

# Disease Pattern and Outcome of Pediatric Patients Admitted in A Non-Government Medical College Hospital

Mohammad Shahab Uddin<sup>1\*</sup> Basana Rani Muhuri<sup>2</sup> Syeda Shahnoor Hasina Mamtaj<sup>3</sup>  
Mohammed Belal Uddin<sup>4</sup>

## ABSTRACT

**Background:** An understanding of epidemiological trend in hospital admissions, including diseases and death pattern, is essential for health care planning, appropriate resource allocation and improving existing services facilities. Most of the causes of morbidity and mortality in Pediatric patient particularly under five and neonate are preventable by proper antenatal/perinatal care, early detection and management. To assess the disease pattern and outcome of pediatric patients admitted in a non government Medical College hospital this research was performed.

**Materials and methods:** This retrospective observational study was conducted at the Department of Child Health, Marine City Medical College Hospital (MCMCH) Chattogram, Bangladesh during 2019 June to 2021 June. A total of 567 patients were included for the study. Details on demographic characteristic, disease pattern, outcome, retrieved from the medical records and admission registers, and tabulated and analyzed using Microsoft Excel (Microsoft Office2016).

**Results:** Among the admitted patient 0-<2 months age group were (53)9.35%, 2 months-<2 years age group were 254(44.80%), 2 years-<5 years age group were 96(16.93%), 5 years-<12 years age group were 164(28.92%). Among the admitted patients, most common acute watery diarrhoea were 131(23.10%), bronchiolitis were 121(21.34%), bronchopneumonia were 95(16.75%), Neonatal Sepsis and Enteric fever were 26(4.59%), Bronchial asthma were 18(3.17%), Low birth weight/preterm were 17(3.00%), Neonatal Jaundice were 12(2.12%) and others were 92(16.22%). The outcome of total 567 Pediatric patients- discharged with advice were 498(87.83%), discharge on request were 45(7.49%), referred were 20(3.53%) and dead were 4(0.71%).

**Conclusion:** Findings of this study helps us to understand and pediatric admission trend and death pattern of this institution, which are essential for patient's services, including effective case-management strategies.

**Key words:** Disease; Morbidity; Mortality; Outcome; Pattern.

## Introduction

Morbidity and mortality among children are merely estimated in developing countries, because of the difficulties in obtaining data accurately. Useful information on this regard can easily be obtained from periodic review of morbidity and mortality in medical institutions as it reflects what is occurring in a community.<sup>1</sup> Previous studies done in Nepal have diverse results with sepsis, prenatal asphyxia, prematurity and neonatal jaundice

being the commonest causes of admission.<sup>2</sup> Child health in Bangladesh has faced significant challenges largely because of poverty, over-burdened healthcare services related to huge paediatrics populations. Pneumonia, diarrhoea, measles, malaria, malnutrition, injuries, drowning and the high number of neonatal deaths and poor care-seeking behavior, all contribute to the high levels of child mortality. Mortality declines are associated with improved coverage of effective interventions to prevent or treat the most important causes of child mortality and with improvements in socioeconomic conditions. During the last decades, medical recordings have increased dramatically. Leading to more awareness of the diseases commonly affecting paediatric age groups opening a wide entrance to the prevention of possible complications and decrease its incidence. Routinely collected patient information has the potential to yield valuable information about health systems. However, there have been few comprehensive analyses of paediatric admissions at hospitals. Such understanding of epidemiological trend in hospital admission is critical for health care planning and appropriate resource allocation.<sup>3, 4</sup> Childhood mortality is are liable indicator

1. Assistant Professor of Paediatrics  
Marine City Medical College, Chattagram.
  2. Professor of Paediatrics  
Marine City Medical College, Chattagram.
  3. Assistant Professor of Paediatrics  
Institute of Applied Health Science (IAHS) Chattagram.
  4. Consultant of Paediatrics  
Jemison Red Crescent Maternity Hospital, Chattagram.
- \*Correspondence : **Dr. Mohammad Shahab Uddin**  
Cell : +88 01819 13 53 48  
Email : drshahabpaedi@gmail.com

