ORIGINAL ARTICLE

Audit of an urban paediatric emergency department visits

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ABSTRACT

Background: This study aimed to highlight the health seeking behavior of children in an Emergency Department (ED). **Materials and Methods:** Retrospective files review of ED was done for the month of July, 2008. Data about the children ≤12 years of age was gathered. **Results:** In one month period a total 21000 patients visited our ED, out of them 6120 (29%) were children. Males, Saudis and children of (1-6 years) were more frequent, i.e., 3540 (57.8%), 5760 (94.1%) and 3180 (52%), respectively. Majority of patients visited in shift "2", i.e., 15:30 hours to 23:30 hours. Among the patients "diseases of respiratory system" were found more frequent 4170 (68.1%) and main diagnosis was "acute upper respiratory tract infection" 3300 (53.9%). Non-urgent cases were 2020 (33%) while 244 (4%) were admitted. **Conclusion:** Young children as well as non-urgent cases were predominant. Evening shift was the busiest one.

Key words: Children, emergency, infection, respiratory tract

INTRODUCTION

Emergency department (ED) provide an extraordinary public service mission by providing emergency care for 24 hours a day, 365 days per year without discrimination of social and economic status.[1] Provides free comprehensive health care to all of its citizens. The Ministry of Health (MOH) provides health services on the basis of a three-tier system, i.e., primary health Centre's, general hospitals and specialist hospitals. Governmental sectors other than MOH, such as the Ministries of defense, education, interior, and National Guard, provide health services to their employees and their families through an organized network of hospitals and health Centre. Private sector provides health services that range from basic medical care to highly specialized health services.[2]

The Paediatric ED is an important part of hospital services. Details of paediatric emergency services have been previously reported from many centers around the world but there is a lack of information regarding the users of paediatric emergency services in Middle East. A similar lack in other parts of the world was mentioned by some authors.[3,4]

Access this article online	
Quick Response Code:	Website: www.nigedriamedj.com
	DOI: 10.4103/0300-1652.104380

In this study we highlighted the pattern of health seeking behavior by paediatric cases presented to our ED.

MATERIALS AND METHODS

This study based upon the retrospective review of ED files by the health research Centre of, during the month of July 2008. It is providing secondary to tertiary health care services in the, with a capacity of 550 beds. The Hospital's ED is fully equipped with total covering area of 2315 m^2 having 60 beds including 12 beds in paediatric care area. Other patients' care areas are triage area, adult care area (ACA), adult non-ambulatory triage area, obstetrics and gynecology care area, critical care area (CCA), chest pain unit, and trauma unit. This ED also has a pharmacy, radiology and laboratory facilities. There are surgical facilities with an operation room, and ENT, eye and dental procedure rooms are also available for emergency patients. This hospital's ED is open 24 hours a day, and has a high-volume of turnover with an average annual attendance of 200000-250000 including 55000-60000 paediatric cases.

The paediatric ED typically contained a total of 12 nurses and six resident doctors. ED doctors could call specialist on call of any specialty, to take second opinion for the patients with expected admissions or complications. Only the specialist or consultant on call could admit a patient as per hospital policy depending upon the patient's condition. All presenting patients to ED had been sorted out by triage nurse into five categories of Canadian Triage and Acuity Scale (CTAS), i.e., CTAS I = resuscitation, CTAS II = emergent, CTAS III = urgent, CTAS IV = less urgent, CTAS V = non-urgent.

The ED files had been attained from the medical record unit and looked for the demographical data of paediatric cases including age groups, i.e., infant (birth-12 months), pre-school child (>12 months to six years) and school going child (>6-12 years) according to standard criteria,[5,6] gender, and nationality, i.e., Saudi and non-Saudi.

Patients seen in different shifts of ED, i.e., shift 1 (07:30 to 15:30), shift 2 (15:30 to 23:30) and shift 3 (23:30 to 07:30) were counted. Subjects' final diagnosis as documented by ED physician had been collected, and categorized according to Major Diagnostic Category of International Classification of Diagnosis version 10 (MDC, ICD-10).

The study protocol was approved by the institutional review board.

RESULTS

In one month period a total 21000 patients visited our ED, out of them 6120 (29%) were children. Males, Saudis and pre-school children were more frequent, i.e., 3540 (57.8%), 5760 (94.1%) and 3180 (52%), respectively. Majority of patients visited in shift "2" followed by shift "3", i.e., 2700 (44.1%) and 1800 (29.4%), respectively [Table 1].

Among the MDCs, patients with the category "diseases of respiratory system" were found more frequent 4170 (68.1%) followed by "injury, poisoning and certain other consequences of external causes" 510 (8.3%). Most common diagnosis was "acute upper respiratory tract infection unspecified (J06.9)" 3300 (53.9%) followed by "viral intestinal infection unspecified (A08.4)" 420 (6.9%). The total of 38 different types of diagnosis belonged to 11 different MDCs were presented [Tables 2 and 3].

