. It is connected to a local computer through USB. When the local computer is switched on, the machine transfers the data to the software for time attendance system. At MIS office, a locally-developed web-server runs all the time and tries to find the computer connected to the time-attendance machine. Whenever the local machine becomes connected to the Internet through USB modem, the server collects the time-attendance data to MIS office without knowledge of the local computer operator. Predefined web-based reports can be generated on the server-side, which can be accessed through web-browser from anywhere. The policy-makers see the reports and take actions. This Remote Biometric System is efficient, easy to use, and allows exact authentication of staff members and their check-in and check-out times. The Office Attendance Monitoring System has improved doctors' presence in the public-health facilities dramatically. Many newspapers appreciated its success. The Honorable Minister for Health and Family Welfare Professor Dr AFM Ruhul Haque informed the National Parliament about efficiency of this system. The traditional Vigilance Team requires travel by high officials, incurs loss in routine office work, and causes wastage of fuels; its implementation is occasional and also is less efficient. The ICT-based Office Attendance Monitoring System has overcome all those barriers. The citizens are getting immense benefits. Government's money paid as staff salaries is now realized. Patients visiting health centers are getting more doctors to see them. It is improving duration of consultation time per patient. Patients' confidence on public-health facilities is increasing.

### **SMS advice for safe pregnancy**

Launched in March 2010, the SMS-based pregnancy advice is expected to emerge as one of the pioneering programs of MIS-Health. On registration via cellphone SMS, pregnant mothers receive appropriate periodic antenatal, safe delivery and postnatal care advices through SMS. This service is expected to contribute to achievement of MDG 4 and 5 through improving neonatal and maternal health. Currently, the mobile-operator TeleTalk is operating this service. We are working

for engaging other mobile operators to deliver similar service. The Ministry of Health and Family Welfare has signed a partnership agreement with D.Net to provide the service in a much improved way through voice-messaging IVR system. The USAID is providing the initial seed-money to develop this service. MIS-Health aims to use the large number of health workers under the DGHS to undertake promotional activity for the mobile-based pregnancy-care advice. The recent United Nations “Digital Health for Digital Development” Award received by Honorable Prime Minister Sheikh Hasina took into account the mobile-based pregnancy-care advice as one of the important considerations.

### **Complaint-suggestion box**

MIS-Health introduced SMS-based complaint-suggestion box for all public hospitals and health institutions. A display board has been mounted on wall of each hospital and organization, which describes how to send complaints about quality of service(s) or suggestions to improve or introduce certain service(s). A web-server located at MIS-Health receives the complaints-suggestions and instantly forward them by email to the head of the hospital or organization about which the complaints and suggestions are given. MIS-Health manually checks the complaints and suggestions and forwards these to respective higher authorities.

### **Bulk SMS**

The innovative bulk SMS system of MIS-Health introduced in 2009 remained an effective solution even as of now to disseminate quick and urgent messages to health staff. The use of bulk SMS was frequent and demand-driven.

### **Digital training facility**

The digital training facility created by MIS-Health in 2009 was efficiently used in 2010. Its attraction as one of the best meeting and seminar place continues to increase. Equipped with state-of-the-art gadgets, such as digital podium and sound, interactive board, wireless presentation, wifi network, video-conferencing, etc., the facility attracts the organizations to hold their workshops, meetings, etc.

### **A well-connected health systems**

MIS-Health was the only innovator in the entire public sectors of Bangladesh that created the Internet connectivity across all health-points down to the upazila level (~800 places) by April 2009. Until November 2010, this was the largest Internet network in the public sector of Bangladesh. However, on 11 November 2010, Honorable Prime Minister Sheikh Hasina inaugurated 4,500 Union Information and Service Centers (UISCs), each connected to the Internet. The latter is a project of Access 2 Information Program of the Prime Minister’s Office supported by UNDP. As of now, USICS project is the largest public-sector Internet network in the country. However, the MIS-Health is working to connect 18,000 community clinics of Bangladesh beginning from fiscal 2011-2012. If this happens, the Ministry of Health and Family Welfare will become again the largest provider of the public-sector Internet network in the country. With the

addition of web-cameras to the end-users at the community clinics, MIS-Health will also have the largest video-conferencing and telemedicine network. MIS-Health provided connectivity in the DGHS and in the MOHFW through wifi network.

### HPNSDP 2011-2016 and hospital automation

MIS-Health has developed its 5-year development plan under the Health, Population and Nutrition Sector Development Program 2011-2016. The Operational Plan is titled “Health Information System, eHealth and Medical Biotechnology.” The Operational Plan has ambitious goal to improve the connectivity and digital health vision to such a level that would enable real-time communication across health systems digitally from the points where staff members work. A number of hospitals have been planned to be fully automated in terms of hospital processes. Paper-use will be minimized.

### Human resource of MIS-Health

Currently, there are 721 sanctioned posts under the MIS-Health throughout the country for carrying out various activities relating to the health information system and eHealth. Yet, there is no sanctioned post for Director of MIS-Health. The current director has been assigned to carry out the function of Director of MIS-Health, in addition to his regular job of Additional Director General (Planning and Development) of Health Services. Including the position of the director, Table 17.3 shows a total of 721 sanctioned posts. Of the sanctioned posts, 533 were filled-up as of June 2011, and 188 were vacant (vacancy rate: 26%). At the MIS-Health head office, there were 59 sanctioned posts, of which 26 were vacant (vacancy rate: 44%). In the district hospitals, there are no posts for statistical staff. In some of the medical college hospitals and also in some postgraduate teaching institute hospitals, there are no posts of statistical staff. In each civil surgeon’s office, there is a post of class I statistician. However, in only eight districts, this position is filled-up. In the rest 56 districts, this position is vacant.

**Table 17.3. Human resource status of MIS-Health at various levels (June 2011)**

Place	Class	Type of post	Total (N)	Filled-up (N)	Vacant (N)
MIS-Health	Class I	Medical/Non-medical	18	10	8
	Class II	Assistant statistician	4	4	0
	Class III	Statistical/Data-entry operator/Clerical	30	12	18
	Class IV	MLSS/Security guard	7	7	0
	Total		59	33	26
DGHS	Class I	At MBDC	1	0	1
	Class II	At EPI	1	1	0
	Class III	At CDC, Hospital, IMCI, EPI, MBDC, IEDCR	7	5	2
	Total		9	6	3

**Table 17.3. Human resource status of MIS-Health at various levels (June 2011) (Continued...)**

Place	Class	Type of post	Total (N)	Filled-up (N)	Vacant (N)
Division	Class I	Assistant chief	5	5	0
	Class III	Data-entry operator (5); Statistical assistant (12)	18	16	2
	Total		23	21	2
District	Class I	Statistician	64	6	58
	Class III	Statistical assistant	56	56	0
			120	62	58
Upazila	Class I	Statistical officer	0	0	0
	Class II	Statistician	1	0	1
	Class III	Statistical assistant (5); Statistician (475)	482	400	82
	Total		483	400	83
Medical college hospitals (8 old, SSMCH, SZMCH)	Class I	Statistician/Statistical officer	10	2	8
Postgraduate institute (IPHN, NIPSOM, NICVD, NIDCH, NIKDU, NICRH, NCCRFH)	Class I	Statistician/Statistical officer	5	2	3
	Class II	Statistician/Statistical officer	3	2	1
	Class III	Assistant statistician/Statistical assistant	5	4	1
	Total		13	8	5
200-bed and 250-bed hospitals (Narayanganj, Khulna, Noakhali)	Class III	Statistical assistant	3	1	2
TB Clinic (Chankhar Pul)	Class III	Statistician	1	0	1
All places	Class I	Mentioned above	103	25	78
	Class II		9	7	2
	Class III		602	494	108
	Class IV		7	7	0
	Total		721	533	188

The limitation of the MIS-Health throughout the country, including its head office, is serious lack of appropriate technical persons both for information technology as well as for statistical analysis and interpretation. The available statistical staff members have graduation and/or higher secondary-level education and not in statistics discipline. To meet the current and future challenges of MIS-Health, it is very essential to create adequate number of positions of competent persons in all relevant areas. As an interim measure, manpower or services should be hired by outsourcing.

### Capacity-building and maintenance support

MIS-Health continued capacity-building through training, supply of ICT equipment, computer stationeries, payment of Internet bills, and also repair and maintenance support.

### Training

In 2010-2011, fifteen types of training courses/workshops of different durations were held both at MIS-Health office in Dhaka as well as at local hospital/health offices. A total of 39,997 officers and staff members participated in the training courses/workshops held under the HNPSP

2003-2011. In the UNICEF-supported training program, another 3,253 personnel participated. Table 17.4 summarizes the training and workshop events, which also includes a partial list of WHO-supported training courses/workshops where 334 personnel participated.

**Table 17.4. Training courses/workshops held in fiscal 2010-2011**

Description	Batch (N)	Duration	Participants (N)
Training/Workshop under the HNPS 2003-2011			
Advanced computer training for MIS staff all over the country and/or data-entry/clerical staff	16	15 days	240
Computer training for doctors	12	14 days	180
Training for data-handling staff	6	6 days	90
Computer training for MIS data access for policy-makers	4	4 days	60
Orientation training/workshop of divisional directors and civil surgeons	1	1 day	72
Tools/methods/reports development consultative workshop	4	4 days	40
MIS coordination consultative workshop at the MOHFW	4	1 day	16
MIS coordination consultative workshop at the DGHS	8	1 day	56
MIS coordination workshop at medical colleges/tertiary hospitals	4	1 day	1120
MIS coordination workshop at divisions	4	1 day	192
MIS coordination workshop at district/sadar hospitals	4	1 day	1,560
MIS coordination workshop at upazila hospitals	4	1 day	11568
GR mapping training (A1, H1, AH1, HA, Statistician)	1	4 days	24611
Dissemination workshop	4	1 day	136
Consultative workshop for reviewing HIS status	8	1 day	56
Total (HNPS)			39997
Training under UNICEF			
Training on Integrated Management of Childhood Illness and Emergency Obstetric Care			
Training on IMCI and EmOC customized software for statistical asstt. and upazila statistician	15	2 days	428
Capacity development of MIS staff on maternal, neonatal and child health information system at the national level	1	1 day	24
Orientation on IMCI monthly reporting format for paramedics (UH&FPO, UFPO, MO-MCH, IMCI MO, M.A, SACMO)	8	1 day	258
Orientation on IMCI monthly reporting format UH&FPO, UFPO, MO-MCH, RMO, MO-IMCI trained, at the district level	14	1 day	372
One-day training on IMCI monthly reporting format for RMO,, MO, MA, Statistician, SACMO, FWV, Sr. Staff Nurse at the upazila level	71	1 day	2171
Total (UNICEF)			3253
Training/Workshop under WHO (partial list)			
Service availability mapping (SAM); 64 districts, 22 upazilas (Class 1, Class III)	4	4 days	102
Improved collection of information by NGO/private hospitals	6	2 days	158
Service availability mapping (SAM) by MIS personnel	1	4 days	28
Methods of collection of Information by MIS personnel	1	4 days	30
Consultative workshop to develop a guideline on district-level health information system (MIS)	1	4 day	8
Consultative workshop to develop a guideline on hospital information system	1	4 days	8
Total (WHO)			334

**Supply of ICT equipment and computer stationeries**

In 2009-2010, a total of 420 computers, 550 laser printers, 1,100 toners, 550 printer-cables, 70 global positioning systems, 428 web-cameras, 614 copies of antivirus software, 434 tables and 630 chairs have been procured and distributed to different health facilities and health offices. MIS-Health collected 1,500 web-cameras from the National Election Commission for distribution among the hospitals under the DGHS to introduce telemedicine service. Table 17.5 summarizes the distribution list. Besides, some laptop computers were bought for MIS-Health training room. Different health offices were also provided financial assistance for buying computer stationeries.

**Table 17.5. Number of computers, printers, toners, printer-cables, tables, and chairs procured and distributed from MIS-Health in fiscal 2009-2010**

Name of the institution	Computer	Printer	Toner	Printer-cable	GPS	Web-camera	Antivirus software	Table	Chair
MIS-Health Head Office/ DGHS/MOHFW	46	204	408	204				49	203
Divisional health offices					6		6	6	6
Civil surgeons' offices	64	64	128	64	64		65	64	64
District hospitals	65	65	130	65		9	64	71	92
Tongi 50-bed Hospital , Gazipur , Dhaka	1	1	2	1				1	1
Upazila health complexes	18	18	36	18		419	419	24	45
50-bed Hospital, Saidpur, Nilphamari	1	1	2	1				1	1
Sadar upazila health offices							60		
Health complexes	4	4	8	4				4	4
Rural health centers (10-bed)	14	14	28	14				14	14
Medical college hospitals	75	74	148	74				74	74
Specialized institutes and hospitals	60	33	66	33				60	60
Chittagong Skin and Social Hygiene Centre, Chittagong	1	1	2	1				1	1
Government Employees Hospital, Dhaka	1	1	2	1				1	1
Urban dispensaries	33	33	66	33				33	33
Stores (Health) in divisional level	3	3	6	3				3	3
School health clinics	21	21	42	21				21	21
Port Health Office, Chittagong	1	1	2	1				1	1
Medical Assistant Training Schools	6	6	12	6				6	6
Total	420	550	1,100	550	70	428*	614	434	630
*MIS-Health also received 1,500 web-cameras for distribution among all hospitals under the Ministry of Health and Family Welfare for introducing telemedicine services									

**Repair and maintenance of computers, printers, and other accessories**

MIS-Health experiences that, even in divisional or district towns, there is lack of appropriate private firms for fixing computers and related accessories. So, MIS-Health has found out an innovative solution. Under this approach, the respective health facilities or health offices having trouble with computers or related accessories are told to first try locally to fix the problems or seek advice over phone from the MIS-Health offices during the first 24 hours.

**Table 17.6. Number of computers, monitors, printers, and UPS repaired in fiscal 2010-2011 by MIS-Health**

Institution	Computer	Monitor	Printer	UPS	Total
Directorate General of Health Services	23	8	4	11	46
Specialized institutes	6	0	2	0	8
Civil surgeon' offices	7	1	7	0	15
District hospitals	6	0	2	2	10
Upazila hospitals	92	10	50	23	175
Total	134	19	65	36	254

If it is not possible within this period to fix the problems locally, they are asked to send the troubled machine to MIS-Health head office. MIS-Health head office, with the help of a repairing vendor in Dhaka, tries to fix the problem in the next two days. On the fourth or fifth day, the computer should go back to the place from where it is brought. If it is not possible to fix within this period, an effort is undertaken, in most cases, to replace a workable computer to the respective places. This has been done to ensure that computer does not sit ideal for longer period. In 2010-2011, MIS-Health fixed 134 computers, 19 monitors, 65 printers, and 36 units of uninterruptible power supply (UPS). Table 17.6 shows the list.



## *National Eye Care*

Avoidable blindness is one of the major public-health problems in Bangladesh. According to a recently-conducted national blindness and low-vision survey, about 7.5 lakh people aged 30 years and above in the country are blind. In addition, blindness also afflicts about 40,000 children. About 5 million people, including children, suffer from refractive errors while 250,000 adults are victims of low vision. It is feared that the number of blind population will go double by the year 2020 if no intervention is initiated immediately. However, it is interesting to note that nearly 80% of these blind people are cataract victims.

Cataract is avoidable or treatable through simple and cost-effective surgical intervention. The other causes of blindness in the country include refractive errors and low vision, corneal diseases, glaucoma, diabetic retinopathy, and ocular trauma.

The Government of Bangladesh, being a signatory to Vision 2020 (a global campaign for elimination of avoidable blindness by the year 2020) formulated a national eye-care plan under the leadership of the Bangladesh National Council for the Blind, an apex body under the Ministry of Health and Family Welfare. Development of this plan involved stakeholders across the country, including some international NGOs.

An Operational Plan (OP) under the Health, Nutrition and Population Sector Program 2003-2011 is named National Eye Care. The OP will continue in the Health, Population and Nutrition Sector Development Program 2011-2016. Three major areas of disease control have been prioritized in the plan. These are cataract surgery, childhood blindness prevention, correction of refractive errors and low vision while recognizing the need for focusing on the sub-specialty services, such as for cornea, retina, glaucoma, etc. as the emerging priorities. The Operational Plan emphasized the need for capacity-building from secondary-care facilities down to the upazila level and primary care to the community level, with effective referral chain from primary to tertiary level of eye care. This will demand increased government investment in eye-care infrastructure and development of various categories of manpower for this services. The OP further emphasized the need for effective national coordination as well as district-level coordination through establishing national and district coordination committees, bringing all active eye-care providers to work together for the common goal.

Through this OP, a nationwide program has been undertaken for the prevention and control of blindness. Special stress has been given for the control of childhood blindness. As the plan states, the surgical services will be provided through development and modernization of secondary- and tertiary-level hospitals with eye-care infrastructure which includes facility, equipment, and manpower support. The secondary-level hospitals will be the nucleus of all eye-care activities, including surgical services, particularly cataract surgery, in each district. The

## Chapter 18: National Eye Care

outcome of this eye-care plan will directly contribute to the people with unnecessary blindness, particularly for the elderly poor, women, and children. The activities will be implemented through a strong GO-NGO-Private partnership and collaboration. A national advisory body for VISION 2020 will steer this whole process. The implementation of this plan will directly support creation of a productive human resource. The stated activities in this OP will help the development of both demand and supply sides. The patients will get a benefit to avail standard eye-care services affordable and accessible from their nearest location, with provisions of free services for the poor and the disadvantaged (around 30% of the ophthalmic surgical patients, particularly cataract victims). This can be identified through various methods, like VGF/VGD cards, certificate from elected public representatives/local elites/local district-level Vision 2020 committees). On the other hand, from the supply-side, the eye-care personnel at the service-delivery end will be provided adequate training to improve their potentials and skills to maximize the utilization of their services. Stated activities will contribute towards improvement of quality of life.

The key success factors of this OP will depend on the national-level leadership of the VISION 2020 advisory committee, deployment and retention of eye-care manpower in the district-level hospitals, supply of ophthalmic equipment and supplies, development of eye-care infrastructure at the tertiary, secondary and primary level, establishment of a strong referral chain, mobilization of additional resources, and above all, political commitment of the Government in the form of administrative and financial support.

The objectives of the Operation Plan include: (i) developing/improving eye-care infrastructure at the secondary and primary level; (ii) increasing country-level cataract surgical rate through improving skills of ophthalmologists; (iii) strengthening coordination among GO, NGO and private eye-care providers; (iv) preventing childhood blindness; (v) increasing affordability of eye-care services by the poor patients, particularly the elderly, women, and children through voucher scheme; (vi) increasing awareness of mass people on eye-care; and (vii) supporting low-vision patients.

The strategies are: (i) strengthening advocacy; (ii) development of facilities and technology; (iii) human resource development and management; (iv) reducing the disease burden; (v) improving/expanding coordination and partnership; (vi) developing/strengthening eye-health promotion system; (vii) introducing/strengthening in-built supervision system; (viii) supporting low-vision patients with appropriate devices; (ix) introducing in-built MIS for eye-health; and (viii) sustaining voucher scheme.

### **Following activities were carried out in 2010-2011**

- Training, deployment, and retaining of eye-care providers
- Procurement, distribution, installation, and maintenance of eye-care equipment

## Chapter 18: National Eye Care

- MSR support to district hospitals for intra-ocular lens (IOL) surgery
- MSR support to outreach eye-camps through district health administration
- Formation and functioning of Vision 2020 district committees
- Observance of World Sight Day 2010, jointly with international NGOs and WHO at the national and selected district level
- Organizing PSP (Patients Screening Program) for screening of cataract cases.

### Achievements in 2010-2011

- Thirteen ophthalmologists from different eye-care service centers have been trained on micro-surgery (SICS)
- Ten nurses were trained on eye-operation theater and ward management
- Vision 2020 district committees were formed and are functioning in 6 districts (Tangail, Khushtia, Meherpur, Chuadanga, Rangpur, and Bagerhat)
- Eye-care equipment were procured and distributed to Naogaon, Kurigram, Rajbari, Manikganj, and Narayanganj district hospitals
- MSR support were given to district hospitals of Brahmanbaria, Satkhira, Narayanganj, Shariatpur, Madaripur, Bhola, Rajbari, Chandpur, Munshiganj, Netrokona, Pirojpur, Gopalganj, Kishoreganj, Jhalokati, Gazipur, Laxmipur, Jamalpur, Manikganj, Chapainababganj, Nilphamari, Noakhali, Jhenaidaha, Jhalokati, Dinajpur, Narsingdi, Natore, Gaibandha, Naogaon, Kurigram, Tangail, Bagerhat, Khushtia, Meherpur, Jessore, Cox's Bazar, Narail, Manikganj, Khulna, Mymensingh, Chuadanga, and Sirajganj
- World Sight Day 2010 were observed in collaboration with international NGOs and WHO
- PSP and free cataract surgery camps were organized at Nalta, Assasuni, Debhata, Kaliganj, and Shymnagar of Satkhira, Kotalipara and Tungipara of Gopalganj, and Pirganj of Rangpur
- Eye-care equipment were repaired for Satkhira, Faridpur, Natore, Narsingdi, Chapainababganj, Gopalganj, Jhalokati, Nilphamari, Brahmanbaria, Narail, and Sherpur
- Cataract surgical rate for adults increased from 900 in 2004 to 1164 in 2010 per million per year
- Cataract surgical rate for children increased from 400 in 2004 to 1000 in 2010 per million per year.

### Future plan of actions

- Improve cooperation and coordination among eye-care providers
- Introduction/strengthening of primary and secondary facilities to improve quality and expand coverage of eye-care service delivery
- Strengthening behavior change communication to increase awareness of primary eye care
- Establishing dedicated eye-operation theaters in all district (sadar) hospitals in phases
- Career-building opportunity for ophthalmologists working in district hospitals and below
- Formation of Vision 2020 district committee in all 64 districts in phases.

### **Challenges**

- Retaining trained staff at service centers
- Keeping equipment in regular functioning
- Low priority of eye-care at secondary and primary-care level
- Healthcare-seeking behavior of people in the community

# Health Education and Promotion

The Bureau of Health Education (BHE) of the Directorate General of Health Services ran the Health Education and Promotion (HEP) Program under the Operational Plan (OP) of the same name under the HNPS 2003-2011. The OP of HEP will continue also under the HPNSDP 2011-2016. It is assumed that if the health behavior of the individuals can be changed in positive ways, this will enable them to take right decisions at the right time in a more dynamic and interactive way. This would then influence the determinants of health. The net benefits could be the reduction in the magnitude of health hazards and increase of health service utilization rate. The HEP includes several programs, such as school health education, hospital health education, occupational/industrial health education, environmental health education, and community health education for selective and/or vulnerable groups.

**Table 19. Types of campaigns organized by the Bureau of Health Education in fiscal 2010-2011**

Type of campaign	No.
Health Education Service Package	16
Districts with one model village in each for target-specific health education activities	128
Anti-smoking and other rallies	50
Observance of World Health Day (7 April 2010)	1
Observance of other National Days	10
Intersectoral and multisectoral coordination meetings	166
Folk songs	50
Video shows	90
Health rallies	90
Uthhan baithhak	80
Film shows	200
Mass media activities	575
TV spots	4,000
Newspaper advertisements	30,000
Spot announcements	128
Health fairs	128
Group meetings	80
Debates	64
Health exhibitions	64
IEC materials	3,500,000

The BHE uses multiple ways of campaigns, which include, among others, performing target-specific health education activities in selected model villages, rallies (anti-smoking, health and others), folk songs, video shows, 'uthhan baithhak', film shows, mass media activities (TV spots, newspaper advertisements, spot announcements, etc.), health fairs, group meetings, debates, health exhibitions, and distribution of IEC materials. Table 19 summarizes the different types of campaigns organized by the BHE in the fiscal 2010-2011.

## *Alternative Medical Care*

Modernization of the alternative medical care (AMC) systems (unani, ayurvedic and homeopathic) to compliment the healthcare of people was included in the election manifesto of the present ruling party in Bangladesh. Alternative medicines have been playing a significant role in the healthcare delivery system in developing countries of this region from time immemorial. Although tremendous progress has taken place in the field of allopathic medicine, particularly in synthetic pharmaceuticals and antimicrobials, the practice and use of alternative medicines continues throughout the country even today. Bangladesh, due to its climatic condition, is a favorable home for growth of medicinal plants. The World Health Organization is providing financial and technical support for the improvement of unani, ayurvedic and homeopathic medicines in Bangladesh.

There are two undergraduate medical colleges for alternative medicines in Dhaka. One is Government Unani and Ayurvedic Degree College, and the other is Homeopathic Degree College. There is an affiliated 100-bed hospital with each of the colleges. The duration of course for each is 5 years, followed by one year of internship. The degrees are BUMS (Bachelor of Unani Medicine & Surgery), BAMS (Bachelor of Ayurvedic Medicine & Surgery), and BHMS (Bachelor of Homeopathic Medicine & Surgery). In addition to the graduate colleges, there are 11 unani diploma colleges (10 private and one government), 7 ayurvedic diploma colleges, and 38 homeopathic diploma colleges in Bangladesh. From the diploma colleges, DUMS (Diploma in Unani Medicine & Surgery), DAMS (Diploma in Ayurvedic Medicine & Surgery), and DHMS (Diploma in Homeopathic Medicine & Surgery) certificates are offered after completion of 4 years of academic course and six months of internship. The diploma certificates are offered by the Board of Unani and Ayurvedic System of Medicine and the Board of Homeopathic Medicine. Table 20.1 summarizes the academic and training institutions for alternative medicines in Bangladesh.

**Table 20.1. Academic institutions for teaching and training of alternative medicines in Bangladesh**

Name of the AMC institution	No.			Duration of course	Duration of internship	Degree offered	Certifying board
	Total	Government	Private				
Government Unani & Ayurvedic Degree College	1	1	0	5 years	1 year	BUMS (Bachelor of Unani Medicine & Surgery); BAMS (Bachelor of Ayurvedic Medicine & Surgery)	University of Dhaka
Homeopathic Degree College	1	1	0	5 years	1 year	BHMS (Bachelor of Homeopathic Medicine & Surgery)	University of Dhaka
Unani Diploma College	11	1	10	4 years	6 months	DUMS (Diploma in Unani Medicine & Surgery)	Board of Unani & Ayurvedic System of Medicine
Ayurvedic Diploma College	7	0	7	4 years	6 months	DAMS (Diploma in Ayurvedic Medicine & Surgery)	Board of Unani & Ayurvedic System of Medicine
Homeopathic Diploma College	38	0	38	4 years	6 months	DHMS (Diploma in Homeopathic Medicine & Surgery)	Board of Homeopathic Medicine

To create opportunities for providing patient-care services through alternative medicines, the number of sanctioned posts of medical officer has been increased to 423. The number of posts of medical officer is 141 for unani medicine, 141 for ayurvedic medicine, and 141 for homoeopathic medicine. The positions of 564 support personnel (compounders) have also been created. To grow medicinal plants and create awareness of the local people about medicinal plants, 467 demonstration herbal gardens have been established, one in each district hospital and each upazila health complex premise. One herbal gardener (herbal assistant) has been appointed for taking care of each herbal garden.

**Table 20.2. Current human resource for practice and production of alternative medicines**

Name of post	Class	No. of sanctioned posts	No. of filled-up posts	Filled-up as % of sanctioned posts	No. of vacant posts	Vacant as % of sanctioned posts
Medical officer for unani medicine	I	141	15	10.64	126	89.36
Medical officer for ayurvedic medicine	I	141	15	10.64	126	89.36
Medical officer for homeopathic medicine	I	141	15	10.64	126	89.36
<b>Sub-total no. of medical officers</b>	<b>I</b>	<b>423</b>	<b>45</b>	<b>10.64</b>	<b>378</b>	<b>89.36</b>
Compounder	III	564	217	38.48	347	61.00
Herbal assistant	III	467	467	100.00	-	-
<b>Sub-total no. of other staffs</b>	<b>III</b>	<b>1031</b>	<b>684</b>	<b>66.34</b>	<b>347</b>	<b>33.65</b>
<b>Total</b>		<b>1454</b>	<b>729</b>	<b>73.00</b>	<b>725</b>	<b>49.86</b>

Table 20.2 shows the current status of human resource for alternative medicines. As of June 2011, a total of 729 AMC health personnel are working at different places. They are placed against 1,454 sanctioned posts. According to a survey conducted in 2007-2008, about 28% of treatment coverage in the government health facilities is being provided through alternative medicines. Apart from the government services, some graduates and diploma-holders are working in various NGOs and private organizations.