Date of Submission : 4th November 2021  
Date of Acceptance : 20th November 2021

of health care facilities of a country and its development.<sup>5</sup> Hospital death records statistics are considered reliable and used all over the world<sup>6</sup>. Moreover; evaluation of characteristics of children who dies in hospitals gives an insight into main medical illness in children and measures to overcome those.<sup>7</sup> Therefore, review of such information help to draw attention to the pattern of childhood illness in the community. This, however, comes at a huge cost to all the parties involved, the hospital, the personnel, and the caregivers of patients. The outcome of these patients can evaluate and assess the efficacy of treatment, making it possible to take better decisions to ensure the effective management of the high-level resources and optimize the resource utilization. Lack of proper diagnostic facilities, difficulties in culturing the organism, lack of awareness among the people and in discriminate use of antibiotics may lead to wrong estimation of the true incidence of the actual disease burden. Various factors that determine the outcome of the disease are age, time taken in diagnosis and initiation of treatment, duration of treatment and type of microorganism.<sup>8</sup>

**Materials and methods**

This retrospective observational study was conducted at the Department of child Health, non-government medical college hospital, Chittagong, Bangladesh during 2019 June to 2021 June. A total of 567 patients were included for the study. Data were collected from hospital register, patient file records, death certificates. Details on age, sex, diagnosis spectrum, outcome, retrieved from the medical records and admission registers, and tabulated and analyzed using Micro soft Excel.

**Inclusion Criteria**

- 0 days to <12 years
- A patient who left the hospital before complete their treatment (DOR-Discharge on Request)
- Patient referred to the higher center or to the other discipline.

**Exclusion criteria**

- A patient who left the hospital after an admission of their own (DORB-Discharge on risk bond)
- A patient who left the hospital unnoticed (Absconded)
- Patient without adequate clinical records were also excluded from the study.

**Results**

The age of the patients-0-<2 months were (53)9.35%, 2 months-<2 years age group were 54(44.80%), 2 years-<5 years age group were (96)16.93%, 5 years-<12 years age group were 164(28.92%) figure-1. Figure-2 shows the gender distribution of male was 323(56.97%)

and female was 244(43.03%). Figure-3 shows the demographic characteristic of rural patients were 128(22.57%) and urban were 439(77.43%). Table-I shows the disease profile of admitted patients- There are most common diseases acute watery diarrhea were 131(23.10%) bronchiolitis with secondary bacterial infection were 121(21.34%) bronchopneumonia were 95(16.75%) Neonatal Sepsis and Enteric fever were 26(4.59%), childhood Bronchial asthma were 18(3.17%), Low birth weight/preterm were 17(3.00%) Neonatal Jaundice were 12(2.12%) PNA were 11(1.94%) and PEM with Complication were 11(1.94%), Nephrotic syndrome were 7(1.23%) and others were 92(16.22%). Table III- shows the outcome of total 567 pediatric admitted patients -discharge with advice patients were 498(87.83%) discharge on request patients were 45 (7.49%) referred were 20(3.53%) and dead were 4(0.71%).

