



POLICY STATEMENT

The Role of the Pediatrician in Rural Emergency Medical Services for Children

abstract

FREE

In rural America, pediatricians can play a key role in the development, implementation, and ongoing supervision of emergency medical services for children (EMSC). Pediatricians may represent the only source of pediatric expertise for a large region and are a vital resource for rural physicians (eg, general and family practice, emergency medicine) and other rural health care professionals (physician assistants, nurse practitioners, and emergency medical technicians), providing education about management and prevention of pediatric illness and injury; appropriate equipment for the acutely ill or injured child; and acute, chronic, and rehabilitative care. In addition to providing clinical expertise, the pediatrician may be involved in quality assurance, clinical protocol development, and advocacy, and may serve as a liaison between emergency medical services and other entities working with children (eg, school nurses, child care centers, athletic programs, and programs for children with special health care needs). *Pediatrics* 2012;130:978–982

INTRODUCTION

Ten percent of prehospital emergency responses¹ and 37% of emergency department (ED) visits are for patients 24 years and younger.² Children, in general, have been shown to use emergency medical services (EMS) less frequently than adults. When children younger than 5 years are cared for in the EMS system, they are less likely to receive appropriate interventions, such as splinting or cervical spine immobilization.³

According to the 2000 US Census,* 42% of the population lives in nonmetropolitan areas, 25% of which are rural⁴; 41% of community hospitals are considered rural by the *American Hospital Guide*.⁵ Additionally, certain populations such as Native Americans disproportionately live in rural areas. Depending on the state, one-fourth to one-third of the population resides in rural or frontier areas⁶; rural is defined as fewer than 1000 people per square mile, and frontier is defined as 6 to 8 people per square mile. Rural areas vary widely, however, by environment, terrain, resources, and needs. Additionally, rural and frontier areas are common vacation destinations, with

*US Census data on urban and rural populations for 2010 are scheduled to be released in October 2012.

COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE

KEY WORDS

rural health, pediatric emergency, EMSC, rural pediatrician

ABBREVIATIONS

AAP—American Academy of Pediatrics

ED—emergency department

EMS—emergency medical services

EMSC—emergency medical services for children

IOM—Institute of Medicine

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seasonal increases in population. A study of rural EMS reported the following: (1) 70% of prehospital health care professionals practice in rural areas; (2) rural EMS medical directors are more likely to be nonpediatric primary care physicians; and (3) 20% of states cross-train prehospital health care professionals in an expanded hospital role to address the national nursing shortage.⁷

Because of occupational and lifestyle exposure to work- and play-related vehicles, hazardous structures, and animals (eg, farm machinery, pickup trucks, all-terrain vehicles, grain silos, and horses) and environmental threats (eg, weather, terrain, and toxins), children in rural areas have unique medical and surgical emergency needs. Children in rural areas have increased risk of disability and death from injury, trauma and medical diseases largely because of long transport times to definitive care.⁷ It has also been reported that the quality of care rendered to children in rural EDs is not of a level equal to the quality of care in urban facilities.⁸ Additionally, there may be a higher risk of medication errors for children treated in rural EDs.^{9,10} Finally, in a survey study, remote and rural EDs were not as well prepared as urban EDs were to care for children.¹¹ Because definitive pediatric emergency and critical care usually are located far from rural children, any inadequacy of EMS education and intervention or lack of appropriate pediatric equipment may be even more detrimental in a rural setting.

Lack of access to all levels of care, with particular effects on vulnerable populations, is a major difference between emergency medical services for children (EMSC) systems in rural and urban areas. Decreased access to medical care increases the morbidity and mortality of rural children.^{12,13} Vital access issues include:

- Communication (eg, 911 access [especially enhanced 911 access], the use of telemedicine in EMS consultation, and limited availability of cellular wireless telephone systems and high-speed and wireless Internet access)
- Transport method and availability (ground versus air; fixed wing versus rotor wing; weather, terrain, and distance)
- Appropriate emergency care equipment for children from infancy through adolescence
- Level of responding prehospital personnel (emergency medical technicians—basic versus paramedic, paid versus volunteer EMS services)
- Pediatric skills of prehospital health care professionals
- Pediatric expertise at the immediate receiving facility (general, community hospitals)
- Rural-to-urban hospital pediatric transport
- Referral center care
- Rehabilitation
- Local follow-up care
- Repatriation to local facilities
- Pediatric-specific primary and subspecialty care
- Preparation for emergencies involving children with special health care needs—specifically, technology-assisted children, including awareness and utilization of the Emergency Information Form¹⁴
- Public health emergency, disaster, and terrorism response plans applicable to rural settings (recognition of risk and familiarity with rural systems in preparation)

Pediatricians can play valuable roles in ensuring access to high-quality and comprehensive care for children in

rural communities. Their leadership and advocacy, often organized through state American Academy of Pediatrics (AAP) chapters and state/territorial EMSC programs, can aid local and regional EMS organizations in the establishment of pediatric-specific protocols and policies, data collection, and pediatric-specific quality management and support for the development of enhanced pediatric capabilities via the legislative and regulatory process. They can also advocate for addressing the unique needs of children, including children with special health care needs, in local preparedness efforts around public health emergency and disaster planning. Through their expertise in the care of children, pediatricians can support efforts in pediatric emergency care education.