Patients with "CTAS IV" were more frequent followed by "CTAS V" 2448 (40%) and 2020 (33%), respectively. However, frequency of patients with "CTAS I, II, and III" was 73 (1.2%), 649 (10.6%), and 930 (15.2%), respectively. Admitted cases were 244 (4%), while others were disposed from ED.

DISCUSSION

Paediatric emergency rooms were frequently used for nonemergency problems by parents who find them to be convenient sources of health care for their children. The results of our study showed that nearly one-third of patients (33%) were in the non-urgent Category, i.e., CTAS V, which were simple cases such as upper respiratory tract infection (URTI), mild gastroenteritis, etc., and those could be handled at a primary care clinic. This observation is comparable with other studies.[4,7,8] Males outnumbered the females as were observed by other authors.[4,9,10] It is less frequent that girls of school going or even of pre-school age go out of their homes without male companions due to male predominance culture with strict influence of religion. Due to this reason, males move out of homes more frequently and are more exposed to outdoor environment hazards especially excessive usage of cold drinks and ice-creams, road traffic accidents,

Table 1: Subjects' demography with presentation time to emergency department

	n	%
Age groups in years		
Infant	900	14.7
Pre-school child	3180	52.0
School going child	2040	33.3
Gender		
Male	3540	57.8
Female	2580	42.2
Nationality		
Saudi	5760	94.1
Non-Saudi	360	5.9
Time of presentation		
Shift 1	1620	26.5
Shift 2	2700	44.1
Shift 3	1800	29.4

N=6120

Table 2: Patients' frequency in different MDCs

MDC	*n*	%
Diseases of respiratory system	4170	68.1
Injury, poisoning and certain other consequences of external causes	510	8.3
Certain infectious and parasitic diseases	450	7.4
Diseases of digestive system	210	3.4
Diseases of genitourinary system	210	3.4
Diseases of ear and mastoid process	180	2.9
Diseases of eye and adenexia	120	2.0
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	120	2.0
Diseases of the nervous system	60	1.0
Endocrine, nutritional and metabolic system	30	0.5
Certain conditions originating in the perinatal period	30	0.5
External causes of morbidity and mortality	30	0.5
Total	6120	100

MDC – Major diagnostic category

Table 3: Patients' frequency with different diagnosis

Diagnosis	ICD-10	*n*	%
Acute upper respiratory tract infection unspecified	J06.9	3300	53.9
Gastroenteritis	A08.4	420	6.9
Acute bronchiolitis	J21	360	5.9
Asthma	J45	270	4.4
Otitis media unspecified	H66.9	135	2.2
Conjunctivitis	H10	130	2.1
Sprain and strain of finger	S63.6	120	2.0
Bronchopneumonia unspecified	J18.0	95	1.6
Foreign body in ear	T16	85	1.4
Superficial injury to scalp	S00.0	79	1.3
Acute tonsillitis	J03	75	1.2
Others (a total of 27 different diagnosis)	–	1051	17.2

ICD-10 - International classification of diagnosis version 10. Others - Diagnosis had frequency <1% out of total 6120 patients

trauma during playing, as well as communicable diseases especially viral. Infants constituted 14.7%, that could also be comparable to Bergman *et al*. and Wingert *et al*.[11,12] However, the majority of cases were below six years of age (67%). This observation put an extra burden on our ED staff, which should have experience in managing infants and pre-school children. The busiest period of the day in our study was "shift 2" while (8 a.m. to 12 a.m.) was observed busiest period by other studies[9,13] and Al Saleh *et al*. reported 8 p.m. to 3 a.m. as the busiest period.[4] The difference in these studies could be explained by the fact that most families in Saudi Arabia have to wait for their men to return from work in the afternoon in order to take their children to a hospital and majority of primary health care clinics are open only in the morning shift. Diseases of respiratory system accounted for 68.1% of the ED visits that was comparable to other studies by Al Saleh *et al.*[4] Our study findings are highly comparable to study done in Riyadh, Saudi Arabia.[14]

It was clearly demonstrated that majority of patients attended the ED for simple problems. This might be because of free medical treatment and/or patients sometimes seek medical advice from different Centre's for the same complaints. This could eventually affect the quality of services, and also lead to an increase in waiting time for patients, as well as a waste of health resources. The recommendations in terms of reducing the number of nonemergency visits to the ED should be strongly stressed.

CONCLUSION

Majority of cases were pre-school children and visited in evening shift. Less and non-urgent cases were more frequent, which were simple cases such as acute upper respiratory tract infection.

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How to cite this article: Gazzaz ZJ, Dhafar KO, Maimini O, Farooq MU, Ahmad I. Audit of an urban paediatric emergency department visits. Niger Med J 2012;53:129-31.

Source of Support: Nil, **Conflict of Interest:** None declared.