Survey of Current Pediatric Emergency Nursing Education in Israel

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Abstract

Objective: The participation of properly trained and experienced personnel in the initial evaluation and management of any critically ill, injured or sick child has been proved to be the most important parameter in improving outcome. This study investigates the training background of one group of pediatric emergency care providers: the pediatric emergency nurses.

Methods: A survey questionnaire was sent out to all the Directors of the Emergency Departments that provided pediatric emergency care in Israel.

Results: Results show that 14% of the practicing pediatric emergency nurses do not have pediatric Advanced Life Support training, 36% lack a core education program in pediatric general emergencies and 64% are deficient in pain management and procedural sedation.

Conclusions: The current level of training of Israeli pediatric emergency nurses is unsuitable for *optimal* patient outcomes. Work is required to standardize a national core training curriculum. Education in pediatric Advanced Life Support and formal Procedural Sedation and Analgesia training needs rapid completion.

MeSH words: Pediatric**,** Emergency Medicine, Education, Nurses, Israel.

Introduction

The Israeli hospital system has 3 main components: Acute care, psychiatric and long term hospitals. Pediatric emergency medical and trauma care is provided by all acute care hospitals in the country[1]. There are 3 types of acute care hospitals involved in treating children and each have a different type of Emergency Department (ED) design:

1. Children's Hospitals, where the pediatric ED is an independent department.
2. Major multidisciplinary referral hospitals where the Pediatric ED is physically and functionally separate from the adult ED.
3. Small Regional hospitals, where a pediatric emergency room is integrated within the pediatric ward.

Out of approximately 560,000 annual pediatric visits to EDs about 25% end up admitted to hospital: 63% medical and 37% surgical cases.

Most of the hospitalizations are to standard wards and consist of patients with typical pediatric illnesses such as: asthma, pneumonia, acute gastroenteritis, Urinary Tract Infections [2]. Children with critical illness and with injuries from multiple trauma (including acts of terrorism) end up in an intensive care unit after medical stabilization or in a surgical ward.

In the ED, infants, children, and adolescents are screened immediately by a pediatric emergency nurse (PEN) and prioritized (triaged) according to the level of the emergency. Consequently it is expected that today's PEN will be knowledgeable in many aspects of acute pediatric care including trauma, resuscitation, and procedural sedation [3-9]. In the US, PEN training exists since the early 1980's.[3] More recently, recognizing the need for a pediatric emergency nursing core training course, the American Emergency Nurses Association developed the *Emergency Nursing Pediatric Course (*ENPC*).* Designed with the belief that knowledge and preparation are the core of any discipline, ENPC was designed to provide advanced training for nurses on caring for acutely ill and injured children.[3-8] Additionally Pediatric Life support courses (PALS, APLS) and a neonatal resuscitation course (NRP) are also available [4,5]. To the best of our knowledge, PEN education status in Israel has not been investigated to date.

The participation of properly trained and experienced physicians and PEN in the initial evaluation and management of any critically ill, injured or sick child has been proved to be the most important parameter in stabilizing the patient, determining the appropriate diagnosis and improving outcome [10]. In light of the correlation between the proper training background of care givers and improved patient outcome, we postulate that Israel is a developed country; therefore the quality of pediatric emergency care provided is of the highest standards in the world. Consequently, the current training of PENs in Israel is compatible with best *possible patient outcomes*.

The objective of this study was to find evidence for this hypothesis by reviewing the current level of advanced training background of PENs practicing in Israel.

Methods

A literature survey was first carried out in the English and Hebrew language literature covering the 1966 – 2005 periods. The searches included the following databases: PEMDatabase (2001-2005) and Pubmed, (1966-2005) CINAHL (1966-2006), ERIC (1966-2005). The key MeSH words used were:" Pediatric" "Emergency Medicine","Nurses" and the exploded terms "Education" and "Training". In addition, Israeli children's health related sources in the public domain were investigated using the World Wide Web and standards textbooks on pediatric emergency nursing courses were also manually searched.

Study design**:**

An unblinded survey study was conducted at all Israeli acute care hospitals that provide EM care to pediatric age group patients.

