Child Passenger Safety: An Assessment of Emergency Nurses' Knowledge and Provision of Information in the Emergency Department

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Introduction: Each year, more than 130,000 children younger than 13 years are treated in the emergency department after evaluation of injuries sustained from motor vehicle crashes (MVCs). Many of these injuries can be prevented with use of child restraints. In this study we sought to assess emergency nurses' knowledge of child passenger safety (CPS) and its use to keep children safe while traveling in motor vehicles.

Methods: A cross-sectional anonymous study was distributed electronically to 530 emergency nurses who were asked to forward the survey link to other emergency nurses through snowball sampling. The target population included full-time and part-time emergency nurses, including nurse practitioners caring for pediatric patients. Emergency nurses' CPS knowledge, attitudes, and practices were ascertained.

Results: Nine hundred eighty-four emergency nurses completed a Web-based survey. All 6 CPS knowledge and scenario-based items were answered correctly by only 18.8% of the sample; these respondents were identified as the "high knowledge" group. Similarly, ED nurses rarely addressed CPS during ED visits in the prior 6 months. Those with high knowledge were more likely to be confident about providing recommendations for CPS topics.

Discussion: Emergency nurses can improve their knowledge and provision of CPS in the emergency department, particularly for children presenting for care following MVCs. These results identify opportunities to increase the knowledge and confidence of emergency nurses in providing CPS information to parents seen in the emergency department, especially those involved in MVCs. The gap in knowledge can be overcome by providing the nurses with increased CPS-focused educational opportunities.

Key words: Child passenger safety; Child restraint systems; Car seats; Emergency department; Emergency nurses

Motor vehicle crashes (MVCs) remain the leading cause of death for children ages 3 to 14 years[1] and are a significant reason for pediatric emergency care across the United States.[2] Each year more than 130,000 children younger than 13 years are treated and released from United States emergency departments for evaluation of injuries sustained as occupants of vehicles in MVCs.[3] Research shows that age- and size-appropriate child restraint use is the most effective method for reducing child passenger injuries and deaths in the event of a crash.[4,5] Each of these ED visits offers a chance for an emergency nurse to be an advocate for child passenger safety (CPS). For many persons, the emergency department may be the only source of care, and thus their only opportunity to receive health care services.[6] Emergency nurses are afforded a unique opportunity to prevent future injuries by taking advantage of "teachable moments" in the emergency department; these moments are an ideal time to educate parents and caregivers about how to keep children safe while traveling in motor vehicles. Encounters in the emergency department, whether routine or precipitated by a traumatic event such as an MVC, provide a perfect setting for this educational opportunity.[7]

Although recent similar studies have been conducted with pediatricians, emergency physicians, and pediatric emergency physicians, none has been focused on emergency nurses.[8–10] Therefore, the aim of this study was to evaluate emergency nurses' self-reported knowledge of CPS and

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whether they routinely address car seat safety for their pediatric patients in the emergency department.

Methods

STUDY DESIGN

This cross-sectional anonymous survey was deemed exempt from review by our Institutional Review Board. The requirement for written consent was waived, and consent was implied by completion of the survey.

STUDY SETTING AND SAMPLE

The survey was initially distributed electronically to 530 emergency nurses whose E-mail addresses were known to the authors. Using snowball sampling, these nurses were then asked to forward the survey link to other emergency nurses. Participants were eligible if they attested to being a currently practicing emergency nurse or nurse practitioner who cared for pediatric patients in an ED setting (including pediatric and general emergency departments). Participants were excluded if they worked in the EMS setting, were nurse-faculty, or worked in an adult-only emergency department.

SURVEY CONTENT AND ADMINISTRATION

Content

The 22-item survey included multiple-choice, Likert scale, and free text questions (scenarios). For reliability and validity of data, the survey questions were piloted with a number of experts who had extensive epidemiology and mixed methods survey experience. The questions, which originally were used in a study to assess pediatricians' knowledge of child passenger safety, were adapted for the emergency nurses research project.[10]

Two knowledge-based and 4 scenario-based questions focused on the updated National Highway Traffic Safety Administration (NHTSA) and American Academy of Pediatrics (AAP) recommendations.[11,12] Three hypothetical scenarios were used to assess self-knowledge of CPS. The CPS topics were selected in reference to the following NHTSA and AAP recommendations: (1) keep children rear facing until age 2 years or when they reach the upper height and weight limits of the car seat; (2) use a forward-facing car seat with a 5-point harness until the child reaches the manufacturer-specified height and weight limit; (3) children should use a booster seat once they outgrow their child seat or until the seat belts fit them properly; (4) children younger than 13 years should sit in the rear vehicle seat; and (5) a car seat should be replaced after a moderate or severe crash even if no signs of damage to the car seat are visible. The complete survey questionnaire is available from the authors upon request.

Emergency nurses were categorized as having "high knowledge" if they answered correctly the 2 knowledge-based and 4 scenario-based questions (ie, a correct response to hypothetical questions posed by parents) and "lower knowledge" if they answered one or more questions incorrectly.

Administration

The electronic survey was distributed using the electronic software Research Electronic Data Capture (REDCap).[13] The survey required approximately 5 to 10 minutes to complete. The survey was available online for 60 days, from November 30, 2014, through January 31, 2015. After the initial E-mail message was sent, a reminder E-mail message was sent out 30 days before the end of the survey, after which time it was no longer available. No incentive was provided for participation.

OUTCOME MEASURES

Data related to participant demographics were collected. Outcome measures included self-reported knowledge of current NHTSA and AAP policy statements and CPS recommendations, frequency of addressing CPS during ED visits, confidence in providing recommendations, and barriers to providing recommendations.

DATA ANALYSIS

Data from REDCap were downloaded into Stata (version 10.0, StataCorp, College Station, TX) to conduct the analyses. Standard descriptive summaries were used to summarize demographic variables. Categorical variables were compared using χ^2 and Fisher's exact tests. P values $< .05$ were considered statistically significant.

Results

Nine hundred eighty-four persons completed the survey, including 103 who were determined to be ineligible based on their response to the first survey question regarding their role in ever caring for children in the emergency department, and 9 did not complete the survey beyond the first few questions. The final study sample included 872 respondents. The demographic information of the 872 who were eligible and completed the survey is shown in Table 1. The majority of the sample was female, and the sample had a fairly even distribution of years of working as an emergency nurse. Most worked in a level I or II trauma center, and only a small percentage had finished a CPS course in the past 2 years.