

MORTALITY PROFILE

BANGLADESH 2011

Deaths due to non-communicable diseases are on the rise

We have received death reports from 451 government health facilities in 2011. They have reported 49,255 death cases. The types of health facilities and reported death cases are summarized in Table 8.1.

Among 49,225 reported cases, the cause of several deaths was reported to be 'cardiorespiratory failure', which was excluded for more accuracy in the report. Around 9,444 death cases were not reported properly, which were excluded during analysis. The death cases were analyzed according to category and body-system involved for better understanding. In this report, the category 'perinatal death' includes birth asphyxia, trauma, and low birthweight. 'Infective conditions' include chicken pox, kala-azar, diphtheria, rabies, and tetanus. Pregnancy-related complications include: antepartum and postpartum hemorrhage, eclampsia, pre-eclampsia, ruptured uterus, etc. Although acute abdominal diseases, gastrointestinal diseases, and diarrheal diseases belong to the same group, these are reported separately because of public-health interest. The report shows a major transition in causes of death from communicable to non-communicable

diseases. The above table shows that the highest number of deaths was reported by the medical college hospitals (51.2%).

Figure 8.1 shows proportion of death cases reported from different institutions by administrative division. The map includes death reports from medical college hospitals, district hospitals, and upazila health complexes. Death cases reported from specialized hospitals were excluded as specialized hospitals are not homogeneously distributed in the country. The map shows the number of death cases reported from divisions, which are shown in different tones. The health facilities of Dhaka division have reported the highest number of death cases.

The pie charts on the map show the proportion of death cases reported within the division by different institutions. These show that medical college hospitals deal with the most death cases, except in two divisions. In Barisal division, most of the death cases are reported by the district hospitals and upazila health complexes. We did not receive death reports from Khulna Medical College Hospital.

Table 8.1. Reported death cases from different institutions

Type of health facility	Facility		Death	
	No.	%	No.	%
Upazila health complexes	370	82.0	5,407	11.0
District-level hospitals (district and general hospitals)	56	12.4	13,180	26.8
Medical college hospitals	13	2.9	25,226	51.2
Infectious disease hospitals (Dhaka, Rajshahi, and Khulna)	3	0.7	152	0.3
Other national institutions (NIDCH, NICVD, BSMMU, NICRH, NIDCH, NIKDU, NIMH, PMH, RCH)	9	2.0	5,290	10.7
Total	451	100	49,255	100

