

## Availability of Pediatric Services and Equipment in Emergency Departments: United States, 2002–03

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### Abstract

**Objectives**—This report presents estimates on the availability of pediatric services, expertise, and supplies for treating pediatric emergencies in U.S. hospitals.

**Methods**—The Emergency Pediatric Services and Equipment Supplement (EPSES) was a self-administered questionnaire added to the 2002–03 National Hospital Ambulatory Medical Care Survey (NHAMCS). NHAMCS samples non-Federal, short-stay and general hospitals in the United States. The EPSES content was based on the 2001 guidelines for pediatric services, medical expertise, small-sized supplies, and equipment for emergency departments (EDs) developed by the American Academy of Pediatrics (AAP) and the American College of Emergency Physicians (ACEP). Combined response rate for both years was 86 percent. Estimates were weighted to produce average annual estimates of pediatric services, expertise, and equipment availability in EDs.

**Results**—One-half of hospitals (52.9 percent) admitted pediatric patients, but did not have a specialized inpatient pediatric ward. One-third (38.3 percent) admitted pediatric patients and had a separate pediatric ward; the remainder did not admit pediatric patients. Among those that did not admit pediatric cases, 30.4 percent were in counties that had a children's hospital. One-quarter of EDs had access 24 hours and 7 days a week to a board-certified pediatric emergency medicine attending physician. Only 5.5 percent had all recommended pediatric supplies, but one-half had greater than 85 percent of recommended supplies. Most hospitals without pediatric trauma service (90.7 percent) or pediatric intensive care units (97.5 percent) transferred critical pediatric patients to hospitals with these services. EDs in hospitals with specialized inpatient facilities for children were more likely to meet the AAP and ACEP guidelines for pediatric ED services, expertise, and supplies.

**Keywords:** Pediatric • children • emergency department • NHAMCS • AAP • ACEP

### Introduction

U.S. hospitals receive about 30 million emergency visits from the population under 18 years of age, which is about one-fourth of the care provided in emergency departments. (1) However, little is known about the status of providing emergency pediatric care in EDs. In April 2001, the *Annals of Emergency Medicine* published “Care of children in the emergency department: Guidelines for preparedness,” which was jointly developed by AAP and ACEP (2). Although the guidelines did not set specific thresholds for preparedness, they did provide information on services, equipment, and supplies considered essential for managing pediatric emergencies. These included recommendations for pediatricians to be on call in every ED, for all EDs to establish transfer agreements with higher-level pediatric facilities to ensure timely access to care for critically ill and injured children, and for the availability of age- and size-appropriate supplies in each ED.

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Because of the new guidelines, the Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau's (MCHB) Emergency Medical Services for Children (EMSC) Program requested that the scope of the 2002–03 National Hospital Ambulatory Medical Care Survey (NHAMCS) be expanded to assess how well hospital EDs were prepared to provide emergency pediatric services. Earlier pilot studies conducted in 1996 and 1998 by the Consumer Product Safety Commission on behalf of the EMSC program used a hospital sample (based on a national sample of 101 hospitals) from the National Electronic Injury Surveillance System (NEISS). Results of this study, published in the June 2001 issue of *Pediatric Emergency Care* (3), show that hospitals without pediatric wards or trauma services usually transfer critically injured pediatric patients, nearly 10 percent of hospitals without pediatric intensive care units (PICUs) admit critically injured pediatric trauma patients, few hospitals have protocols for obtaining pediatric consults, and appropriate-sized supplies for children were more likely to be missing than adult sizes. The study concluded that emergent and critical care of infants and children is poorly integrated and regionalized within the U.S. health care system, suggesting that there was much room for improvement in the quality of care for children encountering emergent illness and trauma.

The EPSES was conducted as part of the 2002–03 NHAMCS to update the findings of the 1998 NEISS study to see if there had been changes in hospital preparedness since the 2001 guidelines were written. The EPSES was designed as a short set of questions related to services, medical expertise, and supplies determined to be essential for hospital EDs to provide high-quality care for children. This report includes a description of U.S. EDs and hospital characteristics, a description of critical care pediatric services within the hospital, as well as the availability of medical expertise and pediatric supplies within the ED.

## Methods

### Sample and data collection

EPSES data were collected as a brief (30 minute) self-report supplement to the 2002–03 NHAMCS, which is a national probability sample survey conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics.

The target universe of the NHAMCS is in-person visits made in the United States to outpatient departments (OPDs) and EDs of non-Federal, short-stay hospitals (hospitals with an average length of stay of less than 30 days) or those whose specialty is general (medical or surgical) or children's general. The hospital sampling frame consisted of hospitals listed in the 1991 Verispan Hospital Database updated using the 2000 Verispan Hospital Database to allow the inclusion of hospitals that opened or changed their eligibility status since the previous sample in 1991. Although the primary purpose of NHAMCS is to estimate annual volume and characteristics of medical encounters occurring in EDs and OPDs, it also includes facility-level information. The EPSES expanded the facility information about hospitals with 24-hour EDs.

A two-stage probability sample design is used to select EDs in the NHAMCS. The design involves samples of 112 geographic primary sampling units (PSUs) representing the 50 States and the District of Columbia and hospitals within PSUs. Hospitals are eligible for ED facility questions if they have a 24-hour ED. Hospitals are randomly assigned to 1 of 16 4-week reporting panels, 13 of which are sampled in any year. The 2002 NHAMCS was conducted from December 31, 2001, through December 29, 2002. The 2003 NHAMCS was conducted from December 30, 2002, through December 28, 2003.

When NHAMCS hospitals were inducted, ED representatives were asked to complete the EPSES as a self-administered form that was collected at the end of the reporting period. For 2002, of the 396 eligible EDs, EPSES

data were completed for 346 EDs, resulting in an 87 percent response rate. For 2003, of the 443 eligible EDs, EPSES data were completed for 376, resulting in an 85 percent response rate. The EPSES sampling weight was adjusted for nonresponse within geographic region and year. Hospital responses were weighted to produce national annual estimates averaged over 2002 and 2003. Because estimates are based on a sample rather than the entire universe of EDs, they are subject to sampling variability. Standard errors are calculated using Taylor approximations in SUDAAN, which take into account the complex sample design of NHAMCS (4). Estimates whose standard error represents more than 30 percent of the estimate have an asterisk to indicate that they do not meet the reliability standard set by NCHS. Additional information regarding NHAMCS data collection, sampling or nonsampling errors, and estimation and tests of significance can be found in other publications (5,6). The U.S. Census Bureau was responsible for data collection and processing of EPSES.

### Survey instrument

The EPSES questionnaire (see "Technical Notes") consists of 10 questions regarding hospital pediatric inpatient services and pediatric expertise, and also a list of 131 emergency pediatric supplies grouped into the following seven categories: monitoring, vascular access, airway management, resuscitation medication, specialized pediatric trays, fracture management, and miscellaneous. For each supply category, respondents were asked to indicate the presence or absence of specific equipment. Two summary measures were created to further describe availability of pediatric supplies. The first summary measure, "fully supplied," indicates that all recommended pediatric supplies were present. The second measure, "supply score," represents the weighted total percentage of supplies readily available in each ED. Because some supply categories had considerably more response options than others (i.e., airway management), each response was given

a percentage based on the total responses available in each supply category to obtain a weighted total percent. The supply score was created because few EDs met the standard for being fully supplied.

