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## Pattern of Admissions in the Department of Pediatrics at Benha Teaching Hospital, Egypt

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### Abstract

**Objectives:** To determine pattern of admissions and to study the types of illness and their outcomes in relation to disease at General Pediatric Ward at Benha Teaching Hospital (BTH). **Subjects and Methods:** This study was a retrospective study. The study was conducted from 1st of May 2016 until end of December 2016. The study was done in the General Pediatric Ward at Benha Teaching Hospital (BTH). The medical record of all admissions searching for age, gender, address, mode of admission, referral source, duration of hospital stay and outcome. **Results:** Mean  $\pm$  SD of Duration of stays in days was  $(7.90 \pm 4.07)$ . 28.2% of patients were admitted due to respiratory system related causes, 32.4% due to digestive system related causes, 6.5% due to cardiac system related causes, 6.5% due to neurological system related causes, 1.2% due to hepatic system related causes, 5.9% due to nutritional system related causes, 14.7% due to renal system related causes, 4.7% due to endocrinal system related causes. **Conclusions:** This study gives an overview of the pattern of Pediatric Medical admissions, catchment area and referral mode. The findings of this study increased the understanding of admission trends, referral area and source. Admissions load mainly contributed by under five years children with infection and they are directly approaching the Hospital.

**Keywords:** Pediatric; Admission; Pattern; Outcome

### Introduction

An understanding of epidemiological trends in hospital admissions, including mortality pattern is critical for health care planning and appropriate resource allocation [1]. Analysis of Hospital admission gives us information on the burden of diseases in the community. Knowing the important causes of childhood morbidity and mortality enables planners to design proper priority setting and intervention planning. The diseases which contribute most in Pediatric admissions are respiratory tract infection and gastrointestinal problems and the major cause of death in children less than 5 years of age are also acute respiratory infection and diarrheal diseases [2].

There is variation in pattern of admissions which partly result from the referral and admission process that is via general practitioner, other hospital or self-referral to tertiary care hospital. The demand on inpatient services is increasing with more children admitted to hospital [3].

There is little information on the pattern of pediatric admissions and mortality as well as referral mode. This paper identifies important causes of pediatric medical admissions and outcome in relation to disease. It also identifies residency and mode of referral to the hospital [4].

Specialist diagnostic procedures, emergency treatment following accident and routine, complex and life-saving surgery are found to be causes in pediatric admissions [5].

**Aim of the study:** We aimed to determine pattern of admissions and to study the types of illness and their outcomes in relation to disease at the General Pediatric Ward at Benha Teaching Hospital.

**Subjects and Methods:** This was a retrospective study. The study was conducted from 1<sup>st</sup> of May 2016 until end of December 2016. The study was done in the General Pediatric Ward at Benha Children Hospital. Approval to implement the study was obtained from the Head of the Pediatric Unit and General Manager of the hospital to access patient's files. Ethical considerations was obtained (Written consent was obtained from the parents to access their child's files, The steps of the study, the aims, the potential benefits and hazards, all was discussed with parents of patients).

**Data collection:** The medical record of all admissions searching for age, gender, address, mode of admission, referral source, duration of hospital stay, outcome and final diagnosis was obtained.

### Statistical Analysis

The data were coded, entered and processed on computer using SPSS (version 18). The results were represented in tabular and diagrammatic forms then interpreted. Mean, standard deviation, range, frequency, and percentage were used as descriptive statistics.

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The following test was done:

- Chi-Square test $\chi^2$  was used to test the association variables for categorical data.
- Student's t-test was used to assess the statistical significance of the difference between two population means in a study involving independent samples.

P value was considered significant as the following:

\*  $P > 0.05$ : Non significant

\*  $P \leq 0.05$ : Significant

## Results

Items		No. (%)
Sex	Male	90 (52.9)
	Females	80 (47.1)
Age Group (years)	< 1	102(60.0)
	1-	16(9.4)
	2-	22(12.9)
	5+	30(17.6)
Duration of Stays (days)	$\leq 3$	26(15.3)
	4-	84(49.4)
	10+	60(35.3)
Mean+ SD	(7.90 + 4.07)	
Fate of duration of hospital stay in days	Cured	151(88.8)
	Improved for follow up *	12(7.1)
	Referred	7(4.1)
	Died	0(0)

**Table 1:** Distribution of the studied children according to their socio-demographic characteristics (No=170).

**Table (1)** shows that, the distribution of the previously admitted children to BTH ward, into Sex (male/female), Age group in years (<1 /1- 2- /5+), Hospital stays in days ( $\leq 3$  /4- / 10+). Mean  $\pm$  SD of Duration of stays in days was (7.90  $\pm$  4.07), and fate of the admitted cases (cured/ Improved for follow up /referred/died).