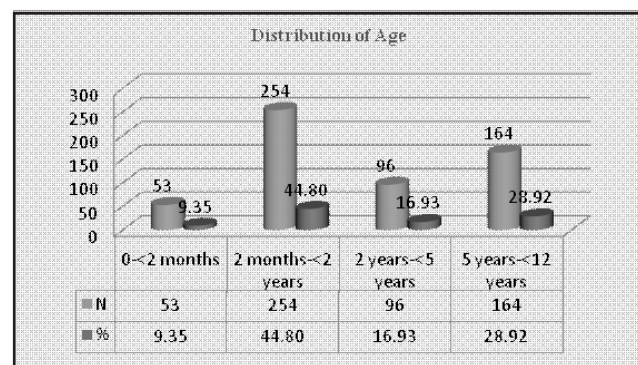


Figure 1 Distribution of age

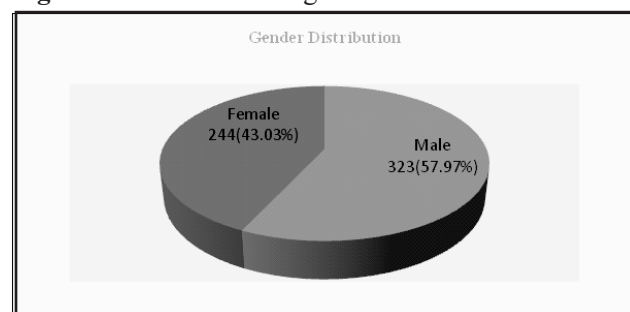


Figure 2 Distribution of gender

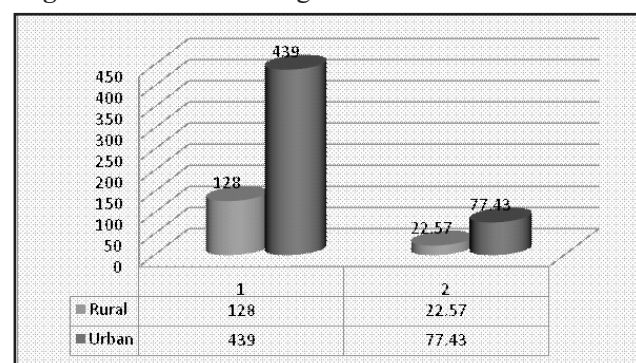


Figure 3 Distribution of living area (n=567)

**Table I** Disease profile of admitted patients (n=567)

Disease Distribution	No of patients (n)	Percentage (%)
Neonatal Sepsis	26	4.59
PNA	11	1.94
Neonatal Jaundice	12	2.12
Low birth weight/preterm	17	3.00
Bronchopneumonia	95	16.75
Bronchiolitis	121	21.34
Bronchial asthma	18	3.17
Acute watery diarrhea	131	23.10
Enteric fever	26	4.59
Nephrotic syndrome	7	1.23
PEM with Complication	11	1.94
Gastroenteritis	22	3.88
Ascariasis	11	1.94
Rheumatic fever	5	0.88
Cerebral palsy	7	1.23
Down's syndrome with VSD	4	0.71
Febrile seizure	16	2.82
Meningitis	7	1.23
Thalassemia	12	2.12
ITP	6	1.06
Lymphoma	2	0.35

**Table II** Outcome of patients (n=567)

Characteristic	No of patients (n)	Percentage (%)
Discharge with advice	498	87.83
Discharge on request	45	7.94
Referred	20	3.53
Death	4	0.70
Total	567	100.00

### Discussion

In this retrospective study, 0 to <2 months age group were 53(9.35%), 2 months to <2 years age group were 254(44.80%); 2 years to <5 years age group were 96(16.93%), total <5yrs were 403(71.07%), 5 years-<12 years age group were 164(28.92%)(Table I). Blessing Abhulimhen-Iyoha et al revealed that 72.4% patients were aged less than 5 years, among them 50.7% were infants and Anwarul Haque et al found children under 5 year were 62.5%.<sup>9,10</sup> This study is almost similar to Blessing Abhulimhen-Iyoha et al and dissimilar to Anwarul Hoque et al.<sup>9,10</sup> In this study, among the total admitted patient 128(22.57%) were from rural area and from Urban area patient were 439(77.43%) (Figure 3). This may be due to geographical location of the institution (Urban). Common diseases among the admitted patients in this study shows that acute watery diarrhea were 131(23.10%) bronchiolitis were 121(21.34%), bronchopneumonia were 95(16.75%), Neonatal Sepsis and Enteric fever, were 26(4.59%), Bronchial asthma were 18(3.17%), Low birth weight/preterm were 17(3.00%), Neonatal Jaundice were

12(2.12%), PNA, PEM with Complication were 11(1.94%) each, Nephrotic syndrome were 7(1.23%) and others were 92(16.22%)(Table I). Infections have been found to be responsible for nearly 70% of infant mortality, where pneumonia, meningitis and septicemia are the major contributors.<sup>11,12</sup> In Bangladesh, 90,000 children >1 month and <5 years of age died from pneumonia every year.<sup>13</sup>

In the study, 498(87.83%) patients were discharged with advice, 45 (7.49%) patients were discharged on request, 20(3.53%) were referred and 4(0.71%) were dead (Table II). Only 4 death was found in this study despite the highest number of admissions from Acute watery diarrhea- which may be due to early referral and parental awareness. Globally 18% and in Bangladesh 20% of childhood death occurs from AWD.<sup>14</sup> However, the findings relating to diarrheal deaths are less in number, which may be due to the awareness and increased use of Oral Rehydration Solution (ORS). Bangladesh is a malaria endemic country where total thirteen districts including Chattogram, are recognized as malaria endemic zone.<sup>15</sup> Therefore, more malaria related admissions were expected in the admissions. Fortunately, the surrounding primary and tertiary hospitals can handle this disease well, therefore, they refer only the complicated cases to this tertiary level hospital, reflected by only 1% malarial admission. Abhulimhen-Iyoha et al reported cardiovascular disease (41.1%) as the commonest indication for admission in their series and Khilnani et al reported respiratory as the commonest cause (19.7%), followed by neurological (17.9%) cause of admission.<sup>9,16</sup> The dissimilarity observed in our study group may be due to small study sample and study place which was an almost newly established tertiary hospital in this region.