Study location and population:

The information required to identify all institutions eligible for this study is part of the general public knowledge domain. Fifteen pediatric EDs were included in the study: 4 from children's hospitals and the 11 other from major multidisciplinary referral hospitals. In Israel, the individual who is ultimately responsible for the quality of care provided in the ED is the Medical Director of the ED. The survey questionnaire was sent out by e-mail by the primary investigator (IS), to all 15 pediatric ED directors in November 2004. All non responders were solicited again at two week intervals by one and then another additional e-mail request. The 15 recipients of the survey are members of the Israeli Association for Emergency Medicine (IAEM) and their names are also of the general public domain.

Study instrument

The primary investigator developed the multi purpose survey tool and the co investigator reviewed the 15-questions that catalogue various patient and caregiver related demographics as well PED design and functions. [Attachment 1] Three questions (No: 8, 10, 11) from the entire survey are relevant to the current investigation

on PEN education and these focus on the following specific training domains:

1. General pediatric emergency nursing.
2. Pediatric Life Support
3. Pediatric Procedural Sedation and Analgesia

Results

The literature search using this wide search strategy yielded the following results for the PEMDatabase, Pubmed, CINHAL, ERIC databases: 12, 6, 0, and 67. The overwhelming majority of the articles were eliminated because of lack of relevance to the topic. In the end 9 articles were retained: 5 of direct relevance to PEN educational and 4 other because they indirectly provided insight into areas of current status of the Israeli medical system. The literature failed to reveal any information on advanced pediatric EN training programs in Israel. In addition, the Web and manual searches yielded another 2 Web based and 3 manually searched relevant sources.

Fourteen out of 15 (93%) PED Directors returned valid, completed survey questionnaires. The results are presented only as aggregate in order to preserve the anonymity of each institution. [Table 1] Specific training in general pediatric emergency nursing is not provided by any of the Schools of Nursing (SN) and only 9 hospitals offer such training. In the domain of pediatric Advanced Life Support, 9 hospitals have availed themselves of this educational package through SN and 3 ran the course in the hospital. Lastly, in the domain of pediatric sedation and analgesia, 3 institutions used the National Education Center for Health Professionals (MESER) and 2 provided the course in the hospital itself.

Discussion

This study demonstrates that the current educational background of practicing PENs in Israel is not suitable for *optimal* patient outcomes.

Table 1.

Professional development courses in pediatric emergency for nurses in Israel

Source of training	PEN*	ALS†	PSA‡
National education program	0	9	3
In-hospital education program	9	3	2
No training / education program	5	2	9

* Pediatric Emergency Nursing
† Advanced Life Support
‡ Procedural Sedation & Analgesia

There are large variabilities and inconsistencies between various hospitals as 14% do not provide standardized pediatric resuscitation education to the nursing staff, 36% have no courses focused on general pediatric emergency nursing and 64% do not address the issues of training in pain management and sedation. The pediatric resuscitation courses that have been psychometrically evaluated are used world wide in a predictably similar fashion and the investigators believe that the quality of education in these domains in Israel is comparable to other countries where these courses are offered. The same assurance of uniformity in quality and content cannot be given about the 9 hospital based Israeli courses on general pediatric emergency training. The fact that they are offered is commendable, but their objectives, curriculum, evaluation methods may have significant variations making the comparison of graduates from one program to another a challenging process. Lastly, a formal pediatric sedation course is provided on a monthly basis by the National Education Center for Health Professionals (MESER). PENs from 3 institutions have attended these standardized courses that are being given on a monthly basis. This training path for the non-anesthesiologists is

designed to improve the safety of pediatric sedation. The authors have no information about the content or structure of the other 2 in-hospital courses.

The importance of having well trained nurses involved in every facet of the assessment and management of the critically ill/injured neonate, infant, and child is an accepted concept [10]. In the US and other countries, training in advanced pediatric EN includes certification in Advanced Life Support courses and in ENPC. Despite the recent advances in training in these jurisdictions several practice deficiencies in various general domains have been demonstrated. Studies show that: 75% of PEN failed to recognize the three key symptoms of asthma, 30% deem that fever causes permanent brain damage and 18% believe that it is not safe for children with fever to leave the ED. [11.12] In the area of triage inconsistencies are again demonstrated, both for PEN's and even physicians.[13, 14] What these studies confirm is the reality of an evolutionary process. The PEN training courses are fairly recent, the requirement for nurses to complete them as a pre requites for employment vary geographically and lastly the attrition in the ranks of the practicing but not formally trained nurses takes time.