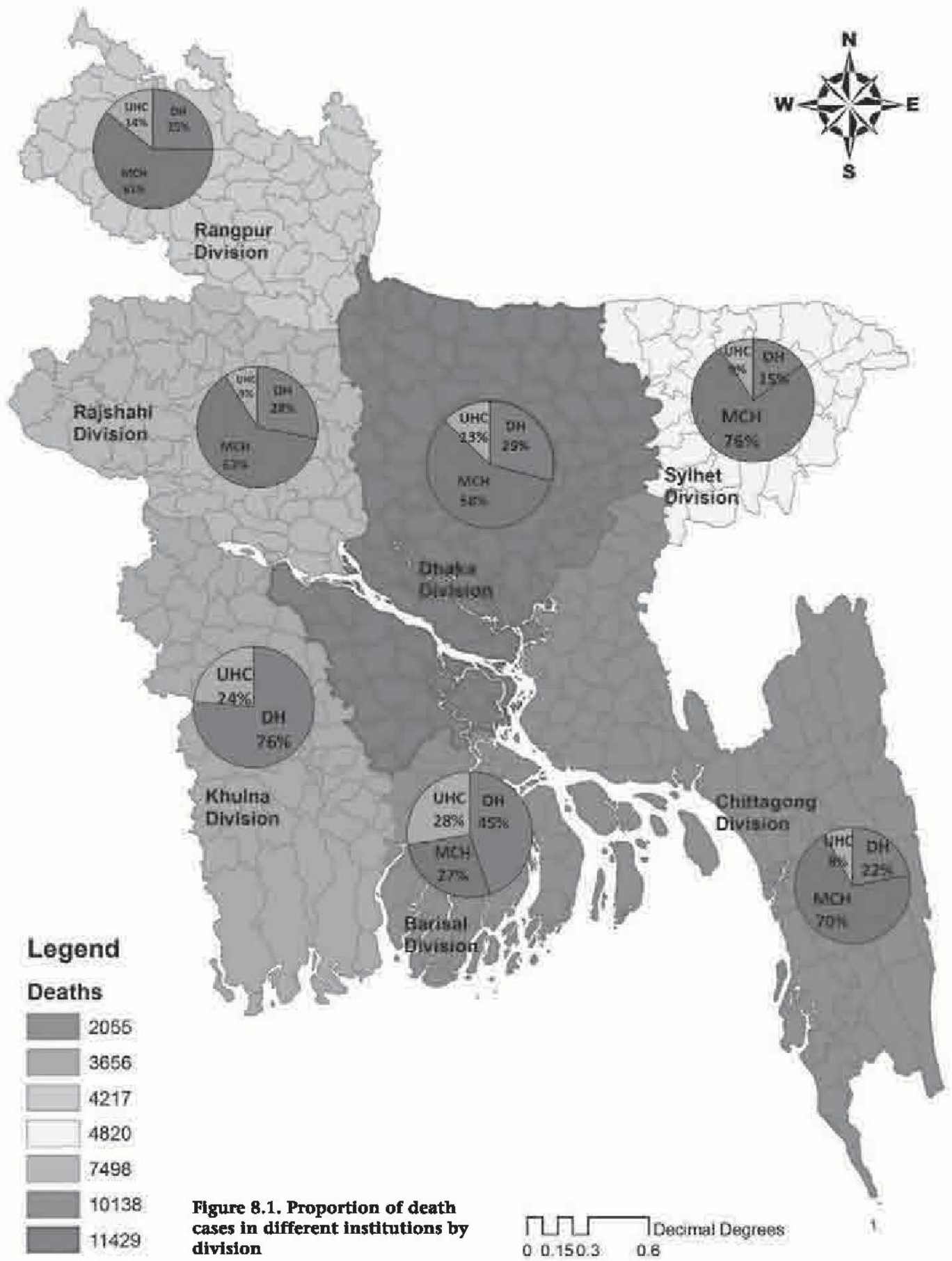


Table 8.2. Number and percentage of death cases according to affected body-system and disease category reported from different institutions

Affected body-system / Disease category	District hospitals	Medical college hospitals	Upazila health complexes	Grand total	%
Disease of cardiovascular system	3,401	4,910	1,178	9,489	23.85
Disease of respiratory system	2,323	2,147	1,593	6,063	15.24
Perinatal cause	1,207	2,524	117	3,848	9.67
Infective condition	1,174	1,944	278	3,396	8.54
Cerebrovascular condition	423	2,034	94	2,551	6.41
Injury (excluding drowning)	531	1,755	222	2,508	6.30
Poisoning	719	839	380	1,938	4.87
Disease of nervous system	474	1,281	134	1,889	4.75
Diabetes mellitus (DM) and HTN complication	304	841	114	1,259	3.16
Hepatic disease	195	716	66	977	2.46
Renal disease	158	671	82	911	2.29
Pregnancy and complication	254	433	80	767	1.93
Multisystem dysfunction	138	573	23	734	1.85
Acute abdominal disease (excluding diarrheal disease)	218	343	153	714	1.79
Malignancy (all body-systems)	160	441	70	671	1.69
Brought death	137	298	81	516	1.30
Gastrointestinal disease (other than diarrheal disease)	131	235	57	423	1.06
Diarrheal disease	78	69	79	226	0.57
Nutritional problem	82	88	24	194	0.49
Hemorrhagic shock	48	65	27	140	0.35
Unknown	50	17	53	120	0.30
Disease of immune system	21	80	5	106	0.27
Physical assault	20	56	16	92	0.23
Senile death	17	6	40	63	0.16
Drowning	8	4	43	55	0.14
Suicide	11	19	4	34	0.09
Disease of vascular system	5	25	1	31	0.08
Disease of endocrine system (excluding DM)	2	20	1	23	0.06
Congenital disease	6	15	-	21	0.05
ENT problems	4	8	2	14	0.04
Gynecological disease	5	3	-	8	0.02
Grand Total	12,304	22,460	5,017	39,781	100

Figure 8.2 shows the percentage of major system-specific causes of death. The figure shows that the cause of death involves cardiovascular

system (40%), respiratory system (23%), and cerebrovascular system (10%). The cause of death involving other systems is less than 10%.

- A = Respiratory system, 23%
 B = Cardiovascular system, 40%
 C = Reproductive system, 3%
 D = Genitourinary system, 3%
 E = Hepatic disease, 4%
 F = Endocrine system, 5%
 G = Gastrointestinal system, 5%
 H = Nervous system, 7%
 I = Cerebrovascular system, 10%

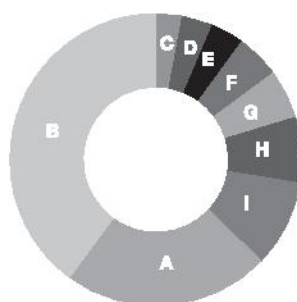


Figure 8.2. Causes of death according to body-system in 2011

Sex Distribution in Death Cases

The male-female ratio in death cases was 51:41. Table 8.3 shows that the number and percentage of deaths due to cardiovascular disease is 1.5 times higher in males. The percentage of injury-related death is double in males compared to females. The data show that the percentage of physical assault is higher in males, and the percentage of suicide is higher in females. Death due to malignancy is higher in males than in females.