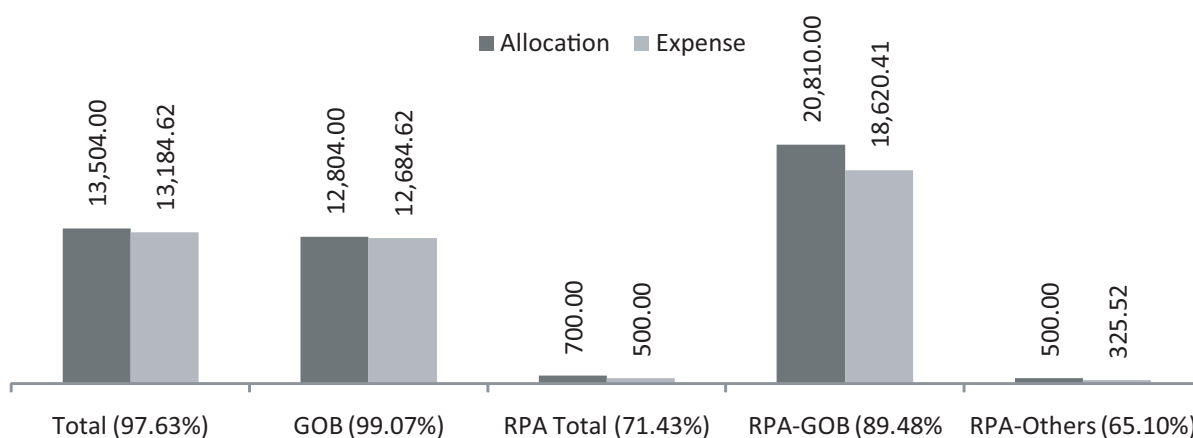


# Financing Healthcare

## Financing development program of the DGHS during 2010-2011 fiscal

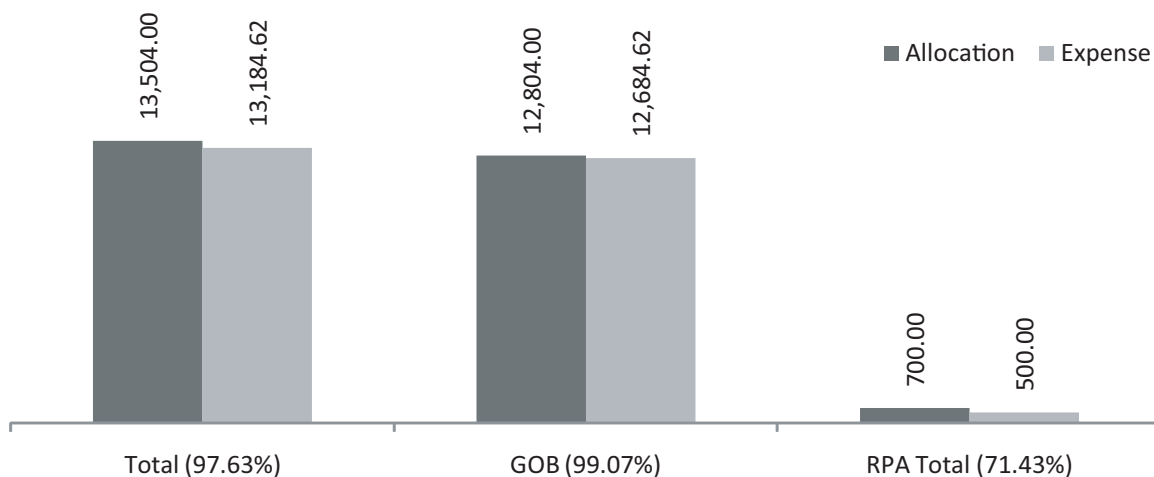
Funds for the development program of the Directorate General of Health Services (DGHS) came from the Health, Nutrition and Population Sector Program (HNPS) 2003-2011. In the fiscal 2010-2011, there was a total allocation of 90,840 lakh taka for the 19 Operational Plans of the DGHS in the revised annual development program (RADP) (Fig. 21.1).

**Table 21.1. Allocation and expenditure of fund (lakh taka) against 19 operational plans of DGHS in FY2010-2011 under HNPS 2003-2011 (parentheses show fund utilization rate)**



The total expenditure was 82,046.31 lakh taka, the utilization rate being 90.32%. Of the total RADP allocation, GOB fund was 41,764.00 lakh taka (45.98%), and World Bank pooled fund was 21,310.00 lakh taka (23.46%). The utilization rate of GOB money was 93.30% (38,965.94 lakh taka), and that of RPA (RPA-GOB plus RPA-Other) was 88.91% (18,945.93 lakh taka).

**Table 21.2. Allocation and expenditure of HNPS 2003-2011 fund (lakh taka) in the fiscal year 2010-2011 against 8 investment projects of DGHS (parentheses show fund utilization rate)**



## Chapter 21: Financing Healthcare

There were eight investment projects under the DGHS in the HNPS 2003-2011 during the fiscal 2010-2011. The total allocation in the revised annual development program (RADP) was 13,504.00 lakh taka (Fig.21.2). The total expenditure was 13,184.62 lakh taka. The utilization rate was 97.63%. Of the total allocation, GOB contribution was 12,804.00 lakh taka (99.07%), and RPA contribution was 700.00 lakh taka (5.18%). The utilization rate of GoB fund was 99.07% (12,684.62 lakh taka). The utilization rate of RPA fund was 71.43% (500.00 lakh taka). Table 21.1 shows the allocation, expenditure, and utilization rate by Operational Plan of the HNPS 2003-2011 development fund of the DGHS for the fiscal 2010-2011.

**Table 21.1. Summary of allocation, expenditure and utilization of the HNPS 2003-2011 fund against 19 Operational Plans of the DGHS in the fiscal 2010-2011**

Operational Plan	Allocation in the revised ADP 2010-2011 (Lakh Taka)					Expenditure 2010-2011 (Lakh Taka)					Progress against RADP allocation (%)
	Total	GOB	RPA-GOB	RPA-Other	Other than RPA	Total	GOB	RPA-GOB	RPA-Other	Other than RPA	
Alternative Medical Care	1,449.00	1,395.00	54.00	0.00	0.00	1,421.43	1,369.71	51.72	0.00	0.00	98.10
Communicable Disease Control	6,961.00	2,900.00	3,561.00	500.00	0.00	6,640.67	2,878.46	3,436.69	325.52	0.00	95.40
Essential Service Delivery	35,053.00	7,820.00	4,433.00	0.00	22,800.00	27,382.11	5,775.25	2,653.80	0.00	18,953.06	78.12
Health Education and Promotion	1,074.00	874.00	150.00	0.00	50.00	1,069.66	869.68	149.98	0.00	50.00	99.60
Human Resource Management	100.00	75.00	25.00	0.00	0.00	100.00	75.00	25.00	0.00	0.00	100.00
Improved Financial Management	25.00	10.00	15.00	0.00	0.00	25.00	10.00	15.00	0.00	0.00	100.00
Improved Hospital Services Management	15,200.00	5,000.00	10,000.00	0.00	200.00	13,333.36	4,450.62	8,780.68	0.00	102.06	87.72
In-service Training (IST)	2,830.00	400.00	1,930.00	0.00	500.00	3,326.15	333.17	1,892.98	0.00	1,100.00	117.53
Management Information System (MIS-Health)	1,271.00	400.00	765.00	0.00	106.00	1,270.81	399.91	764.90	0.00	106.00	99.99
Micronutrient Supplementation	2,000.00	400.00	1,600.00	0.00	0.00	1,855.48	299.08	1,556.40	0.00	0.00	92.77
Tuberculosis and Leprosy Control	8,590.00	220.00	472.00	0.00	7,898.00	6,217.35	193.07	307.72	5,537.70	178.86	72.38
National AIDS/STD Program (NASP)	3,716.00	200.00	3,216.00	0.00	300.00	3,534.80	195.72	3,039.08	0.00	300.00	95.12
National Eye Care	320.00	200.00	20.00	0.00	100.00	305.89	188.04	17.85	0.00	100.00	95.59
Non-communicable Diseases and Other Public-health Interventions	2,386.00	1,836.00	340.00	0.00	210.00	2,157.00	1,825.00	332.00	0.00	0.00	90.40
Pre-service Education (PSE)	6,000.00	4,000.00	2,000.00	0.00	0.00	5,887.47	3,902.96	1,984.51	0.00	0.00	98.12
Procurement and Supplies Management	13,020.00	13,000.00	20.00	0.00	0.00	13,018.55	12,998.81	19.74	0.00	0.00	99.99
Quality Assurance	61.00	16.00	45.00	0.00	0.00	60.83	15.83	45.00	0.00	0.00	99.72
Research and Development	125.00	25.00	100.00	0.00	0.00	121.47	21.47	100.00	0.00	0.00	97.18
Sector-wide Program Management	96.00	60.00	36.00	0.00	0.00	93.60	57.60	36.00	0.00	0.00	97.50
Total	90,840.00	41,764.00	20,810.00	500.00	27,766.00	82,046.31	38,965.94	18,620.41	3,364.91	21,095.05	90.32

## Chapter 21: Financing Healthcare

Table 21.2 shows the allocation, expenditure, and utilization rate of the investment projects of the HNPSP 2003-2011 under the DGHS for the fiscal 2010-2011.

**Table 21.2. Summary of allocation, expenditure, and utilization rate of the HNPSP fund against 8 investment projects of the DGHS in the fiscal 2010-2011**

Name of the project	Project cost	RAD PIllocation (2010 -2011)				Expenditure (2010-2011)				Progress against allocation (%)
		Total	GOB	RPA		Total	GOB	RPA		
				GOB	Other			GOB	Other	
Establishment of 250-bed National Institute of Ophthalmology & Hospital (2003-2012)	13287.43	9.00	9.00	0.00	0.00	4.58	4.58	0.00	0.00	50.89
Upgradation of 50-bed National Cancer Research Institute & Hospital to 300-bed (2nd Revised) (2003-2010)	29552.30	1900.00	1200.00	0.00	700.00	1463.70	963.70	0.00	500.00	77.04
Establishment of National Institute of Neuro-science (2003-2011 )	19398.00	8000.00	8000.00	0.00	0.00	7721.58	7721.58	0.00	0.00	96.52
Establishment of 150-bed Sarkari Karmachari Hospital, Fulbaria, Dhaka	4239.00	1100.00	1100.00	0.00	0.00	1091.00	1091.00	0.00	0.00	99.2
Establishment of National Institute of ENT-1st Phase at Tejgaon Health Complex Campus (2008-2012)	5547.45	495.00	495.00	0.00	0.00	409.54	409.54	0.00		82.74
Expansion and modernization of Dhaka Medical College Hospital	6000.00	2000.00	2000.00	0.00	0.00	1990.56	1990.56	0.00	0.00	99.53
Establishment of Sheikh Fazilatunnesa Mujib Eye Hospital, Gopalganj	14131.00	500.00	500.00	0.00	0.00	497.00	497.00	0.00	0.00	99.40
Establishment of National Institute of Laboratory Medicine and Referral Center	13814.00	200.00	200.00	0.00	0.00	73.00	73.00	0.00	0.00	36.50
Total	105969.18	14204.00	13504.00	0.00	700.00	13250.96	12750.96	0.00	500.00	93.29

### Bangladesh National Health Accounts 1997-2007

The Bangladesh National Health Accounts (NHA) 1997–2007 was officially published in 2010 by the Health Economics Unit (HEU) of the Ministry of Health and Family Welfare. The work was done by a consulting firm—Data International Limited—with the financial and technical assistance from German Technical Corporation (gtz). Mr Ravi P Rannan-Eliya from the Institute for Health Policy, Sri Lanka, was the editor of the report. Although selected portions of that report was published in the 2010 Health Bulletin, we are reproducing this section in this bulletin too as the new NHA is not available. Table 21.3 shows the total health expenditure and annual growth rates from 1997 to 2007.

**Table 21.3. Total health expenditure, current and constant 2007 prices, and annual growth rates, 1997–2007**

Fiscal year	Amount (Taka in million)		Growth rate over previous year (%)	
	Current	Constant (a)	Current	Constant
1996-1997	48,699	74,392	-	-
1997-1998	53,602	78,966	10.1	6.1
1998-1999	59,433	84,554	10.9	7.1
1999-2000	65,497	91,796	10.2	8.6
2000-2001	74,193	103,256	13.3	12.5
2001-2002	82,978	111,652	11.8	8.1
2002-2003	89,709	115,867	8.1	3.8
2003-2004	102,229	126,624	14.0	9.3
2004-2005	117,085	136,075	14.5	7.5
2005-2006	138,955	152,588	18.7	12.1
2006-2007	160,899	160,899	15.8	5.4

Figure 21.3 shows the total health expenditure each year as percentage of GDP of Bangladesh from 1997 to 2007. As the figure reveals, the total health expenditure increased at a very negligible rate of only 0.1% each year from 2003-2004 to 2006-2007.

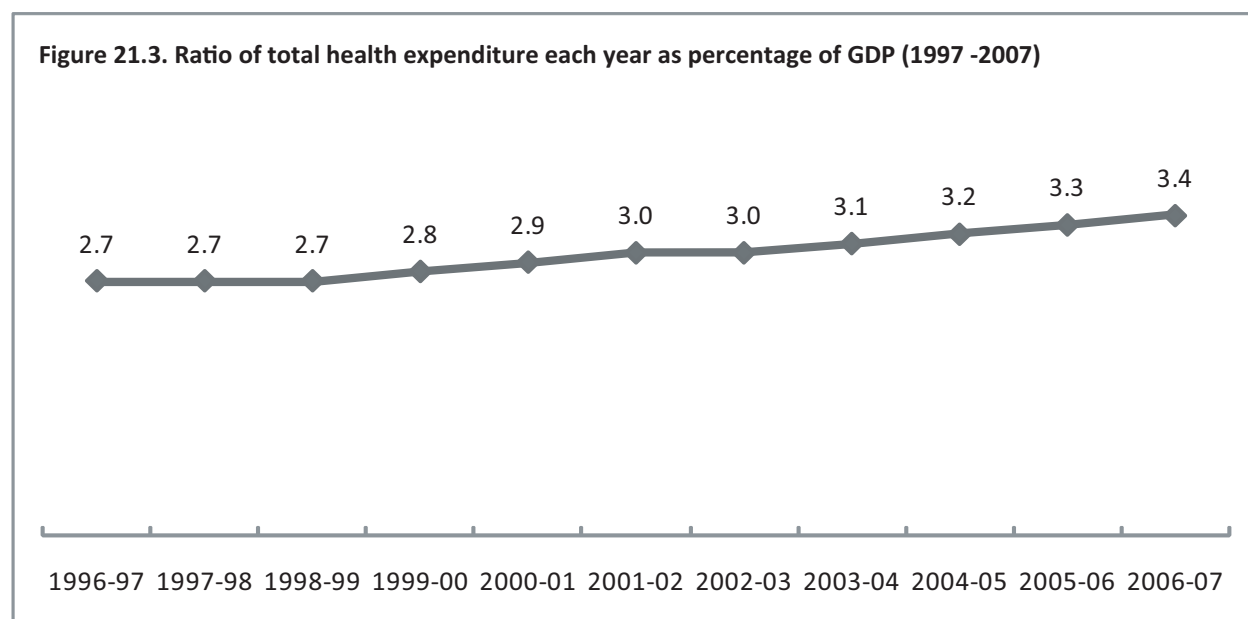


Table 21.4 shows the total health expenditure and GDP of Bangladesh from 1997 to 2007.

**Table 21.4. Total health expenditure and GDP from 1997 to 2007 in Bangladesh**

Fiscal year	Total health expenditure				GDP		
	Current (Taka )	Constant (Taka )*	Current (US\$ )	Real growth rate (%)	Current (Taka )	Constant (Taka )*	Current US\$
1996-1997	393	600	9.2		14,571	22,258	341
1997-1898	426	627	9.4	4.5	15,901	23,425	350
1998-1999	466	662	9.7	5.6	17,209	24,483	358
1999-2000	506	709	10.1	7.1	18,313	25,666	364
2000-2001	571	794	10.6	12.0	19,499	27,137	361
2001-2002	624	840	10.9	5.8	20,557	27,661	358
2002-2003	665	860	11.5	2.3	22,298	28,800	385
2003-2004	742	920	12.6	7.0	24,181	29,951	410
2004-2005	845	982	13.8	6.8	26,747	31,085	436
2005-2006	988	1,085	14.7	10.5	29,568	32,469	441
2006-2007	1,118	1,118	16.2	3.0	32,831	32,831	476

\*Constant price of health expenditure and GDP were expressed in terms of 2007 prices

Figure 21.4 shows the gap between per-capita GDP and per-capita total health expenditure from 1997 to 2007. The figure clearly reveals that the gap has been widened over the years from 2002-2003 to 2006-2007.

## Chapter 21: Financing Healthcare

**Figure 21.4. Gap between per-capita GDP and per-capita total health expenditure from 1997 to 2007**

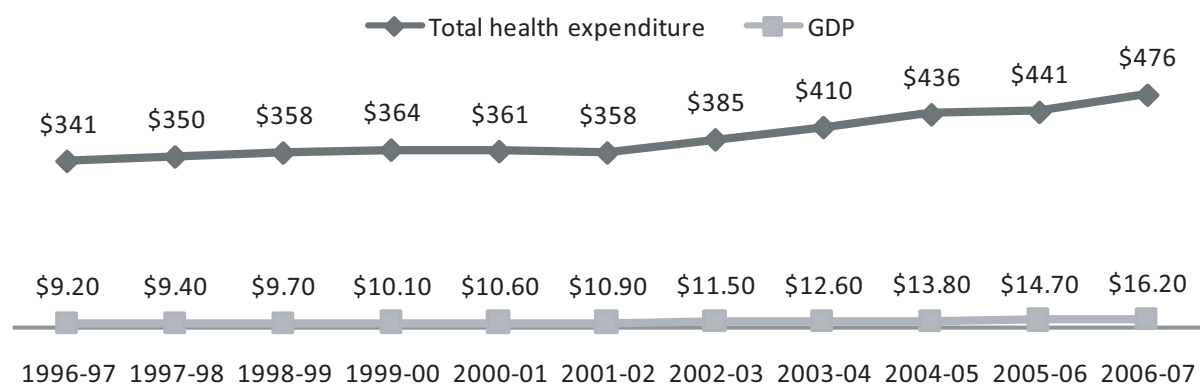


Figure 21.5 shows the per-capita purchasing power parity (PPP)-adjusted total health expenditure in Bangladesh from 1997 to 2007. The per-capita expenditure has increased slowly over the years. However, was this increase what we expected or similar to that in other countries? One should find answer to this question before making a contention.

**Figure 21.5. Per-capita purchasing power parity (PPP)-adjusted total health expenditure nominal from 1997 to 2007 in Bangladesh**

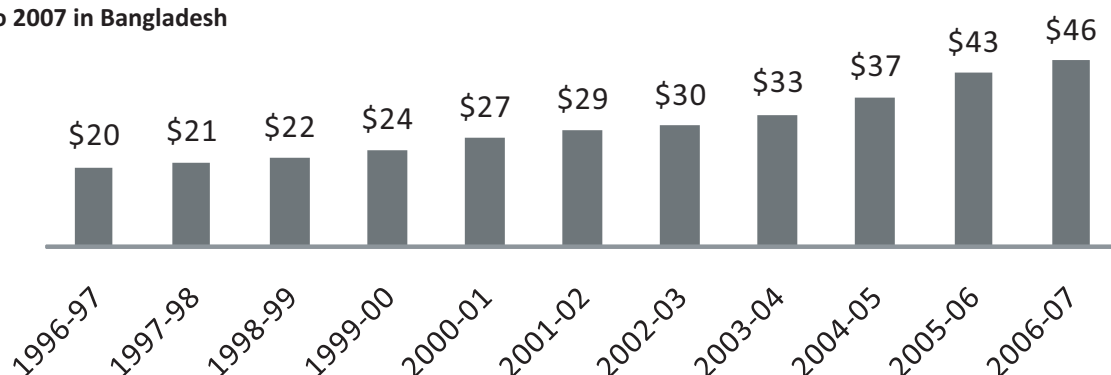


Table 21.5 shows the contribution of total health expenditure from different sources from 1997 to 2007. Household (out-of-pocket) contribution continues to be two-thirds of the total health expenditure, which was 57% in 1996-1997 and became 64% in 2006-2007.

**Table 21.5. Contribution of total health expenditure (THE) from different sources from 1997 to 2007**

Fiscal year	Public sector		Household		Private		Insurance		NGO		Development partners		Total THE
	Million taka	% of THE	Million taka	% of THE	Million taka	% of THE	Million taka	% of THE	Million taka	% of THE	Million taka	% of THE	
1996-1997	17,682	36%	27,573	57%	562	1%	35	0%	548	1%	2,300	5%	48,699
1997-1998	18,341	34%	31,055	58%	605	1%	41	0%	685	1%	2,875	5%	53,602
1998-1999	19,292	32%	35,071	59%	487	1%	47	0%	849	1%	3,688	6%	59,433
1999-2000	20,217	31%	38,719	59%	910	1%	54	0%	1,019	2%	4,578	7%	65,497
2000-2001	23,128	31%	43,456	59%	594	1%	97	0%	1,260	2%	5,659	8%	74,193
2001-2002	25,223	30%	48,944	59%	657	1%	117	0%	1,265	2%	6,772	8%	82,978
2002-2003	24,810	28%	54,461	61%	871	1%	142	0%	1,422	2%	8,004	9%	89,709
2003-2004	29,316	29%	61,078	60%	854	1%	167	0%	1,579	2%	9,235	9%	102,229
2004-2005	29,918	26%	74,506	64%	937	1%	224	0%	1,765	2%	9,734	8%	117,085
2005-2006	38,696	28%	86,419	62%	1,100	1%	256	0%	1,954	1%	10,530	8%	138,955
2006-2007	41,318	26%	103,459	64%	1,325	1%	314	0%	2,092	1%	12,391	8%	160,899

## Chapter 21: Financing Healthcare

Figure 21.6 shows that the Ministry of Health and Family Welfare is the largest contributor to the public-sector expenditure for health. In the fiscal 2006-2007, it contributed 97.1%, followed by the Ministry of Local Government, Rural Development and Cooperatives (1.0%), and the Ministry of Home Affairs (0.6%). The rest of the ministries of the Government of Bangladesh together contributed 1.3%.

**Figure 21.6. Share of different ministries to public-sector fund for total health expenditure in FY 2006-2007**

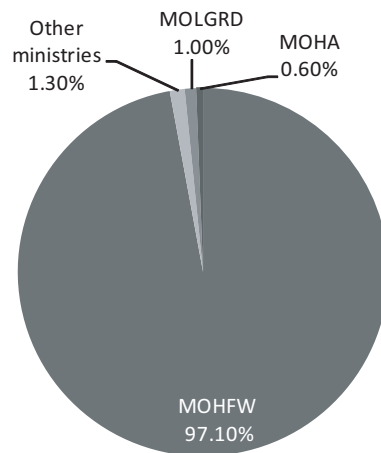
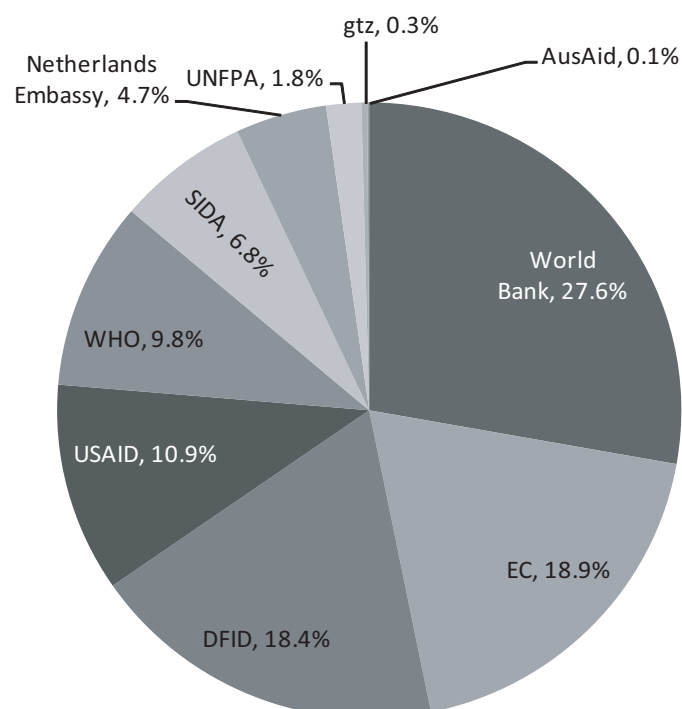


Figure 21.7 shows the contribution of different development partners as percentage of total donors' funds to health expenditure in the fiscal 2006-2007.

**Figure 21.7. Contribution of development partners to the external funds for health (FY 2006-2007)**



## Chapter 21: Financing Healthcare

Figure 21.8 shows the distribution of total health expenditure by type of provider in the fiscal 2006-2007.

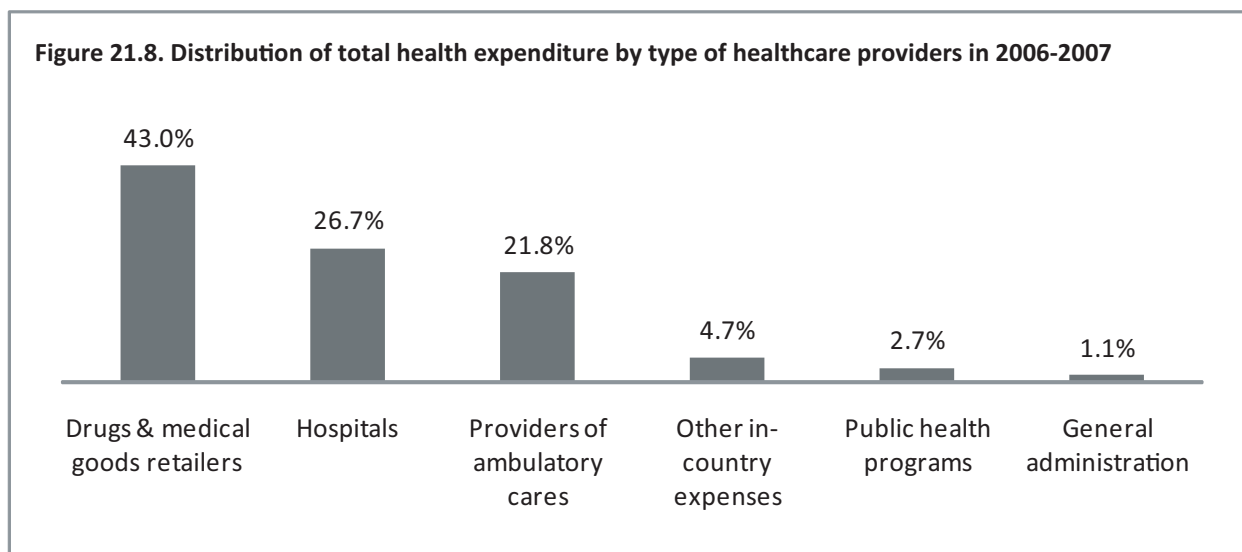


Table 21.6 shows the distribution of health expenditure on different types of healthcare providers in the fiscal 2006-2007. Of the hospital expenditure, more than half (54.5%) went to the private/NGO hospitals. Of the ambulatory healthcare expenditure, majority (32.5%) went to family-planning centers, followed by general physicians (27.0%) and medical and diagnostic centers (18.4%). Other outpatient health centers got 12.1% of the share. The home-care providers got 3.5%.

**Table 21.6. How much each type of health facilities got in the fiscal 2006-2007 out of health expenditure used for hospitals**

Share of hospital expenditure		Share of ambulatory healthcare expenditure	
Type of health facility	Percentage	Type of health facility	Percentage
Private/NGO hospitals	54.5	General physicians	27.0
Hospitals at the upazila level and below	24.1	Dentists	0.9
District/General hospitals	8.7	Homeopaths	3.2
Medical college hospitals	5.2	Ayurvedic/Unani practitioners	2.4
Specialized hospitals	3.4	Family-planning centers	32.5
Hospitals under other ministries	3.1	All other outpatient health centers	12.1
University hospital and PG institute hospitals	0.8	Medical and diagnostic centers	18.4
Government mental hospitals	0.2	Home-care providers	3.5

Figure 21.9 shows the distribution of public-sector health expenditure by function of health services in the fiscal 2006-2007. Curative care drained 33%. Another 14% was drained by medicines and medical goods. Preventive care used 27%.