Local health care professional training (prehospital, emergency, and school nurses) in pediatrics would be enhanced by rural pediatricians' input and participation. Because skill retention is an issue in rural settings, periodic updates for rural health care professionals is necessary. Many pediatric-specific enhanced training courses (eg, Pediatric Advanced Life Support, Pediatric Education for Prehospital Professionals, Neonatal Resuscitation Program, Emergency Nursing Pediatric Course, Advanced Pediatric Life Support) are applicable. Promoting telehealth initiatives and Web-based education could also help increase access to training in the rural setting.^{15–21} In fact, a study of rural education reports that rural prehospital providers accessed pediatric Web-based training more commonly than did urban providers.²¹ In addition to health care professional education, pediatricians can provide patient and parent education about injury prevention, recognition of childhood emergencies, and accessing 911 and

poison control centers. Anticipatory guidance should also include first aid and preparation of the home for public health emergencies and disasters.

Office preparation for emergency response is crucial in rural areas and builds confidence in providers.²² Pediatricians must recognize that rural areas, like urban areas, are subject to terrorist attacks, and it is prudent to address the needs of children in rural areas in preparation plans. Pediatric offices should be prepared to care for the acutely ill or injured child, arrange for definitive care, and participate in a community public health emergency or disaster response. The AAP provides information on office preparation in *Childhood Emergencies in the Office, Hospital, and Community*.²³ Additionally, a policy statement on the role of the pediatrician in disasters and bioterrorism preparedness has been published by the Committee on Pediatric Emergency Medicine and Committee on Medical Liability of the AAP.²⁴ Finally, involvement in legislator and public education about children's health care by collecting and reporting EMSC data may improve the system locally and statewide. Data collection and research are particularly needed for EMSC in rural areas, where certain problems are more prevalent than in urban settings (eg, skills retention, transport mechanisms, volunteer responder's education and responsibilities, and delayed access issues). Interested pediatricians can find many opportunities to promote studies generating outcome-based information to improve local and national EMSC, with support from sources such as the Community Access to Child Health program, the Practice Research in Office Settings network, other AAP programs and support staff, and the

Centers for Disease Control and Prevention and other federal agencies. Legislative input can be presented by pediatricians knowledgeable about statewide EMSC issues. Building local, statewide, and regional coalitions is a sound approach to generating legislative responsiveness and awakening the community to the importance of a sophisticated and competent EMSC program. In many rural areas, limited resources have led to the development of interstate coalitions to pursue EMSC agendas (eg, Intermountain Regional EMS for Children Coordinating Council).

In the 2006 Institute of Medicine (IOM) Future of Emergency Care Series entitled *Emergency Care for Children: Growing Pains*, regionalization, accountability, and coordination are the 3 goals set by the IOM Committee on the Future of Emergency Care in the United States Health System for developing an emergency and trauma care system of the future.²⁵ According to the IOM report, "critically ill and injured children should not be directed simply to the closest facility, but to the nearest facility with the pediatric expertise and resources needed to deliver high level care. The goal of regionalization is to improve patient outcomes by directing patients to facilities with the optimal capabilities and best outcomes for any given type of illness or injury."²⁵ To aid in regionalization efforts, rural issues that may need distinct legislative assistance include establishment of universal 911 (preferably "enhanced") service, communications technology, educational processes, advisory councils, coding standards, and data collection resources to assess areas for improvement in EMSC. Guidelines^{26,27} are available to provide a framework for continued development of state EMSC; amendments specific to the rural locales may be necessary.

RECOMMENDATIONS

Development of quality EMSC in rural America requires motivated pediatric advocates to commit their expertise to prevention, education, legislation, and facilitation of these services. As highly trained child health professionals and leaders of the child health care team, rural pediatricians are encouraged to be aware of activities that would benefit from their involvement.

1. Advocate for legislative initiatives supportive of EMSC that meet the needs of children and pediatricians, including equity in funding for EMSC, especially trauma services. This will be a step toward ensuring that all children—whether they live in a rural or urban area; or are insured, underinsured, or uninsured—have unhindered access to care.
2. Participate in and work cooperatively with local EMS agencies responsible for local system design and development, including educational programs, simulations, structured protocols, communication (from dispatchers to ED physicians), hospital care and transport (with special focus on long transport time and distance issues), and quality improvement. This system should address children's needs, including those of children with special health care needs, and integrate well with the state EMS system. Key participants in this system include representatives from the state office of rural health, department of health, state EMSC programs, and AAP chapters.
3. Provide guidance in recruiting and retaining community EMS providers (prehospital and ED) and primary health care professionals (family practitioners, nurse practitioners, and physician assistants) who have pediatric training. This

includes helping them maintain skills and comfort with pediatric emergencies by providing continuing medical education, pediatric office rotations, and sensitive quality assurance review.

4. Develop a personal awareness of rural EMSC issues for American Indian/Alaska Native communities. For information, contact the Indian Health Services EMSC liaison or the Health Resources and Services Administration.

Pediatricians can develop strategies for community-sensitive outreach to rural areas and assist in the organization of regionalized pediatric emergency care, using available rural expertise and assets to optimize outcomes of seriously ill or injured rural children. Several resources are available for implementation and continuation of such an EMSC agenda.

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