## Hospital characteristics

Data for selected hospital characteristics were derived from either the NHAMCS sample frame, the NHAMCS ED visit file, or EPSES. Characteristics from the sample frame include ownership (voluntary, government, proprietary), geographic region (Northeast, Midwest, South, and West), metropolitan statistical area (MSA) status (within an MSA or outside an MSA), teaching hospital status (yes or no), trauma level designation (level I–III), and whether a children’s hospital was present in the same county as the sampled hospital. The annual pediatric visit volume for each sampled ED was derived from the NHAMCS ED visit data collected for children under age 18 years and weighted up to a 12-month estimate. ED pediatric visit volume was divided into three levels: large (more than 10,000), medium (4,000–10,000), and small (less than 4,000). Another hospital characteristic critical to evaluating the ability to handle pediatric emergencies involved inpatient pediatric structure. This variable was derived from the EPSES questions concerning admitting pediatric patients and whether the hospital had a separate pediatric ward. It represented the intensity of pediatric inpatient services as follows: (a) does not admit children; (b) admits children, but does not have a separate designated pediatric ward; and (c) admits children and has a separate pediatric ward. The third category includes children’s hospitals. There were insufficient numbers of children’s hospitals in the sample to provide separate estimates.

## Analysis

Associations between hospital characteristics and pediatric services, inpatient pediatric structure, expertise, and supplies were investigated using Chi-square tests of independence. The importance of the basic structure of a

hospital to handle pediatric care was integral to the evaluation of EDs to treat pediatric cases. For example, hospitals that do not admit children may not be adequately staffed or equipped for treating pediatric emergencies. Likewise, the extent to which hospitals provide separate pediatric wards for inpatient and intensive care units specifically for children may also mediate the ability of an ED to treat pediatric emergencies. Weighted linear regression tests of trend were used to examine the linear relation observed between the ordinal variable of inpatient pediatric structure and supply scores. Data were analyzed using SUDAAN (4). Determination of statistical significance was based at the 0.01 level.

## Results

There were approximately 4,800 general and short-stay hospitals with 24-hour EDs operating in the United States during 2002–03. Pediatric volume varied among EDs with one-half serving less than 4,000 visits annually and 17.1 percent seeing over 10,000 cases (Table 1). One-half of the hospitals (52.9 percent) admit pediatric patients, but do not have a separate pediatric ward or department in house; 37.1 percent both admit children and have a separate pediatric department; and

10.0 percent do not admit pediatric patients (Figure 1).

The percent distribution of EDs by inpatient pediatric structure varied by several other hospital characteristics including pediatric visit volume, geographic region, MSA status, teaching hospital status, trauma level rating, and whether there was a children’s hospital in the same county (Table 1). Hospitals that do not admit children were more likely than hospitals that have no separate pediatric ward to be located in a county that contained at least one children’s hospital that should be better equipped to handle serious pediatric cases. Teaching hospitals were most likely to have separate pediatric wards (which includes children’s hospitals) (62.1 percent), whereas small EDs (annual volume less than 4,000) were least likely to have a pediatric ward (14.3 percent). Because about one-half of all EDs are small, and 73.5 percent of hospitals with small EDs admit pediatric cases but do not have separate pediatric wards, 40.3 percent of EDs fall into this category (Figure 2)—the most frequently occurring type of ED. However, although EDs with a large volume of pediatric cases were infrequent (17.1 percent), 46.4 percent of pediatric visits occur in hospitals with large volumes of emergency pediatric cases and separate pediatric wards (Figure 3).

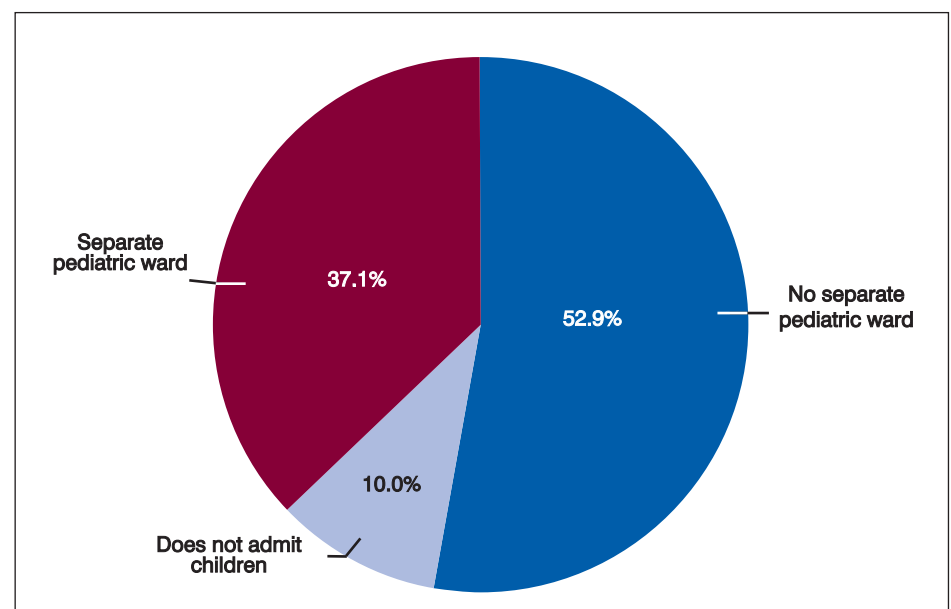


Figure 1. Percent distribution of hospital emergency departments by inpatient pediatric structure: United States, 2002–03

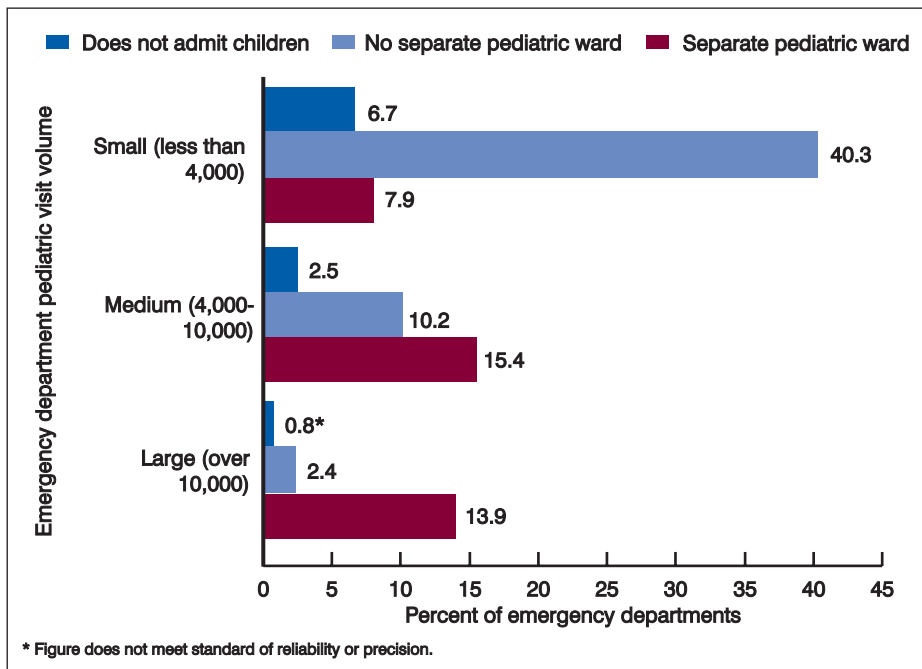


Figure 2. Cross-classification of emergency departments by emergency department pediatric visit volume and inpatient pediatric structure: United States, 2002–03