## Chapter 21: Financing Healthcare

**Figure 21.9. Distribution of public sector health expenditure by functions of health services in 2006-2007**

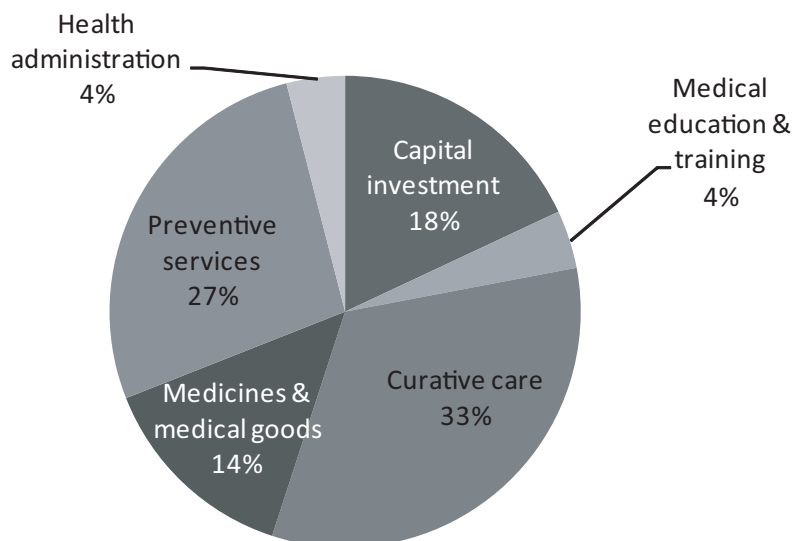


Table 21.7 shows the comparison of health expenditure between Bangladesh and some neighboring countries in the fiscal 2005-2006 and 2006-2007.

**Table 22.7. Comparison of health expenditure between Bangladesh and neighboring countries**

Country	Year	Per-capita health expenditure (US\$)	Total health expenditure as % of GDP	Public expenditure as % of total health expenditure	Public expenditure as % of GDP
Bangladesh	2006-2007	16	3.6	26	0.9
Bangladesh	2005-2006	14	3.3	27	0.9
India		29	3.6	25	0.9
Nepal		17	5.1	30	1.6
Pakistan		19	2.6	32	0.8
Sri Lanka		57	4.2	49	2.1

It is revealed from Table 21.7 that per-capita health expenditure in Bangladesh during the 2005-2006 period was lower than in several neighbouring countries, viz. India, Nepal, Pakistan, and Sri Lanka. Among these countries, all except Pakistan had more total expenditure as percentage of GDP than Bangladesh had. Contribution of Bangladesh and India from public fund as percentage of total health expenditure was 27% and 25% respectively.

# Annexure

# Annexure 1: EOC process indicators by type of hospital (January to December 2010)

## 1. EOC process indicators by type of hospital (January to December 2010)

Process indicator	District and general hospital (n=62)	Medical college hospital (n=14)	Upazila health complex (n=416)	NGO facility (from 64 districts)	Private clinic or hospital (from 64 districts)	Total
<b>Barisal division</b>						
Expected births (N)	199,433	57,439	152,156	199,433	199,433	807,894
Expected complications (N)	29,915	8,616	22,823	29,915	29,915	121,184
ANC services (N)	6,631	7,082	14,936	11,704	5,425	45,778
No. admitted	7,346	5,528	9,168	2,809	12,500	37,351
Complications treated (N)	4,247	3,480	3,537	544	3,543	15,351
Normal delivery (N)	1,763	1,576	4,530	719	2,497	11,085
Forceps delivery (N)	2	0	26	0	1	29
Vaginal breech delivery (N)	20	0	2	0	43	65
Cesarean section (N)	1,103	2,459	1,166	1,049	7,593	13,370
Total no. of deliveries (N)	2,888	4,035	5,724	1,768	10,134	24,549
Livebirths (N)	2,721	3,717	5,557	1,754	9,991	23,740
Stillbirths (N)	195	393	230	18	210	1,046
Other operations (N)	415	128	99	66	154	862
Referred out (N)	755	16	1,056	255	57	2,139
PNC services (N)	1,970	478	6,282	1,955	4,191	14,876
Maternal deaths (N)	29	86	21	0	6	142
Newborn deaths (N)	14	465	3	13	10	505
Proportion (%) of births in EmOC facilities	1.4	7.0	3.8	0.9	5.1	3.0
Met need for EmOC	14.2	40.4	15.5	1.8	11.8	12.7
CS as % of total births	0.6	4.3	0.8	0.5	3.8	1.7
Case-fatality rate (%)	0.7	2.5	0.6	0.0	0.2	0.9
<b>Chittagong division</b>						
Expected births (N)	589,928	272,349	433,719	589,928	589,928	2,475,854
Expected complications (N)	88,489	40,852	65,058	88,489	88,489	371,378
ANC services (N)	21,519	20,449	76,225	49,572	25,696	193,461
No. admitted	22,003	20,348	31,798	4,960	19,231	98,340
Complications treated (N)	9,554	10,115	6,057	908	7,833	34,467
Normal delivery (N)	7,587	7,616	22,050	2,871	5,801	45,925
Forceps delivery (N)	131	298	227	15	230	901
Vaginal breech delivery (N)	179	285	117	15	295	891
Cesarean section (N)	6,491	7,941	2,211	1,485	10,827	28,955
Total no. of deliveries (N)	14,388	16,140	24,605	4,386	17,153	76,672
Livebirths (N)	13,407	15,518	23,882	4,395	16,919	74,121
Stillbirths (N)	1,155	885	791	55	493	3,379

# Annexure 1: EOC process indicators by type of hospital (January to December 2010)

## 1. EOC process indicators by type of hospital (January to December 2010) (Continued...)

Process indicator	District and general hospital (n=62)	Medical college hospital (n=14)	Upazila health complex (n=416)	NGO facility (from 64 districts)	Private clinic or hospital (from 64 districts)	Total
Other operations (N)	1,378	1,686	1,238	181	388	4,871
Referred out (N)	483	63	3,366	523	189	4,624
PNC services (N)	15,717	13,548	29,569	11,213	7,707	77,754
Maternal deaths (N)	77	154	9	0	1	241
Newborn deaths (N)	99	317	55	7	13	491
Proportion (%) of births in EmOC facilities	2.4	5.9	5.7	0.7	2.9	3.1
Met need for EmOC	10.8	24.8	9.3	1.0	8.9	9.3
CS as % of total births	1.1	2.9	0.5	0.3	1.8	1.2
Case-fatality rate (%)	0.8	1.5	0.1	0.0	0.0	0.7
<b>Dhaka division</b>						
Expected births (N)	677,221	784,111	617,872	953,563	1,604,217	4,636,983
Expected complications (N)	101,583	117,617	92,681	143,034	240,633	695,547
ANC services (N)	38,300	61,584	184,187	11,319	278,094	573,484
No. admitted	33,990	54,183	53,682	586	152,690	295,131
Complications treated (N)	15,106	24,060	15,128	523	67,770	122,587
Normal delivery (N)	10,073	14,593	27,769	284	35,614	88,333
Forceps delivery (N)	85	284	256	2	518	1,145
Vaginal breech delivery (N)	115	344	130	0	538	1,127
Cesarean section (N)	8,196	17,853	5,270	250	99,938	131,507
Total no. of deliveries (N)	18,469	33,074	33,425	536	136,608	222,112
Livebirths (N)	17,728	31,985	32,320	534	136,056	218,623
Stillbirths (N)	907	1,768	1,246	2	1,147	5,070
Other operations (N)	3,218	3,537	1,361	0	2,126	10,242
Referred out (N)	1,233	116	6,631	297	1,945	10,222
PNC services (N)	20,677	30,819	75,418	2,453	162,077	291,444
Maternal deaths (N)	75	400	35	0	42	552
Newborn deaths (N)	14	230	50	0	163	457
Proportion (%) of births in EmOC facilities	2.7	4.2	5.4	0.1	8.5	4.8
Met need for EmOC	14.9	20.5	16.3	0.4	28.2	17.6
CS as % of total births	1.2	2.3	0.9	0.0	6.2	2.8
Case-fatality rate (%)	0.5	1.7	0.2	0.0	0.1	0.5
<b>Khulna division</b>						
Expected births (N)	357,212.5	57,671.4	254,141.4	357,212.5	357,212.5	1,383,450.5
Expected complications (N)	53,581.9	8,650.7	38,121.2	53,581.9	53,581.9	207,517.6
ANC services (N)	25,833	5,861	67,537	38,302	50,997	188,530

# Annexure 1: EOC process indicators by type of hospital (January to December 2010)

## 1. EOC process indicators by type of hospital (January to December 2010) (Continued...)

Process indicator	District and general hospital (n=62)	Medical college hospital (n=14)	Upazila health complex (n=416)	NGO facility (from 64 districts)	Private clinic or hospital (from 64 districts)	Total
No. admitted	25,095	4,444	34,177	5,908	25,499	95,123
Complications treated (N)	8,232	701	11,503	585	7,024	28,045
Normal delivery (N)	10,250	1,731	16,197	2,248	6,097	36,523
Forceps delivery (N)	24	51	177	5	72	329
Vaginal breech delivery (N)	112	15	82	28	43	280
Cesarean section (N)	4,037	994	6,236	2,832	15,920	30,019
Total no. of deliveries (N)	14,423	2,791	22,692	5,113	22,132	67,151
Livebirths (N)	14,081	2,601	22,298	5,161	22,015	66,156
Stillbirths (N)	584	219	512	60	195	1,570
Other operations (N)	942	3	1,046	34	232	2,257
Referred out (N)	483	8	2,392	199	190	3,272
PNC services (N)	13,360	2,202	22,968	3,602	15,698	57,830
Maternal deaths (N)	53	50	11	1	4	119
Newborn deaths (N)	19	20	46	19	42	146
Proportion (%) of births in EmOC facilities	4	4.8	8.9	1.4	6.2	4.9
Met need for EmOC	15.4	8.1	30.2	1.1	13.1	13.5
CS as % of total births	1.1	1.7	2.5	0.8	4.5	2.2
Case-fatality rate (%)	0.6	7.1	0.1	0.2	0.1	0.4
<b>Rajshahi division</b>						
Expected births (N)	343,264.4	129,378.6	320,286.4	398,891.1	361,787.7	1,553,608.2
Expected complications (N)	51,489.7	19,406.8	48,043.0	59,833.7	54,268.2	233,041.2
ANC services (N)	22,061.0	13,382.0	57,618.0	17,895.0	31,479.0	142,435.0
No. admitted	28,021.0	17,267.0	35,752.0	11,553.0	16,961.0	109,554.0
Complications treated (N)	11,147.0	3,157.0	8,061.0	1,122.0	3,037.0	26,524.0
Normal delivery (N)	10,954	5,138	21,421	8,728	8,489	54,730
Forceps delivery (N)	9	9	287	1	2	308
Vaginal breech delivery (N)	132	43	104	8	39	326
Cesarean section (N)	4,568	4,270	2,669	2,808	7,526	21,841
Total no. of deliveries (N)	15,663	9,460	24,481	11,545	16,056	77,205
Livebirths (N)	15,278	9,139	23,993	11,578	15,968	75,956
Stillbirths (N)	656	373	541	388	105	2,063
Other operations (N)	1,563	1,405	489	3	83	3,543
Referred out (N)	594	45	4,223	192	461	5,515
PNC services (N)	9,383	8,561	21,649	10,195	12,074	61,862
Maternal deaths (N)	69	130	7	0	1	207

# Annexure 1: EOC process indicators by type of hospital (January to December 2010)

## 1. EOC process indicators by type of hospital (January to December 2010) (Continued...)

Process indicator	District and general hospital (n=62)	Medical college hospital (n=14)	Upazila health complex (n=416)	NGO facility (from 64 districts)	Private clinic or hospital (from 64 districts)	Total
Newborn deaths (N)	68	20	46	13	6	153
Proportion (%) of births in EmOC facilities	4.6	7.3	7.6	2.9	4.4	5.0
Met need for EmOC	21.6	16.3	16.8	1.9	5.6	11.4
CS as % of total births	1.3	3.3	0.8	0.7	2.1	1.4
Case-fatality rate (%)	0.6	4.1	0.1	0.0	0.0	0.8
<b>Rangpur division</b>						
Expected births (N)	275,224	126,401	250,777	337,031	337,031	1,326,464
Expected complications (N)	41,284	18,960	37,617	50,555	50,555	198,970
ANC services (N)	3,999	3,780	39,825	49,569	18,702	115,875
No. admitted	10,980	9,057	29,441	11,178	18,133	78,789
Complications treated (N)	4,132	754	7,048	776	2,836	15,546
Normal delivery (N)	3,353	3,784	17,841	7,254	2,914	35,146
Forceps delivery (N)	20	46	252	213	99	630
Vaginal breech delivery (N)	32	24	91	190	72	409
Cesarean section (N)	1,863	2,607	1,000	2,436	12,931	20,837
Total no. of deliveries (N)	5,268	6,461	19,184	10,093	16,016	57,022
Livebirths (N)	5,293	6,002	18,707	9,864	15,848	55,714
Stillbirths (N)	387	528	703	257	266	2,141
Other operations (N)	363	19	1,213	67	94	1,756
Referred out (N)	590	2	4,178	274	187	5,231
PNC services (N)	4,435	2,942	21,869	8,894	10,163	48,303
Maternal deaths (N)	38	129	49	18	14	248
Newborn deaths (N)	12	68	31	70	64	245
Proportion (%) of births in EmOC facilities	1.9	5.1	7.6	3.0	4.8	4.3
Met need for EmOC	10.0	4.0	18.7	1.5	5.6	7.8
CS as % of total births	0.7	2.1	0.4	0.7	3.8	1.6
Case-fatality rate (%)	0.9	17.1	0.7	2.3	0.5	1.6
<b>Sylhet division</b>						
Expected births (N)	193,141	62,303	153,894	193,141	193,141	795,621
Expected complications (N)	28,971	9,346	23,084	28,971	28,971	119,343
ANC services (N)	4,306	8,891	26,161	6,028	12,944	58,330
No. admitted	9,543	12,156	13,716	2,416	7,339	45,170
Complications treated (N)	2,181	9,608	3,559	356	1,757	17,461
Normal delivery (N)	3,227	3,609	8,837	712	2,211	18,596
Forceps delivery (N)	17	285	216	33	67	618

# Annexure 1: EOC process indicators by type of hospital (January to December 2010)

## 1. EOC process indicators by type of hospital (January to December 2010) (Continued...)

Process indicator	District and general hospital (n=62)	Medical college hospital (n=14)	Upazila health complex (n=416)	NGO facility (from 64 districts)	Private clinic or hospital (from 64 districts)	Total
Vaginal breech delivery (N)	77	157	94	20	103	451
Cesarean section (N)	971	4,603	184	1,426	3,989	11,173
Total no. of deliveries (N)	4,292	8,654	9,331	2,191	6,370	30,838
Livebirths (N)	3,828	7,850	8,956	2,155	6,226	29,015
Stillbirths (N)	520	882	464	62	169	2,097
Other operations (N)	593	1,359	619	35	373	2,979
Referred out (N)	634	0	1,770	110	314	2,828
PNC services (N)	3,878	3,619	13,338	1,566	5,245	27,646
Maternal deaths (N)	44	110	12	7	4	177
Newborn deaths (N)	39	218	20	10	18	305
Proportion (%) of births in EmOC facilities	2.2	13.9	6.1	1.1	3.3	3.9
Met need for EmOC	7.5	102.8	15.4	1.2	6.1	14.6
CS as % of total births	0.5	7.4	0.1	0.7	2.1	1.4
Case-fatality rate (%)	2.0	1.1	0.3	2.0	0.2	1.0



## Annexure 2: Secondary and Tertiary Health Care

### 2.A. Specialized hospitals with postgraduate teaching institutes (7 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	1. National Institute of Diseases of Chest and Hospital (NIDCH)	660	600	60	660	-
	2. National Institute of Traumatology & Research (NITOR)	500	500	-	500	-
	3. National Institute of Cardiovascular Diseases (NICVD)	414	250	164	414	-
	4. National Institute of Ophthalmology & Hospital (NIOH)	250	100	150	250	-
	5. National Institute of Cancer Research & Hospital (NICRH)	150	50	100	250	100
	6. National Institute of Kidney Diseases & Urology (NIKDU)	100	-	100	100	-
	7. National Institute of Mental Health & Hospital (NIMH)	100	50	50	100	-
<b>Total</b>		<b>2,174</b>	<b>1,550</b>	<b>624</b>	<b>2,274</b>	<b>100</b>

## Annexure 2: Secondary and Tertiary Health Care

### 2.B. Medical college hospitals/Dental college hospitals/Hospitals affiliated with colleges for alternative medicines (some colleges have postgraduate teaching facilities) (21 hospitals)

Division	Institution	Functional beds at present			Total number of beds (Proposed)	Beds will increase by
		Total	GoB	Development		
Dhaka	1. Dhaka Medical College Hospital	1700	1700	0	2000	300
	2. Sir Salimullah Medical College Hospital, Dhaka	600	600	0	1000	400
	3. Shaheed Suhrawardy Medical College Hospital, Dhaka	850	375	475	850	0
	4. Mymensingh Medical College Hospital, Mymensingh	800	800	0	1000	200
	5. Faridpur Medical College Hospital, Faridpur	250	250	0	500	250
	6. Dhaka Dental College Hospital, Dhaka	20	20	0	200	180
	7. Ayurvedic Degree College and Hospital, Dhaka	100	100	0	100	0
	8. Homeopathic College and Hospital, Dhaka	100	100	0	100	0
Chittagong	9. Chittagong Medical College Hospital, Chittagong	1010	1010	0	1010	0
	10. Comilla Medical College Hospital, Comilla	500	250	250	500	0
	11. Cox's Bazar Medical College Hospital, Cox's Bazar *	-	-	-	250	250
	12. Noakhali Medical College Hospital, Noakhali *	-	-	-	250	250
Rajshahi	13. Rajshahi Medical College Hospital, Rajshahi	550	550	0	1000	450
	14. Bogra Medical College Hospital (SZMCH), Bogra	500	500	0	500	0
	15. Pabna Medical College Hospital, Pabna *	-	-	-	250	250
Khulna	16. Khulna Medical College Hospital, Khulna	500	250	250	500	0
	17. Jessore Medical College Hospital, Jessore *	-	-	-	250	250
Barishal	18. Sher-e-Bangla Medical College Hospital, Barisal	600	600	0	1000	400
Rangpur	1. Rangpur Medical College Hospital, Rangpur	1000	600	400	1000	0
	2. Dinajpur Medical College Hospital, Dinajpur	500	250	250	500	0
* Hospitals have not been started yet						

## Annexure 2: Secondary and Tertiary Health Care

### 2.B. Medical college hospitals/Dental college hospitals/Hospitals affiliated with colleges for alternative medicines (some colleges have postgraduate teaching facilities) (21 hospitals) (Continued...)

Division	Institution	Functional beds at present			Total number of beds (Proposed)	Beds will increase by
		Total	GoB	Development		
Sylhet	3. Sylhet MAG Osmani Medical College Hospital, Sylhet	900	900	-	1000	100
<b>Total 21</b>		<b>10480</b>	<b>8855</b>	<b>1625</b>	<b>13760</b>	<b>3280</b>
* Hospitals have not been started yet						

### 2.C. Specialized centers (3 Centers)

Division	Name of center/hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	1. National Asthma Center, Mohakhali, Dhaka	100	-	100	100	-
	2. Burn Unit at Dhaka Medical College Hospital	100	-	100	200	100
	3. National Center for Rheumatic Fever & Heart Diseases	-	-	-	-	-
<b>Total</b>		<b>200</b>	<b>-</b>	<b>200</b>	<b>300</b>	<b>100</b>

### 2.D. Specialized hospitals (2 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Rajshahi	1. National Institute of Mental Health, Pabna (NIMH-Pabna)	500	400	100	500	-
Khulna	2. Sheikh Abu Naser Specialized Hospital	-	-	250	250	-
<b>Total</b>		<b>500</b>	<b>400</b>	<b>350</b>	<b>750</b>	<b>-</b>

### 2.E. Infectious disease hospitals (5 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	1. Infectious Diseases Hospital (IDH)	100	100	-	100	-
Chittagong	2. Infectious Diseases Hospital, Chittagong	20	20	-	20	-
Khulna	3. Infectious Diseases Hospital, Khulna	20	20	-	20	-
Rajshahi	4. Infectious Diseases Hospital, Rajshahi	20	20	-	20	-
Sylhet	5. Infectious Diseases Hospital, Sylhet	20	20	-	20	-
<b>Total</b>		<b>180</b>	<b>180</b>	<b>-</b>	<b>180</b>	<b>-</b>

## Annexure 2: Secondary and Tertiary Health Care

### 2.F. District hospitals (53 hospitals)

Division	Institution	Functional beds at present			Proposed beds	Beds will increase by
		Total	Revenue	Development		
Barisal	1. Barguna Sadar Hospital	100	100	-	250	-
	2. Bhola Sadar Hospital	100	100	-	150	-
	3. Jhalokhati Sadar Hospital	100	100	-	150	-
	4. Patuakhali Sadar Hospital	250	150	100	250	-
	5. Pirojpur Sadar Hospital	100	100	-	150	-
Chittagong	6. Bandarban Sadar Hospital	100	100	-	100	-
	7. Brahmanbaria Sadar Hospital	250	100	150	250	-
	8. Chandpur Sadar Hospital	200	100	100	250	-
	9. Adhunik Sadar Hospital, Cox's Bazar	250	100	150	250	-
	10. Feni Sadar Hospital	250	100	150	250	-
	11. Adhunik Zilla Sadar Hospital, Khagrachhari	100	50	50	100	-
	12. Laxmipur Sadar Hospital	100	100	-	100	-
Dhaka	13. Gazipur Sadar Hospital	100	100	-	100	-
	14. Gopalganj Sadar Hospital	250	100	150	250	-
	15. Jamalpur Sadar Hospital	250	100	150	250	-
	16. Kishoreganj Sadar Hospital	250	100	150	250	-
	17. Madaripur Sadar Hospital	100	100	-	100	-
	18. Manikganj Sadar Hospital	100	100	-	100	-
	19. Munshiganj Sadar Hospital	100	100	-	200	-

## Annexure 2: Secondary and Tertiary Health Care

### 2.F. District hospitals (53 hospitals) (Continued...)

Division	Institution	Functional beds at present			Proposed beds	Beds will increase by
		Total	Revenue	Development		
Dhaka	1. Narayanganj Sadar Hospital	100	100	-	100	-
	2. Narsingdi Sadar Hospital	100	100	-	100	-
	3. Netrokona Sadar Hospital	100	100	-	100	-
	4. Rajbari Sadar Hospital	100	100	-	100	-
	5. Shariatpur Sadar Hospital	100	100	-	100	-
	6. Sherpur Sadar Hospital	100	50	50	100	-
	7. Tangail Sadar Hospital	250	100	150	250	-
Khulna	8. Bagerhat Sadar Hospital	100	100	-	150	-
	9. Chuadanga Sadar Hospital	100	100	-	150	-
	10. Jessore Sadar Hospital	250	250	-	250	-
	11. Jhenaidaha Sadar Hospital	100	100	-	100	-
	12. Kushtia Sadar Hospital	250	150	100	250	-
	13. Magura Sadar Hospital	100	100	-	150	-
	14. Meherpur Sadar Hospital	100	100	-	100	-
	15. Narail Sadar Hospital	100	100	-	100	-
	16. Satkhira Sadar Hospital	100	100	-	250	-
Rajshahi	36. Mohammad Ali Hospital, Bogra	250	250	-	250	-
	37. Chapai Nababganj Sadar Hospital	250	100	150	250	-
	38. Joypurhat Sadar Hospital	100	100	-	150	-
	39. Naogaon Sadar Hospital	100	100	-	100	-

## Annexure 2: Secondary and Tertiary Health Care

### 2.F. District hospitals (53 hospitals) (Continued...)

Division	Institution	Functional beds at present			Proposed beds	Beds will increase by
		Total	Revenue	Development		
Rajshahi	36. Natore Sadar Hospital	100	100	-	100	-
	37. Pabna Sadar Hospital	250	120	130	250	-
Rangpur	38. Dinajpur Sadar Hospital	250	250	-	250	-
	39. Thakurgaon Sadar Hospital	100	100	-	250	-
	40. Panchagarh Sadar Hospital	100	100	-	100	-
	41. Nilphamari Sadar Hospital	100	100	-	150	-
	42. Gaibandha Sadar Hospital	100	100	-	100	-
	43. Kurigram Sadar Hospital	100	100	-	250	-
	44. Saidpur Sadar Hospital	100	50	50	100	-
	45. Lalmonirhat Sadar Hospital	100	100	-	100	-
Sylhet	46. Habiganj Sadar Hospital	100	100	-	250	-
	47. Maulvibazar Sadar Hospital	250	100	150	250	-
	48. Sunamganj Sadar Hospital	250	100	150	250	-
	49. Sylhet Sadar Hospital	100	100	-	100	-
<b>Total</b>		<b>7800</b>	<b>5720</b>	<b>2080</b>	<b>9100</b>	<b>1300</b>

### 2.G. General hospitals (9 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Barisal	1. Barisal General Hospital	100	100	-	100	-
Chittagong	2. Noakhali General Hospital	250	150	100	250	-
	3. Chittagong General Hospital	150	150	-	150	-
	4. Comilla General Hospital	100	100	-	100	-
	5. Rangamati General Hospital	100	100	-	100	-

## Annexure 2: Secondary and Tertiary Health Care

### 2.G. General hospitals (9 hospitals) (Continued...)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	6. Narayanganj General Hospital	200	200	-	200	-
	7. Faridpur General Hospital	100	100	-	100	-
Khulna	8. Khulna General Hospital	150	150	-	150	-
Rajshahi	9. Sirajganj General Hospital	100	100	-	250	150
<b>Total</b>		<b>1250</b>	<b>1150</b>	<b>100</b>	<b>1400</b>	<b>150</b>

### 2.H. Chest Diseases/TB Hospitals (13 Hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase
Barisal	1. Chest Diseases Hospital, Barisal	20	20	-	20	-
Chittagong	2. Chest Diseases Hospital, Chittagong	150	150	-	150	-
	3. Chest Diseases Hospital, Brahmanbaria	20	20	-	20	-
	4. Chest Diseases Hospital, Feni	20	20	-	20	-
Dhaka	5. Chest Diseases Hospital, Faridpur	20	20	-	20	-
	6. 250-bed TB Hospital, Shyamoli, Dhaka	-	-	-	250	250
Khulna	7. Chest Diseases Hospital, Khulna	100	100	-	100	-
	8. Chest Diseases Hospital, Jessore	20	20	-	20	-
Rajshahi	9. Chest Diseases Hospital, Rajshahi	100	100	-	100	-
	10. Chest Diseases Hospital, Bogra	20	20	-	20	-
	11. Chest Diseases Hospital, Pabna	20	20	-	20	-
Rangpur	12. Chest Diseases Hospital, Rangpur	20	20	-	20	-
Sylhet	13. Chest Diseases Hospital, Sylhet	56	56	-	56	-
<b>Total</b>		<b>566</b>	<b>566</b>	<b>-</b>	<b>816</b>	<b>250</b>



## Annexure 2: Secondary and Tertiary Health Care

### 2.I. Leprosy hospitals (3 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	1. Leprosy Hospital, Mohakhali, Dhaka	30	30	-	30	-
Rajshahi	2. Leprosy Hospital, Nilphamari	20	20	-	20	-
Sylhet	3. Leprosy Hospital, Sylhet	80	80	-	80	-
<b>Total</b>		<b>130</b>	<b>130</b>	<b>-</b>	<b>130</b>	<b>0</b>

### 2.J. Other hospitals (6 hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Dhaka	1. Sarkari Karmachari Hospital	100	100	-	100	-
	2. Bangladesh-Korea Moitree Hospital, Savar	30	-	30	30	-
	3. Tongi 50-bed Hospital, Gazipur	50	50	-	50	-
Khulna	4. 25-bed Shishu Hospital Jhenaidaha	25	-	25	25	-
Rajshahi	5. Labor Hospital, Syedpur	50	50	-	100	50
Sylhet	6. Sreemangal 50-bed Hospital, Maulvibazar	50	50	-	50	-
<b>Total</b>		<b>305</b>	<b>250</b>	<b>55</b>	<b>355</b>	<b>50</b>

### 2.K. Proposed new hospitals (4 Hospitals)

Division	Name of hospital	Functional beds	Revenue beds	Development beds	Proposed beds	Beds will increase by
Chittagong	1. 100-bed General Hospital, Port area, Chittagong	-	-	-	100	100
Dhaka	2. 500-bed General Hospital, Khilgaon, Dhaka	-	-	-	500	500
	3. 500-bed General Hospital, Kurmitola, Dhaka	-	-	-	500	500
	4. 500-bed General Hospital, Mirpur, Dhaka	-	-	-	500	500
<b>Total</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>1600</b>	<b>1600</b>