### Limitations

This was a hospital-based study. Sample size was small and short duration of time. So, the result of this study may not be reflecting the whole picture of the country.

### Conclusion

Findings of this study helps us to understand and pediatric admission trend and death pattern of this institution, which are essential for health-sector planning, including effective case-management strategies. Therefore, to improve neonatal outcome, it is imperative to be vigilant especially during the first 24 hours of life. Progress is possible, but only if we manage to prevent or detect and treat problems as early as possible, which can be achieved by public awareness, training of labor and procurement of necessary equipment's.

### Disclosure

All the authors declared no competing interest.

**References**

1. Hasan MS, Barua SK, Mahmud MN, Kamal AH, Enayetullah M, Karim MR. Disease profile and death pattern among children admitted in a Medical College Hospital. *Bangladesh Journal of Child Health*. 2012;36(2):66-70.
2. Gauchan E, Basnet S, Koirala DP, Rao KS. Clinical profile and outcome of babies admitted to Neonatal Intensive Care Unit (NICU). *J Inst Med*. 2011; 33(2):1-8.
3. George I.O, Alex-Hart B A. Frank-Briggs A.I. Mortality Pattern in Children: A Hospital Based Study in Nigeria. *Int J Biomed Sci Dec*. 2009; 5:369-372.
4. C Eck, RB Pierre, IR Hambleton. Medical Pediatric Admission at the University Hospital of the West Indies: Issues for Future Planning. *West Indian Med J*. 2006; 55:1: 340-345.
5. Anon. Pan American Health Organization. Preventable mortality: Indicator or target? Application in developing countries. *Epidmiol Bull*. 1990; 11:1-9.
6. Indrayan A, Satyanarayana L. Measures of Mortality and Morbidity in Children. *Indian Pediatrics*. 2000; 37:515-521.
7. Davis E, Waters E, Wake M. Population health and wellbeing: Identifying priority areas for Victorian children. *Aust New Zealand Health Policy*. 2005; 2:16.
8. Bridger RC. Diagnosis and treatment of bacterial meningitis. *Postgrad Doctor*. 1986; 9:282-287.
9. Blessing I. Abhulimhen – Iyoha, Suneel Kumar Pooboni and Nanda Kishore Kumar Vuppali. Morbidity Pattern and Outcome of Patients Admitted into a Pediatric Intensive Care Unit of India. *Indian Journal of Clinical Medicine*. 2014; 5; 1-5.
10. Haque A, Bano S. Clinical profile and outcome in a paediatric intensive care unit in Pakistan. *J Coll Physicians Surg Pak*. 2009;19:534-535. doi:08.2009/JCPSP.534535
11. Deptt. of Preventive and social medicine, JIPMER. Report On The Baseline Health Survey Of Rural Health Center, Ramnathpuram, Villianur and Commune Pondicherry State. Pondicherry, JIPMER. 1967; 9-54.
12. Dutt D, Srinivasa DK. Effect Of Maternal And Child Health Strategy On Child Survival Is A Rural Community Of Pondicherry. *Indian Pediatr*. 1997; 34:785-792.
13. Luby SP, Brooks WA, Saha SK, Sack D, and Robert F. Use of Multiple Surveillance Modalities to Assess the Epidemiology of *Streptococcus pneumoniae* Infection in Bangladesh *Clinical Infectious Diseases*. 2009; 48:S97–102.
14. WHO Mortality Country Fact Sheet. Bangladesh. 2006.
15. Haque U, Ahmed MS, Hossain S. Malaria Prevalence in Endemic Districts of Bangladesh. *PLoS ONE* www.plosone.org. 2009; 4(8): e6737: 1-9.
16. Khilnani P, Sarma D, Singh R, Uttam R, Rajdev S, Makkar A et al. Demographic profile and outcome analysis of a tertiary level pediatric intensive care unit. *Indian J Pediatr*. 2004; 71:587-591.