The Journal of Emergency Medicine, Vol. ■, No. ■, pp. 1–8, 2017

0736-4679/$ - see front matter

http://dx.doi.org/10.1016/j.jemermed.2017.02.011

Administration of Emergency Medicine

# THE IMPACT OF A PEDIATRIC EMERGENCY DEPARTMENT FACILITY VERIFICATION SYSTEM ON PEDIATRIC MORTALITY RATES IN ARIZONA

Amber Rice, MD, MS,* Jennifer Dudek, MPH,† Toni Gross, MD, MPH,‡ Tomi St Mars, MSN, RN,† and Dale Woolridge, MD, PHD*‡

*Department of Emergency Medicine, University of Arizona College of Medicine, Tucson, Arizona, †Arizona Department of Health Services, Phoenix, Arizona, and ‡Department of Pediatrics, University of Arizona College of Medicine, Tucson, Arizona

Reprint Address: Dale Woolridge, MD, PHD, Department of Emergency Medicine, University of Arizona College of Medicine, 1501 N. Campbell Ave, Tucson, AZ 85724-5057

□ **Abstract—Background: The Emergency Medical Services for Children State Partnership Program, as well as the Institute of Medicine report on pediatric emergency care, encourages recognition of emergency departments (EDs) through categorization and verification systems. Although pediatric verification programs are associated with greater pediatric readiness, clinical outcome data have been lacking to track the effects and patient-centered outcomes by implementing such programs. Objective: To describe pediatric mortality rates prior to and after implementation of a pediatric emergency facility verification system in Arizona. Methods: This was a cross-sectional study conducted using data from ED visits between 2011 and 2014 recorded in the Arizona Hospital Discharge Database. The primary outcome measure was the mortality rate for ED visits by patients under 18 years old. Rates were compared prior to and after facility certification by the Arizona Pediatric Prepared Emergency Care program. Results: The total number of ED visits by children during the study period was 1,928,409. Of these, 1,127,294 were at facilities undergoing certification. For hospitals becoming certified, overall ED mortality rates were 35.2 deaths/100,000 ED visits (95% confidence interval [CI] 29.5–41.7) in the precertification analysis and 34.4 deaths/100,000 ED visits (95% CI 30.4–38.9) in the postcertification analysis. The injury-related ED visit mortality rate for certified hospitals showed a decrease from 40.0 injury-related deaths/100,000 ED visits (95% CI 28.6–54.4) in the precertification analysis to 25.8 injury-related deaths/100,000 ED visits (95% CI 18.7–34.8) in the postcertification analysis. Conclusion: The implementation of the Arizona pediatric ED verification system was associated with a trend toward lower mortality. These results offer a platform for further research on pediatric ED preparedness efforts and their effects on improved patient outcomes.** © 2017 Elsevier Inc. All rights reserved.

□ **Keywords—pediatric emergency care; mortality rates; Institute of Medicine; facility verification; Pediatric Prepared Emergency Care; injury mortality; trauma systems**

## INTRODUCTION

### *Background*

Since the creation of the federal Emergency Medical Services (EMS) for Children program in 1984, there has been a national focus on improving emergency care for children. Early reports on the emergency care of children emphasized a concern that many facilities were poorly equipped to adequately care for ill or injured children. Additional findings showed that plans for medical staffing, prehospital protocols, and disaster protocols also failed to include the special needs of children (1).

Data from this study was presented at the American College of Emergency Physicians Annual Conference, October 18, 2016 in Las Vegas, Nevada.

RECEIVED: 8 October 2016; FINAL SUBMISSION RECEIVED: 2 February 2017;
ACCEPTED: 25 February 2017

In 1993, the Institute of Medicine (IOM) delivered its first independent review of EMS for children, creating a report outlining deficiencies and providing recommendations for improving the state of pediatric emergency care (2). Since that report, numerous studies have continued to illuminate a general lack of readiness to care for pediatric patients at emergency departments (EDs) across the country (1,3–6). The American Academy of Pediatrics and the American College of Emergency Physicians defined the baseline of pediatric readiness in EDs in a joint policy statement published in 2001, and updated with the Emergency Nurses Association in 2009 (7,8).