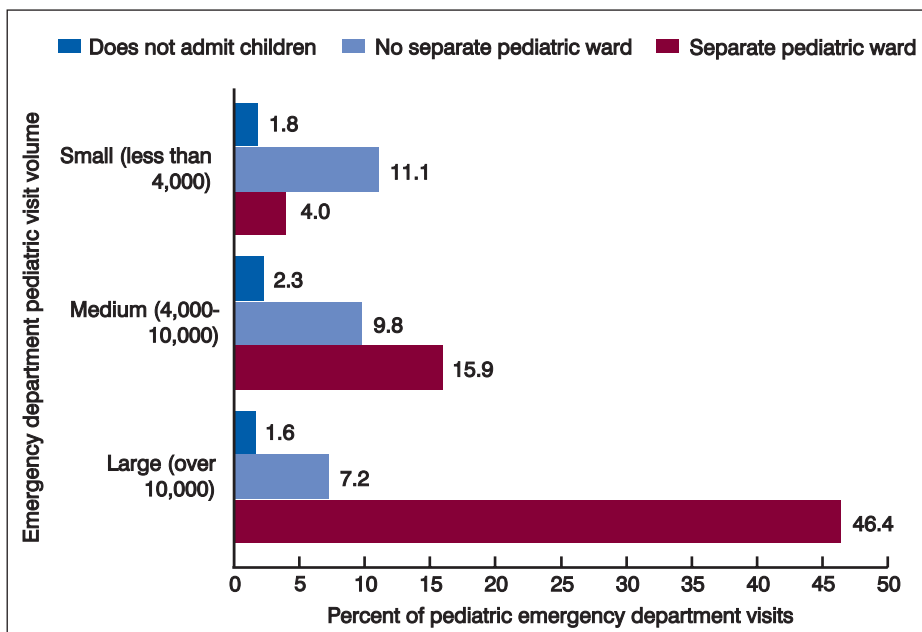


Figure 3. Cross-classification of pediatric emergency department visits by annual size of emergency department pediatric visit volume and inpatient pediatric structure: United States, 2002–03

## Pediatric services

Between 10 percent and 17 percent of EDs have services specifically designed for children such as a pediatric 23-hour observation unit, pediatric trauma services, or belonging to a hospital with pediatric intensive care units (PICUs). These services were more

frequently found in hospitals that admitted pediatric patients (Table 2). Overall, 16.6 percent of EDs report having pediatric 23-hour observation units, but the presence of such units ranges from 0 percent in hospitals that do not admit children to 38.7 percent for hospitals with separate pediatric wards. Overall, 14.2 percent of EDs reported

having pediatric trauma services, but EDs within hospitals with separate pediatric wards were more likely to have such services (28.4 percent). Finally, 10.2 percent of EDs were in hospitals that had a PICU, but the percentage with a PICU is highest among EDs within hospitals with separate pediatric wards (26.0 percent). The presence of a PICU is also positively associated with the relative size of the pediatric volume (more than 10,000) in the ED (data not shown).

Among EDs in hospitals without a PICU, 51.7 percent had written transfer agreements with facilities that offer such services. A small percentage of EDs nationwide reported using an adult ICU for children, with this response occurring more frequently in hospitals with separate pediatric wards and no PICU (Table 2).

## Pediatric expertise

The presence of board-certified emergency medicine (EM), pediatric, and pediatric emergency medicine (PEM) attending physicians in the ED were all positively associated with pediatric inpatient structure (Table 3). The availability of PEM attending physicians was highest among EDs within hospitals with separate pediatric wards (34.3 percent). Overall, 62.2 percent of EDs had board-certified pediatric attending physicians available in house or on call 24 hours a day and 7 days a week, 23.0 percent had PEM attending physicians available, and 71.2 percent had board-certified EM attending physicians available. Among EDs without the availability of PEM attending physicians, 53.2 percent had a board-certified pediatrician attending, and 19.9 percent had written protocol for calling a pediatrician. About 17.2 percent of EDs had no EM, PEM, or pediatric attending physician. Of these, 96.4 percent admit pediatric patients to their facilities. However, almost all had written transfer agreements to facilities with higher levels of pediatric care (pediatric trauma service or PICU) (data not shown).

## Pediatric supplies

Table 4 presents the extent to which EDs had the recommended pediatric supplies. Only 5.5 percent of EDs answered “Yes” to all of the items on the supplies list. EDs were most likely to have resuscitation medication chart, tape, or other dose estimation systems (95.8 percent) and least likely to have all the vascular access supplies (12.4 percent). Although supplies may not have been directly available in the ED, several hospitals indicated resources were available from other in-house or “nearby” locations such as neonatal intensive care unit, obstetrics and newborn nursery, central supply, pharmacy, available from “sister” pediatric hospitals, or children’s hospitals. For some supplies, the smaller sizes were available less frequently than larger sizes. For example, size 10 French nasopharyngeal airways were available at 53.6 percent of EDs, but size 28 French nasopharyngeal airways were available at 73.3 percent of EDs. Similarly, tracheotomy tubes and Foley catheters were found more frequently in larger sizes.

The frequency distribution presented in Figure 4 represents the weighted total percentage of available supplies or supply score for EDs. The distribution is negatively skewed showing that most EDs had at least 80 percent of recommended pediatric supplies. Table 5 presents the mean supply scores for each supply content area and the overall score by inpatient pediatric structure. For example, if an ED had half of all the recommended fracture management supplies available, its score would be 50.0. Data indicate that EDs in hospitals that had a separate pediatric ward had a greater percentage of supplies available (88.7 percent of recommended supplies). The lowest supply score was found for EDs in hospitals that do not admit pediatric cases. On average these EDs had only 63.7 percent of the vascular access supplies available. Increasing availability of supplies with increasing values for the inpatient pediatric structure variable was found for all content areas except the availability of a resuscitation medication dosage chart,

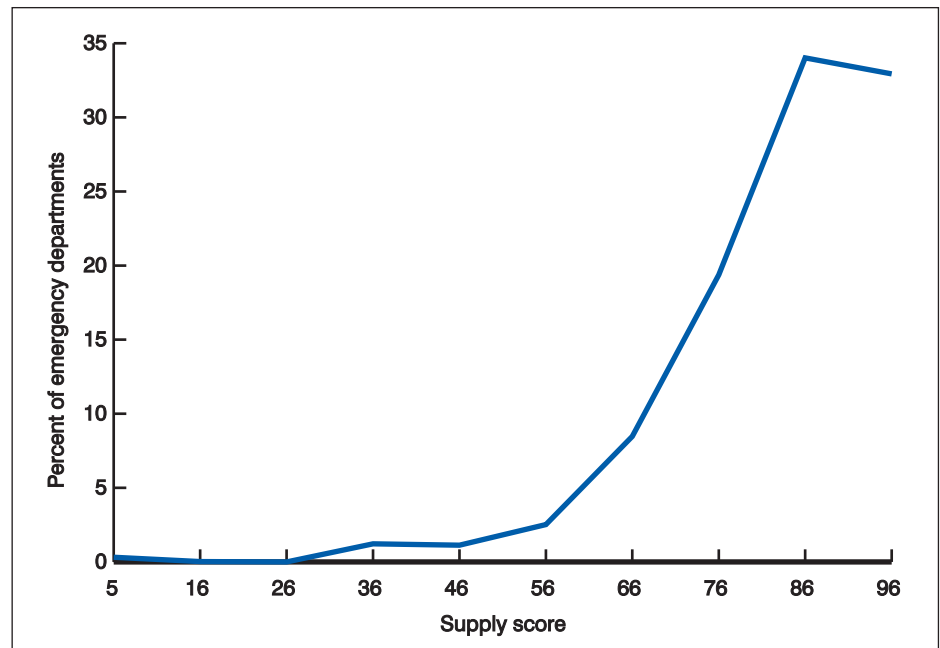


Figure 4. Distribution of emergency departments by the supply score of pediatric supplies available in the emergency department: United States, 2002-03

which was similarly high for all categories.