# Annexure 3.1: Detailed Information on Hospital Utilization (Admissions, Deaths, OPD Visits)

## 3. 1. A. Number of admissions, deaths and out-patient visits in different types of hospitals (Jan- Dec 2010)

Type of health facility	Name of Institute	No. of beds	Admission (N)			Death (N)			Outdoor visit (N)			
			Male	Female	Total	Male	Female	Total	Male	Female	Child	Total
Specialized post-graduate teaching institute hospitals	NIMHR	150	894	661	1,555	-	-	-	12,914	8,796	-	21,710
	NICVD	414	29,925	13,648	43,573	2,098	882	2,980	104,426	54,308	10,659	169,393
	NIDCH	670	7,385	2,853	10,229	820	276	1,096	36,925	21,563	6,105	64,593
	NIKDU	116	-	-	4,014	131	21	152	-	-	-	57,909
	NIO	102	1,845	1,316	3,159	-	-	209	50,891	44,254	-	95,145
	NITOR	500	17,081	3,492	20,573	-	-	-	78,222	43,532	27,120	148,874
	NICRH	150	1,945	1,410	3,355	54	31	85	2,437	1,550	-	3,987
	Total	2,102	59,075	23,380	86,458	3,103	1,210	4,522	285,815	174,003	43,884	561,611
Medical college hospitals	SSH MCH	375	5,394	5,561	10,955	73	116	189	77,943	97,552	11,797	187,292
	CoMCH	500	17,732	14,459	32,191	843	642	1,485	81,446	77,144	48,644	207,237
	DpMCH	500	10,835	12,352	23,187	327	376	703	16,731	19,835	11,285	47,851
	KMCH	500	18,615	20,440	39,055	1,095	370	1,465	78,840	182,088	20,658	281,586
	MAGO MCH	900	53,307	54,299	107,697	2,213	1,962	4,179	317,213	364,475	-	681,739
	RpMCH	1,000	38,239	33,680	71,919	1,826	1,479	3,305	126,915	121,744	26,779	275,438
	SBMCH	500	43,275	23,935	67,210	1,710	910	2,620	204,168	128,565	53,449	386,182
	SZMCH	500	23,508	18,922	42,430	1,545	888	2,433	129,314	134,029	44,054	307,397
	SS Mitford Hospital	600	27,245	25,474	52,774	1,018	654	1,679	196,677	230,540	112,260	540,814
	FMCH	500	10,533	14,417	24,950	636	662	1,298	46,190	43,082	21,142	110,414
	MMCH	800	54,645	54,462	109,107	2,731	2,664	5,395	228,768	241,406	155,230	607,129
	CMCH	1,010	498,400	166,125	664,500	173	89	262	25,490	17,588	9,144	52,104
	RMCH	530	54,229	59,547	113,776	2,170	2,346	4,516	240,849	356,121	71,470	668,440
	Total	8,215	855,957	503,673	1,359,751	16,360	13,158	29,529	1,770,544	2,014,169	585,912	4,353,623
	Govt. Employees' Hospital	100	381	538	919	-	-	-	42,283	24,329	5,183	71,795
	Mental Hospital, Pabna	500	1,108	313	1,421	5	-	5	10,558	13,050	-	23,608
Chest clinic and chest hospitals	Rajshahi	150	319	130	456	8	4	12	1,046	567	147	1,760
	Sylhet	56	192	44	236	6	6	12	-	-	-	-
	Total	206	511	174	692	14	10	24	1,046	567	147	1,760
TB segregation hospitals	Brahmanbaria	20	181	80	261	8	1	9	-	-	-	-
	Barisal	20	47	24	71	3	1	4	-	-	-	-
	Bogra	20	141	46	187	6	2	8	-	-	-	-
	Faridpur	20	41	37	78	-	-	-	1,352	135	-	1,487
	Jessore	20	66	35	101	5	3	8	-	-	-	-
	Rangpur	20	53	16	69	1	-	1	2,372	1,493	106	3,971
	Total	120	529	238	767	23	7	30	3,724	1,628	106	5,458
Leprosy hospitals	Nilphamari	20	79	-	79	-	-	-	3,661	5,593	608	9,862
	Sylhet	80	150	27	177	-	-	-	893	333	32	1,258
	Total	100	229	27	256	-	-	-	4,554	5,926	640	11,120
Infectious disease hospitals	Khulna	20	967	993	1,960	18	9	27	-	-	-	-
	Dhaka	100	768	693	1,461	66	19	85	23,475	9,033	13,744	46,252
	Rajshahi	20	151	44	195	18	-	18	-	-	-	-
	Total	140	1,886	1,730	3,616	102	28	130	23,475	9,033	13,744	46,252
Country Total		11,483	919,676	530,073	1,453,880	19,607	14,413	34,240	2,141,999	2,242,705	649,616	5,075,227

# Annexure 3.1: Detailed Information on Hospital Utilization (Admissions, Deaths, OPD Visits)

## 3. 1. B. Number of admissions, deaths and out-patient visits in district hospitals (Jan- Dec 2010)

District Hospital	No. of beds	Admission (N)			Death (N)			Outdoor visit (N)			
		Male	Female	Total	Male	Female	Total	Male	Female	Child	Total
Brahmanbaria	250	13,369	12,000	25,369	300	229	529	66,830	101,257	95,359	263,446
Bagerhat	100	4,130	5,825	9,955	120	106	226	30,670	35,933	21,897	88,500
Bandarban	100	2,433	4,106	6,539	27	38	65	13,023	14,870	18,112	46,005
Barguna	100	7,030	6,834	13,864	109	63	172	47,324	48,285	21,853	117,462
Barisal	100	12,797	14,823	27,620	76	79	155	206,820	319,917	194,220	720,957
Bhola	100	6,004	10,622	16,626	149	289	438	17,706	18,887	21,149	57,742
Bogra	250	-	-	18,550	-	-	134	-	-	-	217,462
Chapai Nababganj	100	8,835	9,036	17,871	185	113	298	33,887	44,121	25,682	103,726
Chandpur	250	3,684	7,452	11,136	116	112	228	38,341	33,255	34,865	106,461
Chittagong	150	965	1,404	2,359	10	3	13	28,255	30,293	19,410	77,918
Chuadanga	100	7,818	16,295	24,113	241	225	466	55,238	54,366	38,132	147,736
Comilla	100	4,236	4,657	8,896	66	29	95	42,263	48,427	35,928	126,618
Cox's Bazar	250	13,723	17,085	30,808	468	452	920	38,050	67,469	110,146	215,665
Dinajpur	281	3,944	14,201	18,145	93	183	276	27,935	34,018	37,139	99,092
Faridpur	100	5,591	7,544	13,135	76	85	161	19,300	31,512	34,454	85,266
Feni	250	7,644	18,109	25,753	202	213	415	63,359	62,687	61,588	187,634
Gaibandha	100	5,194	8,313	13,507	107	248	355	20,457	24,996	22,086	67,539
Gazipur	100	4,613	9,800	14,432	45	97	142	41,024	63,852	52,661	157,537
Gopalganj	250	8,096	7,170	15,266	240	164	404	32,399	34,101	37,785	104,285
Habiganj	100	12,879	16,445	29,324	453	289	742	50,480	48,595	42,197	141,272
Jamalpur	250	13,603	13,477	28,280	273	161	434	73,178	85,445	56,465	216,128
Jessore	278	19,709	21,188	40,897	899	523	1,422	50,458	76,393	66,194	193,045
Jhalkathi	100	4,562	5,280	9,842	20	24	44	31,887	39,841	35,407	107,135
Jhenaidaha	100	5,926	10,933	16,859	121	104	225	39,802	55,210	28,551	123,563
Joypurhat	100	9,303	11,618	20,921	214	133	347	52,635	78,818	53,546	184,999
Khagrachhari	50	2,571	3,156	5,727	87	68	155	14,837	18,414	8,564	41,815
Khulna	150	3,319	4,864	8,183	94	71	165	49,047	68,334	20,549	137,930
Kishoreganj	250	8,735	18,018	26,753	316	233	549	68,249	89,745	60,376	218,370
Kurigram	100	12,870	12,172	25,042	77	87	164	29,180	22,315	19,266	71,461
Kushtia	250	19,021	19,013	38,034	696	423	1,119	66,596	77,688	45,845	190,129
Lalmonirhat	100	2,824	4,320	7,145	35	61	96	19,701	23,331	19,451	64,868
Laxmipur	100	3,040	2,747	5,787	48	38	86	20,346	22,350	14,464	57,160
Madaripur	100	4,296	9,319	13,615	50	76	126	30,176	26,570	21,618	78,364
Magura	100	11,489	11,999	23,488	224	152	376	42,546	43,363	56,194	142,103
Manikganj	100	6,587	8,067	14,654	198	148	346	43,499	59,747	50,198	153,444
Maulvibazar	100	11,779	11,978	23,757	153	127	280	58,932	59,114	64,704	182,746
Meherpur	100	6,912	10,074	16,986	158	144	302	30,912	47,303	28,962	107,177
Munshiganj	100	4,484	7,558	12,042	30	36	66	58,445	69,814	60,249	188,508
Naogaon	100	9,614	8,506	18,120	168	103	271	68,220	67,960	46,515	182,695
Narail	100	5,032	5,888	10,920	128	61	189	23,036	38,873	22,754	84,663
Narayanganj	100	2,900	4,799	7,848	8	10	18	65,650	89,989	28,658	187,297
Narsingdi	200	4,869	10,158	14,988	104	191	295	84,807	73,674	119,392	277,873
Natore	100	8,700	9,268	17,968	172	133	305	30,029	39,731	32,393	102,153
Netrokona	100	7,153	10,084	17,237	112	64	176	23,666	25,386	25,609	74,661
Nilphamari	100	8,571	18,092	26,663	70	155	225	39,462	53,818	50,792	144,072
Noakhali	250	13,348	14,202	27,220	12,326	10,515	8,647	31,791	38,218	28,060	98,069
Pabna	250	33,155	26,934	60,089	660	440	1,100	65,715	60,622	48,723	175,060
Panchagarh	100	2,082	2,705	4,787	23	26	49	11,819	20,692	13,242	45,753
Patuakhali	250	7,046	6,889	13,935	132	113	245	22,275	30,734	25,979	79,048
Pirojpur	100	2,760	5,829	8,589	77	75	152	27,855	34,633	24,551	87,039
Rajbari	100	4,469	5,752	10,223	86	56	142	12,400	19,450	12,573	44,423
Rangamati	100	3,461	3,196	6,657	84	55	135	9,558	9,883	10,992	30,433
Shariatpur	100	4,087	8,097	12,224	104	138	242	24,525	35,659	24,728	84,916
Satkhira	100	8,532	9,048	17,580	266	292	558	66,048	89,292	35,604	190,944
Sherpur	100	8,533	8,065	16,598	160	100	260	31,069	24,195	19,842	75,106
Sirajganj	100	15,840	25,482	41,322	270	116	386	40,204	66,219	23,826	130,249
Sunamganj	100	3,248	11,158	14,406	33	204	237	31,101	31,122	33,463	95,686
Tangail	250	12,168	26,754	38,922	325	749	1,074	74,393	90,810	55,916	221,119
Thakurgaon	100	6,661	23,911	30,572	150	307	457	47,016	56,515	61,806	165,337
Country total	8,359	456,244	622,319	1,098,148	22,234	19,529	27,699	2,484,426	3,078,111	2,380,684	8,167,864

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. A. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily OPD patient in different types of hospitals (Jan-Dec 2010)

Type of health facility	Name of Institute	No. of beds	Average length of stay (d)	Bed-occupancy rate (%)	Hospital death rate (%)	Average daily admission (N)	Average daily OPD patient (N)
Specialized postgraduate teaching hospital	NICVD	414	5	152.82	6.87	117	444
	NIDCH	670	24	90.66	12.04	28	177
	NITOR	500	0	0.00	0.80	56	408
	NIOH	102	8	64.09	0.00	9	261
	NIKDU	116	11	90.01	6.27	11	159
	IMHR	150	25	68.49	0.00	4	59
	NICRH	150	0	0.00	2.68	9	11
	<b>Total</b>	<b>2102</b>	<b>11</b>	<b>66.58</b>	<b>4.09</b>	<b>34</b>	<b>217</b>
Medical college hospitals	Rangpur MCH	1000	0	0.73	5.28	197	755
	Rajshahi MCH	530	0	0.00	4.17	312	1831
	SBMCH	500	6	203.21	4.06	184	1058
	SSMC & Mitford Hospital	600	0	0.00	3.20	145	1482
	Mymensingh MCH	800	6	192.78	5.28	299	1663
	MAGOMCH	900	4	136.11	4.05	295	1868
	Dinajpur MCH	500	7	81.38	3.25	64	131
	Faridpur MCH	500	5	60.46	5.55	68	303
	Comilla MCH	500	6	94.24	4.91	88	568
	Bogra MCH	500	6	123.87	6.09	116	842
	Chittagong MCH	1010	0	0.00	0.32	1821	143
	Khulna MCH	500	5	110.80	3.55	107	771
	Shaheed Suhrawardy MCH	375	12	89.60	1.91	30	513
	<b>Total</b>	<b>8215</b>	<b>4</b>	<b>84.09</b>	<b>3.97</b>	<b>287</b>	<b>918</b>
Mental Hospital, Pabna		500	107	84.52	0.35	4	65
Government Employees Hospital		100	0	0	0	3	197
Chest clinic and chest hospitals	Rajshahi	150	0	0.00	3.82	1	5
	Sylhet	56	38	64.84	5.19	1	0
	<b>Total</b>	<b>206</b>	<b>19</b>	<b>32.42</b>	<b>4.51</b>	<b>1</b>	<b>3</b>
TB segregation hospitals	Bogra	20	50	94.63	5.80	1	0
	Pabna	20	112	87.79	1.75	0	0
	Jessore	20	76	96.44	8.60	0	0
	Barisal	20	67	0.00	6.06	0	0
	Faridpur	20	60	37.56	0.00	0	4
	Brahminbaria	20	0	0.00	3.60	1	0
	Rangpur	20	106	88.81	1.64	0	11
	<b>Total</b>	<b>140</b>	<b>67</b>	<b>57.89</b>	<b>3.92</b>	<b>0</b>	<b>2</b>
Leprosy hospitals	Nilphamari	20	43	46.78	0.00	0	27
	Sylhet	80	45	44.02	0.00	1	6
	<b>Total</b>	<b>100</b>	<b>44</b>	<b>45.40</b>	<b>0.00</b>	<b>1</b>	<b>16</b>
Infectious disease hospitals	Rajshahi	20	0	0.00	10.17	1	0
	Khulna	20	1	34.90	1.39	5	0
	Dhaka	100	0	0.00	6.34	4	127
	<b>Total</b>	<b>140</b>	<b>1</b>	<b>17.45</b>	<b>8.95</b>	<b>5</b>	<b>63</b>
<b>Country total</b>		<b>10903</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. B. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily OPD patient in district hospitals (Jan - Dec 2010)

District Hospital	No. of beds	Average length of stay (d)	Bed-occupancy rate (%)	Hospital death rate (%)	Average daily admission (N)	Average daily OPD patient (N)
Brahmanbaria	250	1	21.92	2.94	70	722
Bagerhat	100	4	113.70	2.28	27	242
Bandarban	100	3	55.49	1.04	18	126
Barguna	100	1	43.31	1.31	42	352
Barisal	100	4	269.06	0.56	76	1975
Bhola	100	3	131.82	2.84	46	158
Bogra	250	5	107.29	0.73	51	596
Chapai Nababganj	100	2	129.58	1.57	54	311
Chandpur	250	5	82.90	2.63	53	502
Chittagong	150	11	61.96	0.61	10	321
Chuadanga	100	3	169.95	1.96	66	405
Comilla	100	4	91.05	1.10	24	347
Cox's Bazar	250	3	94.32	3.45	84	591
Dinajpur	281	2	43.23	1.53	50	271
Faridpur	100	6	127.61	1.96	36	234
Feni	250	3	88.55	1.74	71	514
Gaibandha	100	5	111.52	4.43	37	185
Gazipur	100	2	77.74	1.10	40	432
Gopalganj	250	4	49.30	2.76	21	143
Habiganj	100	4	279.47	2.60	80	387
Jamalpur	250	3	96.15	1.57	77	592
Jessore	278	3	124.36	3.71	112	529
Jhalkati	100	3	94.25	0.45	27	294
Jhenaidaha	100	3	137.63	1.37	55	406
Joypurhat	100	3	173.53	1.86	57	507
Khagrachhari	50	4	141.57	3.53	24	172
Khulna	150	6	69.86	2.57	22	378
Kishoreganj	250	3	97.00	2.06	73	598
Kurigram	100	4	164.90	2.12	138	395
Kushtia	250	3	127.53	3.04	104	521
Lalmonirhat	100	3	79.84	1.29	24	213
Laxmipur	100	4	112.63	1.59	31	311
Madaripur	100	3	97.16	0.93	37	215
Magura	100	3	184.27	1.61	64	389
Manikganj	100	3	121.53	2.42	40	420
Maulvibazar	100	2	160.13	1.20	65	501
Meherpur	100	0	0.00	1.78	47	294
Munshiganj	100	3	85.51	0.58	33	516
Naogaon	100	3	130.03	1.51	50	501
Narail	100	3	93.22	1.75	30	232
Narayanganj	100	2	62.66	0.23	26	612
Narsingdi	200	5	103.64	2.15	21	381
Natore	100	3	120.42	1.77	49	280
Netrokona	100	2	114.56	1.04	47	205
Nilphamari	100	2	150.08	0.85	73	395
Noakhali	250	0	0.26	33.36	75	269
Pabna	250	2	112.49	2.54	165	480
Panchagarh	100	3	75.60	1.04	26	249
Patuakhali	250	5	103.71	1.93	57	325
Pirojpur	100	4	91.53	1.81	24	238
Rajbari	100	3	115.81	1.44	42	183
Rangamati	100	3	72.96	2.08	24	111
Satkhira	100	5	170.17	4.09	48	523
Shariatpur	100	3	105.45	2.02	33	233

## Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

### 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010)

#### Barisal division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Barguna	Amtali	50	117.84	128
	Bamna	31	63.09	126
	Betagi	50	57.29	84
	Patharghata	50	61.05	127
Barisal	Agailjhara	50	49.08	54
	Babuganj	31	50.94	250
	Bakerganj	31	66.12	236
	Banaripara	31	91.68	118
	Gournadi	50	78.53	198
	Hijla	31	79.03	74
	Mehendiganj	31	66.12	236
	Muladi	31	127.68	230
	Wazirpur	31	88.83	246
Bhola	Lalmohan	50	80.01	118
	Char Fasson	50	107.02	146
	Manpura	31	45.74	156
	Tajumuddin	31	77.19	219
	Burhanuddin	50	86.28	172
	Daulatkhan	50	46.49	112
	Kanthalia	31	115.39	58
Jhalokati	Nalchity	50	37.98	128
	Rajapur	50	75.37	60
	Bauphal	31	102.73	286
Patuakhali	Dashmina	31	84.48	182
	Dumki	31	82.72	54
	Galachipa	50	82.12	74
	Kalapara	31	136.60	171
	Mirzaganj	31	103.57	68
	Bhandaria	31	107.83	132
Pirojpur	Kawkhali	31	70.76	65
	Mathbaria	50	80.21	58
	Nazirpur	31	145.71	71
	Nesarabad	31	74.54	195

#### Chittagong division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Brahmanbaria	Akhaura	31	65.13	166
	Banchharampur	31	43.63	158
	Kasba	31	53.27	194
	Nabinagar	31	59.00	155
	Nasirnagar	50	78.58	124
	Sarail	50	54.89	198
Bandarban	Alikadam	31	58.69	125
	Lama	31	97.45	128
	Naikhongchhari	31	53.88	86
	Rowangchhari	10	59.86	27
	Ruma	10	70.82	33
	Thanchi	31	0.00	13

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

Chittagong division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Chandpur	Faridganj	31	70.91	239
	Haimchar	31	75.80	212
	Hajiganj	50	65.65	308
	Kachua	50	72.93	179
	Matlab	50	72.80	114
	Matlab North	31	50.83	163
	Shahrasti	50	93.48	144
Chittagong	Anowara	31	124.28	175
	Banskhal	31	114.26	158
	Boalkhali	31	113.73	191
	Chandanaish	31	84.59	159
	Dohazari	31	98.55	178
	Fatickchhari	31	115.65	231
	Hathazari	31	105.28	218
	Lohagara	31	180.71	150
	Mirsharai	31	76.18	98
	Patiya	31	128.15	149
	Rangunia	50	78.72	162
	Raozan	31	103.31	158
	Sandwip	31	34.49	116
	Satkania	31	101.69	154
	Sitakunda	31	98.95	301
Comilla	Barura	31	82.53	116
	Brahmanpara	31	78.71	80
	Burichang	31	83.06	67
	Chandina	31	126.43	118
	Chauddagaram	50	108.63	312
	Daudkandi	31	102.32	235
	Debidwar	50	103.20	156
	Homna	50	58.62	93
	Laksam	50	73.75	89
	Meghna	31	0.00	30
	Monoharganj	31	0.00	14
	Muradnagar	50	55.06	160
	Nangalkot	50	59.77	115
	Sadar South	31	0.00	16
	Titas	31	26.82	75
Cox's Bazar	Chakaria	50	115.84	199
	Kutubdia	31	51.20	85
	Maheshkhali	50	77.35	106
	Ramu	31	79.13	227
	Ukhia	31	75.11	158
	Teknaf	50	63.11	115
	Pekua	31	41.45	85
Feni	Chhagalnaiya	50	94.70	149
	Dagonbhuiyan	31	115.10	182
	Fulgazi	31	81.78	148
	Parshuram	50	96.55	115
	Sonagazi	31	126.63	218



# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

### Chittagong division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Khagrachhari	Dighinala	31	40.38	85
	Lakshmichari	31	12.25	47
	Mahalchhari	31	13.08	98
	Manikchhari	31	41.10	158
	Matiranga	31	50.15	148
	Panchhari	31	34.04	44
	Ramgarh	31	52.83	144
Laxmipur	Kamalnagar	31	94.93	198
	Roypur	50	61.25	153
	Ramganj	50	35.97	289
	Ramgati	20	0.00	61

### Dhaka division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor Visit (N)
Dhaka	Dhamrai	50	94.09	444
	Dohar	50	51.03	242
	Keraniganj	31	59.13	396
	Nawabganj	50	76.16	297
	Savar	50	71.01	267
Faridpur	Alfadanga	31	106.18	95
	Bhanga	50	80.38	96
	Boalmari	50	82.93	133
	Charbhadrasan	31	72.84	73
	Madhukhali	31	93.30	140
	Nagarkanda	50	67.95	96
	Sadarpur	31	61.67	80
Gazipur	Kaliakair	31	103.17	167
	Kaliganj	50	81.78	123
	Kapasia	50	74.97	154
	Tangi 50-bed	50	87.67	250
	Sreepur	31	77.09	191
Gopalganj	Kashiani	31	53.07	360
	Kotalipara	31	110.09	299
	Muksudpur	31	118.52	399
	Tungipara	31	135.38	194
Jamalpur	Bakshiganj	31	79.14	277
	Dewanganj	31	121.78	134
	Islampur	31	69.73	294
	Madarganj	31	69.08	140
	Melandaha	31	94.51	204
	Sarishabari	50	83.55	117
Kishoreganj	Austagram	31	79.71	275
	Bajitpur	31	93.12	321
	Bhairab	50	60.52	224
	Hossainpur	31	96.08	253
	Itna	31	66.15	246
	Karimganj	50	73.87	202
	Katiadi	50	79.55	240
	Kuliarchar	31	70.48	313
	Mithamain	31	56.96	167
	Nikli	31	82.58	178
	Pakundia	31	99.81	286
	Tarail	50	68.37	175

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

### Dhaka division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Madaripur	Kalkini	31	103.46	151
	Rajoir	31	118.31	255
	Shibchar	31	84.17	90
Manikganj	Daulatpur	31	56.04	207
	Ghior	31	80.49	263
	Harirampur	31	61.91	222
	Saturia	31	81.79	354
	Shibalaya	31	94.63	239
	Singair	31	102.74	419
	Gazaria	50	66.66	199
Munshiganj	Lohajang	50	44.89	138
	Serajdekhan	50	70.31	185
	Sreenagar	50	37.48	167
	Tongibari	50	69.14	146
	Bhaluka	50	91.57	104
Mymensingh	Dhobaura	31	75.15	148
	Fulbaria	31	85.25	187
	Phulpur	50	86.51	66

### Khulna division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Bagerhat	Chitalmari	31	70.38	110
	Fakirhat	31	146.25	248
	Kachua	50	87.45	191
	Mollahat	31	81.59	150
	Mongla	50	58.36	115
	Morrelganj	31	105.46	148
	Rampal	50	100.53	155
	Sarankhola	31	128.75	57
Chuadanga	Alamdanga	31	96.31	151
	Damurhuda	31	67.11	158
	Jibannagar	31	92.00	176
Jessore	Abhaynagar	50	112.96	197
	Bagherpara	31	114.40	128
	Chougachha	50	199.59	244
	Jhikargacha	31	83.17	155
	Keshabpur	50	94.08	127
	Manirampur	31	116.05	175
	Sharsha	31	71.95	160
	Harinakunda	50	85.26	125
Jhenaidaha	Kaliganj	50	68.03	163
	Kotchandpur	50	58.38	186
	Maheshpur	50	57.04	167
	Shailakupa	31	123.39	222
	Batiaghata	31	133.86	164
Khulna	Dacope	50	169.53	52
	Dighalia	31	65.21	256
	Dumuria	31	78.34	176
	Phultala	50	89.91	113
	Koyra	31	110.87	164
	Paikgachha	50	104.26	272
	Rupsa	31	107.23	90
	Terokhada	31	73.72	143

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

### Khulna division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy Rate(%)	Daily average outdoor visit (N)
Kushtia	Bheramara	50	42.87	114
	Daulatpur	50	114.59	139
	Khoksha	31	86.86	90
	Kumarkhali	50	121.58	120
	Mirpur	50	42.27	74
Magura	Mohammadpur	31	82.05	142
	Shalikha	50	35.36	57
	Sreepur	31	81.73	92
Meherpur	Gangni	31	104.90	202
Narail	Kalia	50	70.50	165
	Lohagara	31	100.27	299
Satkhira	Assasuni	31	83.99	176
	Debhata	31	95.55	150
	Kalaroa	50	75.81	106
	Kaliganj	31	98.52	132
	Shyamnagar	50	133.08	91
	Tala	50	77.98	57

### Rajshahi division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Bogra	Adamdighi	50	67.75	148
	Gabtal	50	75.18	132
	Dhunat	50	55.51	415
	Sariakandi	50	96.26	357
	Sherpur	50	76.77	499
	Sonatala	50	73.64	133
	Dupchanchia	50	58.44	206
	Kahaloo	50	57.83	235
	Nandigram	31	57.15	165
Chapai Nababganj	Shibganj	50	49.32	182
	Bholahat	31	52.93	127
	Gomastapur	31	543.79	206
	Nachole	31	27.25	263
Joypurhat	Shibganj	31	142.55	1222
	Akkelpur	50	81.28	135
	Kalai	50	67.31	103
	Khetlal	31	84.05	157
Naogaon	Panchbibi	50	70.91	114
	Atrai	31	73.79	59
	Badalgachhi	50	36.52	106
	Dhamoirhat	50	44.97	87
	Manda	31	63.87	106
	Mahadebpur	50	62.72	157
	Niamatpur	31	74.81	134
	Patnitala	50	62.45	78
	Porsha	31	58.08	81
	Raninagar	31	76.43	249
Sapahar		50	51.38	63

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

### Rajshahi division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Natore	Baraigram	31	53.31	213
	Gurudaspur	50	40.71	163
	Bagatipara	31	46.40	185
	Singra	31	7.59	38
	Lalpur	50	52.39	142
Pabna	Atgharia	31	73.47	192
	Bera	31	119.43	221
	Bhangura	31	82.24	192
	Chatmohar	50	83.63	292
	Faridpur	31	83.20	199
	Iswardi	31	120.91	299
	Shanthia	50	88.52	217
Rajshahi	Sujanagar	50	61.10	80
	Bagha	31	103.16	258
	Baghmara	31	90.64	73
	Charghat	50	59.51	434
	Durgapur	50	52.80	316
	Godagari	31	90.81	134
	Mohanpur	31	46.52	264
	Paba	31	80.70	459
	Puthia	50	66.95	112
Sirajganj	Tanore	50	67.30	222
	Belkuchi	31	68.57	152
	Kamarkhanda	31	49.66	206
	Kazipur	31	59.52	175
	Ullah Para	31	78.95	162
	Royganj	31	78.17	141
	Shahjadpur	31	105.42	189
	Chauhali	31	0	151

### Rangpur division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Dinajpur	Birampur	31	87.53	221
	Birganj	31	74.99	421
	Biral	31	76.41	249
	Bochaganj	50	55.63	109
	Chirirbandar	31	86.21	161
	Ghoraghat	31	82.74	162
	Hakimpur	31	73.05	162
	Kaharole	31	67.99	143
	Khansama	31	141.05	139
	Parbatipur	50	48.50	122
	Phulbari	31	110.03	208
	Nawabganj	31	77.98	157
Gaibandha	Palashbari	31	88.94	174
	Fulchhari	31	28.27	90
	Gobindaganj	31	180.08	174
	Sadullapur	31	83.54	345
	Sundarganj	31	80.94	517
	Saghatta	31	53.65	173

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

### Rangpur division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Kurigram	Bhurungamari	31	67.37	391
	Chilmari	50	32.20	190
	Phulbari	31	51.68	56
	Nageswari	31	70.31	43
	Rajarhat	31	59.22	205
	Rajibpur	31	50.97	197
	Roumari	31	56.57	242
	Ulipur	50	71.92	250
Lalmonirhat	Aditmari	31	62.47	168
	Hatibandha	31	124.10	237
	Kaliganj	50	1.61	88
	Patgram	31	80.08	170
Nilphamari	Dimla	50	80.11	103
	Domar	50	66.75	132
	Jaldhaka	31	159.54	277
	Kishoreganj	31	119.58	64
	Saidpur	50	110.39	134
Panchagarh	Atwari	31	100.58	130
	Boda	31	79.23	209
	Debiganj	31	111.81	200
	Tentulia	31	77.07	224
Rangpur	Gangachara	50	56.34	268
	Taraganj	31	94.69	224
	Badarganj	31	131.15	329
	Mithapukur	50	83.76	453
	Pirganj	31	113.72	555
	Pirgachha	31	71.37	371
	Kaunia	31	61.44	292
Thakurgaon	Baliadangi	50	33.52	143
	Haripur	50	34.64	43
	Pirganj	31	142.58	198
	Ranisankail	50	30.81	49

### Sylhet division

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Habiganj	Ajmiriganj	31	37.53	158
	Bahubal	31	89.17	185
	Baniachong	31	89.99	246
	Chunarughat	31	90.77	181
	Lakhai	31	46.55	119
	Madhabpur	31	98.04	191
	Nabiganj	31	79.44	169
Maulvibazar	Kamaliganj	31	60.52	95
	Rajnagar	31	72.12	135
	Sreemangal	31	51.22	178
	Kulaura	50	40.45	234

# Annexure 3.2: Detailed Information on Hospital Utilization (Continued)

## 3. 2. C. Average length of stay, bed-occupancy rate, hospital death rate, average daily admission, and average daily outpatient visit in upazila health complexes (Jan - Dec 2010) (Continued...)