Table 8.3: Percentage of the cause of death according to sex distribution

Affected body-system/ Disease category	Female		Male		Total
	Number	%	Number	%	
Disease of cardiovascular system	3,645	38.69	5,777	61.31	9,422
Disease of respiratory system	2,158	36.06	3,827	63.94	5,985
Perinatal cause	1,707	46.29	1,981	53.71	3,688
Infective condition	1,422	42.46	1,927	57.54	3,349
Cerebrovascular disease	1,070	42.29	1,460	57.71	2,530
Injury (excluding drowning)	741	29.95	1,733	70.05	2,474
Poisoning	945	49.14	978	50.86	1,923
Disease of nervous system	785	42.20	1,075	57.80	1,860
DM and HTN complication	519	41.55	730	58.45	1,249
Hepatic disease	336	34.64	634	65.36	970
Renal disease	354	39.25	548	60.75	902
Pregnancy and complication	767	100.00	0	0.00	767
Multisystem dysfunction	294	40.38	434	59.62	728
Acute abdominal disease	233	33.10	471	66.90	704
Malignancy	249	37.56	414	62.44	663
Brought death	154	30.37	353	69.63	507
Gastrointestinal disease (other than diarrheal disease)	158	37.80	260	62.20	418
Diarrheal disease	97	43.11	128	56.89	225
Nutritional problem	85	44.74	105	55.26	190
Hemorrhagic shock	68	50.00	68	50.00	136
Unknown	62	51.67	58	48.33	120
Disease of immune system	61	57.55	45	42.45	106
Physical assault	19	22.09	67	77.91	86
Senile death	22	34.92	41	65.08	63
Drowning	23	42.59	31	57.41	54
Suicide	26	76.47	8	23.53	34
Disease of vascular system	11	35.48	20	64.52	31
Disease of endocrine system (excluding DM)	11	47.83	12	52.17	23
Congenital disease	7	33.33	14	66.67	21
ENT problems	6	42.86	8	57.14	14
Gynecological disease	8	100.00	0	0.00	8
Grand total	16,043	40.87	23,207	59.13	39,250

Age Distribution in All Death Cases

The percentage of under-five mortality is 24% according to all the death cases analyzed. The percentage of child mortality is 15% for neonates and 21% for infants. Percentage of death cases among 15-24 years age-group is 23%. Majority of the deaths occurred (43%) at more than 50 years of age.

- A = Under-five, 24% [1-4 year(s), 3%; 2-11 months, 6%, 0-1 month, 15%]
- B = 50+ years, 43%
- C = 25-49 years, 23%
- D = 15-24 years, 6%
- E = 5-14 years, 4%

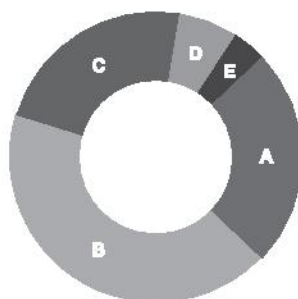


Figure 8.3. Percentage of deaths (n=43,200) according to age-group

Cause of under-five deaths

All the health organizations reported 10,389 death cases under the age of five. Among

those cases, 8,896 were analyzed in this health bulletin. The report show pneumonia is the top killer disease in under-five children. Preterm birth complications are the second highest causes of death, including preterm low birthweight, neonatal jaundice, and febrile convulsion. 'Injury' includes RTA, poisoning, drowning, burn and fall. Gastrointestinal complications include acute abdomen, intestinal obstruction, imperforated anus, Hirschsprung's disease, and complication after colostomy. Congenital diseases include congenital heart diseases, hydrocephalus, anencephaly, down syndrome, and congenital rubella syndrome. Infective conditions include measles, chicken pox, febrile convulsion, enteric fever, dengue fever, and tuberculosis. Non-communicable diseases include disease of kidney, liver disease, and malignant growths.

Table 8.4 shows important causes of death in different age-groups below the age of five. The 0-1 month age-group is regarded as neonates. The report reveals that 63% of the total under-five deaths occur in neonates. It is quite interesting that 90% of the reported under-five death cases were among children aged <1 year.

