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POLICY STATEMENT

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Pediatric Readiness in Emergency Medical Services Systems

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*A joint policy statement of the American Academy of Pediatrics, American College of
Emergency Physicians, Emergency Nurses Association, National Association of Emergency
Medical Services Physicians, and National Association of Emergency Medical Technicians*

POLICY STATEMENT

Organizational Principles to Guide and Define the Child Health Care System
and/or Improve the Health of All Children

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ABSTRACT. This is a joint policy statement from the American Academy
of Pediatrics, American College of Emergency Physicians, Emergency
Nurses Association, National Association of Emergency Medical Services
Physicians, and National Association of Emergency Medical Technicians

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on pediatric readiness in emergency medical services systems.

ABBREVIATIONS: ED, emergency department; EMS, emergency medical services.

INTRODUCTION

Out-of-hospital emergency care typically involves emergency medical technicians, paramedics, and other licensed medical providers who work in emergency medical services (EMS) systems on ground ambulances and fixed or rotor-wing aircraft that are dispatched to an emergency when either a bystander calls 911 or when a patient requires interfacility transport for a medical illness or traumatic injury. Because out-of-hospital emergency care of children plays a critical role in the continuum of health care that also involves primary prevention, hospital-based acute care, rehabilitation, and return to the medical home, the unique needs of children must be addressed by EMS systems.¹⁻⁵ Pediatric readiness encompasses the presence of equipment and medications, usage of guidelines and policies, availability of education and training, incorporation of performance improvement practices, and integration of EMS physician medical oversight to equip EMS systems to deliver optimal care to children.⁶⁻⁸ It has been shown that emergency departments (EDs) are more prepared to care for children when a pediatric emergency care coordinator is responsible for championing and making recommendations for policies, training, and resources pertinent to the emergency care of children.^{9,10} The specialty of EMS medicine has the potential to derive similar benefits when members of the EMS community are personally invested in pediatric patient care. Although a critical aspect of pediatric readiness in EMS involves strong EMS physician oversight of these investments, a discussion of physician oversight of pediatric care in EMS is outside the scope of this article. This topic is, however, well addressed in the National Association of Emergency Medical Services Physicians position statement “Physician Oversight of Pediatric Care in Emergency Medical Services.” This policy statement is accompanied by a technical report published simultaneously.¹¹

RECOMMENDATIONS

To provide infrastructure designed to support the out-of-hospital emergency care of children, the American Academy of Pediatrics, American College of Emergency Physicians, Emergency Nurses Association, National Association of Emergency Medical Services Physicians, and National Association of Emergency Medical Technicians believe that EMS systems and agencies should undertake the following:

- Include pediatric considerations in EMS planning and development of pediatric EMS dispatch protocols, operations, and physician oversight; for example, as outlined in the National Association of Emergency Medical Services Physicians position statement “Physician Oversight of Pediatric Care in Emergency Medical Services”¹
- Collaborate with medical professionals with significant experience or expertise in pediatric emergency care, public health experts, and family advocates for the development and improvement of EMS operations, treatment guidelines, and performance improvement initiatives²
- Integrate evidence-based, pediatric-specific elements into the direct and indirect medical oversight that constitute the global EMS oversight structure⁴
- Have pediatric-specific equipment and supplies available, using national consensus recommendations as a guide, and verify that EMS providers are competent in using them^{3,4,12-15}
- Develop processes for delivering comprehensive, ongoing pediatric-specific education and evaluating pediatric-specific psychomotor and cognitive competencies of EMS providers^{13,14,16-18}
- Promote education and awareness among EMS providers about the unique physical characteristics, physiologic responses, and psychosocial needs of children with an illness or injury¹⁹⁻²¹
- Implement practices to reduce pediatric medication errors^{22,23}
- Include pediatric-specific measures in periodic performance improvement practices that address morbidity and mortality⁴
- Submit data to a statewide database that is compliant with the most recent version of the National EMS Information System and work with hospitals to which it transports patients to track pediatric patient-

centered outcomes across the continuum of care⁴

- Develop, maintain, and locally enforce policies for the safe transport of children in emergency vehicles⁴
- Develop protocols for destination of pediatric patients, with consideration of regional resources and weighing the risks and benefits of keeping children in their own communities⁴
- Collaborate, along with receiving EDs, to provide pediatric readiness across the care continuum⁴⁻¹⁰
- Include provisions for caring for children and families in emergency preparedness planning and exercises, including the care and tracking of unaccompanied children and timely family reunification in the event of disasters^{3,4,24}
- Promote overall patient- and family-centered care, which includes using lay terms to communicate with patients and families, having methods for accessing language services to communicate with non-English-speaking patients and family members, narrating actions, and alerting patients and caregivers before interventions are performed; in addition, allow family members to remain close to their child during resuscitation activities and to practice cultural or religious customs as long as they are not interfering with patient care¹⁹
- Have policies and procedures in place to allow a family member or guardian to accompany a pediatric patient during transport, when appropriate and feasible¹⁹
- Consider using resources compiled by the Emergency Medical Services for Children program when implementing the recommendations noted here²⁵

CONCLUSION

Ill and injured children and their families have unique needs that can be magnified when the child's ailment is serious or life threatening. Resource availability and pediatric readiness across EMS agencies are variable. Providing high-quality EMS care to children requires an infrastructure designed to support the care of pediatric patients and their families. Therefore, it is important that EMS physicians, administrators, and EMS personnel collaborate with pediatric acute care experts to optimize EMS care through the development of care models to minimize morbidity and mortality in children as a result of illness and injuries.