Sylhet division (Continued...)

District	Upazila health complex	No. of beds	Bed-occupancy rate(%)	Daily average outdoor visit (N)
Sunamganj	Bishwamharpur	31	28.54	15
	Chhatak	31	39.11	106
	Deraï	31	92.43	62
	Dharmapasha	31	65.33	191
	Dowarabazar	31	27.09	137
	Jagannathpur	50	23.16	126
	Jamalganj	31	62.51	169
	Sulla	31	56.13	49
	Tahirpur	31	59.89	127
Sylhet	Balaganj	31	29.54	82
	Beanibazar	50	51.48	181
	Bishwanath	31	18.31	112
	Companiganj	31	63.44	126
	Fenchuganj	31	67.33	86
	Golapganj	31	55.20	143
	Gowainghat	31	31.57	164
	Jaintapur	31	72.36	57
	Kanaighat	31	46.93	122
	Zakiganj	31	70.73	232

## Annexure 4: On-the-job training conducted under operational plan of In-service Training in 2010

### 4. On-the-job training conducted under operational plan of In-service Training in 2010

Sl. No.	Brief description of course outline	Target (Personnel)	Batch	Participants trained	Achievement (%)	Course duration
1	Curriculum review workshop on 21-day basic ESP training for field service providers	48	2	48	1	5 days
2	Curriculum review workshop on 7-day basic management training for newly-recruited doctors	38	2	38	1	2 days
3	TOT on 21-day basic ESP training for field service providers	768	29	768	1	5 days
4	TOT on basic service management training for newly-recruited doctors	389	10	389	1	2 days
5	Orientation for DTCC members for implementation of 21-day basic ESP training for field service providers	239	5	239	1	1 day
6	Basic service management training for newly-recruited doctors	5,000	168	4,200	0.84	7 days
7	Basic ESP training for field service providers	6391	258	6,391	1	21 days
8	Basic training for medical assistants	175	7	196	1.12	6 days
9	Orientation on cervical and breast cancer awareness for opinion leaders	800	33	1,122	1.40	1 day
10	Training for doctors on violence against women and girls	150	6	180	1.20	6 days
11	Training for nurses on violence against women and girls	150	6	180	1.20	6 days
12	Training on monitoring and supportive supervision for supervisors at the upazila level and below (HI, AHI, SI, EPI Tech, MA, etc.)	750	25	875	1.17	2 days
13	Training on standard operating procedures (SOP) regarding IPD, OPD, OT, emergency, house-keeping, record-keeping, nursing services, diagnostic services, etc. for service providers of primary, secondary and tertiary hospitals.	250	7	175	0.70	5 days
14	Training on SOP for MLSS, ayas, attendants, sweepers, cleaners, security guards, etc. from primary, secondary and tertiary-level hospitals	625	22	440	0.70	3 days
15	Orientation for awareness-building on violence against women for community leaders	225	14	350	1.56	1 day
16	Training program on reproductive health for community gate-keepers (UP chairmen, UP members, Imams, school teachers, and health volunteers)	600	16	560	0.93	2 days
17	Training on infection-prevention policy and practice for district and upazila health personnel	275	19	437	1.59	2 days
18	Training on gender issue, equity, and poverty alleviation for field staff	500	23	759	1.52	3 days
19	Training for field staff on disaster mitigation	550	28	840	1.53	2 days
20	ESP refresher training for field service providers	5,000	31	775	0.155	6 days
21	Training course on mass casualty management for hospital-level staff	550	29	725	1.32	2 days
Total (local training)		23,473	740	19,687	0.84	-
Overseas training		178		148	0.83	-
Grand total (local and overseas training)		23,651	740	19,835	0.84	-



## Annexure 5.1: List of diseases/conditions in the morbidity profile form and used in morbidity profile estimation

### 5. 1. List of diseases/conditions in the morbidity profile form and used in morbidity profile estimation

- |  |                                |                                     |
|--|--------------------------------|-------------------------------------|
| 1. Abortion                                | 53. Drowning/Near-drowning     | 106. Obstructive jaundice           |
| 2. Acid burn                               | 54. Drug reaction              | 107. Orchitis                       |
| 3. AIDS/HIV                                | 55. Dysentery                  | 108. Osteomyelitis                  |
| 4. Allergic reaction                       | 56. Ectopic pregnancy          | 109. Osteosarcoma                   |
| 5. Anal fistula                            | 57. Electric shock             | 110. Ovarian tumor                  |
| 6. Anemia                                  | 58. Emphysema                  | 111. Pancreatitis                   |
| 7. Angina pectoris                         | 59. Encephalitis               | 112. Pelvic infectious disease      |
| 8. Antepartum hemorrhage                   | 60. Enteric fever              | 113. Peptic ulcer                   |
| 9. Appendicitis                            | 61. Epilepsy                   | 114. Perforation (GI Tract)         |
| 10. Arsenicosis                            | 62. Fibroid                    | 115. Peripheral vascular disease    |
| 11. Arthritis                              | 63. Filariasis                 | 116. Pleural effusion               |
| 12. Assault                                | 64. Food poisoning             | 117. Pneumonia                      |
| 13. Bacillary dysentery                    | 65. Fracture                   | 118. Pneumothorax                   |
| 14. Bone tumor                             | 66. Fungal infections          | 119. Poisoning                      |
| 15. Brain tumor                            | 67. Gangrene                   | 120. Poliomyelitis                  |
| 16. Bronchial asthma                       | 68. Glaucoma                   | 121. Postpartum hemorrhage          |
| 17. Bronchiectasis                         | 69. Glomerulonephritis         | 122. Prostatic tumor                |
| 18. Bronchiolitis                          | 70. Gonorrhea                  | 123. Prostatitis                    |
| 19. Burn (Others)                          | 71. Head injury                | 124. Protein energy malnutrition    |
| 20. Ca- cervix                             | 72. Heart failure              | 125. Pulmonary fibrosis             |
| 21. Ca-bladder                             | 73. Hemolytic jaundice         | 126. Pyelonephritis                 |
| 22. Ca-breast                              | 74. Hemorrhoids (Piles)        | 127. Rabies                         |
| 23. Ca-colon                               | 75. Hepatic failure            | 128. Rectal prolapse                |
| 24. Ca-esophagus                           | 76. Hepatitis                  | 129. Refractive error               |
| 25. Ca-gall bladder                        | 77. Hernia                     | 130. Renal failure                  |
| 26. Ca-kidney                              | 78. Hydrocele                  | 131. Renal stone                    |
| 27. Ca-larynx                              | 79. Hydrocephalous             | 132. Retinal problem                |
| 28. Ca-liver                               | 80. Hydronephrosis             | 133. Rheumatic fever                |
| 29. Ca-lungs                               | 81. Hypercholesteremia         | 134. Rhinitis                       |
| 30. Ca-oral cavity                         | 82. Hypertension               | 135. Rickets                        |
| 31. Ca-pancreas                            | 83. Hyperthyroidism            | 136. Road-traffic accident          |
| 32. Ca-prostate                            | 84. Hypertrophied Prostate     | 137. Rupture uterus                 |
| 33. Ca-rectum and anal canal               | 85. Hypothyroidism             | 138. Scabies                        |
| 34. Ca-scrotum                             | 86. Infective endocarditis     | 139. Schizophrenia                  |
| 35. Ca-skin                                | 87. Intestinal obstruction     | 140. Septicemia                     |
| 36. Ca-stomach                             | 88. Kala-azar                  | 141. Snake-bite                     |
| 37. Cataract                               | 89. Leprosy                    | 142. Spinal cord injury             |
| 38. Ca-thyroid                             | 90. Leukemia                   | 143. Suppurative otitis media       |
| 39. Cholecystitis                          | 91. Liver abscess              | 144. Syphilis                       |
| 40. Cholelithiasis                         | 92. Lymphoma                   | 145. Tetanus                        |
| 41. Chronic obstructive pulmonary diseases | 93. Lymphosarcoma              | 146. Thalassemia                    |
| 42. Cirrhosis of liver                     | 94. Malaria (Vivax/Falciparum) | 147. Tonsillitis                    |
| 43. Congenital heart disease               | 95. Mastoiditis                | 148. Tuberculosis (Extra-pulmonary) |
| 44. Congestive cardiac failure             | 96. Measles                    | 149. Tuberculosis (Pulmonary)       |
| 45. Corneal ulcer                          | 97. Meningitis                 | 150. Urethritis                     |
| 46. CVA                                    | 98. Mental retardation         | 151. Urinary stone disease          |
| 47. Dengue                                 | 99. Mumps                      | 152. Urinary tract infection        |
| 48. Depressive disorders                   | 100. Myocardial infarction     | 153. Valvular heart disease         |
| 49. Diabetes mellitus                      | 101. Nasal polyp               | 154. Viral fever                    |
| 50. Diarrhea                               | 102. Nasopharyngeal carcinoma  | 155. Whooping cough                 |
| 51. Diphtheria                             | 103. Nephrotic syndrome        | 156. Worm infestation (Intestinal)  |
| 52. Disc prolapse                          | 104. Night blindness           | 157. Other                          |
|  | 105. Obstructed labor          |                                     |

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. A. Age and sex distribution of the diseases/conditions among the admitted patients in upazila health complexes (n=376)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Abortion	0	0	0	0	0	0	0	0	0	3895	0	7070	0	485	0	11450
Acid burn	0	10	15	46	50	52	78	105	177	290	234	185	101	562	655	1250
AIDS/HIV	0	0	0	0	0	0	0	0	12	19	95	103	59	54	166	176
Allergic reaction	19	18	12	6	66	66	125	125	213	166	283	203	145	160	863	744
Anemia	32	47	91	103	625	647	1153	1566	2126	3479	3345	6178	3278	4715	10650	16735
Anal fistula	1	0	3	11	15	25	36	92	217	123	180	95	134	436	586	782
Angina pectoris	0	0	0	0	0	0	0	0	122	365	578	369	353	466	1053	1200
Anxiety and depressive disorders	0	0	0	0	0	0	0	0	1290	2988	1610	4452	965	1647	3865	9087
APH	0	0	0	0	0	0	0	0	0	750	0	1575	0	529	0	2854
Appendicitis	0	0	0	0	90	94	380	808	865	1478	1129	1413	265	318	2729	4111
Arsenicosis	0	0	0	3	10	15	19	30	42	44	62	40	30	95	163	227
Arthritis	0	1	153	300	328	312	337	330	759	734	1162	1102	1133	2371	3872	5150
Assault	0	0	0	0	0	0	0	0	30833	26645	53826	44793	25756	18065	110415	89503
Bacillary dysentery	2	3	117	78	373	437	638	638	978	646	1160	1374	1204	1272	4472	4448
Bone tumor	0	8	15	32	37	40	72	23	79	40	74	6	6	143	283	292
Brain tumor	0	0	0	0	0	0	0	0	100	222	215	259	182	784	497	1265
Bronchial asthma	0	13	195	310	459	456	934	1054	1539	2013	4407	4634	6634	5721	14168	14201
Bronchiectasis	0	0	0	0	0	0	0	0	199	397	379	486	501	1334	1079	2217
Bronchiolitis	100	113	866	659	453	364	204	214	217	240	510	426	479	430	2829	2446
Burn (Others)	10	64	64	67	541	461	487	604	513	589	608	643	329	406	2552	2834
C.C.F	0	0	0	0	0	0	0	0	48	87	101	227	308	392	457	706
Ca- Cervix	0	0	0	0	0	0	0	0	0	440	0	573	0	940	0	1953
Ca-Bladder	0	32	20	60	42	36	24	31	46	85	100	52	47	291	279	587
Ca-Breast	0	0	0	0	0	0	0	0	0	15	0	580	0	282	0	877
Ca-Colon	0	42	0	0	0	0	38	0	240	40	47	5	5	117	330	204
Ca-Gall bladder	0	0	0	0	0	0	90	176	232	475	415	312	303	68	1002	1031
Ca-Kidney	0	5	4	20	18	90	111	200	657	800	712	300	90	1416	1592	2831
Ca-Larynx	0	0	0	20	553	320	43	339	147	165	81	101	102	85	926	1030
Ca-Liver	0	0	0	2	5	20	18	61	68	158	131	87	51	258	273	586
Ca-Lungs	0	0	0	0	1	0	0	0	0	0	16	10	28	9	45	19
Ca-Esophagus	0	0	0	10	20	15	14	16	46	0	7	1	10	44	97	86
Ca-Oral cavity	1	0	4	2	5	9	14	57	139	299	267	187	200	658	630	1212
Ca-Pancreas	0	2	1	10	7	18	17	11	13	16	115	20	70	77	223	154
Ca-Crostate	0	0	0	0	0	0	0	0	72	0	100	0	89	0	261	0
Ca-Rectum and anal canal	0	0	0	10	11	22	50	55	66	84	47	49	29	216	203	436
Ca-Scrotum	0	0	0	0	0	0	0	0	70	0	714	0	567	0	1351	0
Ca-Skin	0	0	0	0	5	6	32	39	10	15	100	117	101	154	248	331
Ca-Stomach	0	0	0	0	6	10	8	23	55	27	34	56	92	118	195	234
Cataract	0	17	27	78	74	63	40	67	38	149	107	40	54	417	340	831
Ca-Thyroid	0	0	0	0	0	0	0	0	31	28	38	58	56	152	125	238
Cholecystitis	0	0	0	0	0	0	0	0	24	122	95	203	69	107	188	432
Chollithiasis	0	0	0	8	14	29	20	66	67	41	108	100	24	103	233	347
Cirrhosis of liver	0	0	0	0	0	0	0	0	65	47	111	110	187	288	363	445
Congenital heart disease	2	4	6	2	1	1	3	151	192	313	446	1466	1225	1893	1875	3830
COPD	17	27	80	84	243	194	670	781	1768	2610	3943	4585	8573	5829	15294	14110
Corneal ulcer	0	0	0	0	3	15	36	65	141	161	228	283	349	188	757	712
CVA	0	0	0	0	0	0	0	0	199	275	658	846	2181	1980	3038	3101
Dengue	0	65	128	107	127	168	148	104	160	159	166	188	111	667	840	1458
Diabetes mellitus	0	0	25	60	165	215	154	238	460	437	1037	1083	1260	1510	3101	3543
Diarrhea	1347	1356	18548	13954	33429	25041	16748	14342	17488	21244	25035	30350	16616	17169	129211	123456
Diphtheria	0	1	51	45	52	72	45	49	66	65	132	148	86	82	432	462
Disc prolapse	0	0	0	12	2	2	11	5	43	100	79	116	80	228	215	463
Drowning/Near-drowning	0	1	13	19	463	382	307	176	189	115	206	50	58	164	1236	907
Drug reaction	0	1	1	6	16	25	30	35	54	123	116	292	83	158	300	640
Dysentery	2	90	294	368	774	783	937	930	1094	1057	1384	1621	1579	2288	6064	7137
Ectopic pregnancy	0	0	0	0	0	0	0	0	0	621	0	847	0	431	0	1899
Electric shock	2	31	53	33	80	53	146	102	206	130	306	184	123	200	916	733
Emphysema	0	0	99	85	60	55	71	39	40	31	69	97	51	343	390	650
Encephalitis	0	0	0	0	0	0	0	0	889	869	1579	1189	972	2955	3440	5013
Enteric fever	93	81	852	787	2749	2483	3932	3750	6171	5934	8424	8504	5005	4388	27226	25927
Epilepsy	0	84	50	72	94	182	162	155	135	56	56	103	111	590	608	1242
Fibroid	0	0	0	0	0	0	0	0	0	76	0	202	0	179	0	457
Filariasis	8	182	138	84	46	13	6	0	5	81	94	74	99	307	396	741
Food poisoning	26	24	105	125	364	368	574	512	625	678	711	569	484	495	2889	2771
Fracture	10	25	18	18	104	124	248	257	340	273	501	380	223	367	1444	1444
Fungal infections	1	25	31	62	168	160	204	280	292	671	905	1418	488	850	2089	3466
Gangrene	0	0	0	0	0	0	11	2	33	68	109	114	115	111	268	295
Glaucoma	0	0	0	0	0	0	0	0	3	59	56	0	1	56	60	115
Glomerulonephritis	0	0	7	7	19	37	120	27	32	16	14	81	2	32	194	200
Gonorrhea	4	8	0	9	5	58	20	60	93	27	46	115	10	124	178	401
Hemolytic jaundice	0	0	0	0	2	9	6	19	30	34	32	28	18	82	88	172
Hemorrhoids (Piles)	0	0	0	2	4	7	5	22	38	28	27	17	19	74	93	150
Head injury	1	3	37	43	84	124	470	336	1502	826	2268	1116	1353	540	5715	2988
Heart failure	0	0	2	0	3	24	30	25	85	75	362	283	663	448	1145	855

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. A. Age and sex distribution of the diseases/conditions among the admitted patients in upazila health complexes (n=376) (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Hepatic failure	0	0	0	0	0	0	0	0	145	310	286	206	241	725	672	1241
Hepatitis	0	0	0	0	0	0	0	0	315	256	512	401	470	384	1297	1041
Hernia	0	0	1	0	19	7	158	60	159	51	354	80	426	89	1117	287
Hydrocephalous	0	0	0	0	0	15	10	8	8	10	12	10	16	44	46	87
Hydrocele	0	0	0	0	0	0	0	0	235	104	498	317	238	716	971	1137
Hydronephrosis	0	0	0	0	0	0	0	0	31	25	26	60	60	147	117	232
Hypercholesterolemia	0	0	0	0	0	0	0	0	43	29	21	29	32	108	96	166
Hypertension	0	0	0	0	0	0	0	0	668	1062	3636	4530	6516	6462	10820	12054
Hyperthyroidism	0	0	0	0	0	0	0	0	346	77	162	117	84	245	592	439
Hypertrophied Prostate	0	0	0	0	0	0	0	0	21	0	3	0	25	0	49	0
Hypothyroidism	0	0	0	8	14	29	14	13	14	16	16	29	16	91	74	186
Infective endocarditis	0	0	0	0	0	0	0	0	305	316	406	271	199	744	910	1331
Intestinal obstruction	1	0	4	1	13	31	122	111	309	265	730	444	264	183	1443	1035
Kala-azar	0	0	6	17	82	121	246	260	389	394	616	267	306	424	1645	1483
Leprosy	0	0	9	8	2	19	30	21	2	11	15	20	3	72	61	151
Leukemia	1	60	30	72	56	25	33	29	11	98	67	86	31	367	229	737
Liver abscess	0	1	0	1	0	1	4	12	21	17	40	31	28	41	93	104
Lymphoma	0	0	0	12	22	34	60	184	170	192	135	39	34	457	421	918
Lymphosarcoma	0	13	17	92	71	51	55	77	117	135	160	92	129	452	549	912
Malaria (Vivax/ Falciparum)	0	2	53	37	339	298	596	456	828	502	702	475	244	123	2762	1893
Mastoiditis	0	0	0	12	3	64	56	59	101	9	16	14	3	26	179	184
Measles	3	2	65	39	26	31	27	24	61	53	35	42	33	114	250	305
Meningitis	0	6	59	40	83	91	68	76	112	71	86	88	57	78	465	450
Mental retardation	0	0	0	0	0	0	0	0	402	292	546	594	263	1156	1211	2042
Mumps	1	0	5	9	68	161	137	259	215	337	236	206	127	620	789	1592
Myocardial infarction	0	0	120	300	500	426	142	130	388	181	261	219	459	1473	1870	2729
Nasal polyp	0	0	0	0	3	4	0	0	24	13	7	13	1	0	35	30
Nasopharyngeal carcinoma	1	11	58	145	189	110	129	148	97	225	200	91	110	771	784	1501
Nephrotic syndrome	0	0	3	5	41	51	67	93	70	79	100	45	30	139	311	412
Night blindness	0	21	25	52	16	19	3	10	7	7	26	26	36	48	113	183
Obst. jaundice	4	4	0	3	7	8	15	17	40	119	57	935	70	95	193	1181
Obstructed labour	0	0	0	0	0	0	0	0	0	6928	0	12034	0	1592	0	20554
Orchitis	0	0	0	0	0	0	0	0	88	0	117	0	72	0	277	0
Osteomyelitis	0	0	2	2	1	24	18	36	66	53	25	22	30	122	142	259
Osteosarcoma	0	43	59	86	97	102	90	162	133	217	161	161	91	770	631	1541
Ovarian tumor	0	0	0	0	0	0	0	0	0	86	0	128	0	61	0	275
Pancreatitis	0	0	3	12	6	5	0	4	126	1	134	27	10	3	279	52
Pelvic infectious Disease	0	0	0	0	0	0	0	0	0	902	0	1598	0	547	0	3047
Peptic ulcer	0	0	0	0	0	0	0	0	8871	10882	20537	25002	15292	14828	44700	50712
Perforation (GI Tract)	0	0	0	0	0	9	7	15	65	70	268	75	201	173	541	342
Peripheral vascular disease	0	0	6	91	142	288	173	352	354	463	289	469	226	1470	1190	3133
Pleural effusion	0	2	10	7	20	7	6	4	7	13	28	12	57	31	128	76
Pneumonia	7286	6571	35203	23888	23668	16127	3859	2463	609	480	526	421	443	763	71594	50713
Pneumothorax	12	59	95	37	121	330	73	77	141	147	211	159	60	596	713	1405
Poisoning	3	4	84	68	736	531	1180	1702	6519	7324	8531	8516	2177	1648	19230	19793
Polioomyelitis	0	0	5	2	14	27	34	20	124	144	123	141	45	129	345	463
PPH	0	0	0	0	0	0	0	0	0	771	0	1395	0	89	0	2255
Prostatic tumour	0	0	0	0	0	0	0	0	37	0	1111	0	691	0	1839	0
Prostatitis	0	0	0	0	0	0	0	0	34	0	74	0	145	0	253	0
Protein energy malnutrition	4	9	64	49	253	234	175	181	182	159	108	130	131	309	917	1071
Pulmonary fibrosis	0	17	33	148	142	117	102	96	83	163	108	424	100	469	568	1434
Pyelonephritis	0	16	4	25	31	43	36	27	91	68	102	52	27	193	291	424
Rabis	0	0	0	0	0	0	0	0	1	1	1	1	3	1	5	3
Rectal prolapse	0	0	0	8	15	32	24	13	6	17	9	21	13	86	67	177
Refractive error	0	0	0	0	0	0	0	0	119	136	284	207	164	526	567	869
Renal failure	0	0	0	1	1	0	1	2	14	46	45	60	54	90	115	199
Renal stone	0	0	0	7	7	8	21	25	128	173	154	26	58	227	368	466
Retinal problem	0	0	0	0	0	13	10	2	3	8	10	3	7	17	30	43
Rheumatic fever	2	28	23	36	90	60	189	187	235	240	313	359	152	192	1004	1102
Rhinitis	0	0	0	1	0	7	0	0	1	5	1	6	2	18	4	37
Rickets	0	0	0	7	12	29	25	94	125	140	108	24	19	283	289	577
Road-traffic accident	8	16	35	58	542	510	2540	2152	6525	3836	10697	5214	5601	2775	25948	14561
Rupture uterus	0	0	0	0	0	0	0	0	0	29	0	102	0	30	0	161
Scabies	0	0	11	24	136	185	292	417	366	195	415	432	202	238	1422	1491
Schizophrenia	0	0	0	1	0	2	4	8	14	7	37	46	33	56	88	120
Septicemia	0	0	0	0	0	0	0	0	265	84	487	333	6	18	758	435
Spinal cord injury	0	0	0	25	19	50	39	42	29	69	64	116	76	292	227	594
Suppurative otitis media	0	0	0	3	12	24	15	107	85	159	134	69	37	338	283	700
Syphilis	0	0	0	1	2	1	0	0	1	0	0	0	1	0	4	2
Tetanus	0	0	0	0	9	11	4	4	29	6	12	6	5	7	59	34
Thalassaemia	113	45	11	7	58	99	165	142	82	260	199	94	96	450	724	1097
Tonsillitis	0	0	3	34	120	103	238	193	405	277	362	214	162	176	1290	997

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. A. Age and sex distribution of the diseases/conditions among the admitted patients in upazila health complexes (n=376) (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Tuberculosis (Extra-pulmonary)	0	14	5	19	9	8	10	15	157	137	248	275	207	158	636	626
Tuberculosis (Pulmonary)	0	0	3	0	1	0	6	19	33	57	180	143	162	85	385	304
Urethritis	0	0	0	0	0	0	0	0	232	192	135	279	115	385	482	856
Urinary stone disease	0	0	0	0	0	0	0	0	49	59	120	113	69	72	238	244
Urinary tract Infection	0	0	0	0	0	0	0	0	974	2182	2161	3709	2012	2117	5147	8008
Valvular heart disease	9	204	116	271	207	125	145	58	99	346	503	184	159	1140	1238	2328
Viral fever	64	69	631	661	1620	1412	2272	2103	2940	3055	3382	3632	2241	2659	13150	13591
Whooping cough	0	0	2	1	6	16	3	162	64	176	83	92	22	11	180	458
Worm infestation (Intestinal)	0	0	113	552	827	864	967	1467	767	852	881	1463	611	641	4166	5839
Others	3773	4279	7651	8320	12346	15491	19405	25041	30061	76754	45785	97501	36735	40450	155756	267836

### 5. 2. B. Age and sex distribution of the diseases/conditions among the admitted patients in district-level hospitals (n=53)\*