Table 8.4: Cause of death in under-five children

Disease	0-1 month	2-11 months	1-4 year(s)	Total
Pneumonia	818	1313	321	2452
Preterm birth complication	2170	99	0	2269
Neonatal sepsis	1332	0	0	1332
Birth asphyxia	843	0	0	843
Septicemia	0	465	90	555
Meningitis/Encephalitis	92	182	181	455
Injury	123	49	101	273
Malnutrition	18	106	48	172
Gastrointestinal complication	69	29	22	120
Diarrheal disease	8	66	39	113
Congenital disease	34	39	24	97
Infective condition	16	29	37	82
Non-communicable disease	0	33	35	68
Severe malaria	7	3	16	26
Birth trauma	23	0	0	23
Neonatal tetanus	16	0	0	16
Grand total	5569	2413	914	8896
Percentage	63%	27%	10%	100%

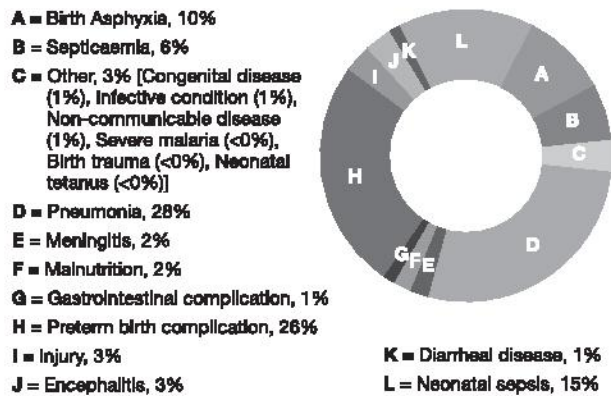


Figure 8.4. Percentage of cause of death in under-five children (n=8,896)

Figure 8.4 shows the percentage of cause of deaths among under-five children. Pneumonia, preterm birth complications, and neonatal sepsis are the major causes of death in under-five children. Death due to injury is higher in neonates.

It is interesting that diarrheal death is only 1% among the cases. Due to good immunization coverage, the deaths due to vaccine-preventable diseases are decreasing. We need to strengthen

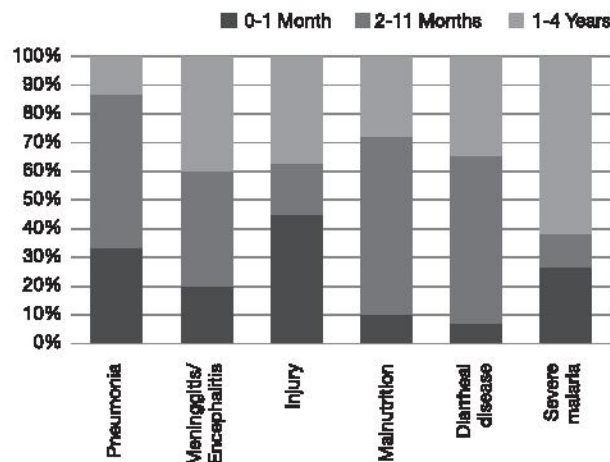


Figure 8.5. Percentage of cause of death among different age-groups (n=3,491)

Table 8.5. Sex distribution of death cases reported from upazila health complexes by affected body-system/disease category

Affected body-system/Disease category	Female	Male	Total
Disease of respiratory system	700	893	1,593
Disease of cardiovascular system	558	620	1,178
Poisoning	226	154	380

specific interventions to avert death due to pneumonia and preterm birth complications.

Figure 8.5 shows the distribution of the cause of death among different age-groups. The percentage of death due to pneumonia, diarrhea, and malnutrition is significantly higher in 2-11 months age-group. Malarial death is higher in 1-4 year(s) age-group. This figure will help the planners to include necessary preventive measures in the program.

Cause of Neonatal Mortality

About 5,525 death cases reported from different health organizations were analyzed. Figure 8.6 shows that the major cause of death in neonates is preterm birth complications (39%). Neonatal sepsis (24%) is the second cause of death. Birth asphyxia (15%) and pneumonia (15%) are also major causes of death.

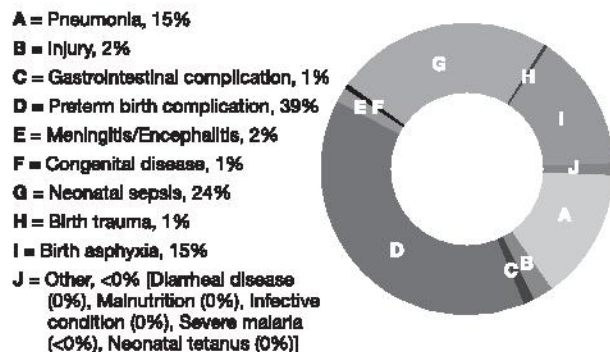


Figure 8.6. Percentage of cause of death in neonates (n=5,525)

Mortality Profile: Upazila Health Complexes

Around 11% of all death cases were reported from the upazila health complexes. The major causes of death involved diseases of the respiratory and cardiovascular systems. The important causes of death include poisoning, infective conditions, injuries, and acute abdominal diseases.