## Discussion

Comparing data from the NHAMCS-EPSES to the NEISS study indicates lack of significant improvement in the ability of hospitals to treat pediatric emergencies between 1998 and 2002-03. For example, in 1998 only 10 percent of hospitals had a PICU, which remained unchanged 5 years later. In 1998, 75 percent (95% confidence interval 41-100 percent) of hospitals without pediatric trauma service had written transfer agreements to send pediatric trauma patients to another hospital. By 2002-03, the number had not significantly increased (83.8 percent). Overall, use of a pediatric emergency medicine attending physician is limited. In 1998, this specialty was available in EDs 23 percent (95% confidence interval 14-32 percent) of the time; by 2002-03, the number remained unchanged. (3) However, 2002-03 EPSES data showed that EDs at hospitals with an inpatient structure that accommodates pediatric inpatient care were more likely to have ED pediatric services, expertise, and supplies for treating children.

In 2002-03, most EDs saw fewer than 4,000 pediatric visits in a given year. However, the majority of pediatric visits were to hospital EDs that had a large pediatric volume (more than 10,000). These hospitals were more likely to have a separate pediatric ward and PICU, and the EDs were more likely to have a board-certified PEM attending physician when compared to the average hospital.

With regard to the American Academy of Pediatrics recommendation for pediatrician coverage, 9.0 percent of EDs report having a pediatrician in the ED 24 hours a day and 7 days a week, and 62.2 percent report having a board-certified pediatric attending physician either in house (within the hospital) or on call. The low number (25.9 percent) of EDs with written protocols stating when to call a pediatrician may indicate a failure to adequately utilize services that are readily available.

The AAP encourages all EDs to establish transfer agreements with facilities with higher levels of pediatric care to ensure timely access to care for critically ill and injured children (7). Overall, 2002-03 EPSES data showed that EDs are doing a good job of transferring critically injured pediatric

trauma patients (90.7 percent) and those requiring intensive care (97.5 percent) when the hospital's ED is not equipped for such pediatric services. Admission and transfer of emergency pediatric cases is a fairly rare outcome.

Unpublished data from NHAMCS indicates that only 5.2 percent of pediatric cases are either admitted from or transferred to another hospital. The vast majority of cases are treated and released. This percentage does not vary by inpatient pediatric structure. However, within the subgroup of cases that are admitted to the hospital or transferred, those that are actually transferred varies from 71.6 percent for hospitals that do not admit pediatric cases to 16.3 percent for hospitals that have a separate inpatient pediatric ward.

## Limitations

An attempt was made to create a fourth structure category containing only children's hospitals on the assumption that they would rank highest in preparedness for pediatric patients. Unfortunately, there were not enough children's hospitals in the NHAMCS sample to provide a separate estimate. The EPSES will be replicated in 2006 to include a separate sampling stratum for children's hospitals so that separate estimates will be available.

## Conclusions

In 1993, the Institute of Medicine provided summary recommendations that all agencies with jurisdiction over hospitals "require that hospital emergency departments. . . have available and maintain equipment and supplies appropriate for the emergency care of children." (8) Results from the 2002–03 EPSES showed that EDs generally had 82.9 percent of the recommended pediatric supplies, but only 5.5 percent of EDs had all recommended pediatric supplies. This indicated that most EDs could improve their inventory of recommended supplies. Further analysis of the EPSES data will describe the hospital and community factors that are associated with better preparedness for treating pediatric emergencies. Also, the EPSES is being conducted again in

conjunction with the 2006 NHAMCS so direct comparisons between the data collected in 2002–03 and 2006 will examine changes in readiness. Further information about NHAMCS and EPSES can be found at [www.cdc.gov/NHAMCS](http://www.cdc.gov/NHAMCS).

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**Table 1. Number and percent distribution of emergency departments by hospital characteristics, according to inpatient pediatric structure: United States, 2002–03**

Hospital characteristic	Emergency departments		Inpatient pediatric structure <sup>1</sup>		
			Does not admit children	No separate pediatric ward	Separate pediatric ward <sup>2</sup>
	Number	Percent distribution	Percent		
All EDs <sup>3</sup> . . . . .	4,800	100.0	10.0	52.9	37.1
ED pediatric visit volume <sup>4</sup>					
Less than 4,000 . . . . .	2,600	54.8	12.2	73.5	14.3
4,000–10,000 . . . . .	1,300	28.1	8.9	36.4	54.7
Over 10,000 . . . . .	1,000	17.1	4.7	14.0	81.4
Ownership:					
Voluntary . . . . .	3,000	63.3	10.2	47.9	41.9
Government . . . . .	1,200	24.3	*6.7	65.6	27.7
Proprietary . . . . .	600	12.4	*15.4	53.5	31.1
Geographic region: <sup>4</sup>					
Northeast . . . . .	700	15.5	*16.8	34.1	49.1
Midwest . . . . .	1,400	29.7	*3.7	62.0	34.3
South . . . . .	1,800	38.4	*12.0	55.1	32.9
West . . . . .	800	16.5	*10.3	49.0	40.8
MSA status: <sup>4,5</sup>					
MSA <sup>5</sup> . . . . .	2,800	57.2	16.7	30.7	52.6
Not MSA <sup>5</sup> . . . . .	2,000	42.8	*	82.6	16.4
Teaching hospital: <sup>4</sup>					
Yes . . . . .	1,000	20.3	17.8	20.1	62.1
No . . . . .	3,800	79.7	8.0	61.2	30.8
Trauma center levels: <sup>4</sup>					
Level 1 . . . . .	400	8.9	*15.1	*34.0	51.0
Level 2 . . . . .	1,200	24.6	*12.7	40.0	47.3
Level 3 . . . . .	800	16.5	*6.2	60.7	33.1
Other or missing . . . . .	2,400	50.0	9.0	60.0	31.0
Children's hospital in the same county: <sup>4,6</sup>					
Yes . . . . .	900	18.0	30.4	20.0	49.7
No . . . . .	3,900	82.1	5.5	60.1	34.4

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>Sample size 722 hospitals; 83 do not admit children, 244 admit but do not have a separate pediatric ward, 395 admit children and have a separate pediatric ward.<sup>2</sup>The category separate pediatric ward "includes" children's hospitals.<sup>3</sup>ED is emergency department.<sup>4</sup> $\chi^2$  test of independence with inpatient structure is significant ( $p < 0.01$ ).<sup>5</sup>MSA is metropolitan statistical area.<sup>6</sup>The sampled hospital itself may be the one children's hospital in the county.

NOTE: Numbers may not add to totals because of rounding.