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Abortion	0	0	0	0	0	0	0	0	0	3334	0	3440	0	489	0	7263
Acid burn	0	0	0	0	11	9	21	29	16	37	11	10	1	1	60	86
AIDS/HIV	0	0	0	0	0	0	0	0	15	10	25	37	0	0	40	47
Allergic reaction	0	0	12	10	216	160	153	192	201	248	158	167	61	80	801	857
Anemia	15	18	58	62	449	476	748	698	945	1463	1491	4195	1202	2462	4908	9374
Anal fistula	0	0	0	0	2	1	157	153	203	176	303	247	232	193	897	770
Angina pectoris	0	0	0	0	0	0	0	0	46	96	315	278	494	145	855	519
Anxiety and depressive disorders	0	0	0	0	0	0	0	0	325	894	762	1601	881	839	1968	3334
APH	0	0	0	0	0	0	0	0	0	460	0	592	0	213	0	1265
Appendicitis	0	0	0	2	16	32	403	742	771	1456	1086	1198	157	490	2433	3920
Arsenicosis	0	0	9	0	8	6	8	6	71	3	13	50	0	7	109	72
Arthritis	0	0	91	0	4	3	210	189	420	352	668	546	500	530	1893	1620
Assault	0	0	0	0	0	0	131	65	10110	6855	21067	11967	11478	8052	42786	26939
Bacillary dysentery	4	7	114	148	405	407	548	578	462	493	963	886	477	389	2973	2908
Bone tumor	0	0	0	0	0	0	112	115	122	133	140	209	20	0	394	457
Brain tumor	0	0	0	0	0	0	0	0	154	156	194	250	130	124	478	530
Bronchial asthma	3	2	199	172	398	301	751	1045	1867	1905	2897	3200	3988	3887	10103	10512
Bronchiectasis	0	0	0	0	0	0	0	0	384	366	524	509	449	450	1357	1325
Bronchiolitis	165	361	1662	1328	859	627	235	184	46	53	91	118	83	106	3141	2777
Burn (Others)	36	2	97	66	496	535	573	725	652	803	814	885	476	542	3144	3558
C.C.F	0	0	0	0	0	0	0	0	100	70	376	230	372	349	848	649
Ca- Cervix	0	0	0	0	0	0	0	0	0	202	0	395	0	303	0	900
Ca-Bladder	0	0	0	0	0	0	0	0	0	18	1	23	9	19	10	60
Ca-Breast	0	0	0	0	0	0	0	0	0	145	0	328	0	170	0	643
Ca-Colon	0	0	0	0	0	0	0	0	1	3	6	5	13	1	20	9
Ca-Gall bladder	0	0	0	0	0	0	0	0	141	145	181	180	205	203	527	528
Ca-Kidney	0	0	0	0	0	0	7	4	21	0	12	10	3	3	43	17
Ca-Larynx	0	0	0	0	0	0	0	0	0	0	1	0	13	6	14	6
Ca-Liver	0	0	1	0	0	0	1	0	8	30	99	45	76	27	185	102
Ca-Lungs	0	0	0	0	1	0	1	22	169	174	224	176	326	257	721	629
Ca-Oesophagus	0	0	0	0	0	0	0	0	0	0	1	1	5	3	6	4
Ca-Oral Cavity	0	0	0	0	24	30	35	39	40	60	75	41	98	72	272	242
Ca-Pancreas	0	0	0	0	0	0	0	0	0	18	2	27	12	8	14	53
Ca-Prostate	0	0	0	0	0	0	0	0	143	0	429	0	223	0	795	0
Ca-Rectum and anal canal	0	0	0	0	0	0	0	0	80	68	103	48	70	36	253	152
Ca-Scrotum	0	0	0	0	0	0	0	0	54	0	186	0	72	0	312	0
Ca-Skin	10	12	15	18	13	16	25	30	25	27	28	33	37	40	153	176
Ca-Stomach	0	0	0	0	30	25	12	10	35	21	33	49	93	31	203	136
Cataract	0	0	0	0	0	0	0	0	48	36	663	652	2508	2617	3219	3305
Ca-Thyroid	0	0	0	0	0	0	0	0	33	25	44	48	147	163	224	236
Cholecystitis	0	0	0	0	0	0	0	0	55	211	283	574	209	346	547	1131
Cholilithiasis	0	0	0	0	0	1	2	14	74	223	226	752	185	368	487	1358
Cirrhosis of liver	0	0	0	0	0	0	0	0	98	158	295	249	345	183	738	590
Congenital heart disease	12	24	26	15	29	41	117	106	116	113	666	403	1040	315	2006	1017
COPD	1	0	40	42	218	83	375	168	810	781	2001	2038	3711	2211	7156	5323
Corneal ulcer	0	0	0	0	0	0	2	1	147	125	460	489	301	230	910	845
CVA	0	0	0	0	0	0	0	0	275	308	1441	1287	3944	2713	5660	4308
Dengue	0	0	0	0	0	0	0	0	0	0	9	10	25	15	34	25
Diabetes mellitus	0	24	338	299	419	198	118	105	192	304	1861	1966	2843	2294	5771	5190
Diarrhoea	758	700	7688	5963	11203	9340	6531	6155	5929	6765	8461	9691	5349	6210	45919	44824
Diphtheria	5	3	110	105	191	150	231	155	180	231	233	268	77	111	1027	1023
Disc prolapse	0	0	0	0	1	1	0	0	0	0	6	1	9	4	16	6
Drowning/near-drowning	0	0	45	33	187	147	86	49	34	41	2	29	4	13	358	312
Drug reaction	0	0	0	0	8	8	24	3	32	17	58	43	17	24	139	95
Dysentery	50	53	95	110	421	380	626	565	554	598	742	821	817	844	3305	3371
Ectopic pregnancy	0	0	0	0	0	0	0	0	0	263	0	571	0	225	0	1059
Electric shock	0	0	0	0	6	9	88	35	118	118	215	114	76	24	503	300
Emphysema	0	0	0	0	1	1	0	2	0	4	0	3	9	19	10	29
Encephalitis	0	0	0	0	1	1	0	0	197	93	427	386	413	352	1038	832

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. B. Age and sex distribution of the diseases/conditions among the admitted patients in district-level hospitals (n=53)\* (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50y+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Enteric fever	131	137	268	238	877	809	1349	1201	1370	1337	2495	2627	1364	1399	7854	7748
Epilepsy	6	15	36	48	93	69	95	96	58	89	51	55	88	70	427	442
Fibroid	0	0	0	0	0	0	0	0	0	167	0	299	0	253	0	719
Filariasis	0	0	0	0	1	2	2	0	0	0	1	0	1	0	5	2
Food poisoning	0	0	20	19	238	223	450	324	669	648	1061	577	731	531	3169	2322
Fracture	2	2	124	223	264	406	694	685	1083	1136	2302	1517	1019	725	5488	4694
Fungal infections	52	21	109	91	89	631	373	126	427	336	190	146	94	109	1334	1460
Gangreen	0	0	0	0	1	1	37	11	30	24	125	32	134	53	327	121
Glaucoma	0	0	0	0	0	0	16	0	0	1	20	14	57	45	93	60
Glomerulonephritis	3	2	6	12	63	68	106	68	22	37	15	18	5	9	220	214
Gonorrhoea	0	0	0	0	0	0	3	1	8	8	15	1711	27	43	53	1763
Haemolytic jaundice	37	12	125	124	121	134	134	137	160	141	169	171	142	155	888	874
Haemorrhoids (Piles)	0	0	0	0	1	0	2	2	106	122	271	195	207	190	587	509
Head injury	0	1	14	8	116	164	471	512	1453	686	1724	978	1061	724	4839	3073
Heart failure	0	0	0	0	0	0	0	0	373	272	831	542	1267	994	2471	1808
Hepatic failure	0	0	0	0	0	0	0	0	33	82	65	66	76	84	174	232
Hepatitis	0	0	4	5	1	1	2	1	381	353	780	689	617	561	1785	1610
Hernia	0	0	1	2	54	25	143	32	362	129	790	188	675	224	2025	600
Hydrocephalous	0	0	0	0	1	1	2	3	4	5	11	1	0	0	18	10
Hydrocyle	0	0	0	0	0	0	0	0	64	37	246	59	255	32	565	128
Hydronephrosis	0	0	0	0	0	0	0	0	0	9	9	16	7	1	16	26
Hypercholesteremia	0	0	0	0	0	0	0	0	20	30	85	33	46	198	151	261
Hypertension	0	0	0	0	0	0	0	0	600	956	2642	3888	4603	4290	7845	9134
Hyperthyroidism	0	0	0	0	0	0	0	0	155	194	176	190	181	176	512	560
Hypertophid prostate	0	0	0	0	0	0	0	0	0	0	4	0	25	0	29	0
Hypothyroidism	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Infective endocarditis	0	0	0	0	0	0	0	0	1	2	5	4	17	7	23	13
Intestinal obstruction	2	3	5	12	33	47	253	68	199	503	1351	518	661	572	2504	1723
Kala-azar	0	0	0	0	16	10	17	14	20	11	40	20	7	5	100	60
Leprosy	0	0	0	0	1	0	0	1	0	75	96	99	120	101	217	276
Leukemia	0	1	1	0	114	117	147	132	165	162	25	42	7	13	459	467
Liver abscess	0	0	1	0	4	2	26	20	94	99	150	64	109	75	384	260
Lymphoma	0	0	0	0	0	0	2	7	113	138	132	116	144	136	391	397
Lymphosarcoma	0	0	0	0	0	2	0	3	0	23	0	4	0	0	0	32
Malaria(Vivax/Falciparum)	0	1	6	4	21	13	64	56	103	73	170	110	97	77	461	334
Mastoiditis	0	0	29	50	28	60	30	0	0	1	6	0	3	7	96	118
Measles	27	13	51	150	178	116	80	98	37	17	28	63	92	52	493	509
Meningitis	31	35	179	172	188	166	215	164	97	242	93	118	101	128	904	1025
Mental retardation	0	0	0	0	0	0	0	0	23	185	57	228	116	220	196	633
Mumps	5	5	119	113	144	165	105	82	34	51	87	46	187	114	681	576
Myocardial infarction	0	0	0	0	0	0	0	0	233	191	1699	618	2839	828	4771	1637
Nasal polyp	0	2	0	0	172	146	155	173	202	205	154	141	131	112	814	779
Nasopharyngeal carcinoma	0	0	0	0	0	0	1	0	5	1	5	0	0	0	11	1
Nephrotic syndrome	5	5	11	24	176	137	236	182	57	88	90	68	42	46	617	550
Night blindness	0	0	0	0	30	33	30	36	3	11	80	49	286	392	429	521
Obst. jaundice	97	49	130	126	110	115	121	116	148	139	191	237	112	81	909	863
Obstructed labour	0	0	0	0	0	0	0	0	0	1967	0	3186	0	526	0	5679
Orchitis	0	0	0	0	0	0	0	0	23	0	152	0	14	0	189	0
Osteomyelitis	0	0	0	0	2	13	7	9	76	84	53	71	49	40	187	217
Osteosarcoma	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
Ovarian tumour	0	0	0	0	0	0	0	0	0	241	0	329	0	188	0	758
Pancreatitis	0	0	0	0	0	0	1	0	0	5	23	7	3	0	27	12
Pelvic infectious disease	0	0	0	0	0	0	0	0	0	387	0	713	0	446	0	1546
Peptic ulcer	0	0	0	0	0	1	3	20	3502	3500	8921	9096	5810	5847	18236	18464
Perforation (GI Tract)	0	0	0	0	0	0	7	4	188	33	693	228	516	369	1404	634
Peripheral vascular disease	0	0	0	0	0	0	2	1	4	7	69	6	86	19	161	33
Pleural effusion	144	112	705	462	256	125	201	186	237	241	546	381	347	159	2436	1666
Pneumonia	5445	4026	15055	10437	9632	7438	3123	2401	689	416	647	417	324	207	34915	25342
Pneumothorax	80	65	80	42	81	56	30	36	6	16	35	16	20	5	332	236
Poisoning	1	1	49	67	435	288	555	554	2539	2681	3922	3911	984	914	8485	8416
Poliomyelitis	0	0	6	4	10	8	11	8	33	203	31	42	27	15	118	280
PPH	0	0	0	0	0	0	0	0	0	880	0	707	0	211	0	1798
Prostatic tumour	0	0	0	0	0	0	0	0	165	0	178	0	227	0	570	0
Prostatitis	0	0	0	0	0	0	0	0	180	0	197	0	253	0	630	0
Protein energy malnutrition	37	22	112	147	245	157	145	115	113	97	78	80	62	56	792	674
Pulmonary fibrosis	0	0	0	0	0	0	0	0	40	45	30	25	35	28	105	98
Pyelonephritis	0	0	0	0	0	0	1	0	12	0	41	69	18	85	72	154
Rabis	0	0	2	9	24	19	25	36	28	12	21	25	27	39	127	140
Rectal prolapse	0	0	0	1	29	24	35	33	75	62	172	100	160	101	471	321
Refractive error	0	0	0	0	0	0	0	0	55	38	68	37	83	83	206	158
Renal failure	0	0	1	0	1	10	17	43	121	383	178	180	325	135	643	751
Renal stone	0	0	0	0	0	0	0	1	27	29	229	195	247	274	503	499
Retinal problem	0	0	0	0	0	2	30	40	56	109	104	157	116	95	306	403
Rheumatic fever	0	0	0	0	17	21	158	132	177	191	93	96	45	36	490	476
Rhinitis	0	0	0	0	0	0	4	3	3	8	1	3	1	0	9	14
Rickets	0	0	0	0	4	1	111	122	115	113	127	115	125	121	482	472
Road-traffic accident	0	1	25	43	473	677	2232	1536	4018	1903	10833	3075	4312	1779	21893	9014
Rupture uterus	0	0	0	0	0	0	0	0	0	92	0	134	0	90	0	316
Scabies	13	14	42	204	1488	2135	1948	1830	1000	1227	244	210	232	244	4967	5864

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. B. Age and sex distribution of the diseases/conditions among the admitted patients in district-level hospitals (n=53)\* (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50y+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Schizophrenia	10	10	4	0	0	0	0	0	11	11	9	17	0	6	34	44
Septicemia	0	0	0	0	0	0	0	0	668	482	1731	1437	322	335	2721	2254
Spinal cord injury	0	0	0	0	0	0	5	1	44	49	76	73	86	92	211	215
Suppurative otitis media	0	0	21	25	59	21	24	5	15	14	49	112	46	18	214	195
Syphilis	0	0	0	0	5	3	0	0	0	0	59	85	124	145	188	233
Tetanus	126	111	5	3	7	7	26	20	19	53	41	31	43	6	267	231
Thalassemia	1	2	124	141	678	615	1039	739	315	231	222	262	78	116	2457	2106
Tonsillitis	75	62	6	16	45	48	146	157	156	136	116	151	67	37	611	607
Tuberculosis (Extra-pulmonary)	0	0	0	0	6	2	26	39	47	93	342	230	476	211	897	575
Tuberculosis (Pulmonary)	0	0	0	0	6	5	18	18	130	146	207	173	358	180	719	522
Urethritis	0	0	0	0	0	0	0	0	47	53	69	66	77	87	193	206
Urinary stone disease	0	0	0	0	0	0	0	0	137	187	188	162	214	220	539	569
Urinary tract infection	0	0	0	0	0	0	0	0	460	1231	1136	1884	1203	1407	2799	4522
Valvular heart disease	0	0	1	0	1	0	38	17	93	47	406	149	338	150	877	363
Viral fever	156	153	666	553	1105	971	1077	799	1319	1384	1965	1439	1233	1098	7521	6397
Whooping cough	0	0	31	35	56	59	35	197	55	265	78	295	120	131	375	982
Worm infestation (Intestinal)	0	0	80	153	459	688	739	984	415	779	294	652	176	416	2163	3672
Others	11701	8579	9357	8365	10337	10681	17598	20010	21467	35686	39765	56810	29773	34297	139998	174428

\* Although in Chapter 7, consolidated data of 57 district level hospitals are given, the detailed age-wise data of 54 hospitals are available.

### 5. 2. C. Age and sex distribution of the diseases/conditions among the admitted patients in medical college hospitals (n=6)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50y+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Abortion	0	0	0	0	0	0	0	4	0	1640	0	1849	0	15	0	3508
Acid burn	0	0	0	0	0	0	1	2	0	1	1	7	0	1	2	11
AIDS/HIV	0	0	0	0	0	0	0	0	2	1	6	4	0	0	8	5
Allergic reaction	0	0	1	1	5	6	10	17	52	49	54	53	28	25	150	151
Anemia	1	2	4	19	68	62	235	134	250	488	808	644	370	286	1736	1635
Anal fistula	0	0	0	0	0	1	4	3	72	140	179	180	107	74	362	398
Angina pectoris	0	0	0	0	0	0	29	14	120	84	536	281	716	464	1401	843
Anxiety and depressive disorders	0	0	0	0	0	0	12	13	276	661	555	952	394	271	1237	1897
APH	0	0	0	0	15	9	10	11	14	315	25	373	27	74	91	782
Appendicitis	0	0	2	3	18	12	169	113	705	414	445	298	96	40	1435	880
Arsenicosis	0	0	18	14	7	5	0	0	7	18	10	25	1	15	43	77
Arthritis	0	0	0	0	9	2	20	20	175	92	359	336	326	350	889	800
Assault	0	0	0	0	38	81	379	241	2501	1249	3850	1678	1469	711	8237	3960
Bacillary dysentery	0	0	44	69	135	60	110	97	143	127	591	474	438	327	1461	1154
Bone tumor	0	0	0	0	1	1	22	19	44	57	56	62	55	26	178	165
Brain tumor	0	0	0	0	0	3	6	7	22	9	25	27	22	4	75	50
Bronchiectasis	0	2	32	35	29	29	25	23	10	8	59	30	67	54	222	181
Bronchial asthma	0	1	1	12	66	94	116	196	245	757	786	644	636	344	1850	2048
Bronchiolitis	4	2	527	408	314	244	40	24	63	29	157	47	66	34	1171	788
Burn (Others)	0	0	9	15	48	30	98	54	163	115	282	227	138	151	738	592
C.C.F	0	1	2	8	11	12	7	6	18	23	242	213	505	393	785	656
Ca-Breast	0	0	0	0	0	0	0	0	1	12	18	151	12	126	31	289
Ca-Cervix	0	0	1	1	2	2	4	7	7	6	5	119	5	118	24	253
Ca-Bladder	0	0	0	0	0	0	3	1	1	2	7	3	36	12	47	18
Ca-Colon	0	0	0	0	0	0	1	0	6	6	55	29	49	30	111	65
Ca-Gall bladder	0	0	0	0	0	0	8	3	5	0	18	34	88	41	119	78
Ca-Kidney	0	0	0	0	0	0	0	0	0	0	12	13	16	19	28	32
Ca-Larynx	0	0	0	0	0	0	0	0	1	2	56	61	112	53	169	116
Ca-Liver	0	0	0	0	1	1	0	0	1	0	42	26	70	85	114	112
Ca-Lungs	0	0	0	0	0	0	2	0	2	8	70	48	191	69	265	125
Ca-Esophagus	0	0	0	0	0	0	0	0	5	5	42	31	99	55	146	91
Ca-Oral cavity	0	0	0	0	0	0	0	0	1	2	27	11	43	15	71	28
Ca-Pancreas	0	0	0	0	0	0	0	0	0	1	17	3	34	18	51	22
Ca-Prostate	0	0	0	0	0	0	0	0	0	1	6	1	27	1	33	3
Ca-Rectum & anal canal	0	0	0	0	0	0	2	1	34	3	53	31	48	31	137	66
Ca-Scrotum	0	0	4	2	1	1	0	0	0	0	8	2	12	3	25	8
Ca-Skin	2	2	2	1	2	3	1	4	0	0	5	8	10	5	22	23
Ca-Stomach	0	0	0	0	0	0	0	0	2	39	94	89	158	124	254	252
Cataract	0	0	0	0	3	4	410	623	138	179	242	215	251	211	1044	1232
Ca-Thyroid	0	0	0	0	0	0	0	0	0	1	14	18	27	13	41	32
Cholecystitis	0	0	0	0	12	9	6	4	63	64	171	312	153	222	405	611
Cholilithiasis	0	0	0	0	0	1	4	1	28	44	148	304	104	169	284	519
Cirrhosis of liver	0	0	3	2	1	0	7	7	81	34	361	263	340	286	793	592
Congenital heart disease	0	8	37	18	18	18	19	21	55	37	95	52	75	68	299	222
COPD	0	0	1	4	16	22	28	29	73	142	565	364	1165	467	1848	1028
Corneal ulcer	5	2	42	27	33	134	113	214	411	18	46	108	220	199	870	702
CVA	0	0	0	0	0	0	25	16	140	80	947	803	1496	985	2608	1884
Dengue	0	0	0	0	0	0	14	10	15	31	69	45	57	49	155	135
Diabetes mellitus	1	0	41	75	31	41	28	43	64	89	307	634	942	727	1414	1609
Diarrhea	2	2	491	406	536	703	428	706	577	696	1477	637	2827	2306	6338	5456
Diphtheria	0	0	55	74	27	43	22	4	10	7	10	6	2	0	126	134
Disc prolapse	0	0	0	0	0	0	0	0	37	16	96	46	44	42	177	104

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. C. Age and sex distribution of the diseases/conditions among the admitted patients in medical college hospitals (n=6) (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50y+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Drowning/Near Drowning	0	0	11	5	40	26	13	19	8	16	39	51	175	35	286	152
Drug reaction	0	0	0	0	2	1	5	3	11	18	49	54	30	11	97	87
Dysentery	0	0	0	1	13	16	11	4	24	24	80	53	128	131	256	229
Ectopic pregnancy	0	0	0	0	0	0	0	0	1	119	16	138	17	16	34	273
Electric shock	0	1	0	2	1	2	29	5	44	30	122	43	99	7	295	90
Emphysema	0	0	0	1	8	7	7	7	7	28	60	34	63	28	145	105
Encephalitis	0	0	47	37	148	111	93	91	101	95	257	142	172	119	818	595
Enteric fever	0	0	5	15	127	113	194	181	344	266	615	380	437	297	1722	1252
Epilepsy	0	0	1	0	38	20	61	39	49	75	99	54	86	32	334	220
Fibroid	0	0	0	0	4	4	7	7	0	142	3	308	8	101	22	562
Filariasis	0	0	0	0	1	0	0	18	7	27	32	80	27	16	67	141
Food poisoning	0	0	1	48	51	39	26	26	82	97	119	95	93	39	372	344
Fracture	5	7	17	20	77	79	212	294	639	564	1288	1004	1348	414	3586	2382
Fungal infections	23	35	175	136	281	230	516	950	1509	656	1420	1248	1744	968	5668	4223
Gangrene	0	0	2	1	9	8	25	11	31	27	187	53	193	57	447	157
Glaucoma	0	0	0	0	2	0	200	251	11	4	22	13	36	28	271	296
Glomerulonephritis	0	1	14	10	33	26	121	71	76	68	70	72	64	52	378	300
Gonorrhea	0	0	0	0	0	0	6	6	7	18	26	33	27	44	66	101
Hemolytic jaundice	4	6	0	0	1	0	5	3	43	41	43	32	22	20	118	102
Hemorrhoids (Piles)	0	0	0	0	0	10	20	16	70	37	132	42	113	69	335	174
Head injury	1	2	2	13	95	85	203	181	356	218	947	1712	1052	678	2656	2889
Heart failure	0	0	9	7	10	18	2	39	80	176	494	398	667	414	1262	1052
Hepatic failure	0	0	0	0	0	0	1	0	45	63	175	79	201	178	422	320
Hepatitis	0	0	1	1	10	51	52	49	176	336	843	590	334	193	1416	1220
Hernia	0	0	8	3	47	7	59	16	140	27	511	30	475	33	1240	116
Hydrocephalous	0	0	16	6	11	4	1	0	20	6	21	5	43	20	112	41
Hydrocele	0	0	1	0	28	5	18	6	44	31	161	19	150	10	402	71
Hydronephrosis	0	0	5	3	13	9	8	5	12	7	67	25	40	40	145	89
Hypercholesterolemia	0	0	0	0	0	0	1	0	6	2	55	36	65	58	127	96
Hypertension	0	0	0	0	6	5	10	16	72	113	962	744	1226	866	2276	1744
Hyperthyroidism	0	0	1	0	0	0	0	0	5	24	70	99	129	89	205	212
Hypertrophied prostate	0	0	0	0	0	0	0	0	0	2	7	14	96	1	103	17
Hypothyroidism	2	0	0	0	4	0	0	0	3	5	20	41	10	21	39	67
Infective endocarditis	0	0	0	0	0	0	3	0	13	14	25	26	43	12	84	52
Intestinal obstruction	2	2	7	9	24	17	44	33	68	38	226	155	199	129	570	383
Kala-azar	0	0	0	0	0	1	1	15	2	3	15	11	16	15	34	45
Leprosy	0	0	0	0	0	0	0	0	5	2	25	12	25	5	55	19
Leukemia	0	0	0	0	5	53	24	55	70	100	101	113	163	58	363	379
Liver abscess	0	0	0	2	1	1	5	1	17	14	129	45	59	16	211	79
Lymphoma	0	0	1	0	8	6	11	22	27	43	71	94	45	39	163	204
Lymphosarcoma	0	0	0	0	0	3	0	5	0	7	39	4	2	3	41	22
Malaria (vivax/falciparum)	0	0	4	3	17	12	10	10	55	55	93	58	27	20	206	158
Mastoiditis	0	0	0	0	0	1	4	7	26	56	29	64	29	15	88	143
Measles	0	0	0	1	0	3	3	4	11	9	25	25	7	6	46	48
Meningitis	2	4	56	43	94	80	120	114	131	109	181	166	70	62	654	578
Mental retardation	0	0	2	4	7	1	5	6	12	20	64	47	39	23	129	101
Mumps	0	0	0	0	33	17	44	198	223	186	65	53	91	19	456	473
Myocardial infarction	0	0	0	0	1	0	2	10	21	81	1971	638	2938	1365	4933	2094
Nasal polyp	0	0	0	0	0	0	22	6	53	14	97	16	59	6	231	42
Nasopharyngeal Carcinoma	0	0	0	0	4	0	6	7	0	2	4	4	9	2	23	15
Nephrotic syndrome	0	0	8	12	138	95	80	73	82	87	232	154	128	86	668	507
Night blindness	0	0	0	0	27	25	31	43	0	2	44	25	34	32	136	127
Obst. jaundice	0	0	0	1	0	0	0	7	21	61	105	133	66	64	192	266
Obstructed labor	0	0	0	0	0	0	0	0	0	244	2	378	8	95	10	717
Orchitis	0	0	0	0	0	0	3	0	14	19	24	32	14	15	55	66
Osteomyelitis	0	0	0	1	7	8	23	20	46	53	94	48	31	23	201	153
Osteosarcoma	0	0	0	0	0	0	4	3	12	6	9	15	6	4	31	28
Ovarian tumor	0	0	0	0	0	0	0	6	0	97	15	282	14	28	29	413
Pancreatitis	0	0	0	0	0	0	1	1	15	24	64	72	24	28	104	125
Pelvic inf. disease	0	0	0	0	0	0	2	4	2	97	10	180	8	26	22	307
Peptic Ulcer	0	0	0	0	20	6	94	102	321	380	985	971	864	717	2284	2176
Perforation (GI Tract)	1	0	0	0	4	3	25	43	84	59	325	144	212	74	651	323
Peripheral vascular disease	0	0	0	0	0	0	0	0	21	19	180	56	134	38	335	113
Pleural effusion	0	0	29	28	24	25	6	2	56	113	346	230	411	335	872	733
Pneumonia	214	165	1354	1044	1014	686	330	262	231	105	267	210	193	120	3603	2592
Pneumothorax	0	45	2	11	37	33	19	10	19	19	45	31	28	9	150	158
Poisoning	0	3	4	8	60	75	120	157	542	625	687	553	279	239	1692	1660
Polioomyelitis	0	0	0	0	1	0	10	5	12	38	31	38	17	8	71	89
PPH	0	0	0	0	0	0	0	6	0	203	0	397	0	83	0	689
Prostatic tumor	0	0	0	0	0	0	0	0	0	0	13	12	32	3	45	15
Prostatitis	0	0	0	0	0	0	0	0	14	1	5	4	6	0	25	5
Protein energy malnutrition	6	4	95	84	152	243	170	155	131	165	159	65	8	8	721	724
Pulmonary fibrosis	0	0	0	0	0	0	0	0	0	0	23	13	10	12	33	25
Pyelonephritis	0	0	0	0	1	1	0	0	4	6	23	33	12	11	40	51
Rabies	0	0	0	0	0	0	0	0	5	10	6	19	8	3	19	32



## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. C. Age and sex distribution of the diseases/conditions among the admitted patients in medical college hospitals (n=6) (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50y+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Rectal prolapse	0	0	0	0	11	11	14	7	6	2	16	16	22	22	69	58
Refractive error	0	0	0	0	0	0	0	0	4	3	3	11	5	2	12	16
Renal failure	0	0	1	2	1	2	2	0	53	91	424	357	739	397	1220	849
Renal stone	0	0	0	0	5	4	7	3	32	33	130	122	132	48	306	210
Retinal problem	0	0	0	0	0	0	0	3	6	8	52	31	89	56	147	98
Rheumatic fever	0	0	0	0	24	22	34	28	60	86	121	102	77	66	316	304
Rhinitis	0	0	2	2	0	2	33	42	122	52	91	72	49	26	297	196
Rickets	0	0	1	1	21	19	0	0	6	4	8	9	4	4	40	37
Road-traffic accident	0	1	31	31	144	169	649	465	1270	725	5865	1666	2854	868	10813	3925
Rupture uterus	0	0	1	4	5	5	4	2	0	95	0	90	0	4	10	200
Scabies	69	52	254	317	184	166	541	536	761	634	1326	1249	939	1350	4074	4304
Schizophrenia	90	70	12	10	1	1	0	1	10	10	115	94	76	83	304	269
Septicemia	255	183	183	53	16	12	10	4	33	36	330	280	158	140	985	708
Spinal cord injury	0	0	0	0	2	2	65	20	78	54	118	71	81	68	344	215
Suppurative otitis media	0	0	0	1	1	149	149	811	887	1029	1998	478	510	77	3545	2545
Syphilis	0	0	0	0	1	0	6	2	35	19	57	22	1	2	100	45
Tetanus	7	4	2	1	3	5	13	10	36	11	12	19	27	5	100	55
Thalassemia	0	0	12	9	69	45	133	241	72	90	116	174	127	170	529	729
Tonsillitis	0	0	0	34	33	63	57	572	717	632	798	191	119	56	1724	1548
Tuberculosis (Extra-Pulmonary)	0	0	1	2	22	9	49	98	212	180	388	256	272	243	944	788
Tuberculosis (Pulmonary)	0	0	6	1	11	8	20	8	73	72	263	169	223	141	596	399
Urethritis	0	0	0	0	0	0	0	1	6	16	61	40	34	37	101	94
Urinary stone disease	0	0	0	0	7	4	10	15	25	31	138	74	80	18	260	142
Urinary tract infection	0	0	0	1	12	30	64	71	194	214	374	517	344	335	988	1168
Valvular heart disease	0	0	6	3	15	11	9	10	117	116	386	288	385	335	918	763
Viral fever	0	0	12	16	60	44	107	56	195	126	270	203	204	30	848	475
Whooping cough	0	0	25	38	43	46	2	93	95	172	84	121	77	74	326	544
Worm infestation (Intestinal)	0	0	2	3	315	164	282	144	188	139	140	245	97	173	1024	868
Others	3323	2543	1106	1240	2123	2910	2651	3932	7888	6719	9344	7957	8472	4431	34907	29732

### 5. 2. D. Age and sex distribution of the diseases/conditions among the admitted patients in National Institute of Traumatology, Orthopaedics and Rehabilitation (NITOR)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Assault	0	0	0	0	1	0	23	1	222	15	479	32	80	9	805	57
Bone tumor	0	0	0	0	0	0	0	0	1	1	3	1	0	1	4	3
Burn (Others)	0	0	3	0	8	11	21	10	24	12	37	2	8	1	101	36
Disc prolapse	0	0	0	0	3	0	7	6	8	1	22	8	5	3	45	18
Fracture	1	0	0	1	19	11	126	60	136	43	337	139	163	116	782	370
Gangrene	0	0	0	0	0	0	4	1	13	1	30	9	28	2	75	13
Osteomyelitis	0	0	0	0	3	0	6	1	3	2	8	1	1	0	21	4
Osteosarcoma	0	0	0	0	0	0	6	1	5	0	5	0	1	0	17	1
Poliomyelitis	0	0	0	0	0	0	1	2	2	0	1	1	0	0	4	3
Rickets	0	0	0	0	0	0	0	0	1	0	2	0	0	0	3	0
Road-traffic accident	1	1	5	9	117	54	844	272	1417	326	2970	676	1098	340	6452	1678
Spinal cord injury	0	0	0	1	1	3	26	8	64	13	157	41	65	19	313	85
Tuberculosis (Extra-pulmonary)	0	0	0	0	0	0	10	0	13	7	38	12	19	8	80	27
Other	2	4	33	34	356	244	1626	583	1692	472	2338	693	958	703	7005	2733

### 5. 2. E. Age and sex distribution of the diseases/conditions among the admitted patients in National Institute of Disease of Chest and Hospital (NIDCH)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Tuberculosis (Pulmonary)	0	0	0	0	29	49	68	92	159	135	409	268	348	195	1013	739
Bronchial asthma	0	0	0	0	31	40	51	139	310	250	211	201	218	106	821	736
Tuberculosis (Extra-pulmonary)	0	0	0	0	16	59	58	75	140	125	324	102	409	135	947	496
COPD	0	0	0	0	0	0	0	0	150	139	286	180	350	205	786	524
Pleural effusion	0	0	0	0	0	0	75	79	78	68	82	83	85	88	320	318
Bronchiolitis	0	0	0	0	5	4	65	21	85	65	145	85	95	30	395	205
Bronchiectasis	0	0	0	0	0	0	0	0	41	32	141	102	140	128	322	262
Ca-Esophagus	0	0	0	0	0	0	0	0	15	17	98	89	142	182	255	288
Ca-Lungs	0	0	0	0	0	0	0	0	42	25	98	35	85	138	225	198
Pneumothorax	0	0	0	0	0	0	0	0	0	0	7	4	25	9	32	13
Pulmonary fibrosis	0	0	0	0	0	0	0	0	0	0	7	4	12	11	19	15

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. F. Age and sex distribution of the diseases/conditions among the admitted patients in National Institute of Ophthalmology & Hospital (NIOH)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Cataract	2	5	6	5	22	14	52	50	122	122	122	295	1143	1300	1469	1791
Corneal ulcer	0	1	3	4	16	11	30	19	51	45	76	56	72	61	248	197
Glaucoma	8	4	4	4	10	11	55	20	37	28	60	60	48	55	222	182
Retinal problem	0	0	0	0	4	4	3	4	8	17	18	54	67	55	100	134
Others	54	55	75	73	232	195	379	372	407	454	507	743	910	984	2564	2876

### 5. 2. G. Age and sex distribution of the diseases/conditions among the admitted patients in BSMMU

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Abortion	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	36
AIDS/HIV	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Allergic reaction	0	0	0	0	1	1	2	3	1	2	0	0	0	0	6	4
Anemia	0	0	20	30	5	0	8	10	15	20	2	4	1	3	51	67
Anal fistula	0	0	0	0	0	0	0	0	25	37	196	116	234	158	455	311
APH	0	0	0	0	0	0	0	0	0	0	0	53	0	4	0	57
Appendicitis	0	0	0	0	0	0	2	0	7	5	4	3	11	4	24	12
Arsenicosis	0	0	0	0	0	0	5	3	0	0	0	0	0	0	5	3
Arthritis	0	0	3	6	10	58	32	60	8	10	20	25	200	225	273	384
Assault	0	0	0	1	1	4	2	5	8	6	12	30	2	3	25	49
Bacillary dysentery	0	0	40	30	20	60	30	40	0	0	0	0	0	0	90	130
Bone tumor	0	0	0	0	0	1	10	13	8	10	12	8	10	10	40	42
Brain tumor	0	0	0	0	0	0	0	0	5	2	4	1	13	9	22	12
Bronchial asthma	0	0	0	0	1	0	0	0	0	0	0	26	0	0	1	26
Bronchiectasis	0	0	0	0	0	0	2	3	0	0	0	0	0	0	2	3
Bronchiolitis	0	0	0	0	0	0	2	3	0	0	0	0	0	0	2	3
Ca- Cervix	0	0	0	0	0	0	0	0	0	28	0	152	0	27	0	207
Ca-Bladder	0	0	0	0	0	0	0	0	13	3	15	6	34	12	62	21
Ca-Breast	0	0	0	0	0	0	0	0	0	29	0	40	0	24	0	93
Ca-Colon	0	0	0	0	0	0	0	0	15	9	13	11	14	8	42	28
Ca-Gall bladder	0	0	0	0	0	0	0	0	6	12	4	9	8	11	18	32
Ca-Kidney	0	0	0	0	3	4	2	1	0	0	7	3	27	13	39	21
Ca-Larynx	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Ca-Liver	0	0	1	1	3	0	0	1	0	0	0	0	0	0	4	2
Ca-Lungs	0	0	0	0	0	0	0	0	3	1	7	4	3	2	13	7
Ca-Esophagus	0	0	0	0	0	0	0	0	0	0	6	3	4	4	10	7
Ca-Pancreas	0	0	0	0	0	0	0	0	9	7	6	6	18	15	33	28
Ca-Prostate	0	0	0	0	0	0	0	0	0	0	37	0	58	0	95	0
Ca-Rectum and anal canal	0	0	0	0	0	0	1	0	15	13	20	16	24	19	60	48
Ca-Scrotum	0	0	0	0	0	0	0	0	0	0	15	5	18	0	33	5
Ca-Stomach	0	0	0	0	0	0	0	0	13	10	14	8	13	11	40	29
Cataract	0	0	0	0	0	0	3	3	2	2	0	0	0	0	5	5
Ca-Thyroid	0	0	0	0	0	0	0	0	0	0	13	6	13	9	26	15
Cholecystitis	0	0	0	0	0	0	5	2	8	18	10	14	8	20	31	54
Cholilithiasis	0	0	0	0	0	0	0	0	29	59	57	72	44	98	121	199
Congenital heart disease	12	12	16	18	38	29	48	44	49	60	54	133	32	36	249	332
COPD	0	0	0	0	0	0	1	1	35	15	95	68	585	108	716	192
CVA	0	0	0	0	0	0	0	0	13	6	69	43	199	98	281	147
Dengue	0	0	0	0	0	0	0	0	2	3	10	8	0	0	12	11
Diabetes mellitus	0	0	0	0	0	0	0	0	1	2		149	0	0	1	151
Diarrhea	0	0	0	0	4	6	0	0	0	0	0	0	0	0	4	6
Disc prolapse	0	0	0	0	0	0	0	0	2	1	40	52	24	15	66	68
Drug reaction	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	2
Dysentery	0	0	3	2	7	3	0	0	0	0	0	0	0	0	10	5
Ectopic pregnancy	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
Electric shock	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1
Emphysema	0	0	0	1	1	1	1	1	0	0	0	0	0	0	3	2
Enteric fever	0	0	4	6	10	5	5	5	0	0	0	1	0	0	19	16
Epilepsy	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Fibroid	0	0	0	0	0	0	0	0	0	0	0	45	0	0	0	45
Filariasis	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
Food poisoning	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0
Fracture	0	1	1	2	53	46	91	42	180	134	315	99	70	59	710	383
Fungal infections	0	0	0	0	0	0	3	2	6	4	0	0	0	0	9	6
Gangrene	0	0	0	0	0	0	0	0	2	1	2	3	1	0	5	4
Glaucoma	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1

## Annexure 5. 2: Age and sex distribution of the diseases/conditions among the admitted patients in hospitals

### 5. 2. G. Age and sex distribution of the diseases/conditions among the admitted patients in BSMMU (Continued...)

Disease/condition	0-28d		29d-11m		1-4y		5-14y		15-24y		25-49y		50+y		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Glomerulonephritis	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Gonorrhea	0	0	2	3	0	0	0	0	0	0	0	0	0	0	2	3
Head injury	0	0	0	0	0	0	0	0	10	14	38	48	100	84	148	146
Heart failure	2	2	1	0	0	0	0	0	0	0	0	0	0	0	3	2
Hepatic failure	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Hepatitis	0	0	0	0	0	0	0	0	1	2	0	76	0	0	1	78
Hernia	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
Hydrocephalous	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Hypertension	0	0	0	0	0	0	2	3	4	1	38	120	32	32	76	156
Hyperthyroidism	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Hypothyroidism	0	0	0	0	0	0	0	0	0	0	0	62	0	0	0	62
Infective endocarditis	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Kala-azar	0	0	0	0	0	1	1	2	1	0	0	0	0	0	2	3
Leprosy	0	0	0	0	0	0	1	0	1	0	2	1	1	2	5	3
Leukemia	0	0	0	0	0	0	4	2	0	0	0	0	0	0	4	2
Liver abscess	0	0	0	0	0	0	0	0	2	2	16	4	13	9	31	15
Lymphoma	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7	0
Malaria (vivax/falciparum)	0	0	0	0	1	1	5	3	0	0	0	0	0	0	6	4
Measles	0	0	2	1	4	3	0	0	0	0	0	0	0	0	6	4
Meningitis	0	0	0	0	0	0	0	0	30	18	41	20	32	18	103	56
Mumps	0	0	0	0	0	0	7	5	0	0	0	0	0	0	7	5
Myocardial infarction	0	0	0	0	0	0	0	0	12	2	144	74	308	180	464	256
Nasal polyp	0	0	0	0	0	0	0	0	0	0	32	20	42	29	74	49
Nephrotic syndrome	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2
Obstructed labor	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Osteomyelitis	0	0	0	0	0	0	0	0	26	19	14	17	10	9	67	58
Osteosarcoma	0	0	0	0	0	0	0	0	1	2	3	4	0	0	7	10
Ovarian tumor	0	0	0	0	0	0	0	0	0	0	0	51	0	0	0	51
Pancreatitis	0	0	0	0	0	0	0	0	5	6	3	3	8	0	0	9
Pelvic infectious disease	0	0	0	0	0	0	0	0	0	0	0	112	0	0	0	112
Peptic ulcer	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Perforation (GI Tract)	0	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2
Peripheral vascular disease	0	0	0	0	0	0	0	0	3	5	14	6	15	11	0	23
PPH	0	0	0	0	0	0	0	0	0	0	0	117	0	0	0	117
Prostatic tumor	0	0	0	0	0	0	0	0	50	0	15	0	0	0	65	0
Rectal prolapse	0	0	0	0	0	0	0	0	0	0	5	7	0	0	5	7
Renal failure	0	0	0	0	0	0	0	0	20	0	24	2	0	0	44	2
Retinal problem	0	0	0	0	0	0	0	0	60	0	62	12	0	0	122	12
Rheumatic fever	0	0	0	0	0	0	2	4	3	1	0	0	0	0	5	5
Rickets	0	0	1	2	8	12	16	14	6	8	0	0	0	0	31	36
Road-traffic accident	0	0	0	0	0	0	2	6	12	10	32	10	8	4	54	30
Schizophrenia	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Spinal cord injury	0	0	0	0	0	0	0	0	13	10	20	7	22	9	55	26
Syphilis	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
Thalassemia	0	0	1	0	0	0	0	0	0	0	0	7	0	0	1	7
Tuberculosis (Extra-pulmonary)	0	0	0	1	6	7	8	12	26	18	42	29	50	29	132	96
Urethritis	0	0	0	0	3	0	0	12	0	0	0	0	0	0	3	12
Urinary stone disease	0	0	0	0	0	0	10	5	16	19	18	5	12	5	56	34
Urinary tract infection	0	0	0	0	0	0	0	0	35	10	37	25	22	12	94	47
Valvular heart disease	0	0	0	0	0	0	0	0	31	28	25	41	22	26	70	95
Others	0	0	0	0	0	0	6	4	105	52	115	130	65	75	291	261

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. A. Mortality profiles in upazila health complexes (n=390)

Age 0-28 day(s)					
Boy		Girl		Both sexes	
IMCI diseases	33.37	IMCI diseases	38.70	IMCI diseases	35.60
Perinatal asphyxia	30.01	Perinatal asphyxia	21.63	Perinatal asphyxia	26.50
Prematurity/low birthweight	5.66	Septicemia	4.80	Prematurity/Low birthweight	4.67
Septicemia	4.14	Prematurity/Low birthweight	3.30	Septicemia	4.42
<b>Total deaths</b>	<b>460</b>	<b>Total deaths</b>	<b>332</b>	<b>Total deaths</b>	<b>792</b>
Age 29 day - 11 months					
Boy		Girl		Both sexes	
IMCI diseases	66.00	IMCI diseases	71.76	IMCI diseases	69.00
Septicemia	1.89	Other infective conditions	1.49	Septicemia	1.55
Meningitis/Encephalitis	1.35	Septicemia	1.24	Meningitis/Encephalitis	1.29
Other infective conditions	1.08	Meningitis / Encephalitis	1.24	Other infective conditions	1.29
Perinatal asphyxia	0.54	Perinatal asphyxia	0.25	Perinatal asphyxia	0.39
<b>Total deaths</b>	<b>371</b>	<b>Total deaths</b>	<b>404</b>	<b>Total deaths</b>	<b>775</b>
Age 1- 4 year(s)					
Boy		Girl		Both sexes	
IMCI diseases	62.90	IMCI diseases	65.98	IMCI diseases	64.50
Meningitis/Encephalitis	2.71	Meningitis/Encephalitis	5.00	Meningitis/Encephalitis	3.90
Injury	2.26	Injury	1.67	Injury	1.95
Asthma	2.26	Congenital heart diseases	1.67	Asthma	1.74
Acute abdomen	1.81	Septicemia	1.67	Septicemia	1.52
Septicemia	1.36	Asthma	1.25	Congenital heart diseases	1.30
Congenital heart diseases	0.90	Acute abdomen	0.42	Acute abdomen	1.08
<b>Total deaths</b>	<b>221</b>	<b>Total deaths</b>	<b>240</b>	<b>Total deaths</b>	<b>461</b>
Age 5-14 years					
Boy		Girl		Both sexes	
Meningitis/Encephalitis	18.42	Pneumonia and other RTIs	19.40	Pneumonia and other RTIs	18.88
Pneumonia and other RTIs	18.42	Meningitis/Encephalitis	14.93	Meningitis/Encephalitis	16.78
IMCI diseases	11.84	IMCI diseases	13.57	IMCI diseases	12.65
Diarrhea/Dysentery	3.95	Diarrhea/Dysentery	10.45	Diarrhea/Dysentery	6.99
Nutritional problems	3.95	Acute abdomen	5.97	Nutritional problems	4.90
Acute abdomen	2.63	Nutritional problems	5.97	Acute abdomen	4.20
<b>Total deaths</b>	<b>76</b>	<b>Total deaths</b>	<b>67</b>	<b>Total deaths</b>	<b>143</b>
Age 15-24 years					
Male		Female		Both sexes	
Pneumonia and other RTIs	12.70	Pregnancy-related problems	17.65	Other cardiovascular diseases	11.56
Other cardiovascular diseases	12.70	Other cardiovascular diseases	11.03	Nutritional problems	7.04
Asthma	7.94	Nutritional problems	6.62	Pneumonia and other RTIs	7.04
Injury	7.94	Injury	5.15	Injury	6.03
Nutritional problems	7.94	Meningitis/Encephalitis	5.15	Meningitis/Encephalitis	4.52
Meningitis/Encephalitis	3.17	Cerebro-vascular accident	4.41	Cerebro-vascular accident	3.52
Cerebro-vascular accident	1.59	Pneumonia & other RTI	4.41	Asthma	3.52
<b>Total deaths</b>	<b>63</b>	<b>Total deaths</b>	<b>136</b>	<b>Total deaths</b>	<b>199</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. A. Mortality profiles in upazila health complexes (n=390) (Continued...)

Age 25-49 years					
Male		Female		Both sexes	
Other cardiovascular diseases	11.97	Pregnancy-related problems	11.56	Cerebro-vascular accident	9.74
Injury	11.47	Cerebro-vascular accident	11.34	Injury	7.72
Myocardial infarction	8.98	Asthma	9.07	Other cardiovascular diseases	7.24
Asthma	8.73	Nutritional problems	5.90	Myocardial infarction	5.82
Cerebro-vascular accident	7.98	Injury	4.31	Asthma	4.75
Malignant condition	4.49	Pneumonia and other RTIs	3.40	Nutritional problems	3.92
COPD	3.49	Other Cardio-vascular diseases	2.95	Pneumonia and other RTIs	2.97
Pneumonia and other RTIs	2.99	Myocardial infarction	2.95	COPD	2.73
Septicemia	2.49	Septicemia	2.27	Malignant condition	2.73
Hypertension	2.24	COPD	2.04	Septicemia	2.49
<b>Total deaths</b>	<b>401</b>	<b>Total deaths</b>	<b>441</b>	<b>Total deaths</b>	<b>842</b>
Age 50 years and above					
Male		Female		Both sexes	
Asthma	15.86	Cerebro-vascular accident	24.35	Cerebro-vascular accident	18.3
Cerebro-vascular accident	15.08	Other cardiovascular diseases	10.69	Asthma	13.9
Other cardiovascular diseases	11.05	Asthma	10.01	Other cardiovascular diseases	10.9
Myocardial infarction	8.729	Myocardial infarction	5.69	Myocardial infarction	7.69
COPD	8.492	Hypertension	5.12	COPD	6.71
Acute abdomen	3.207	COPD	3.30	Hypertension	3.51
Hypertension	2.672	Acute abdomen	3.19	Acute abdomen	3.2
Malignant condition	2.138	Malignant condition	1.25	Malignant condition	1.83
Pneumonia and other RTI	1.247	Nutritional problems	1.25	Nutritional problems	0.98
Diarrhea/Dysentery	0.95	Peptic ulcer diseases	1.14	Pneumonia and other RTIs	0.94
<b>Total deaths</b>	<b>1,684</b>	<b>Total deaths</b>	<b>879</b>	<b>Total deaths</b>	<b>2,563</b>
All ages					
Male		Female		Both sexes	
IMCI diseases	16.67	IMCI diseases	23.45	IMCI diseases	19.6
Asthma	9.83	Cerebro-vascular accident	10.92	Cerebro-vascular accident	9.73
Cerebro-vascular accident	8.82	Poisoning	9.24	Asthma	7.97
Poisoning	5.74	Asthma	5.52	Poisoning	7.26
Myocardial infarction	5.65	Perinatal asphyxia	4.44	Perinatal asphyxia	4.35
COPD	4.55	Pregnancy-related cause	3.16	Myocardial infarction	4.31
Perinatal Asphyxia	4.27	Injury	2.92	Injury	3.39
Injury	3.75	Myocardial infarction	2.56	COPD	3.31
Hypertension	1.95	Hypertension	2.4	Hypertension	2.15
Meningitis/Encephalitis	1.34	Septicemia	1.92	Meningitis/Encephalitis	1.54
<b>Total deaths</b>	<b>3,276</b>	<b>Total deaths</b>	<b>2,499</b>	<b>Total deaths</b>	<b>5,775</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. B. Mortality profiles in district and general hospitals (n=62)

Age 0-28 day(s)					
Boy		Girl		Both sexes	
Perinatal asphyxia	60.47	Perinatal asphyxia	60.19	Perinatal asphyxia	60.35
IMCI diseases	11.46	IMCI diseases	10.37	IMCI diseases	11.00
Septicemia	13.34	Septicemia	12.69	Septicemia	13.06
Low birthweight	9.75	Low birthweight	10.37	Low birthweight	10.01
Meningitis/ Encephalitis	2.32	Meningitis/ Encephalitis	2.55	Meningitis/ Encephalitis	2.54
<b>Total deaths</b>	<b>1,867</b>	<b>Total deaths</b>	<b>1,379</b>	<b>Total deaths</b>	<b>3,246</b>
Age 29 day-11 months					
Boy		Girl		Both sexes	
IMCI diseases	49.41	IMCI diseases	33.80	IMCI diseases	41.59
Low birthweight	16.58	Low birthweight	14.06	Low birthweight	15.31
Septicemia	9.69	Perinatal asphyxia	13.95	Perinatal asphyxia	11.23
Perinatal asphyxia	8.50	Septicemia	10.19	Septicemia	9.94
Meningitis/Encephalitis	7.27	Meningitis/Encephalitis	7.62	Meningitis/Encephalitis	7.45
<b>Total deaths</b>	<b>929</b>	<b>Total deaths</b>	<b>932</b>	<b>Total deaths</b>	<b>1,861</b>
Age 1-4 year(s)					
Boy		Girl		Both sexes	
Pneumonia	16.33	Pneumonia	15.87	Pneumonia	16.10
Meningitis/ Encephalitis	10.51	Meningitis/ Encephalitis	10.08	Meningitis/ Encephalitis	10.30
Other respiratory tract infections	9.76	Other respiratory tract infections	9.18	Other respiratory tract infections	9.49
IMCI diseases	9.73	IMCI diseases	7.04	IMCI diseases	7.17
Septicemia	9.20	Septicemia	6.67	Injury	6.21
Injury	8.67	Injury	6.67	Septicemia	6.05
Poisoning	2.10	Poisoning	4.44	Poisoning	5.57
Nutritional Problem/Anemia	2.10	Nutritional Problem/Anemia	2.89	Nutritional Problem/Anemia	2.49
<b>Total deaths</b>	<b>565</b>	<b>Total deaths</b>	<b>563</b>	<b>Total deaths</b>	<b>1,128</b>
Age 5-14 years					
Boy		Girl		Both sexes	
Injury	8.72	Meningitis/ Encephalitis	9.65	Meningitis/ Encephalitis	8.87
Meningitis/ Encephalitis	8.23	Injury	7.55	Injury	8.19
Pneumonia	6.26	AGN	5.87	Pneumonia	5.97
Septicemia	5.13	Pneumonia	5.62	AGN	5.28
AGN	4.80	Septicemia	3.77	Septicemia	4.52
Other respiratory tract infections	4.21	Poisoning	3.77	Poisoning	3.95
Poisoning	4.10	Other respiratory tract infections	3.76	Other respiratory tract infections	3.14
Nutritional Problem / Anemia	2.82	Nutritional Problem / Anemia	3.07	Nutritional Problem / Anemia	2.93
<b>Total deaths</b>	<b>195</b>	<b>Total deaths</b>	<b>159</b>	<b>Total deaths</b>	<b>354</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. B. Mortality profiles in district and general hospitals (n=62) (Continued...)

Age 15 - 24 years					
Male		Female		Both sexes	
Myocardial infarction	22.00	Pregnancy-related causes	17.22	Injury	16.59
Injury	16.67	Injury	16.56	Myocardial infarction	12.61
Asthma	9.33	Asthma	9.27	Asthma	9.29
COPD	6.67	Myocardial infarction	7.95	Meningitis/ Encephalitis	5.02
Septicemia	5.33	Meningitis/ Encephalitis	5.55	COPD	4.42
Poisoning	4.00	Septicemia	3.31	Poisoning	4.42
Meningitis/ Encephalitis	3.96	Poisoning	4.64	Septicemia	3.98
<b>Total deaths</b>	<b>150</b>	<b>Total deaths</b>	<b>301</b>	<b>Total deaths</b>	<b>451</b>
Age 25 - 49 years					
Male		Female		Both sexes	
Myocardial infarction	27.46	Pregnancy-related causes	28.86	Myocardial infarction	18.56
Cerebro-vascular accident	19.25	Cerebro-vascular accident	14.50	Cerebro-vascular accident	16.77
Injury	11.94	Myocardial infarction	10.40	Injury	11.13
Asthma	11.19	Injury	10.40	Asthma	8.28
COPD	10.90	Nutritional Problem/Anemia	8.03	Nutritional Problem/Anemia	7.52
Poisoning	6.64	Poisoning	7.87	Poisoning	7.28
Nutritional Problem/ Anemia	6.97	Asthma	5.61	COPD	6.64
Other Cardio vascular diseases*	1.89	Other Cardio vascular diseases	1.64	Other Cardio vascular diseases	1.76
Acute abdomen	1.02	COPD	2.74	Acute abdomen	1.01
<b>Total deaths</b>	<b>670</b>	<b>Total deaths</b>	<b>731</b>	<b>Total deaths</b>	<b>1,401</b>
Age 50 years and above					
Male		Female		Both sexes	
Cerebro-vascular accident	21.51	Cerebro-vascular accident	40.66	Cerebro-vascular accident	27.43
Myocardial infarction	9.90	Myocardial infarction	7.71	Myocardial infarction	9.22
Injury	7.78	Other Cardio vascular diseases	6.35	Other Cardio vascular diseases	6.30
Other Cardio vascular diseases	6.27	Nutritional Problem/Anemia	4.42	Injury	6.14
COPD	3.50	Asthma	3.94	Nutritional Problem/Anemia	3.63
Nutritional Problem/Anemia	3.28	Poisoning	2.74	Asthma	3.25
Asthma	2.93	COPD	2.51	COPD	3.19
Poisoning	2.25	Injury	2.46	Poisoning	2.40
<b>Total deaths</b>	<b>3,919</b>	<b>Total deaths</b>	<b>1,751</b>	<b>Total deaths</b>	<b>5,670</b>



## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. B. Mortality profiles in district and general hospitals (n=62) (Continued...)