In a 2002–2003 survey, only 5.5% of EDs had all recommended pediatric supplies in stock. Of these, only one-half had more than 85% of recommended supplies (9). In a follow-up study of 2006 data, there had been little progress, with similar numbers of hospitals carrying the recommended supplies needed to deliver appropriate care for children (10). The presence of a nurse or physician pediatric emergency care coordinator has been shown to lead to greater readiness (6,11). Despite evidence and strong recommendations for designating a pediatric emergency care coordinator, compliance with this recommendation was shown to be extremely low (6,12). Although many studies have suggested that the needs of pediatric patients are not being met, there are few definitive data to establish a link between pediatric readiness and clinical outcomes (10,13).

The EMS for Children State Partnership Program, as well as the IOM report on pediatric emergency care, encourages recognition of EDs through categorization and verification systems. At least 14 states have developed a regional or statewide verification system for EDs that provide pediatric emergency services. These programs aim to provide well-defined standards (as outlined in the IOM report) mandating critical resources required to provide effective care. A report on the California pilot program, where EDs must meet specific standards to be an approved pediatric center, indicated that pediatric readiness scores are improved when a region uses a pediatric facility verification process. The California data also noted that trauma center verification was not independently associated with pediatric readiness scores, indicating that the pediatric verification program in and of itself has the ability to drive improved pediatric emergency care (14). In a national analysis, states achieving the highest readiness scores were those whose processes included a physical verification with a site visit to the institution (11,14,15).

### *Importance*

In the United States, it is estimated that only 18% of all pediatric visits are to pediatric EDs (16). Therefore, the majority of ED visits by children are to general hospital EDs, which in turn have variable pediatric volume and resources and are less likely to have health care providers that have focused training in pediatric emergency medicine (3–6,11,12,14,17). Children's hospitals with advanced capabilities are well prepared to take care of sick and injured children, but these facilities represent only 2.6% of all hospitals with an ED (17). The majority of EDs in the United States see a relatively low pediatric volume, hence, the recommendations to regionalize pediatric emergency services (6,18). Because children comprise only 5–10% of EMS calls, many pediatric patients are brought to EDs by a parent, which may be based upon the most geographically convenient location. This underscores the importance of compliance with well-established guidelines for all EDs that care for children. Although pediatric verification programs have been associated with greater pediatric readiness, clinical outcome data have been lacking to track the effects and patient-centered outcomes by implementing such programs (14).

### *Goals of This Investigation*

The aim of this study was to describe pediatric health outcomes by measuring ED visit mortality rates prior to and after implementation of a voluntary statewide pediatric emergency facility verification program. The hypothesis was that lower pediatric mortality rates would be associated with facilities undergoing certification by the program.

## MATERIALS AND METHODS

### *Study Design and Setting*

This was a cross-sectional study conducted using data from ED visits and inpatient hospitalizations between 2011 and 2014, using the Arizona Hospital Discharge Database (AHDD). This study was deemed exempt by The University of Arizona Human Subjects Protection Program (Institutional Review Board approval #1607750645).

The Arizona Pediatric Prepared Emergency Care (PPEC) program is a three-tiered voluntary verification system that was officially launched in Arizona in 2012 (19). Its goal, following the tenets of the IOM report on pediatric emergency care, is to improve the delivery of medical care to children in EDs throughout Arizona. Since its inception, it has expanded to include 36 hospitals with EDs in the state. This constitutes nearly half of all Arizona EDs, including rural and tribal facilities. The program's levels are designated as: Pediatric Prepared, Pediatric Prepared Plus, and Pediatric Prepared Advanced. The higher levels of care include, among other

factors, a higher level of certification among physicians, medical and nursing management, and higher expectations concerning nursing training, quality improvement, continuing education, and community outreach. The advantages of the PPEC program are that it enables member EDs across the state to achieve a higher standard of pediatric care, and to facilitate the sharing of information through the established network (19). A detailed description of the Arizona program has been previously published (19).

*Selection of Participants*

ED visits by children (age < 18 years) between January 2011 and December 2014 were identified in the AHDD. Records were included in the analysis if the patient was younger than 18 years of age at the time of the visit, calculated from the date of birth and date of visit.