**Table 2. Percent (with standard error) of emergency departments with pediatric services by inpatient pediatric structure: United States, 2002–03**

Pediatric services	All EDs <sup>1</sup>	Inpatient pediatric structure		
		Does not admit children	No separate pediatric ward	Separate pediatric ward
		Percent (standard error)		
Pediatric 23-hour observation unit <sup>2</sup> . . . . .	16.6 (1.7)	0.0 (0.0)	*4.4 (1.6)	38.7 (3.5)
Pediatric trauma services <sup>2</sup> . . . . .	14.2 (2.3)	*0.9 (0.4)	*6.9 (3.6)	28.4 (2.9)
Place of care for critically injured pediatric patients in hospitals without pediatric trauma service: <sup>3</sup>				
In hospital . . . . .	*4.2 (2.0)	*0.6 (0.6)	*3.6 (2.8)	*6.7 (3.7)
In another hospital, with transfer agreement . . . . .	50.6 (3.1)	62.3 (7.9)	50.4 (4.6)	46.6 (3.6)
In another hospital, without transfer agreement . . . . .	38.8 (2.5)	24.9 (5.5)	40.9 (3.8)	40.2 (3.4)
Pediatric intensive care unit (PICU) <sup>2</sup> . . . . .	10.2 (1.3)	*0.6 (0.6)	*1.0 (0.6)	26.0 (3.3)
Among hospitals without a PICU: <sup>4</sup>				
Has written transfer agreement . . . . .	51.7 (3.0)	66.5 (6.2)	51.2 (4.2)	47.2 (4.3)
Uses adult intensive care unit . . . . .	*2.5 (0.7)	0.0 (0.0)	*1.9 (0.9)	*4.6 (1.5)
Sends to another hospital . . . . .	97.5 (0.7)	100.0 (0.0)	98.1 (0.9)	95.4 (1.5)

0.0 Quantity more than zero but less than 0.05.

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>ED is emergency department.<sup>2</sup>Chi-square test of independence with inpatient pediatric structure is significant at  $p < 0.01$ .<sup>3</sup>Hospitals without pediatric trauma service (N=4,030).<sup>4</sup>Hospitals without pediatric intensive care units (PICUs) (N=4,102).**Table 3. Percent of emergency departments with pediatric expertise by inpatient pediatric structure: United States, 2002–03**

Pediatric expertise	All EDs <sup>1</sup>	Inpatient pediatric structure		
		Does not admit children	No separate pediatric ward	Separate pediatric ward
		Percent (standard error)		
Board-certified EM <sup>2</sup> attending physician <sup>3,4</sup> . . . . .	71.2 (3.2)	80.7 (7.2)	58.9 (4.6)	86.3 (3.4)
Board-certified pediatric attending physician <sup>3,4</sup> . . . . .	62.2 (3.3)	50.1 (6.7)	46.3 (5.4)	88.3 (2.3)
Board-certified PEM <sup>5</sup> attending physician <sup>3,4</sup> . . . . .	23.0 (2.2)	*22.0 (6.1)	15.2 (3.6)	34.3 (2.7)
Among EDs <sup>1</sup> with no board-certified PEM <sup>5</sup> attending physician: <sup>4,6</sup>				
Percent with board-certified EM <sup>2</sup> attending physician <sup>3</sup> . . . . .	64.0 (3.8)	79.3 (8.8)	51.5 (5.6)	82.3 (4.0)
Percent with board-certified pediatric attending physician <sup>3</sup> . . . . .	53.2 (3.5)	39.3 (6.6)	39.3 (4.8)	83.2 (3.3)
Percent with written protocol to call a pediatrician <sup>3</sup> . . . . .	19.9 (2.4)	*18.6 (5.7)	14.6 (3.0)	30.0 (3.5)
Has written protocol stating when to call a pediatrician to the ED <sup>1</sup> . . . . .	25.9 (2.7)	17.6 (4.7)	20.9 (4.1)	35.3 (3.3)
Has a pediatrician on duty in the ED <sup>1</sup> 24 hours a day, 7 days a week . . . . .	9.0 (1.9)	5.2 (4.3)	6.6 (3.2)	13.5 (1.9)

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>ED is emergency department.<sup>2</sup>EM is emergency medicine.<sup>3</sup> $\chi^2$  test of independence with inpatient pediatric structure is significant ( $p < 0.01$ ).<sup>4</sup>Available 24 hours a day and 7 days a week either in house or on call.<sup>5</sup>PEM is pediatric emergency medicine.<sup>6</sup>Hospitals with no board-certified pediatric emergency medicine (PEM) attending physician (N=3668).



Table 4. Percent and corresponding standard errors of emergency departments with pediatric supplies: United States, 2002–03—Con.

Pediatric supplies	Percent of EDs <sup>1</sup>	Standard error
All EDs <sup>1</sup> . . . . .	100.0	...
Monitoring		
Have all monitoring supplies . . . . .	65.3	3.3
Cardiorespiratory monitor . . . . .	95.7	4.4
Defibrillator . . . . .	97.5	0.9
Pediatric monitor electrodes . . . . .	94.6	1.9
Pulse oximeter w/newborn sensor . . . . .	91.7	2.0
Pulse oximeter w/child sensor . . . . .	93.8	1.8
Thermometer/rectal probe . . . . .	90.8	1.7
Doppler blood pressure device . . . . .	84.6	2.5
Blood pressure cuff - neonatal size . . . . .	90.6	1.7
Blood pressure cuff - infant size . . . . .	96.2	1.5
Blood pressure cuff - child size . . . . .	98.0	1.0
Blood pressure cuff -small adult size . . . . .	97.5	1.0
Monitor for ET <sup>2</sup> tube and placement . . . . .	88.4	2.2
Vascular access		
Have all vascular access supplies . . . . .	12.4	1.5
Butterfly needles- 19g . . . . .	72.0	2.9
Butterfly needles- 21g . . . . .	83.7	2.8
Butterfly needles- 23g . . . . .	62.6	2.7
Butterfly needles- 25g . . . . .	84.0	2.0
Catheter over needle- 16g . . . . .	92.8	2.1
Catheter over needle- 18g . . . . .	96.7	1.3
Catheter over needle- 20g . . . . .	69.6	2.7
Catheter over needle- 22g . . . . .	96.6	1.3
Catheter over needle- 24g short . . . . .	92.3	2.3
Catheter over needle- 24g long . . . . .	53.4	2.9
Infusion device . . . . .	97.6	1.0
Tubing for infusion device . . . . .	97.4	1.1
Intraosseous needles- 16g . . . . .	83.4	2.2
Intraosseous needles- 18g . . . . .	80.5	2.4
Umbilical vein catheters- 3.5 Fr . . . . .	60.9	3.3
Umbilical vein catheters- 5 Fr . . . . .	64.9	3.0
Seldinger vascular access kit- 3 Fr catheter . . . . .	24.7	2.4
Seldinger vascular access kit- 4 Fr catheter . . . . .	29.6	2.3
Seldinger vascular access kit- 5 Fr catheter . . . . .	28.1	2.3
Airway management		
Have all airway management supplies . . . . .	14.2	1.5
Preterm/neonatal oxygen masks . . . . .	83.6	2.5
Infant oxygen masks . . . . .	95.3	1.0
Child oxygen masks . . . . .	98.1	0.5
Infant non-rebreathing masks . . . . .	75.9	2.1
Child non-rebreathing masks . . . . .	86.3	1.8
Oralpharyngeal airway - size 00 . . . . .	67.7	3.0
Oralpharyngeal airway - size 0 . . . . .	84.9	3.2
Oralpharyngeal airway - size 1 . . . . .	86.7	3.0
Oralpharyngeal airway - size 2 . . . . .	87.7	2.4
Oralpharyngeal airway - size 3 . . . . .	86.4	2.4
Nasopharyngeal airways - size 10 Fr . . . . .	53.6	2.6
Nasopharyngeal airways - size 12 Fr . . . . .	60.3	2.9
Nasopharyngeal airways - size 14 Fr . . . . .	61.1	2.9
Nasopharyngeal airways - size 16 Fr . . . . .	62.5	2.9
Nasopharyngeal airways - size 20 Fr . . . . .	67.2	3.5
Nasopharyngeal airways - size 24 Fr . . . . .	67.9	3.1
Nasopharyngeal airways - size 28 Fr . . . . .	73.3	3.2
Bag-valve-mask-resuscitator . . . . .	92.6	1.5
Nasal cannulae- infant . . . . .	81.1	3.4
Nasal cannulae- child . . . . .	89.8	1.8
Uncuffed endotracheal tubes - size 2.5 . . . . .	90.0	2.4
Uncuffed endotracheal tubes - size 3.0 . . . . .	95.1	1.3
Uncuffed endotracheal tubes - size 3.5 . . . . .	93.7	1.8
Uncuffed endotracheal tubes - size 4.0 . . . . .	96.5	1.2
Uncuffed endotracheal tubes - size 4.5 . . . . .	90.6	1.9