All ages					
Male		Female		Both sexes	
Perinatal asphyxia	14.56	Perinatal asphyxia	16.51	Perinatal asphyxia	15.36
Cerebro-vascular accident	11.72	Cerebro-vascular accident	14.06	Cerebro-vascular accident	10.90
IMCI diseases	8.78	IMCI diseases	8.51	IMCI diseases	8.67
Myocardial infarction	8.26	Septicemia	5.78	Myocardial infarction	6.38
Injury	5.62	Poisoning	5.57	Septicemia	5.42
Septicemia	5.17	Low birthweight	4.71	Injury	4.55
Low birthweight	4.05	Pregnancy related cause	4.52	Poisoning	4.50
Poisoning	3.75	Myocardial infarction	3.70	Low birthweight	4.41
COPD	2.77	Injury	3.03	Asthma	2.42
Asthma	2.63	Asthma	2.13	COPD	2.08
<b>Total deaths</b>	<b>8,295</b>	<b>Total deaths</b>	<b>5,816</b>	<b>Total deaths</b>	<b>14,111</b>
* Cardiovascular diseases except cerebro-vascular accident, myocardial infarction and hypertension					

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. C. Mortality profiles in medical college hospitals (n=14)

Age 0- 28 day(s)					
Boy		Girl		Both sexes	
Perinatal asphyxia	36.12	Perinatal asphyxia	40.75	Perinatal asphyxia	38.39
Low birthweight	26.14	Low birthweight	31.94	Low birthweight	28.99
Septicemia	8.35	Septicemia	6.75	Septicemia	7.56
IMCI diseases	2.94	IMCI diseases	1.74	IMCI diseases	2.35
<b>Total patients</b>	<b>1,905</b>	<b>Total patients</b>	<b>1,838</b>	<b>Total patients</b>	<b>3,743</b>
Age 29 day- 11 months					
Boy		Girl		Both sexes	
Perinatal asphyxia	39.98	Perinatal asphyxia	57.84	Perinatal asphyxia	48.18
IMCI diseases	19.38	IMCI diseases	15.15	IMCI diseases	17.44
Septicemia	16.94	Septicemia	14.09	Septicemia	15.63
Low birthweight	6.79	Low birthweight	4.59	Low birthweight	5.78
Meningitis/Encephalitis	2.90	Meningitis/Encephalitis	2.56	Meningitis/Encephalitis	2.74
<b>Total deaths</b>	<b>1,104</b>	<b>Total</b>	<b>937</b>	<b>Total deaths</b>	<b>2,041</b>
Age 1- 4 year(s)					
Boy		Girl		Both sexes	
Septicemia	7.10	Septicemia	7.96	Septicemia	7.53
Meningitis/Encephalitis	6.83	IMCI diseases	8.35	IMCI diseases	7.49
IMCI diseases	6.83	Injury	7.53	Injury	6.99
Injury	6.57	Meningitis/Encephalitis	6.87	Meningitis/Encephalitis	6.85
Poisoning	3.41	Poisoning	3.11	Poisoning	3.28
Other cardiovascular diseases*	2.65	Other cardiovascular diseases*	2.13	Other cardiovascular diseases*	2.43
Asthma	1.26	Asthma	1.15	Asthma	1.21
<b>Total deaths</b>	<b>791</b>	<b>Total deaths</b>	<b>611</b>	<b>Total deaths</b>	<b>1,402</b>
Age 5-14 years					
Boy		Girl		Both sexes	
Injury	28.72	Injury	30.28	Injury	29.32
Pneumonia and other RTIs	11.82	Pneumonia and other RTIs	11.06	Pneumonia and other RTIs	11.49
Septicemia	11.14	Septicemia	12.01	Septicemia	11.56
Meningitis/Encephalitis	6.71	Meningitis/Encephalitis	7.51	Meningitis/Encephalitis	7.01
Poisoning	5.25	Poisoning	5.40	Poisoning	5.31
Other cardiovascular diseases*	3.79	IMCI diseases	4.93	Other cardiovascular diseases*	3.51
IMCI diseases	2.33	Other cardiovascular diseases*	3.05	IMCI diseases	3.33
Asthma	1.17	Asthma	1.17	Asthma	1.17
<b>Total deaths</b>	<b>686</b>	<b>Total deaths</b>	<b>426</b>	<b>Total deaths</b>	<b>1,112</b>
Age 15-24 years					
Male		Female		Both sexes	
Pneumonia and other RTIs	12.68	Pneumonia and other RTIs	11.92	Pneumonia and other RTIs	12.36
Meningitis/Encephalitis	12.11	Low birthweight	12.27	Meningitis/Encephalitis	11.67
Other cardiovascular diseases*	13.72	Meningitis/Encephalitis	11.18	Other cardiovascular diseases*	11.17
Myocardial infarction	9.15	Myocardial infarction	10.36	Myocardial infarction	9.67
Poisoning	8.59	Asthma	4.27	Poisoning	5.62
COPD	4.57	Other cardiovascular diseases*	4.00	Low birthweight	5.31
Asthma	3.88	COPD	3.82	COPD	4.25
Cerebro-vascular accident /stroke	2.98	Poisoning	1.73	Asthma	4.05
Injury	1.73	Injury	1.36	Cerebro-vascular accident/ stroke	2.04
Hypertension	0.55	Cerebro-vascular accident /stroke	0.82	Injury	1.57
<b>Total deaths</b>	<b>1,443</b>	<b>Total deaths</b>	<b>1,100</b>	<b>Total deaths</b>	<b>2,543</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. C. Mortality profiles in medical college hospitals (n=14) (Continued...)

Age 25 -49 years					
Male		Female		Both sexes	
Cerebro-vascular accident /stroke	30.27	Cerebro-vascular accident /stroke	31.05	Cerebro-vascular accident /stroke	30.56
Myocardial infarction	12.68	Poisoning	6.25	Myocardial infarction	8.58
Other cardiovascular diseases*	7.30	Other cardiovascular diseases*	4.77	Other cardiovascular diseases*	6.37
Injury	7.27	Hypertension	4.28	Injury	5.97
Hypertension	4.57	Injury	3.74	Poisoning	4.90
COPD	4.20	Septicemia	3.69	Hypertension	4.46
Poisoning	4.11	Meningitis/Encephalitis	2.61	COPD	3.08
Septicemia	2.33	Myocardial infarction	1.57	Septicemia	2.83
Meningitis/Encephalitis	1.98	COPD	1.18	Meningitis/Encephalitis	2.21
Pneumonia & other RTIs	1.92	Pneumonia and other RTIs	1.56	Pneumonia and other RTIs	1.77
<b>Total deaths</b>	<b>3,479</b>	<b>Total deaths</b>	<b>2,032</b>	<b>Total deaths</b>	<b>5,511</b>
Age 50 years and above					
Male		Female		Both sexes	
Cerebro vascular accident /stroke	19.56	Cerebro vascular accident /stroke	24.28	Cerebro vascular accident /stroke	21.33
Myocardial infarction	9.90	Other cardiovascular diseases*	9.45	Myocardial infarction	9.58
Other cardiovascular diseases*	8.34	Myocardial infarction	9.06	Other cardiovascular diseases*	8.76
Meningitis/Encephalitis	5.64	Meningitis/Encephalitis	6.26	Meningitis/Encephalitis	5.87
Hepatic Problem	5.41	Hepatic problem	5.43	Hepatic problem	5.42
COPD	3.87	Hypertension	3.73	Hypertension	3.26
Hypertension	2.97	Poisoning	2.14	COPD	2.94
Injury	2.15	Septicemia	1.97	Injury	1.86
Poisoning	1.41	COPD	1.41	Poisoning	1.69
Pneumonia and other RTIs	1.12	Injury	1.39	Septicemia	1.22
<b>Total deaths</b>	<b>6,796</b>	<b>Total deaths</b>	<b>4,107</b>	<b>Total deaths</b>	<b>10,903</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. D. Mortality profiles in National Institute of Diseases of Chest & Hospital and other chest hospitals (n=6)

Age 29 day-11 months					
Boy		Girl		Both sexes	
Cardio-respiratory failure	100	Cardio-respiratory failure	75.00	Cardio-respiratory failure	83.33
-	-	Tuberculosis	25.00	Tuberculosis	16.67
<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>4</b>	<b>Total deaths</b>	<b>6</b>
Age 1 year-4 year(s)					
Boy		Girl		Both sexes	
Cardio-respiratory failure	75.00	Cardio-respiratory failure	100.00	Cardio-respiratory failure	83.33
Septicemia	25.00	-	-	Septicemia	16.67
<b>Total deaths</b>	<b>4</b>	<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>6</b>
Age 5 years-14 years					
Boy		Girl		Both sexes	
Cardio-respiratory failure	28.57	Cardio-respiratory failure	75.00	Cardio-respiratory failure	45.45
Others	28.57	Others	25.00	Others	27.27
Tuberculosis	14.29	Tuberculosis	0.00	Tuberculosis	9.09
Respiratory failure	14.29	Respiratory failure	0.00	Respiratory failure	9.09
Malignancy	14.29	Malignancy	0.00	Malignancy	9.09
<b>Total deaths</b>	<b>7</b>	<b>Total deaths</b>	<b>4</b>	<b>Total deaths</b>	<b>11</b>
Age 15 years-24 years					
Male		Female		Both sexes	
Cardio-respiratory failure	74.36	Cardio-respiratory failure	78.95	Cardio-respiratory failure	74.58
Tuberculosis	12.82	Respiratory failure	10.53	Tuberculosis	11.86
Respiratory failure	12.82	Tuberculosis	5.26	Others	10.17
Cardiovascular diseases	0.00	Cardiovascular diseases	5.26	Cardiovascular diseases	1.69
Others	0.00	Others	5.26	Respiratory failure	1.69
<b>Total deaths</b>	<b>19</b>	<b>Total deaths</b>	<b>20</b>	<b>Total deaths</b>	<b>59</b>
Age 25 years-49 years					
Male		Female		Both sexes	
Cardio-respiratory failure	77.40	Cardio-respiratory failure	77.78	Cardio-respiratory failure	77.49
Tuberculosis	10.73	Respiratory failure	7.41	Tuberculosis	8.66
Others	3.95	Asthma	3.70	Others	3.90
Cardio vascular diseases	2.26	Cardio vascular diseases	3.70	Respiratory failure	3.46
Respiratory failure	2.26	Others	3.70	Cardio vascular diseases	2.60
Malignancy	1.69	Malignancy	1.85	Malignancy	1.73
Asthma	0.56	Tuberculosis	1.85	Asthma	1.30
COPD	0.56	COPD	0.00	COPD	0.43
Pneumonia	0.56	Pneumonia	0.00	Pneumonia	0.43
<b>Total deaths</b>	<b>177</b>	<b>Total deaths</b>	<b>54</b>	<b>Total deaths</b>	<b>231</b>
Age 50 years and above					
Male		Female		Both sexes	
Cardio-respiratory failure	68.91	Cardio-respiratory failure	59.54	Cardio-respiratory failure	66.73
Others	10.44	Tuberculosis	6.11	Others	8.90
COPD	7.89	Others	3.82	COPD	6.05
Tuberculosis	5.57	Malignancy	3.05	Tuberculosis	5.69
Respiratory failure	4.41	Respiratory failure	2.29	Respiratory failure	3.91
Malignancy	3.48	Asthma	1.53	Malignancy	3.38
Cardiovascular diseases	1.39	Cardiovascular diseases	1.53	Cardiovascular diseases	1.42
Pneumonia	1.16	Pneumonia	1.53	Pneumonia	1.25
Asthma	0.93	COPD	0.00	Asthma	1.07
Lung abscess	0.93	Lung abscess	0.00	Lung abscess	0.71
<b>Total deaths</b>	<b>431</b>	<b>Total deaths</b>	<b>131</b>	<b>Total deaths</b>	<b>562</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. E. Mortality profiles in infectious disease hospitals (n=3)

Age 0-28 day(s)					
Boy		Girl		Both sexes	
Tetanus	100	Tetanus	100	Tetanus	100
<b>Total deaths</b>	<b>10</b>	<b>Total deaths</b>	<b>7</b>	<b>Total deaths</b>	<b>17</b>
Age 29 days-11 months					
Boy		Girl		Both sexes	
Chicken pox	33.33	-	-	Chicken pox	33.33
Other	33.33	-	-	Other	33.33
Tetanus	33.33	-	-	Tetanus	33.33
<b>Total deaths</b>	<b>3</b>	<b>Total deaths</b>	<b>0</b>	<b>Total deaths</b>	<b>3</b>
Age 1-4 years					
Boy		Girl		Both sexes	
Tetanus	50.00	-	-	Tetanus	50.00
Other	50.00	-	-	Other	50.00
<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>0</b>	<b>Total deaths</b>	<b>2</b>
Age 5-14 years					
Boy		Girl		Both sexes	
Tetanus	90.00	Diphtheria	50.00	Tetanus	83.33
Encephalitis	10.00	Tetanus	50.00	Diphtheria	8.33
-	-	-	-	Encephalitis	8.33
<b>Total deaths</b>	<b>10</b>	<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>12</b>
Age 15-24 years					
Male		Female		Both sexes	
Tetanus	50.00	Tetanus	67.67	Tetanus	57.14
Chicken pox	25.00	Others	33.33	Chicken pox	14.29
Rabies	25.00	-	-	Rabies	14.29
-	-	-	-	Others	14.29
<b>Total deaths</b>	<b>4</b>	<b>Total deaths</b>	<b>3</b>	<b>Total deaths</b>	<b>7</b>
Age 25-49 years					
Male		Female		Both sexes	
Tetanus	78.13	Tetanus	60.00	Tetanus	75.68
Chicken pox	6.25	AIDS	20.00	AIDS	5.41
Herpes infection	6.25	Encephalitis	20.00	Chicken pox	5.41
AIDS	3.13	-	-	Herpes infection	5.41
Others	3.13	-	-	Encephalitis	2.70
Rabies	3.13	-	-	Others	2.70
-	-	-	-	Rabies	2.70
<b>Total deaths</b>	<b>32</b>	<b>Total deaths</b>	<b>5</b>	<b>Total deaths</b>	<b>37</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. E. Mortality profiles in infectious disease hospitals (n=3) (Continued...)

Age 50 years and above					
Male		Female		Both sexes	
Tetanus	78.95	Tetanus	84.62	Diphtheria	80.39
Chicken pox	18.42	Chicken pox	15.38	Tetanus	17.65
Diphtheria	2.63	-	-	Chicken pox	1.96
<b>Total deaths</b>	<b>38</b>	<b>Total deaths</b>	<b>13</b>	<b>Total deaths</b>	<b>51</b>
All ages					
Male		Female		Both sexes	
Tetanus	78.79	Tetanus	80.00	Tetanus	79.07
Chicken pox	11.11	Chicken pox	6.67	Chicken pox	10.08
Diphtheria	1.01	Diphtheria	3.33	Diphtheria	1.55
Herpetic infection	2.02	Encephalitis	3.33	Herpetic infection	1.55
Encephalitis	1.01	HIV/AIDS	3.33	Encephalitis	1.55
Rabies	2.02	Others	3.33	Rabies	1.55
HIV/AIDS	1.01	-	-	HIV/AIDS	1.55
Others	3.03	-	-	Others	3.10
<b>Total deaths</b>	<b>99</b>	<b>Total deaths</b>	<b>30</b>	<b>Total deaths</b>	<b>129</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. F. Mortality profiles in National Institute of Cardiovascular Diseases and Hospital

Age 0-28 day(s)					
Boy		Girl		Both sexes	
Tetralogy of fallot	30.00	Atrial septal defect	50.00	Ventricular septal defect	33.33
Ventricular septal defect	30.00	Ventricular septal defect	50.00	Tetralogy of fallot	16.67
Valvular diseases	20.00	-	-	Valvular diseases	16.67
Other	20.00	-	-	Other	16.67
-	-	-	-	Atrial septal defect	8.33
<b>Total deaths</b>	<b>10</b>	<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>12</b>
Age 29 days-11 months					
Boy		Girl		Both sexes	
Tetralogy of fallot	75.00	Tetralogy of fallot	45.45	Tetralogy of fallot	57.89
Ventricular septal defect	25.00	Left ventricular failure	18.18	Left ventricular failure	10.53
Tetanus	33.33	Other	18.18	Ventricular septal defect	10.53
-	-	Congestive cardiac failure	9.09	Other	10.53
-	-	Valvular diseases	9.09	Congestive cardiac failure	5.26
-	-	-	-	Valvular diseases	5.26
<b>Total deaths</b>	<b>8</b>	<b>Total deaths</b>	<b>11</b>	<b>Total deaths</b>	<b>19</b>
Age 1-4 year(s)					
Boy		Girl		Both sexes	
Tetralogy of fallot	100	Tetralogy of fallot	87.50	Tetralogy of fallot	93.33
-	-	DCM	12.50	DCM	6.67
<b>Total deaths</b>	<b>7</b>	<b>Total deaths</b>	<b>8</b>	<b>Total deaths</b>	<b>15</b>
Age 5-14 years					
Boy		Girl		Both sexes	
Tetralogy of fallot	87.5	Tetralogy of fallot	37.5	Tetralogy of fallot	62.5
Other	12.5	Congestive cardiac failure	12.5	Other	12.5
-	-	Left ventricular failure	12.5	Congestive cardiac failure	6.25
-	-	Rheumatic heart disease	12.5	Left ventricular failure	6.25
-	-	Ventricular septal defect	12.5	Rheumatic heart disease	6.25
-	-	Other	12.5	Ventricular septal defect	6.25
<b>Total deaths</b>	<b>8</b>	<b>Total deaths</b>	<b>8</b>	<b>Total deaths</b>	<b>16</b>
Age 15-24 years					
Male		Female		Both sexes	
Tetralogy of fallot	19.23	Valvular diseases	40.74	Valvular diseases	28.30
Valvular diseases	15.38	DCM	14.81	Tetralogy of fallot	16.98
Other	15.38	Tetralogy of fallot	14.81	DCM	11.32
Rheumatic heart disease	11.54	Left ventricular failure	11.11	Left ventricular failure	9.43
DCM	7.69	Atrial septal defect	7.41	Other	9.43
Left ventricular failure	7.69	Acute myocardial infarction	3.70	Rheumatic heart disease	7.55
Unstable angina	7.69	Rheumatic heart disease	3.70	Atrial septal defect	5.66
Acute myocardial infarction	3.85	Other	3.70	Acute myocardial infarction	3.77
Atrial septal defect	3.85	-	-	Unstable angina	3.77
Congestive cardiac failure	3.85	-	-	Congestive cardiac failure	1.89
Non-ST elevation myocardial infarction	3.85	-	-	Non-ST elevation myocardial infarction	1.89
<b>Total deaths</b>	<b>26</b>	<b>Total deaths</b>	<b>27</b>	<b>Total deaths</b>	<b>53</b>



## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. F. Mortality profiles in National Institute of Cardiovascular Diseases and Hospital (Continued...)

Age 25 - 49 years					
Male		Female		Both sexes	
Acute myocardial infarction	30.33	Left ventricular failure	19.13	Acute myocardial infarction	23.62
Left ventricular failure	19.43	Valvular diseases	18.26	Left ventricular failure	19.33
Unstable angina	8.06	Rheumatic heart disease	17.39	Rheumatic heart disease	10.74
Rheumatic heart disease	7.11	Acute myocardial infarction	11.30	Valvular diseases	9.20
Other	5.21	Other	11.30	Other	7.36
Valvular diseases	4.27	Atrial septal defect	4.35	Unstable angina	6.44
Non-ST elevation myocardial infarction	3.79	Unstable angina	3.48	Non-ST elevation myocardial infarction	3.07
Old myocardial infarction	3.79	Congestive cardiac failure	2.61	Old myocardial infarction	2.76
Recurrent myocardial infarction	3.32	Tetralogy of fallot	2.61	Congestive cardiac failure	2.45
DCM	2.84	Non-ST elevation myocardial infarction	1.74	Recurrent myocardial infarction	2.45
Congestive cardiac failure	2.37	Cerebro vascular accident	0.87	Atrial septal defect	2.15
Ischemic cardiomyopathy	2.37	DCM	0.87	DCM	2.15
Tetralogy of fallot	1.90	Ischemic-cardio myopathy	0.87	Tetralogy of fallot	2.15
Atrial septal defect	0.95	Old myocardial infarction	0.87	Ischemic cardiomyopathy	1.84
Ventricular septal defect	0.47	Recurrent myocardial infarction	0.87	Cerebro-vascular accident	0.31
-	-	-	-	Ventricular septal defect	0.31
<b>Total deaths</b>	<b>211</b>	<b>Total deaths</b>	<b>115</b>	<b>Total deaths</b>	<b>326</b>
Age 50+ years					
Male		Female		Both sexes	
Acute myocardial infarction	36.86	Acute myocardial infarction	27.62	Acute myocardial infarction	34.41
Left ventricular failure	24.21	Left ventricular failure	22.18	Left ventricular failure	23.67
Non-ST elevation myocardial infarction	6.20	Non-ST elevation myocardial infarction	7.81	Non-ST elevation myocardial infarction	6.63
Other	4.34	Other	6.56	Other	4.93
Old myocardial infarction	3.63	Valvular diseases	5.30	Old myocardial infarction	3.41
Valvular diseases	2.52	Rheumatic heart disease	4.60	Valvular diseases	3.26
Ischemic cardiomyopathy	2.17	Old myocardial infarction	2.79	Ischemic cardiomyopathy	2.07
Ventricular septal defect	1.71	Ventricular septal defect	2.51	Rheumatic heart disease	2.04
Atrial septal defect	1.31	Atrial septal defect	2.23	Ventricular septal defect	1.93
Rheumatic heart disease	1.11	Ischemic cardiomyopathy	1.81	Atrial septal defect	1.56
Congestive cardiac failure	1.01	Congestive cardiac failure	1.39	Congestive cardiac failure	1.11
Cor-pulmonale	0.40	Cor-pulmonale	0.28	Cor-pulmonale	0.37
<b>Total deaths</b>	<b>1,983</b>	<b>Total deaths</b>	<b>717</b>	<b>Total deaths</b>	<b>2,700</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. F. Mortality profiles in National Institute of Cardiovascular Diseases and Hospital (Continued...)

All ages					
Male		Female		Both Sexes	
Acute myocardial infarction	35.63	Acute myocardial infarction	24.20	Acute myocardial infarction	32.41
Left ventricular failure	23.55	Left ventricular failure	21.35	Left ventricular failure	22.93
Unstable angina	6.45	Valvular diseases	7.42	Unstable angina	6.46
Non ST-elevation myocardial infarction	5.95	Non ST-elevation myocardial infarction	6.62	Non ST-elevation myocardial infarction	6.14
Old myocardial infarction	3.58	Unstable angina	6.51	Valvular diseases	4.18
Atrial/Ventricular septal defect	3.09	Rheumatic heart disease	6.28	Atrial/Ventricular septal defect	3.63
Recurrent myocardial infarction	2.91	Atrial/Ventricular septal defect	5.02	Old myocardial infarction	3.25
Valvular diseases	2.91	Tetralogy of fallot	2.51	Rheumatic heart disease	3.05
Ischemic cardiomyopathy	2.15	Old myocardial infarction	2.40	Recurrent myocardial infarction	2.60
Rheumatic heart disease	1.79	Dilated cardiomyopathy	2.28	Ischemic cardiomyopathy	1.99
<b>Total deaths</b>	<b>99</b>	<b>Total deaths</b>	<b>30</b>	<b>Total deaths</b>	<b>129</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. G. Mortality profiles in National Institute of Cancer Research and Hospital

Age 5-14 years					
Boy		Girl		Both sexes	
Non-Hodgkin lymphoma	50.00	Brain tumor	100	Brain tumor	33.33
Retinoblastoma	50.00	-	-	Non-Hodgkin lymphoma	33.33
-	-	-	-	Retinoblastoma	33.33
<b>Total deaths</b>	<b>2</b>	<b>Total deaths</b>	<b>1</b>	<b>Total deaths</b>	<b>3</b>
Age 15-24 years					
Boy		Girl		Both sexes	
Acute myeloid leukemia	40.00	Ewing's sarcoma	33.33	Acute lymphatic leukemia	18.18
Acute lymphatic leukemia	20.00	Acute lymphatic leukemia	16.67	Acute myeloid leukemia	18.18
Ca-Lung	20.00	Ca-Kidney	16.67	Ewing's sarcoma	18.18
Non-Hodgkin lymphoma	20.00	Soft-tissue sarcoma	16.67	Ca-Kidney	9.09
-	-	Other	16.67	Ca-Lung	9.09
-	-	-	-	Non Hodgkin lymphoma	9.09
<b>Total deaths</b>	<b>5</b>	<b>Total deaths</b>	<b>6</b>	<b>Total deaths</b>	<b>11</b>
Age 25-49 years					
Male		Female		Both sexes	
Ca-Lung	40.00	Ca-Breast	33.33	Ca-Breast	20.00
Adenocarcinoma	10.00	Choriocarcinoma	20.00	Ca-Lung	16.00
Acute myeloid leukemia	10.00	Ewing's sarcoma	13.33	Choriocarcinoma	12.00
Ca-Rectum	10.00	Adenocarcinoma	6.67	Adenocarcinoma	8.00
Ca-Testes	10.00	Acute myeloid leukemia	6.67	Acute myeloid leukemia	8.00
Fibrosarcoma	10.00	ca-Colon	6.67	Ewing's sarcoma	8.00
Non-Hodgkin lymphoma	10.00	Ca-Kidney	6.67	Non-Hodgkin lymphoma	8.00
-	-	Ca-Ovary	6.67	ca-Colon	4.00
-	-	Ca-Stomach	6.67	Ca-Kidney	4.00
-	-	Leiomyosarcoma	6.67	Ca-Ovary	4.00
-	-	Non-Hodgkin lymphoma	6.67	Ca-Rectum	4.00
-	-	Soft-tissue sarcoma	6.67	Ca-Stomach	4.00
-	-	Other	6.67	Ca-Testes	4.00
-	-	-	-	Fibrosarcoma	4.00
-	-	-	-	Leiomyosarcoma	4.00
-	-	-	-	Soft-tissue sarcoma	4.00
-	-	-	-	Other	4.00
<b>Total deaths</b>	<b>10</b>	<b>Total deaths</b>	<b>15</b>	<b>Total deaths</b>	<b>25</b>

## Annexure 6: Mortality profiles of different types of public hospitals in Bangladesh

### 6. G. Mortality profiles in National Institute of Cancer Research and Hospital (Continued...)

Age 50+ years					
Male		Female		Both sexes	
Ca-Lung	55.56	Ca-Lung	22.22	Ca-Lung	48.89
Ca-Stomach	8.33	Adenocarcinoma	11.11	Ca-Stomach	8.89
Ca-Prostate	5.56	ca-Colon	11.11	Other	6.67
Other	5.56	Ca-Gall bladder	11.11	Adenocarcinoma	4.44
Adenocarcinoma	2.78	Ca-Stomach	11.11	Ca-Gall bladder	4.44
Acute myeloid leukemia	2.78	Ca-Tongue	11.11	Ca-prostate	4.44
Ca-Gall bladder	2.78	Squamous cell carcinoma	11.11	Squamous cell carcinoma	4.44
Ca-Pancreas	2.78	Other	11.11	Acute myeloid leukemia	2.22
Ca-Tonsil	2.78	Ventricular septal defect	2.51	ca-Colon	2.22
Fibrosarcoma	2.78	Atrial septal defect	2.23	Ca-Pancreas	2.22
Hepato-cellular carcinoma	2.78	Ischemic cardiomyopathy	1.81	Ca-Tongue	2.22
Non-Hodgkin lymphoma	2.78	Congestive cardiac failure	1.39	Ca-Tonsil	2.22
Squamous cell carcinoma	2.78	-	-	Fibrosarcoma	2.22
-	-	-	-	Hepato-cellular carcinoma	2.22
-	-	-	-	Non-Hodgkin lymphoma	2.22
<b>Total deaths</b>	<b>36</b>	<b>Total deaths</b>	<b>9</b>	<b>Total deaths</b>	<b>45</b>
All ages					
Male		Female		Both sexes	
Ca-Lung	44.44	Ca-Breast	16.13	Ca-Lung	30.59
Acute myeloid leukemia	7.41	Chorio-carcinoma	9.68	Acute myeloid leukemia	5.88
Non-Hodgkin lymphoma	5.56	Adenocarcinoma	6.45	Non-Hodgkin lymphoma	5.88
Ca-Stomach	5.56	Ca-Colon and Ca-Rectum	6.45	Ca-Stomach	5.88
Adenocarcinoma	3.70	Ca-Lung	6.45	Adenocarcinoma	4.71
Ca-Prostate	3.70	Non-Hodgkin lymphoma	6.45	Ca-Colon and Ca-Rectum	3.53
Ca-Gall bladder	3.70	Ca-Stomach	6.45	Acute lymphatic leukemia	2.35
Acute lymphatic leukemia	1.85	Acute lymphatic leukemia	3.23	Squamous cell carcinoma	2.35
Ca-Colon and Ca-Rectum	1.85	Acute myeloid leukemia	3.23	Ca-Gall bladder	2.35
Fibrosarcoma	1.85	Ca-Gall bladder	3.23	Fibrosarcoma	2.35
<b>Total deaths</b>	<b>54</b>	<b>Total deaths</b>	<b>31</b>	<b>Total deaths</b>	<b>85</b>