Table 8.5 Continued

Affected body-system/Disease category	Female	Male	Total
Infective conditions	137	141	278
Injury (excluding drowning)	91	131	222
Acute abdominal disease	59	94	153
Disease of nervous system	77	57	134
Perinatal cause	61	56	117
DM and HTN complication	70	44	114
Cerebrovascular disease	45	49	94
Renal disease	33	49	82
Brought death	30	51	81
Pregnancy and complication	80		80
Diarrheal disease	32	47	79
Malignancy	33	37	70
Hepatic disease	30	36	66
Gastrointestinal disease (excluding diarrhea)	21	36	57
Unknown	26	27	53
Drowning	18	25	43
Senile death	15	25	40
Hemorrhagic shock	17	10	27
Nutritional problem	13	11	24
Multisystem dysfunction	12	11	23
Physical assault	4	12	16
Others (immune system, endocrine system, ENT problem, suicide, and vascular disease)	7	6	13
Grand Total	2,395	2,622	5,017

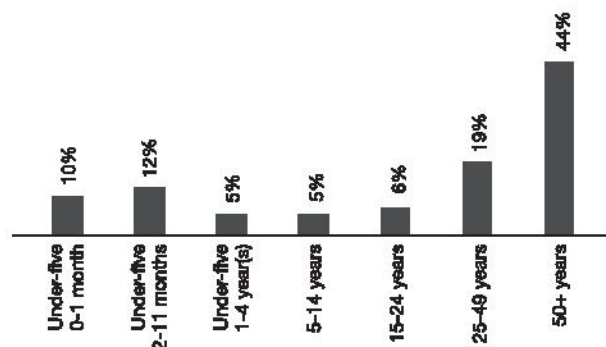


Figure 8.7. Percentage of death cases according to age-group reported from upazila health complexes

According to reports from the upazila health complexes, under-five mortality was 27%. The top-ranking causes of death were severe pneumonia, neonatal septicemia, low birthweight, diarrheal disease, and perinatal asphyxia.

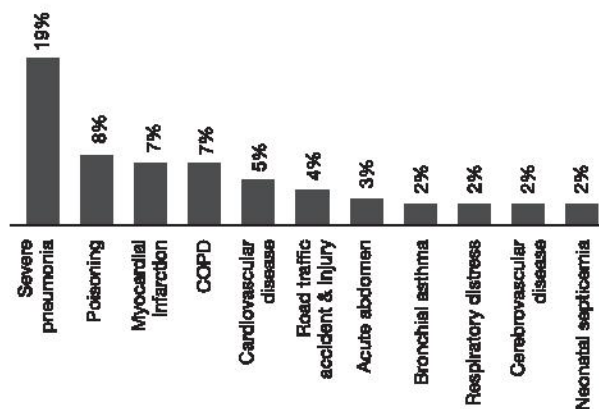


Figure 8.8. Percentage of the top 10 causes of death reported from the upazila health complexes

The top 10 diseases are shown in Figure 8.4. It is interesting that poisoning is the second cause of death reported from the upazila health complexes.

Mortality Profile: District-level Hospitals

The district-level hospitals reported 12,168 death cases in 2011. Among all deaths, 4,909 cases were among females and 7,256 among males. The top causes of death include diseases of the cardiovascular and respiratory systems, and others include infective conditions, perinatal cause, poisoning, injuries, disease of nervous system, cerebrovascular disease and

complications due to diabetes mellitus and hypertension.

Thirty percent (0-1 month 18%, 2-11 months 9%, 1-4 years 3%) of all death cases occurred among under-five population as reported from the district-level hospitals, which is higher than those reported from upazila health complexes. Neonatal death rate is almost double in the district-level hospitals than in the upazila-level hospitals.

Table 8.6: Number of death cases by gender according to affected body-system and disease category reported from district-level hospitals

Affected body-system /Disease category	Female	Male	Total
Disease of cardiovascular system	1,307	2,094	3,401
Disease of respiratory system	819	1,497	2,316
Infective condition	462	705	1,167
Perinatal cause	446	640	1,086
Poisoning	343	376	719
Injury (excluding drowning)	157	374	531
Disease of nervous system	225	249	474
Cerebrovascular disease	191	232	423
DM and HTN complication	135	169	304
Pregnancy and complication	254		254
Acute abdominal disease	76	142	218
Hepatic disease	67	128	195
Malignancy	61	99	160
Renal disease	69	89	158
Multisystem dysfunction	62	76	138
Brought death	32	105	137
Gastrointestinal disease (excluding diarrhea)	37	94	131
Nutritional problem	35	46	81
Diarrheal disease	33	45	78
Unknown	27	23	50
Hemorrhagic shock	24	24	48
Disease of immune system	12	9	21
Physical assault	5	15	20
Senile death	5	12	17
Suicide	9	2	11
Drowning	4	4	8
Congenital disease	2	4	6
Gynecological disease	5		5
Disease of vascular system	2	3	5
ENT problem	3	1	4
Disease of endocrine system (excluding DM)		2	2
Grand total	4,909	7,259	12,168