See footnotes at end of table.

Table 4. Percent and corresponding standard errors of emergency departments with pediatric supplies: United States, 2002–03—Con.

Pediatric supplies	Percent of EDs <sup>1</sup>	Standard error
Airway management—Con.		
Uncuffed endotracheal tubes - size 5.0 . . . . .	86.3	2.6
Uncuffed endotracheal tubes - size 5.5 . . . . .	78.9	2.4
Uncuffed endotracheal tubes - size 6.0 . . . . .	63.8	2.5
Uncuffed endotracheal tubes - size 6.5 . . . . .	57.9	2.4
Uncuffed endotracheal tubes - size 7.0 . . . . .	55.4	2.6
Uncuffed endotracheal tubes - size 7.5 . . . . .	53.8	2.5
Cuffed endotracheal tubes - size 5.5 . . . . .	81.8	1.8
Cuffed endotracheal tubes - size 6.0 . . . . .	93.9	1.4
Cuffed endotracheal tubes - size 6.5 . . . . .	92.1	1.5
Cuffed endotracheal tubes - size 7.0 . . . . .	94.7	1.5
Cuffed endotracheal tubes - size 7.5 . . . . .	93.5	1.6
Stylets - infant . . . . .	83.3	2.0
Stylets - child . . . . .	92.1	1.9
Laryngoscope handle, pediatric . . . . .	92.1	1.6
Curved laryngoscope blades - size 2 . . . . .	94.0	1.7
Curved laryngoscope blades - size 3 . . . . .	91.2	1.5
Straight laryngoscope blades - size 0 . . . . .	86.8	2.8
Straight laryngoscope blades - size 1 . . . . .	94.8	1.5
Straight laryngoscope blades - size 2 . . . . .	92.1	2.2
Straight laryngoscope blades - size 3 . . . . .	86.6	2.0
Magil forceps, pediatric . . . . .	76.0	2.7
Nasogastric tubes- size 5 Fr . . . . .	77.7	2.2
Nasogastric tubes- size 6 Fr . . . . .	57.2	2.9
Nasogastric tubes- size 8 Fr . . . . .	87.1	2.0
Nasogastric tubes- size 10 Fr . . . . .	81.5	2.6
Nasogastric tubes- size 12 Fr . . . . .	87.3	1.8
Nasogastric tubes- size 14 Fr . . . . .	86.4	1.7
Flexible suction catheters - size 5/6 Fr . . . . .	77.4	2.7
Flexible suction catheters - size 8 Fr . . . . .	90.8	2.4
Flexible suction catheters - size 10 Fr . . . . .	92.2	1.6
Flexible suction catheters - size 12 Fr . . . . .	80.2	2.3
Chest tubes - size 8 Fr . . . . .	40.8	2.6
Chest tubes - size 10 Fr . . . . .	63.9	2.9
Chest tubes - size 12 Fr . . . . .	63.5	3.7
Chest tubes - size 14 Fr . . . . .	48.9	2.4
Chest tubes - size 16 Fr . . . . .	78.3	2.7
Chest tubes - size 18 Fr . . . . .	54.4	2.4
Chest tubes - size 20 Fr . . . . .	80.2	2.9
Chest tubes - size 22 Fr . . . . .	59.5	2.8
Chest tubes - size 24 Fr . . . . .	82.6	2.6
Chest tubes - size 26 Fr . . . . .	64.9	2.4
Tracheostomy tubes - size 00 . . . . .	33.7	2.5
Tracheostomy tubes - size 0 . . . . .	40.7	2.6
Tracheostomy tubes - size 1 . . . . .	46.8	3.1
Tracheostomy tubes - size 2 . . . . .	51.6	2.5
Tracheostomy tubes - size 3 . . . . .	53.8	2.5
Tracheostomy tubes - size 4 . . . . .	64.1	2.8
Tracheostomy tubes - size 5 . . . . .	53.7	2.2
Tracheostomy tubes - size 6 . . . . .	68.6	2.9
Resuscitation medications		
Medication chart, tape, or other dose estimation system . . . . .	95.8	1.1
Specialized pediatric trays		
Have all specialized pediatric trays . . . . .	24.6	1.9
Thoracotomy tube w/water seal . . . . .	65.9	2.7
Lumbar puncture w/size 20g needle . . . . .	83.1	3.2
Lumbar puncture w/size 22g needle . . . . .	88.7	2.2
Lumbar puncture w/size 25g needle . . . . .	69.6	2.8
Pediatric foley catheter- size 5/6 Fr . . . . .	57.2	2.7
Pediatric foley catheter- size 8 Fr . . . . .	81.6	2.5
Pediatric foley catheter- size 10 Fr . . . . .	83.7	2.8
Pediatric foley catheter- size 12 Fr . . . . .	83.6	2.8
Obstetric pack . . . . .	91.1	1.7
Umbilical vessel cannulation supplies . . . . .	71.1	3.1
Meconium aspirator . . . . .	88.0	1.6

See footnotes at end of table.

**Table 4. Percent and corresponding standard errors of emergency departments with pediatric supplies: United States, 2002–03—Con.**

Pediatric supplies	Percent of EDs <sup>1</sup>	Standard error
Specialized pediatric trays—Con.		
Venous cutdown . . . . .	77.4	2.1
Surgical airway . . . . .	76.5	3.4
Fracture management		
Have all fracture management supplies . . . . .	46.8	2.8
Cervical immobilization - infant size . . . . .	61.9	2.7
Cervical immobilization - child size . . . . .	86.4	1.9
Extremity splints . . . . .	88.6	1.7
Femur splint- child size . . . . .	70.5	1.9
Miscellaneous		
Have all miscellaneous supplies . . . . .	52.4	3.4
Infant scales . . . . .	95.3	2.1
Infant formula . . . . .	87.3	2.7
Oral rehydrating solutions . . . . .	95.0	2.0
Heating source, isolette . . . . .	77.8	3.2
Pediatric restraining devices . . . . .	85.4	2.9
Resuscitation board . . . . .	89.8	1.7
Sterile linen for burn care . . . . .	91.6	1.7
Medical photography capability . . . . .	79.5	2.8
Supplies		
Percent of EDs <sup>1</sup> fully supplied <sup>3</sup> . . . . .	5.5	1.1

. . . Category not applicable.