Within the AHDD, the Arizona Department of Health Services collects hospital discharge records for inpatient and ED visits from all licensed hospitals in the state of Arizona. All licensed hospitals (i.e., regulated by the Arizona Department of Health Services) are required to report; however, hospitals such as Veterans Administration, Department of Defense, and those located on tribal land are not included in the reporting. The AHDD does not contain data from urgent care facilities, private physician practices, or medical clinics. Hospital discharge data include discharges, hospital admissions, hospital transfers, readmissions, and deaths. A single individual may be counted more than once as an ED visit if transferred to another facility; however, death as an outcome would be reported only for the last treatment facility. Therefore, these data should be interpreted as episodes of medical treatment.

*Methods and Measurements*

Hospitals that underwent PPEC certification between January of 2011 and December of 2014 were identified and included in the pre-/postcertification analysis. Those records prior to site visit approval were included in the precertification group, and once facilities were approved, all subsequent records during the months of certification were included in the postcertification group. The month of site visit approval was included in the postcertification data. ED visits were classified as injury related if the record was assigned an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) External Cause of Injury Code (E-Code) or an injury diagnosis (ICD-9 codes 800–999, excluding noninjury codes; E000–E030, E849, E870–E879, or E930–E949) in the principal diagnosis field.

*Outcome Measures*

The primary outcome measure was ED visit mortality rate. The secondary outcome was injury-related ED mortality rate.

*Primary Data Analysis*

To determine if hospitals certified by the facility verification process demonstrated improved mortality after certification compared with prior to certification, aggregate outcomes for certified hospitals were compared between the precertification periods and the postcertification periods. Analysis was executed for all ED visits and for injury-related ED visits in patients < 18 years of age.

The pediatric ED visit mortality rates were calculated by the number of ED visits with discharge category of death divided by total number of ED visits. Rates are reported per 100,000 ED visits, with associated 95% confidence intervals (CI). The data analysis was performed using SAS software, Version 9.4 of the SAS System (Copyright 2013; SAS Institute Inc., Cary, NC).

## RESULTS

The total number of ED visits by children from 2011–2014 was 1,928,409. During the time period of this data collection, 21 hospital-based EDs underwent the facility verification process, and were certified within the PPEC system with a mean certification date of February 2013 (19). Of these, seven sites were designated as Prepared Advanced Centers, four were Prepared Plus Centers, and 10 were Prepared Centers. Together, the hospitals that attained certification include a variety of hospital types, including both community and academic hospitals, health care networks, and Level I, Level III, and Level IV trauma centers. Data analysis includes a total of 2160 hospital months in the noncertified group (45 noncertified hospitals), 599 hospital months in the precertified group, and 457 hospital months in the postcertified group (21 certified hospitals) (Figure 1).

Overall Arizona childhood mortality rate for all ED visits submitted to the AHDD calculated over the entire study period (2011–2014) was 34.1 deaths per 100,000 visits. For certified hospitals, mortality rate for all ED visits prior to certification was 35.2 deaths/100,000 ED visits and 34.4 deaths/100,000 ED visits after certification, although this change was not statistically significant (Table 1).

Facilities certified by the PPEC program saw a decrease in injury-related ED mortality between the pre- and postcertification time periods. There were 488,480 injury-related ED visits during the entire study period, which represents 25.3% of all emergency visits