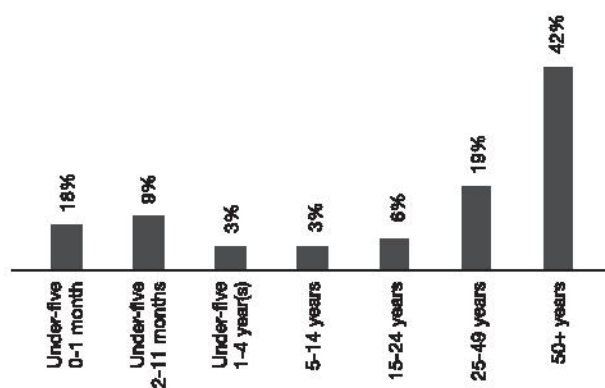


Figure 8.9. Percentage of death cases according age-group reported from district-level hospitals

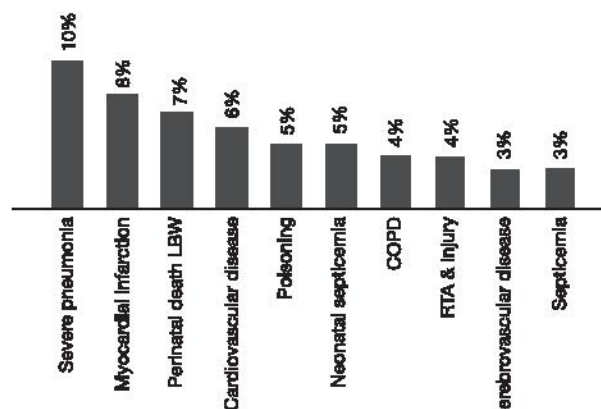


Figure 8.10. Death cases by top 10 causes reported from the district-level hospitals

Table 8.7. Sex distribution for death cases according to affected body-system and disease category at the tertiary-level hospitals

Affected body-system/Disease category	Female	Male	Total
Disease of cardiovascular system	1,947	3,328	5,275
Perinatal cause	1,200	1,285	2,485
Disease of respiratory system	639	1,437	2,076
Cerebrovascular disease	834	1,179	2,013
Infective condition	823	1,081	1,904
Injury (excluding drowning)	503	1,268	1,771
Disease of nervous system	498	773	1,271
Disease of endocrine system (excluding DM)	325	526	851
Poisoning	376	448	824
Hepatic disease	239	470	709
Gastrointestinal diseases (excluding diarrhea)	241	425	666
Disease of genitourinary system	252	410	662
Multisystem dysfunction	249	385	634
Disease of reproductive system	436		436
Neoplasm	155	278	433
Brought death	92	197	289
Nutritional problem	37	48	85
Disease of immune system	45	35	80
Disease of vascular system	8	17	25
Unknown	9	8	17
Congenital disease	5	10	15
ENT problems	3	5	8
Drowning	1	2	3
Grand total	8,917	13,615	22,532

The top 10 causes of death include severe pneumonia, myocardial infarction, low birthweight, cardiovascular disease, poisoning, neonatal septicemia, injury, cerebrovascular disease, and septic conditions.

Mortality Profile: Medical College Hospitals

Medical college hospitals reported most (51%) of the death cases in Bangladesh in 2011. In total, 22,065 death cases were analyzed among all the reported cases. It is important to know that deaths due to disease of the cardiovascular system and perinatal deaths ranked the topmost position among all death cases at the medical college hospitals.

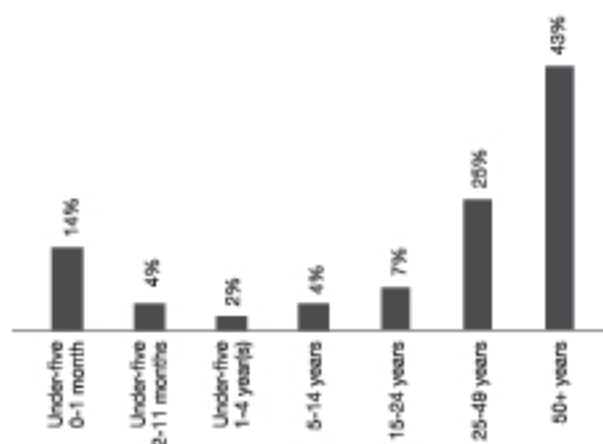


Figure 8.11. Percentage of death cases according to age-group at the tertiary-level hospitals

Among all death cases, 20% occurred in the under-five age-group and 43% in patients over 50 years of age. The top 10 causes of death include disease of the cardiovascular system, perinatal cause, disease of the respiratory system, cerebrovascular system, infective conditions, injury, nervous system, endocrine system, poisoning, and hepatic disease.