<sup>1</sup>ED is emergency department.

<sup>2</sup>ET is endotracheal.

<sup>3</sup>Percentage of EDs having all the recommended supplies available.

NOTE: Fr is French, a scale used to indicate the outer diameter of catheters. g is gauge, a standard of measurement for needles.

**Table 5. Mean pediatric supply availability scores (with standard errors) for emergency departments by type of supplies and inpatient pediatric structure: United States, 2002–03**

Pediatric supply scores	All EDs <sup>1</sup>	Inpatient pediatric structure		
		Does not admit children	No separate pediatric ward	Separate pediatric ward
		Mean supply score (standard error)		
Monitoring <sup>2</sup> . . . . .	93.3 (1.1)	90.7 (1.8)	91.1 (1.9)	97.0 (0.5)
Vascular access <sup>2</sup> . . . . .	72.1 (1.1)	63.7 (3.1)	68.2 (1.7)	80.0 (1.0)
Airway management <sup>2</sup> . . . . .	76.1 (1.2)	71.9 (2.2)	70.9 (1.9)	84.7 (1.1)
Pediatric trays <sup>2</sup> . . . . .	78.1 (1.5)	67.8 (3.3)	73.8 (2.4)	87.0 (1.2)
Fracture management <sup>2</sup> . . . . .	76.8 (1.3)	61.0 (4.4)	76.2 (2.0)	82.0 (2.1)
Miscellaneous <sup>2</sup> . . . . .	87.7 (1.6)	80.3 (2.1)	85.2 (2.9)	93.3 (0.8)
Resuscitation medication dosage chart . . . . .	95.8 (1.1)	97.0 (1.3)	94.9 (2.0)	96.6 (1.3)
Overall supply score <sup>2</sup> . . . . .	82.9 (0.9)	76.1 (2.0)	80.1 (1.5)	88.7 (0.8)

<sup>1</sup>ED is emergency department.

<sup>2</sup>Trend test for supply score and inpatient pediatric structure is significant ( $p < 0.01$ ).

NOTE: Supply score represents the percentage of each content area that the ED reported having supplies available. (i.e., if an ED had half of the supplies available, its score would be 50.0.)

Technical Notes

Form Approved OMB No. 0620-0278 Exp. Date 04/30/2006

**NOTICE** - Public reporting burden of this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Road, NW D-24, Atlanta, GA 30333, ATTN: PRA (0633-0278).

<b>1. Label</b>	<p><b>NHAMCS-901</b>  <small>9-27-2001</small></p> <p>U.S. DEPARTMENT OF COMMERCE          Economic and Statistics Administration          U.S. CENSUS BUREAU</p> <p>ACTING DATA COLLECTION AGENT FOR THE          NATIONAL CENTER FOR HEALTH STATISTICS          CENTERS FOR DISEASE CONTROL AND PREVENTION</p> <p><b>NATIONAL HOSPITAL AMBULATORY          MEDICAL CARE SURVEY</b></p> <p><b>2003 Panel</b></p> <p><b>Emergency Pediatric Services and          Equipment Supplement</b></p>
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Disposition — To be completed by Census Field Representative

- Hospital HAS an eligible ED - Complete Supplement
- Hospital does NOT have an eligible ED - **STOP!** Return to RD

<b>2a. Hospital contact information</b>			<b>b. ED contact information</b>		
Name			Name		
Title			Title		
Telephone	Area code	Number	Telephone	Area code	Number

**A message from the National Center for Health Statistics . . .**

Children requiring care for serious and life-threatening emergencies have unique and special needs. Over the past ten years, guidelines for pediatric preparedness have been developed by various pediatric and emergency medicine associations, most recently in April of 2001. In order to gather current information on hospital emergency department readiness for the care of children, a new form, based in part on the April, 2001 guidelines, has been added to the 2003 National Hospital Ambulatory Medical Care Survey (NHAMCS). This new form will take about 30 minutes to complete.

**INSTRUCTIONS FOR COMPLETING THE FORM**

The form consists of a short set of questions related to hospital characteristics and services, followed by a list of pediatric equipment from the 2001 guidelines. If you have any questions or need assistance completing this form, you may contact

\_\_\_\_\_ at \_\_\_\_\_

**• Questions**

Please answer only the questions that apply based on the "skip instructions" next to specific check boxes. If there is no skip instruction following a check box, proceed to the next question.

**• Equipment List**

Please mark (X) "Yes" **only** for the equipment and supplies that are actually present in the emergency department in your hospital, otherwise mark (X) "No." If you have a separate pediatric emergency department, please answer these questions for that location only. If possible, you are encouraged to physically verify the presence of each of these items when you complete the list.

**DEFINITIONS OF TERMS**

- **Pediatric patient** - A person less than 18 years old who is treated in the emergency department or admitted to the hospital.
- **Pediatric ward/department** - A hospital inpatient unit exclusively for pediatric patients.
- **Pediatric trauma service** - An organized multidisciplinary team that provides coordinated care of severely injured children from the emergency department, through care in the operating room, intensive care unit, inpatient unit of the hospital, and rehabilitation.
- **Transfer agreement** - A written guideline for the transfer of pediatric patients from one specified hospital facility to another specified hospital facility, often to get the child moved from a community hospital to a tertiary hospital with pediatric intensive care capability or specialty physician expertise.
- **Critical injury** - An injury that is potentially or actually life threatening without rapid resuscitation and surgical or intensive care intervention.
- **Intensive care** - A hospital unit that provides high technology monitoring and medical intervention for life-threatening illnesses and injuries or the post-surgical care of such children.

Thank you . . . . .

**. . . for taking time from your busy schedule to contribute to this important study. The success of this survey depends on the cooperation of people like you.**

**Section I - YOUR HOSPITAL**

These first questions are about hospital procedures and services related to treating and caring for children.

<p><b>1. Does your hospital admit pediatric patients ("Admit" means for an overnight stay in the hospital of at least 24 hours)?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No - SKIP to question 3</p>
<p><b>2. Does your hospital have a separate pediatric ward or department, that is, one intended for exclusively treating children?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>3. Does your hospital have a 23 hour observation area exclusively for pediatric patients, that is, an area for pediatric patients who are not admitted to the hospital but whose condition following treatment may warrant further assessment before being admitted or discharged?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>4. Does your hospital have a pediatric trauma service, that is, coordinated trauma care for a pediatric patient from admittance to discharge?</b></p>	<p>1 <input type="checkbox"/> Yes - SKIP to question 6 2 <input type="checkbox"/> No</p>
<p><b>5. Does your hospital have a written transfer agreement with a facility that has a pediatric trauma service?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>6. Generally, critically injured pediatric trauma patients requiring hospitalization would be cared for:</b> <i>Mark (X) one</i></p>	<p>1 <input type="checkbox"/> In your hospital 2 <input type="checkbox"/> In another hospital, per written transfer agreement 3 <input type="checkbox"/> In another hospital, but no written transfer agreement exists 4 <input type="checkbox"/> Other - Explain _____ _____ _____ _____</p>
<p><b>7. Pediatric patients requiring intensive care (such as brain injury, multiple severe traumatic injuries, meningitis, and respiratory failure requiring intubation) would be cared for:</b> <i>Mark (X) one</i></p>	<p>1 <input type="checkbox"/> In the pediatric ICU in your hospital 2 <input type="checkbox"/> In the adult ICU in your hospital 3 <input type="checkbox"/> In another hospital 4 <input type="checkbox"/> Other - Explain _____ _____ _____ _____</p>
<p><b>8. Does your hospital have a written transfer agreement with a facility that has a pediatric intensive care unit?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>9. Do you have written protocols stating under what conditions a pediatrician will be called to the emergency department?</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> NA - Have a pediatrician on duty in Emergency Department 24 hours, 7 days per week.</p>
<p><b>10. Does your emergency department have 24 hour 7 day a week access to the following attending physicians (either in-house or on call)?</b></p>	
<p><b>a. Board certified emergency medicine attending physician</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>b. Board certified pediatric emergency medicine attending physician</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p><b>c. Board certified pediatric attending physician</b></p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>