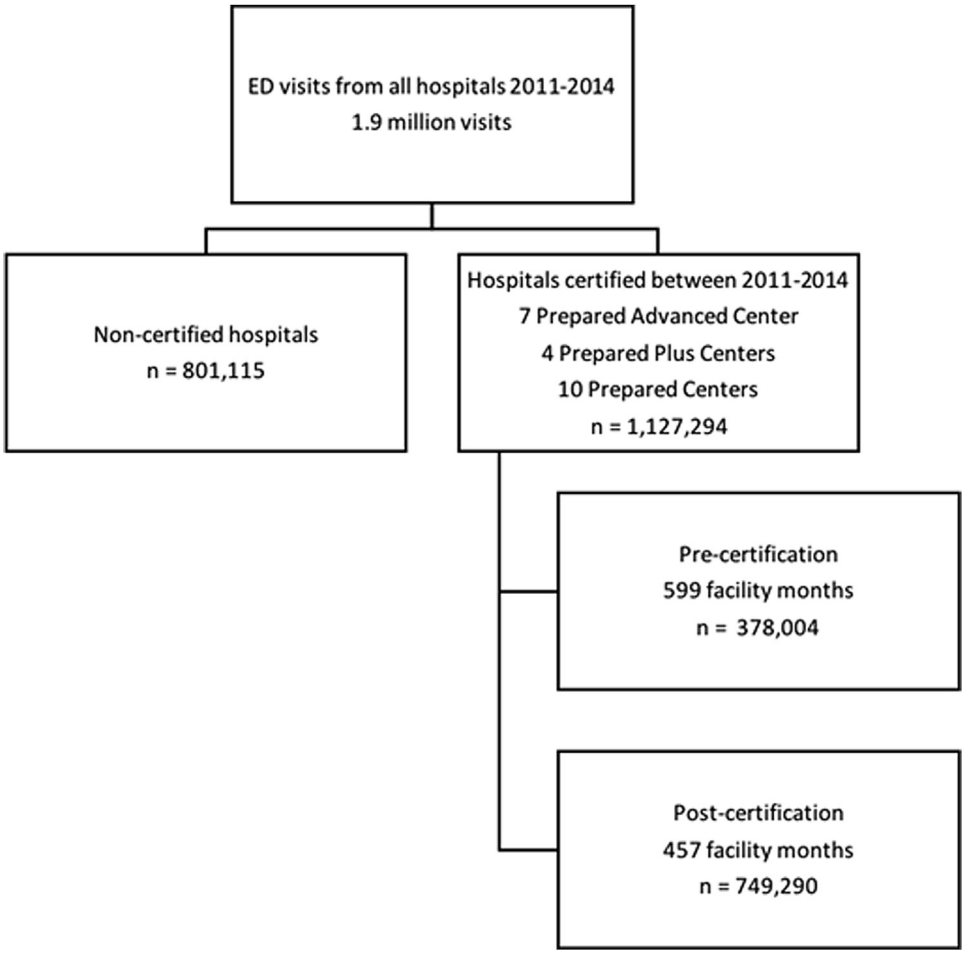


**Figure 1. Data analysis for Pediatric Prepared Emergency Care-certified hospitals pre- and postcertification emergency department (ED) visits.**

by children. Injury-related mortality accounted for 21.1% of the total mortality for all emergency visits by children. In hospitals that were certified during the 2011–2014 time period, the mortality rate for injury-related ED visits decreased from 40/100,000 (95% CI 28.6–54.4) to 25.8/100,000 (95% CI 18.7–34.8) injury-related ED visits (Figure 2).

**Table 1. The Impact of a Pediatric Emergency Department Facility Verification System on Pediatric Mortality Rates in Arizona**

| 2011-2014 Certified Hospitals | | | | |
|---|---|---|---|---|
| Total Arizona Pediatric ED Visit Mortality Rate (Deaths/100,000) | | | | |
| | Deaths | Total visits | Deaths/ 100,000 | 95% CI |
| Precertification | 133 | 378,004 | 35.2 | 29.5–41.7 |
| Postcertification | 258 | 749,290 | 34.4 | 30.4–38.9 |
| Noncertified | 266 | 801,115 | 33.2 | 29.2–37.3 |

ED = emergency department; CI = confidence interval.

## DISCUSSION

Over the past several decades there have been attempts to improve outcomes for pediatric emergency care by creating facility verification programs. Given the lack of clinical outcome data to relate verification programs to improvements in pediatric outcomes, it has been difficult for the national pediatric readiness movement to promote the costlier yet more effective methods of site inspection and verification felt to be integral to the Arizona PPEC program, as well as other verification systems, such as the American College of Surgeons (ACS) trauma system. Given the trends we have seen in Arizona since the initiation of PPEC, it seems that readiness systems that include a facility verification program and ongoing performance measures can lead to improvements in pediatric mortality.