Mortality Profile: National Institute of Cancer Research and Hospital (NIRCH)

The National Institute of Cancer Research and Hospital (NIRCH) reported 92 death cases in 2011. Among all the deaths, 39 patients died of Ca-Lungs, and 6 cases died of retinoblastoma.

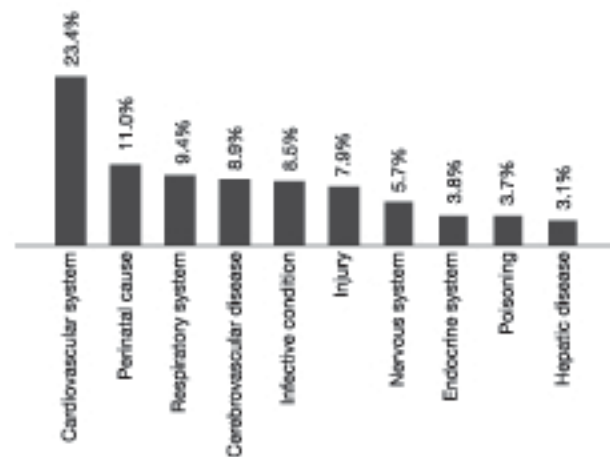


Table 8.12. Percentage of top 10 causes of death at the tertiary-level hospitals

Table 8.8. Sex distribution of the number of death cases at NIRCH by affected body-system

Affected body-system/Disease category	Female	Male	Total
Ca-Lungs	12	27	39
Retinoblastoma	2	4	6
Leukemia	3	1	4
Ca-Esophagus	2	2	4
Lymphoma	0	4	4
Ca-Breast	4	0	4
Ca-Stomach	2	2	4
Ca-Larynx	2	2	4
Bone tumor	2	1	3
Ca-Colon	2	1	3
Ca-Oral cavity	1	2	3
Ca-Urinary bladder	1	1	2
Brain tumor	0	2	2

Table 8.8 Continued

Affected body-system/Disease category	Female	Male	Total
Ovarian tumor	2	0	2
Ca-Cervix	2	0	2
Ca-Kidney	0	2	2
Ca-Liver	0	1	1
Ca-Gall bladder	1	0	1
Nasopharyngeal carcinoma	0	1	1
Ca-Rectum and Anal canal	1	0	1
Grand Total	39	53	92

Mortality Profile: National Institute of Cardiovascular Disease

The National Institute of Cardiovascular Disease (NICVD) reported 3,237 cases of death in 2011. Number of deaths due to acute myocardial infarction was the highest (Figure 8.9).

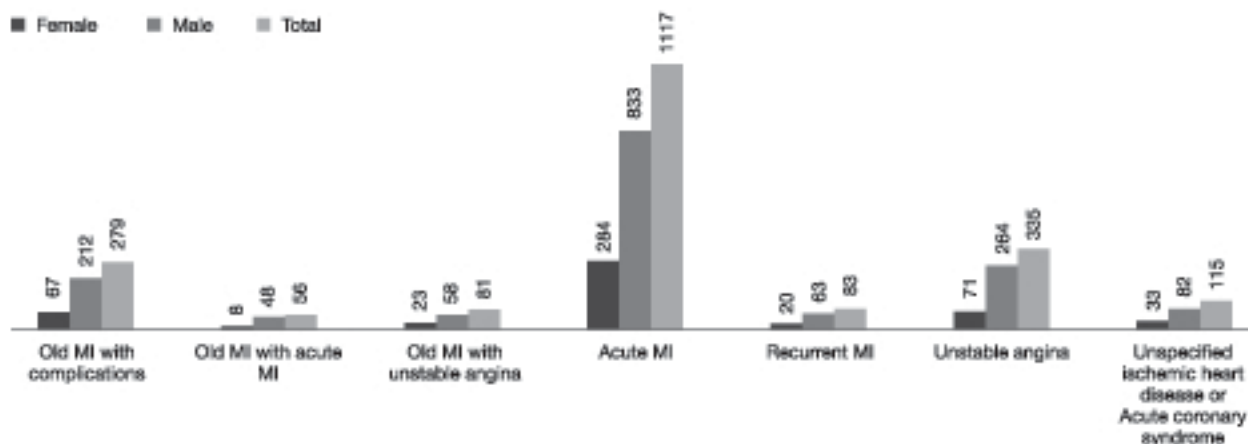


Figure 8.13. Number of death cases at NICVD in 2011 (n=2,066)

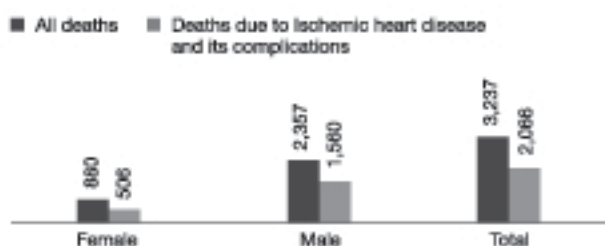


Table 8.14. Number of death cases at NICVD by gender

Mortality Profile: Infectious Disease Hospitals

All three infectious disease hospitals together reported 150 death cases in 2011. Chicken pox, tetanus, and tuberculosis were the top-ranking diseases. In total, 10 HIV/AIDS cases were reported dead in 2011 from the three hospitals.

