



Epidemiological Trends of Pediatric Emergency Referrals in Israel

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Key words: emergency medicine, epidemiology, injury, Israel

Abstract

Background: In the last decade pediatric emergency medicine in Israel advanced to a stage of independent emergency pediatric departments. At the same time, injuries and childhood trauma – a global health problem – became the main cause of mortality and emergency referrals in children over the age of one year.

Objective: To determine the extent of pediatric referrals to emergency departments and the rate of pediatric trauma referrals in Israel.

Methods: The records from EDs of Israel's 24 public hospitals for a 6 year period (1994–99) were collected. The records based on computerized ED records were used to identify the basic demographics of pediatric ED referrals. Routine data for all pediatric patients were collected from pediatric and general EDs. This study is an analysis of the accumulated anonymous ED databases.

Results: Pediatric referrals to EDs accounted for 2,907,912 patients, 37% of them due to trauma. The mean hospitalization rate was 21%. No significant changes were observed during the 6 years in the rate of pediatric ED referrals and in the ED hospitalization rate of children. There is a constant trend of increase in trauma referrals of children.

Conclusions: The ED is a major site for the delivery of healthcare to children in Israel. One of every four children in the community is referred

every year to an ED, and more than one-third of those referrals are due to trauma.

IMAJ 2001;3:231-232

Pediatric visits to emergency departments in Israel account for approximately 40% of the more than one million annual ED visits. Since enactment of the National Health Insurance Law in 1990, the entire Israeli population is compulsorily insured with a public health maintenance organization that delivers medical services. However, most secondary and tertiary health services are provided by the public hospital system throughout the country. All 24 public hospitals provide 24 hours on-site pediatric coverage through general or dedicated pediatric EDs. We report here the referral rate of children to the 24 different EDs throughout the country during a 6 year period, 1992–99.

Materials and Methods

Our objective was twofold: to report the overall referral rate of children to the 24 public hospitals' EDs located throughout the country during a recent 6 year period, 1994–99, and to study the hospitalization rate and the rate of referrals due to trauma.

During the study period most hospitals had a dedicated pediatric ED, or a pediatrician in the general ED. Children

were defined as those under the age of 19. Analysis was performed with SAS software [1].

Results

A total number of 2,907,912 pediatric referrals were admitted to EDs in the study period, of which 784,796 were trauma referrals and 21.0% of all referrals were hospitalized. One of four children in Israel was referred to an ED every year during the study period [Table I]. The number of pediatric referrals to EDs ranged from 427,755 in 1994 to 524,446 in 1999 (mean 484,652). No significant changes were observed in the rate of pediatric referrals per 1,000 children in the population.

During 1994 there were 105,366 pediatric trauma referrals to EDs – a relatively low volume. In all likelihood this figure can be attributed to low reporting of trauma diagnoses by age. Following the initialization of national trauma records in EDs and an increase in public and professional awareness of childhood injury, we can observe almost a constant rise in trauma referrals rate that increase the mean to 33.13% of the overall pediatric referrals. This trend is especially evident in the data of 1999 when the trauma referrals accounted for 39.39% of pediatric emergency referrals.

Discussion

Israel is a relatively young society. Despite the fact that the percentage of children under the age of 18 years in the

ED = emergency department

Table 1. Pediatric emergency referrals in Israel, 1994–99

Year	Emergency department referrals	Rate per 10 ³ children	Percent hospitalized	Trauma referrals	Percent trauma referrals	Rate of trauma referrals per 10 ³ children	No. of hospitals in the study
1994	427,755	222.74	22.85	105,366	24.63	54.87	22
1995	483,895	247.45	18.53	157,907	32.63	80.75	23
1996	490,270	246.24	20.9	170,711	34.82	85.74	24
1997	494,928	210.08	21.5	162,526	32.84	80.35	24
1998	486,618	236.03	21.4	167,628	34.45	81.34	24
1999	524,446	248.02	21.9	206,583	39.39	97.69	24

Israeli population is decreasing, their nominal number is rising and their share of the overall population is still 34.1%, accounting for 2.061 million children [2]. Recent years have also brought major changes in the delivery of health services at large and those directed at children in particular. The implementation of the health insurance legislation has made the ED services available to the entire Israeli population. Since daily activities of Israeli children at home, school, backyard, playgrounds and streets continue to be extremely hazardous, we are witnessing a substantial rate of referrals to EDs due to trauma.

Surveillance of pediatric emergency departments in Israel during a recent 6 year period shows that every year one of four children in Israel is referred to an ED. About one-third of these referrals are due to trauma. Most probably some of the pediatric ED referrals are self-referred patients who have bypassed the community-based health services. The figures show a minor non-significant

fluctuation from year to year in the rate of general pediatric ED referrals and referrals due to trauma. The hospitalization rate is also quite constant.

The findings presented here are representative of pediatric care in EDs in Israel. In order to develop a possible intervention program in the prevention of injury, which is the major cause of death in children over the age of one year [3], further detailed studies of epidemiology and detailed demography of childhood injury are needed [4].

The reform of healthcare in Israel and the implementation of compulsory national health insurance improved accessibility to healthcare. One of the byproducts of this reform is reflected in the patient-led transformation of EDs to walk-in primary centers, especially in the late afternoon, evening and night hours, which has a major impact on pediatric EDs. Those services are led by doctors, although in some of them primary triage is executed by nurses [5]. Referrals to

EDs deserve additional detailed research.

Acknowledgment: The authors thank Mrs. Elaine Moher for her assistance in the preparation of this paper.

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