PPEC is a three-tiered voluntary facility verification program that began in 2012, and at the time of writing this article, includes over half of all EDs in Arizona. The implementation of this program was associated

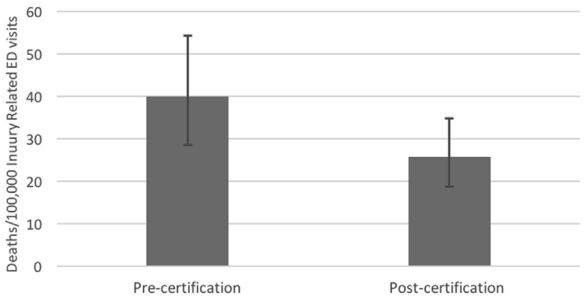


**Figure 2. Arizona pediatric injury-related emergency department (ED) mortality rate (deaths/100,000 injury-related visits) for Pediatric Prepared Emergency Care-certified hospitals, pre- and postcertification.**

with a decrease in pediatric injury-related mortality rates in hospitals that have become part of this voluntary program. Although similar outcomes were not observed for ED visits overall, this study offers valuable evidence toward supporting pediatric emergency facility verification programs.

The ability to show a larger improvement in injury-related mortality compared with overall mortality is likely related to the fact that injury is the leading cause of death in children. The next most common causes of death in children include disorders related to short gestation and low birth weight in infants, congenital malformations in infants and children ages 1–4 years, and cancer in children 5–14 years of age (20). Although children with these conditions may receive treatment in EDs during their lifetime, the impact of emergency care on mortality related to these conditions may be less direct.

Examining the attributes of the PPEC program that could be associated with the improved survival noted after certification will require additional years of data collection to study specific factors. We suspect that key aspects of the verification program's success include assurance of appropriate supplies and medications, presence of transfer agreements and guidelines to assure timely and appropriate transfers to higher levels of care when indicated, and the sharing of treatment guidelines between all facilities within the program. The site visits in particular provide an opportunity for the certification team to observe and share best practices from one facility with other member facilities. Member hospitals have access to a listserv where policies and guidelines are shared, allowing for standardization across Prepared, Prepared Plus, and Prepared Advanced facilities.

Overall statewide mortality rates and injury mortality rates for all hospitals during the years covering the precertification and postcertification periods (2011 through 2014) did not trend, and in fact, varied with wide confidence intervals that overlapped considerably (data not shown). As the mean date of certification in the certified hospitals was February 2013, those years that best approximated and therefore serve as a comparison with the certification centers during the pre- and postcertification periods was 2011–2012 and 2013–2014, respectively. Arizona trauma center case fatality rates as reported by the Arizona Department of Health Services were essentially unchanged between these 2-year periods (21). Mortality rates and injury mortality rates in the noncertified hospitals during the 2011–2012 and 2013–2014 time periods are shown in Table 2. Here we see a decrease in the overall mortality rate but an increase in injury-related mortality for the noncertified centers (Table 2). This is opposite to that where a decrease in injury-related mortality was seen in the postcertification time periods for the certified centers (Figure 2), suggesting that the decrease seen in the certified hospitals was associated with the verification and certification process rather than extraneous trends. Unfortunately, limitations of the database source prevented any ability to perform modeling to determine how much this may have confounded conclusions.

It is possible that improved survival at certified facilities could be influenced by factors not associated with the PPEC program. Facilities that were likely to pursue certification may have been more ambitious or better performing EDs prior to program implementation. This would suggest a selection bias toward more pediatric-oriented centers. In addition, the determination of the transition of a facility from precertified to postcertified was chosen to be the month when the facility gained approval from the site visiting team. This "go-live date," however, is unlikely to fully capture the gradual implementation of compliance measures. In many instances, facilities would implement improvement measures a number of months before the actual site visit occurred. Any improvement in processes occurring prior to the determined postcertification date, however, would have diminished the differences demonstrated by our analysis, thereby strengthening our conclusion that pediatric mortality rates were improved after facility certification.

**Table 2. The Impact of a Pediatric Emergency Department Facility Verification System on Pediatric Mortality Rates in Arizona**

| 2011–2014 Noncertified Hospitals | | |
|---|---|---|
| Calendar Year | Rate/100,000 ED visits | 95% CI |
| Noncertified injury mortality rate | | |
| 2011–2012 | 21.7 | 11.6–37.3 |
| 2013–2014 | 32.7 | 19.4–51.8 |
| Noncertified mortality rate | | |
| 2011–2012 | 37 | 29.3–46.3 |
| 2013–2014 | 28.8 | 21.7–37.4 |

ED = emergency department; CI = confidence interval.