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REFERENCES

1. National Association of EMS Physicians. Physician oversight of pediatric care in emergency medical services. *Prehosp Emerg Care*. 2017;21:88.
2. Remick K, Gross T, Adelgais K, et al. Resource document: coordination of pediatric emergency care in EMS systems. *Prehosp Emerg Care*. 2017;21:399-407.
3. Institute of Medicine; Committee of the Future of Emergency Care in the US Health System. *Emergency Medical Services at the Crossroads*. Washington, DC: National Academies Press; 2006.
4. Institute of Medicine; Committee of the Future of Emergency Care in the US Health System. *Emergency Care for Children: Growing Pains*. Washington, DC: National Academies Press; 2006.
5. Gausche-Hill M, Johnson RW, Warden CR, et al. The role of the emergency physician in emergency medical services for children (EMSC). *Ann Emerg Med*. 2003;42:206-215.
6. American College of Emergency Physicians, Pediatric Committee; American Academy of Pediatrics, Committee on Pediatric Emergency Medicine. Guidelines for preparedness of emergency departments that care for children: a call to action. *Ann Emerg Med*. 2001;37:389-391.

7. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine; American College of Emergency Physicians, Pediatric Committee; Emergency Nurses Association, Pediatric Committee. Policy statement: guidelines for care of children in the emergency department. *Pediatrics*. 2009;124:1233-1243.
8. Gausche-Hill M. Integrating children into our emergency care system: achieving the vision. *Ann Emerg Med*. 2006;48:131-134.
9. Gausche-Hill M, Ely M, Schmuhl P, et al. A national assessment of pediatric readiness of emergency departments. *JAMA Pediatr*. 2015;169:527-534.
10. Remick K, Kaji AH, Olson L, et al. Pediatric readiness and facility verification. *Ann Emerg Med*. 2016;67:320-328.e1.
11. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine, Section on Emergency Medicine, Subcommittee on EMS, Section on Surgery. Technical report: pediatric readiness in emergency medical services systems. *Pediatrics*. 2019.
12. Glaeser PW, Linzer J, Tunik MG, et al. Survey of nationally registered emergency medical services providers: pediatric education. *Ann Emerg Med*. 2000;36:33-38.
13. Hansen M, Meckler G, Dickinson C, et al. Children's safety initiative: a national assessment of pediatric educational needs among emergency medical services providers. *Prehosp Emerg Care*. 2015;19:287-291.
14. Gausche M. Pediatric continuing education for prehospital providers: is it time to mandate review of pediatric knowledge and skills? *Ann Emerg Med*. 2000;36:72-74.
15. American Academy of Pediatrics; American College of Emergency Physicians; American College of Surgeons Committee on Trauma; Emergency Medical Services for Children; Emergency Nurses Association; National Association of EMS Physicians; National Association of State EMS Officials. Equipment for ground ambulances. *Prehosp Emerg Care*. 2014;18:92-97.
16. Su E, Schmidt TA, Mann NC, et al. A randomized controlled trial to assess decay in acquired knowledge among paramedics completing a pediatric resuscitation course. *Acad Emerg Med*. 2000;7:779-786.
17. Henderson DP, Gausche M, Goodrich SM, et al. Education of paramedics in pediatric airway management: effects of different retraining methods on self-efficacy and skill retention. *Acad Emerg Med*. 1998;5:429.
18. Gausche M, Henderson DP, Brownstein D, et al. The education of out-of-hospital medical personnel in pediatrics: report of a national task force. *Ann Emerg Med*. 1998;31:58-63.
19. Ayub EM, Sampayo EM, Shah MI, et al. Prehospital providers' perceptions on providing patient and family centered care. *Prehosp Emerg Care*. 2017;21:399-407.
20. Schonfeld DJ, Demaria T; American Academy of Pediatrics; Disaster Preparedness Advisory Council and Committee on Psychosocial Aspects of Child and Family Health. Providing psychosocial support to children and families in the aftermath of disasters and crises. *Pediatrics*. 2015;136:e1120-e1130.
21. Schonfeld DJ, Demaria T; American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health and Disaster Preparedness Advisory Council. Supporting the grieving child and family. *Pediatrics*. 2016;138:e20162147.
22. Kaji A, Gausche-Hill M, Conrad H, et al. EMS system changes reduce pediatric epinephrine dosing errors in the prehospital setting. *Pediatrics*. 2006;118:1493-1500.
23. Lammers R, Byrwa M, Fales W. Root causes of errors in a simulated prehospital pediatric emergency. *Acad Emerg Med*. 2012;19:37-47.
24. American Academy of Pediatrics; Disaster Preparedness Advisory Council. Medical countermeasures for children in public health emergencies, disasters, or terrorism. *Pediatrics*. 2016;137: e20154273.
25. Emergency Medical Services for Children Innovation and Improvement Center. Prehospital Based Care. Available at: <https://emscimprovement.center/domains/prehospital-care/>. Accessed November 19, 2019.

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