	No. (%)
Respiratory	48(28.2)
Digestive	55(32.4)
Cardiac	11(6.5)
Neurological	11(6.5)
Hepatic	2(1.2)
Nutritional	10(5.9)
Renal	25(14.7)
Endocrinal	8(4.7)
Total	170(100)

**Table 2:** Distribution of the previously admitted group according to the main system affected (No=170).

Table 2 shows that , 28.2% of previously admitted group was admitted due to respiratory system affected, 32.4% due to digestive system affected, 6.5% due to cardiac system affected, 6.5% due to neurological system affected, 1.2% due to hepatic system affected, 5.9% due to nutritional system affected, 14.7% due to renal system affected, 4.7% due to endocrinal system affected.

Systemic Disorders	Cured cases	Improved for follow up	Referred	Died cases
Respiratory No (%)	44(29.1%)	4 (33.3%)	0	0
Digestive No (%)	54(35.8%)	0	1(14.3%)	0
Cardiac No (%)	8(5.3%)	2 (16.7%)	1(14.3%)	0
NeurologicalNo (%)	11(7.3%)	0	0	0
Hepatic No (%)	1(.7%)	0	1(14.3%)	0
Nutritional No (%)	9 (5.9%)	0	0	0
Renal No (%)	18(11.9%)	4 (33.3%)	3(42.9%)	0
Endocrinal No (%)	6(4.0%)	2 (16.7%)	0	0
Total No (%)	151(100%)	12(100%)	7(100%)	0

**Table 3:** Relation between child systemic disorders and their fate in previously admitted group (No=170).

**Table (3)** shows that, relation between child systemic disorders and their fate (Previously admitted group).

## Discussion

The demand on inpatient services is increasing with more patients being admitted to the hospital. Increased hospital admissions either because of population reflect previously unmet need, increased parental awareness and demand or inappropriate use of inpatient resources [6]. The study presents an overview of the care of children in BTH, providing insight into the types of conditions for which children are hospitalized.

It was seen significantly in our study that 80% of the admitted children were at or under the age of 5 years (between infancy and early childhood age groups) Chalmers et al. showed that children under the age of 5 years had the highest admission rate (29.1 per 1,000 populations: 8,002 admissions) [1,2].

This study showed that, Mean  $\pm$  SD of duration of stays in days of the previously admitted group was (7.90  $\pm$  4.07). This agrees with Shahab et al., which found that Mean + SD of duration of stays in days was (7.6  $\pm$  6.1) [7].

In our study, it showed that short hospital stays (less than 10 days duration) were more than 64.7 % of the admitted cases while long hospital stays (more than 10 days duration) were less than 35.3% of the admitted cases. The reason for reducing the length of stay was showed by Saxena et al. [8]. This study showed that, the age group distribution is showing that 60% of the previously admitted group children are at Infancy group (<1 year), 6.9% of them are (1-), 12.9% of them are at (2-) and 17.6% of them are at (5+). This agrees with Stewart et al., [9] which made a descriptive study was carried out at West Medical Unit of The Children's Hospital, Pakistan Institute of Medical Sciences (PIMS) Islamabad over a period of one year. All the admissions were analyzed for age, residence, mode of admission and referral source. Final diagnosis and outcome, grouped according to involved organ system was analyzed. Stewart et al. found that, there was increased frequency of admissions in younger children and infant that is 70% and 37% respectively. Muluneh et al., [10] reported that 50% and 58% of admissions are of children less than 2 years of age. In another study from Addis Ababa 76% of Hospital admissions were less than or equal to 5 years of age. This study showed that 28.2% was admitted due to respiratory system affected. This agrees with Chalmers et al., [1,2] which showed respiratory disorders were common in children under 15 years of age, accounting for nearly a quarter of all emergency admissions (23.0%). This agrees also with Shahab et al., [6] which found that Respiratory conditions (22.8%) were the most common reasons for admission. Respiratory conditions were the most common reason for non-neonatal hospitalizations among children (pediatric illness) [11].

## Conclusions

This study gives an overview of the pattern of Pediatric Medical admissions, catchment area and referral mode. The findings of this study increased the understanding of admission trends, referral area and source. Admissions load mainly contributed by under five children with infection and they are directly approaching the Hospital. There is a need for the development of community based services and short stay facility for these preventable and treatable diseases and timely referral to hospitals.

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