**PLEASE CONTINUE WITH SECTION II ON NEXT PAGE.**

**Section II - YOUR HOSPITAL EMERGENCY DEPARTMENT**

Please check the equipment and supplies listed below that are actually present in the emergency department in your hospital. If you have a separate pediatric emergency department, please answer these questions for that location only. It is anticipated that most facilities will NOT have all of the items listed in this table. You are also encouraged to physically verify the presence of each of these items in your emergency department when you complete this checklist.

EMERGENCY SUPPLIES		YES	NO			YES	NO
<b>A. Monitoring</b>				<b>3. Oropharyngeal airways-</b>			
1. Cardiorespiratory monitor with strip recorder				a. Size 00			
2. Defibrillator (0-400 J capability) with 4.5 cm paddles				b. Size 0			
3. Pediatric monitor electrodes				c. Size 1			
4. Pulse oximeter with -				d. Size 2			
a. Newborn sensor size				e. Size 3			
b. Child sensor size				4. Nasopharyngeal airways -			
5. Thermometer/rectal probe with capability 25°C to 44°C				a. Size 10 Fr			
6. Doppler blood pressure device				b. Size 12 Fr			
7. Blood pressure cuffs -				c. Size 14 Fr			
a. Neonatal size				d. Size 16 Fr			
b. Infant size				e. Size 20 Fr			
c. Child size				f. Size 24 Fr			
d. Small adult size				g. Size 28 Fr			
8. Method to monitor ET tube and placement <sup>1</sup>				5. Bag-valve-mask resuscitator, self-inflating, 450 mL size			
<b>B. Vascular Access</b>				6. Nasal cannulae -			
1. Butterfly needles -				a. Infant size			
a. 18-gauge				b. Child size			
b. 21-gauge				7. Uncuffed endotracheal tubes -			
c. 23-gauge				a. Size 2.5			
d. 25-gauge				b. Size 3.0			
2. Catheter-over-needle devices -				c. Size 3.5			
a. 16-gauge				d. Size 4.0			
b. 18-gauge				e. Size 4.5			
c. 20-gauge				f. Size 5.0			
d. 22-gauge				g. Size 5.5			
e. 24-gauge short				h. Size 6.0			
f. 24-gauge long				i. Size 6.5			
3. Infusion device to regulate rate and volume				j. Size 7.0			
4. Tubing for infusion device				k. Size 7.5			
5. Intraosseous needles <sup>2</sup>				8. Cuffed endotracheal tubes -			
a. 16-gauge				a. Size 5.5			
b. 18-gauge				b. Size 6.0			
6. Umbilical vein catheters <sup>3</sup>				c. Size 6.5			
a. Size 3.5 Fr				d. Size 7.0			
b. Size 5 Fr				e. Size 7.5			
7. Seldinger technique vascular access kit -				9. Stylets -			
a. Size 3 Fr catheters				a. Infant size			
b. Size 4 Fr catheters				b. Pediatric size			
c. Size 5 Fr catheters				10. Laryngoscope handle, pediatric			
<b>C. Airway Management</b>				11. Curved laryngoscope blades -			
1. Clear oxygen masks -				a. Size 2			
a. Preterm/neonatal size				b. Size 3			
b. Infant size				12. Straight laryngoscope blades -			
c. Child size				a. Size 0			
2. Non-rebreathing masks -				b. Size 1			
a. Infant size				c. Size 2			
b. Child size				d. Size 3			

<sup>1</sup> May be satisfied by a disposable ETCO<sub>2</sub> detector, bulb, or feeding tube methods for endotracheal tube placement.

<sup>2</sup> May be satisfied by standard bone marrow aspiration needles, 13- or 15-gauge.

<sup>3</sup> Available within the hospital

**Section II - YOUR HOSPITAL EMERGENCY DEPARTMENT - Continued**

**EMERGENCY SUPPLIES - Continued**

**C. Airway Management - Continued**

13. Magill forceps, pediatric

14. Nasogastric tubes -

a. Size 5 Fr ["smaller sizes"]

b. Size 6 Fr

c. Size 8 Fr

d. Size 10 Fr

e. Size 12 Fr

f. Size 14 Fr

15. Flexible suction catheters -

a. Size 5/6 Fr

b. Size 8 Fr

c. Size 10 Fr

d. Size 12 Fr

16. Chest tubes -

a. Size 8 Fr ["smaller sizes"]

b. Size 10 Fr

c. Size 12 Fr

d. Size 14 Fr

e. Size 16 Fr

f. Size 18 Fr

g. Size 20 Fr

h. Size 22 Fr

i. Size 24 Fr

j. Size 26 Fr

17. Tracheostomy tubes -

a. Size 00 ["smaller sizes"]

b. Size 0

c. Size 1

d. Size 2

e. Size 3

f. Size 4

g. Size 5

h. Size 6

YES NO

**D. Resuscitation medications**

Medication chart, tape, or other system for dose estimations

YES NO

**E. Specialized pediatric trays**

1. Tube thoracotomy with water seal drainage capability

2. Lumbar puncture -

a. Spinal needle size 20-gauge

b. Spinal needle size 22-gauge

c. Spinal needle size 25-gauge

3. Urinary catheterization w/pediatric Foley catheters

a. Size 5/6 Fr

b. Size 8 Fr

c. Size 10 Fr

d. Size 12 Fr

4. Obstetric pack

5. Newborn kit -

a. Umbilical vessel cannulation supplies

b. Meconium aspirator

6. Venous cutdown

7. Surgical airway kit<sup>4</sup>

**F. Fracture management**

1. Cervical immobilization equipment -

a. Infant size<sup>5</sup>

b. Child size

2. Extremity splints

3. Femur splints: child size

**G. Miscellaneous**

1. Infant scales

2. Infant formula

3. Oral rehydrating solutions

4. Heating source (infrared lamps or overhead warmer), Isolette

5. Pediatric restraining devices

6. Resuscitation board

7. Sterile linen (available within hospital for burn care)

8. Medical photography capability

Please continue in next column

<sup>4</sup>May include any of the following items: tracheostomy tray, cricothyrotomy tray, ETJV (needle jet).

<sup>5</sup>Many types of cervical immobilization devices are available. These include wedges and collars. The type of device chosen depends on local preference and policies and procedures. Whatever device is chosen should be stocked in sizes to fit infants, children, adolescents and adults. The use of sandbags to meet this requirement is discouraged because they may cause injury if the patient has to be turned.

**NOTE**

Please estimate the amount of time it took to complete this entire form, that is, both the questions and the list of items.

Minutes

Remarks

Blank area for handwritten remarks.

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**Suggested citation**

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