Because the larger difference in mortality is noted for injury-related ED visits, it is possible that a facility's status as a trauma center could have an impact on mortality rates. Most of the facilities' trauma certification occurred either prior to this study period or during the PPEC precertification time period, rather than during the postcertification time period. Sixteen of the 21 facilities that became PPEC certified during the study period were also state-certified or ACS-verified trauma centers. Of these, all of the Level I trauma centers (n = 4) were ACS trauma certified years prior to this study time frame. Of the Level III-designated trauma centers that became PPEC certified (n = 3), one was trauma certified prior to the study period and the other two were trauma certified 6 months after PPEC certification. Of the Level IV trauma centers within the PPEC certification group (n = 9), two were certified years prior to the study period and the other seven received trauma certification over 1 to 2 years prior to PPEC certification. Based on this disparity of trauma vs. PPEC certification, it would be difficult to imply this observed decrease in mortality would be due largely to trauma designation or trauma-level status. This assertion is consistent with previous research that has demonstrated that ED pediatric readiness is independent of trauma center verification status (14). Similarly, seven of the certified centers have inpatient pediatric intensive care unit services, yet all of these units were in place years prior to the study time frame, thus advocating that the presence of inpatient critical care was not a confounding factor of our observed mortality improvement.

*Limitations*

The authors appreciate several limitations to this study. There are relatively few pediatric deaths, compared with the large number of overall ED visits. The choice of mortality as an outcome limits the ability to show a difference between groups because children are generally healthy and resilient; therefore, death is a relatively infrequent outcome. The benefits to using mortality as an outcome, however, include that it can be discretely measured, is reported within existing databases, and is easily analyzed as a dichotomous outcome. Other measures of quality of pediatric emergency care, including timely and effective care, appropriate use of testing, return for care during same illness episode, adverse outcomes or complications of procedures, and adherence to published clinical guidelines, are much more difficult to measure (22). Due to the small number of deaths and limitations of the dataset, we are unable to complete meaningful analyses of subgroups, including age groups and more specific diagnosis groups. As there are multiple elements of the PPEC program, relative effects of each element of the program, whether it be equipment or medications, staff and physician training requirements, or institutionally placed performance tracking and quality improvement programs, cannot be determined.

The analysis is further limited by our inability to use illness and injury severity criteria to control for mortality. The AHDD does not include injury severity scores, respiratory severity scores, or details about comorbidities. In addition, clinical details of the patient's status at arrival are not included. In future analyses, it may be possible to use probabilistic linkage to acquire this information from other data sources. As this is a retrospective study based on a data set not specifically designed for research, a future prospective study would be more definitive.

Another limitation is due to AHDD inclusion criteria. There are four tribal facilities that have joined the program since 2011. The AHDD does not include information from Indian Health Services facilities and, as such, our data set does not include mortality data from these facilities. Although this was not seen as likely to change the statistical significance of our data set, we are not able to comment on the impact this program has had in our tribal facilities. Similarly, we did not analyze transfers as a subgroup. Only 0.1% of all ED visits by children in the data set were transfers from another hospital, and one death was included in this group. It is not known if this record involved transfer to or from a certified facility.

## CONCLUSION

The implementation of the Arizona PPEC emergency facility verification system was associated with a trend toward lower mortality. This study provides an example for methods that could be replicated to measure the effectiveness of other facility verification programs. Further research is needed to innovate, improve, and optimize these verification programs. Continued demonstration of the positive effects on pediatric health outcomes will spur the creation of programs such as this across the United States, improving emergency care for children.

*Acknowledgment*—This project was supported in part by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under EMSC Partnership Grant: H33MC06690. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

## REFERENCES

1. Seidel JS, Hornbein M, Yoshiyama K, Kuznets D, Finklestein JZ, St Geme JW Jr. Emergency medical services and the pediatric patient: are the needs being met? Pediatrics 1984;73:769–72.