Whereas the results of this survey raise questions about current patient safety in various Israeli institutions, these findings are probably not significantly different then in other developed countries. As indicated above, published data from other nations show discrepancies between the high quality of available PEN training and the reality on current practice. This perceived similarity with others should not deter administrators of EDs and educators in the domain of PEN in Israel from making concerted efforts to improve training in this field. A standardized course in Pediatric Emergency Nursing, covering all aspects of emergency care is urgently required. The development and implementation of this course is the responsibility of the Schools of Nursing as their mandate is to insure the best overall education of nurses in Israel.

Additionally, training in Advanced Life Support Courses should be accelerated with the goal of having all PEN's in Israel trained within the shortest times frames. Lastly, in light of the fact that the formal Procedural Sedation and Analgesia courses are regularly available and are standardized, it is reasonable to recommend that all PENs currently not trained in this domain should receive their training using this course.

This study has several limitations. The methodology relied on director reporting, and self reporting introduces bias and this may render some data not entirely accurate. As well, the investigators did not define "special training" in the survey and this may have caused some variability in the replies. The weaknesses suggest a need for future research, but they do not invalidate the results presented.

Conclusions

Current educational background of practicing PENs in Israel is not suitable for *optimal* patient outcomes. These weaknesses are in keep with other developed nations. Further work is required to standardize a core PEN training with the ultimate goal of mandating that employment nationally be subject to completion of this training. In addition, training in the currently available formal pediatric Advanced Life Support courses and the formal Procedural Sedation and Analgesia should be accelerated in order to bring all the PENs in Israel to the same level of competence. Implementation of these recommendations would give the Israeli public a better guarantee of *best possible outcome.*

Attachment No.1

Pediatric Emergency Departments in Israel – Comparative Study

1. Hospital's name _____

2. What is the location of the Pediatric ED?
A. At the hospital entrance (near the main ED)
B. At the entrance to the children's hospital / Pediatric division

3. On average, what is the load of patients (patients to physicians ratio)
From 0700 to 1600 ____
From 1600 to 2300 ____
From 2300 to 0700 ____

4. Who see patients in the Pediatric ED from 1600 to 0700?
A. Pediatric residents only
B. Pediatric residents + qualified Pediatricians until 2300
C. Pediatric residents + qualified Pediatricians until 0700
D. Qualified Pediatricians only

5. Does the Pediatric ED have?
A designated triage area Yes/no
A designated resuscitation room Yes/no
A designated waiting area Yes/no
A designated procedures room Yes/no

6. Are minor trauma cases managed at the Pediatric ED?
A. No
B. Only some of them
C. Most of them
D. All of them
Do you treat minor head injuries? Yes/no

7. Do you see major trauma cases? Yes/no

8. Do nurses in your department get special training in Pediatric Emergency?
A. No training
B. Partial training (in-hospital)
C. Formal training (by the nursing school)

9. Who is responsible for Triage?
A. No triage
B. A designated physician
C. A designated nurse

10. Does the nursing staff have a specific training in Pediatric Life Support?
A. No training
B. Partial training (in-hospital)
C. Formal PLS course/workshop (e.g. PALS/APLS)

11. Does the nursing staff have a specific training in Pediatric Procedural Sedation and Analgesia?
A. No training
B. Partial training (in-hospital
C. Formal course/workshop in Procedural Sedation & Analgesia

12. Who see Medical cases in the Pediatric ED?
1. Pediatric residents
2. Adult EM residents
3. Qualified Pediatricians
4. Qualified EM physicians (EM residency graduates)
5. Qualified PEM physicians (PEM fellowship graduates)
6. 1+2+3+4+5
7. 1+2+3+4
8. 1+2+3+5
9. 1+2+4
10. 1+2+5
11. 2+3+5
12. 2+3+4
13. 1+3
14. 2+5
15. 1+5
16. 2+4

13. Do you think that an Israeli fellowship program in Pediatric Emergency Medicine will improve the level of acute care ?
A. No
B. Probably yes
C. Yes, without a doubt

14. Does the ED personnel practice sedation for painful or unpleasant procedures ?
A. No. ER physicians are not allowed to sedate children
B. Yes, but only when an Anesthesiologist or an Intensivist is present
C. Yes, but only to the level of mild or moderate sedation
D. Attending physicians are allowed to practice all levels of sedation

15.In your hospital: is it mandatory for Pediatric residents to do an ED rotation ?
A. No
B. Yes, ED rotation is mandatory for all Pediatric residents in my hospital

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