Table 8.9. Number of death cases at IDH by gender

Disease	Dhaka			Rajshahi			Sylhet			Total
	Female	Male	Total	Female	Male	Total	Female	Male	Total	
Chicken pox	7	62	69	0	2	2	0	0	0	71
Tetanus	10	9	19	4	21	25	0	0	0	44
Tuberculosis	0	0	0	0	0	0	2	11	13	13
HIV/AIDS	3	7	10	0	0	0	0	0	0	10
Neonatal tetanus	0	2	2	0	0	0	0	0	0	2
Severe pneumonia	0	0	0	0	0	0	1	1	2	2
Rabies	2	0	2	0	0	0	0	0	0	2
Septicemia	0	0	0	0	0	0	1	0	1	1
Dog-bite	0	1	1	0	0	0	0	0	0	1
Encephalitis	1	0	1	0	0	0	0	0	0	1
Bronchial asthma	0	0	0	0	0	0	1	0	1	1
Measles	0	1	1	0	0	0	0	0	0	1
Meningitis	0	1	1	0	0	0	0	0	0	1
Grand Total	23	83	106	4	23	27	5	12	17	150

Mortality Profile: National Institute of Diseases of Chest and Hospital (NIDCH)

Table 8.10. Number of death cases at NIDCH by gender

Disease with subcategory	Female	Male	Total
COPD	6	76	82
Tuberculosis	8	62	70
MDR TB	0	7	7
Miliary TB	0	1	1
PTB	8	52	60
PTB with COPD	0	1	1
PTB with lung abscess	0	1	1
Carcinoma	6	27	33
Bronchogenic carcinoma	5	25	30
Carcinoma of esophagus	1	2	3
Pneumonia	2	7	9
Aspiration pneumonia	1	5	6
Pneumonia	1	1	2
Pneumonia with bronchitis	0	1	1
Hemoptysis	1	4	5
ARDS	0	4	4
Cardiovascular disease	0	3	3
Respiratory failure	0	3	3
Type 1 respiratory failure	0	2	2
Type 2 respiratory failure	0	1	1
Grand total	23	186	209

Mortality Profile: National Institute of Kidney Diseases and Urology Hospital (NIKDU)

The National Institute of Kidney Diseases and Urology Hospital (NIKDU) reported 153 death cases in 2011. The table shows the death cases by major causes of death. The complications included hypertension, diabetes mellitus, cardiovascular diseases, and related health problems.

Mortality Profile: Other Specialized Hospitals

The term 'other' means those specialized hospitals that are not covered above. These include Bangabandhu Sheikh Mujib Medical University, Rajshahi Chest Hospital, Pabna Mental Hospital, and National Institute of Mental Health and Hospital. These hospitals reported around 917 death cases. The cause

of the most death cases was reported to be cardiorespiratory failure, and only the gender distribution among the reported cases was analyzed for 2011 data.

Limitations of Data Analysis

For publication in this health bulletin, we have received information on 49,255 death cases from different organizations. It was very difficult to analyze all the data due to various reasons. Many diseases were not reported properly. MIS is collecting data, using District Health Information System (DHIS2) from all the government health organizations. MIS is planning to introduce ICD 10 this year to avoid such problems in diagnosing diseases. Due to time constraint, it was not possible to collect all data from all the health organizations. We hope that Health Bulletin 2013 will be richer in mortality data covering more health facilities of Bangladesh.

Table 8.11: Number of death cases at NIKDU by gender

Disease	Female	Male	Total
Glomerulonephritis with complications	23	36	59
Chronic kidney disease	20	32	52
Obstructive uropathy with complications	6	11	17
End-stage of renal disease	5	10	15
Rapidly-progressive glomerulonephritis (RPGN)	1	3	4
Adult dominant poly cystic kidney diseases	0	4	4
Acute graft rejection	0	1	1
Nephrotic syndrome	0	1	1
Grand total	55	98	153

Table 8.12. Number of death cases reported from some specialized hospitals by gender

Institute	Female	Male	Total
Bangabandhu Sheikh Mujib Medical University	345	542	887
Rajshahi Chest Hospital	6	14	20
Pabna Mental Hospital	4	3	7
National Institute of Mental Health and Hospital	1	2	3
Grand total	356	561	917