2. Institute of Medicine. Emergency medical services for children. Washington, DC: The National Academies Press; 1993.
3. Athey J, Dean JM, Ball J, Wiebe R, Melese-d'Hospital I. Ability of hospitals to care for pediatric emergency patients. Pediatr Emerg Care 2001;17:170–4.
4. Bourgeois FT, Shannon MW. Emergency care for children in pediatric and general emergency departments. Pediatr Emerg Care 2007;23:94–102.
5. Gausche M, Rutherford M, Lewis RL. Emergency department quality assurance/improvement practices for the pediatric patient. Ann Emerg Med 1995;25:804–8.
6. Gausche-Hill M, Schmitz C, Lewis RJ. Pediatric preparedness of US emergency departments: a 2003 survey. Pediatrics 2007;120: 1229–37.
7. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine and American College of Emergency Physicians, Pediatric Committee. Care of children in the emergency department: guidelines for preparedness. Pediatrics 2001;107: 777–81.
8. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine, American College of Emergency Physicians, Pediatric Committee, Emergency Nurses Association Pediatric Committee. Joint policy statement-guidelines for care of children in the emergency department. Pediatrics 2009;124:1233–43.
9. Middleton KR, Burt CW. Availability of pediatric services and equipment in emergency departments: United States, 2002–03. Adv Data 2006;(367):1–16.
10. Schappert SM, Bhuiya F. Availability of pediatric services and equipment in emergency departments: United States, 2006. Natl Health Stat Report 2012;(47):1–21.
11. Gausche-Hill M, Ely M, Schmuhl P, et al. A national assessment of pediatric readiness of emergency departments. JAMA Pediatr 2015; 169:527–34.
12. Sullivan AF, Rudders SA, Gonsalves AL, Steptoe AP, Espinola JA, Camargo CA Jr. National survey of pediatric services available in US emergency departments. Int J Emerg Med 2013;6:13.
13. Densmore JC, Lim HJ, Oldham KT, Guice KS. Outcomes and delivery of care in pediatric injury. J Pediatr Surg 2006;41:92–8. discussion 92–8.
14. Remick K, Kaji AH, Olson L, et al. Pediatric readiness and facility verification. Ann Emerg Med 2016;67:320–3281.
15. Ely M. An analysis of state pediatric emergency department designation systems. QI Collaborative Expert Panel Meeting. National Emergency Medical Services for Children Database Analysis Resource Center. DoubleTree by Hilton Hotel, Bethesda, MD. Presented February 18, 2016.
16. Institute of Medicine (IOM). IOM report: the future of emergency care in the United States health system. Acad Emerg Med 2006; 13:1081–5.
17. Burt CW, Middleton KR. Factors associated with ability to treat pediatric emergencies in US hospitals. Pediatr Emerg Care 2007;23:681–9.
18. Institute of Medicine Committee on the Future of Emergency Care in the US. Emergency care for children: growing pains. Washington, DC: National Academy Press; 2007.
19. Smith N, St Mars T, Woolridge D. Arizona's emergency medical services for children pediatric designation system for emergency departments. J Emerg Med 2016;51:194–200.
20. Xu J, Murphy SL, Kochanek KD, Bastian BA. Deaths: final data for 2013. Natl Vital Stat Rep 2016;64:1–119.
21. Arizona Department of Health Services. State Trauma Advisory Board Annual Reports. Available at: http://www.azdhs.gov/preparedness/emergency-medical-services-trauma-system/index.php#data-quality-assurance-reports. Accessed January 16, 2017.
22. Alessandrini E, Varadarajan K, Alpern ER, et al. Emergency department quality: an analysis of existing pediatric measures. Acad Emerg Med 2011;18:519–26.

## ARTICLE SUMMARY

**1. Why is this topic important?**

The majority of children obtain emergency services in general emergency departments that have been shown to oftentimes lack critical resources to care for children. Pediatric verification programs are associated with greater pediatric readiness, yet clinical outcome data have been lacking to track the effects and patient-centered outcomes by implementing such programs. This report attempts to offer such data.

**2. What does this study attempt to show?**

This study attempts to show that a pediatric readiness program through the use of membership criteria and on-sight verification results in decreased injury-related mortality in children.

**3. What are the key findings?**

Our investigation has demonstrated that membership and participation in a pediatric readiness program is associated with a decrease in injury-related mortality.

**4. How is patient care impacted?**

It is our belief that these findings will result in an increased awareness to the benefit of pediatric readiness with pediatric facility recognition both regionally and nationally.