FEATURED PROGRAMME

Emergency Medical Services for Children: it could save a child's life

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The goal of Emergency Medical Services for Children (EMSC) is to reduce child death and disability due to both injury and illness. EMSC addresses the entire continuum of pediatric emergency services, from prevention and emergency medical service (EMS) access through prehospital and emergency department care, intensive care, rehabilitation, to reintegration into the community. The US Congress passed legislation initiating the EMSC program just over 10 years ago. The legislation provided funding to enable the US Department of Health and Human Services, through its Health Resources and Services Administration, to award grants and provide technical support to states to enable them to improve children's emergency services at the local level.

The need for EMSC

Advanced, highly organized EMS systems are relatively new. In the US, the network of lifesaving resources and technology that we now take for granted entered its early stages of development 30 years ago. But the initial EMS systems made no allowance for children's unique medical needs — a critical omission. Research in the late 1970s showed that children with life threatening emergencies had higher mortality and morbidity rates than adults. But when children had access to care appropriate to their special needs, mortality and morbidity decreased.^{1,2}

There are several reasons that children require special attention in EMS systems:

- Children suffer from a different spectrum of diseases and injuries than adults.
- Children have unique physiological responses to illness and injury, and so their treatment demands specific training, equipment, and approaches that aren't always available in a system designed for adults.
- Children's intense emotional responses during emergencies, combined with the inability of many young children to describe their symptoms, require care givers to develop special skills to communicate effectively and to help minimize distress.
- Statistically, fewer emergencies involve children than adults, making it more difficult for providers to maintain treatment skills.
- Prevention and rehabilitation are essential to ensure a complete system for children.

Much has been accomplished to improve pediatric emergency care in the US, although as described in a landmark 1993 publication from the prestigious Institute of Medicine,³ much remains to be done. The EMSC program has supported projects that integrate pediatrics into the EMS system, provide specialized training and education, inform the public about EMSC issues, promote injury prevention, and conduct research and evaluation. As of May 1996, 43 states had received EMSC grants.

System development

An EMS system that is responsive to children's special needs has the following components:

- Child sized equipment in every ambulance and emergency facility.
- Protocols and treatment guidelines designed especially for children.
- Transport and triage guidelines and inter-facility agreements so that children are treated at places best equipped for their needs.
- Facility categorization for large geographical regions to improve children's access to appropriate care.
- Linkages between emergency care and rehabilitation such that children's discharge from the emergency department or inpatient care is carefully planned and children receive needed supportive services.

All 43 grantee states have established one or more of these core components of pediatric emergency care. Most have established several.

Training and education

Training and education for both prehospital providers and hospital personnel in techniques to assess, stabilize, and treat a child in an emergency situation can make the difference between life and death. The EMSC program has supported the development of innovative educational materials, including special curricula, videotapes on specific lifesaving techniques, and interactive training materials (videodiscs and CDI formats). All grantee states have provided special training programs for health care professionals.

Public awareness

Parents and other caretakers are the first link in emergency care. Bystander care, first aid, and

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cardiopulmonary resuscitation skills can help adults and young people treat minor problems, reducing the need for EMS for both children and adults, or help keep critically injured children alive until professional help arrives. These skills are particularly important for rural residents who have more restricted access to emergency medical care.

Parents and others also need to know how to contact and use the EMS system. Many people don't know when it's appropriate to call for emergency aid, which leads to both over use and under use of ambulance transport services. Some parents may call an ambulance for children who are not seriously ill or injured, monopolizing emergency resources unnecessarily with potentially disastrous results. Others may fail to call for prehospital care in a true emergency.

Several states have conducted public awareness campaigns and special programs to improve the public's ability to respond in an emergency, and two national media campaigns have been supported by the federal program. The *Make the Right Call Campaign*, a joint effort of three federal agencies, is designed to inform the public about when and how to access EMS. In addition, the EMSC program has sponsored a set of public service announcements for television which provide information on several different aspects of children's emergency medical care (for example, injury prevention, knowing where to go in an emergency, knowing how to access the system, and other issues).

Research and evaluation

The Institute of Medicine report on EMSC identified research as a critical need. The Institute of Medicine committee stated their belief that 'not all children are getting the emergency care that they need, but the full extent and nature of the problem is not known'. Seven areas of research were identified as priorities: clinical aspects of emergencies and emergency care; indices of severity of injury and of illness; patient outcomes and outcome measures; costs; system organization, configuration, and operation; effective approaches to education and training, including retraining and skill retention, and prevention. The EMSC program has supported a total of 10 research projects, including such topics as reducing children's pain, preventing suicide in the emergency department, skill retention of paramedics, and assessing system costs.

Basic data collection and analysis are also essential to improving services for children. They help to answer important questions such as: Who is using the system? What kinds of services and procedures do patients receive? What are the outcomes of using the EMS system?

Many grantees have begun to collect and analyze such data, and the federal program now supports a 'data resource center' designed specifically to provide hands-on technical assistance in collecting, analyzing, and displaying data, and in linking different data sets.

Injury prevention

Emergency care providers can be important advocates for prevention. Because of their continual exposure to critically injured children, paramedics, physicians, and nurses make highly credible community spokespersons. In addition, prehospital providers, who are uniquely situated to contribute information about on-the-scene circumstances, are an important resource for injury prevention research.

About half the grantee states have now incorporated injury prevention components into their efforts. These include bike helmet programs, drowning prevention, firearm safety, and safety seat loaner programs.

Conclusion

The vision of EMSC is a system that works perfectly for all children, but is needed increasingly less frequently as both injury and illness prevention reduce the number of life threatening emergencies. In the first 10 years of the EMSC program, we have made great strides. States and communities have begun to alter their systems. However, gaps remain. Many health care providers remain uninformed about emergency medical care and many communities lack even the basic elements of a functional system to provide such care. Much of the public remains untrained in cardiopulmonary resuscitation or bystander care. Many promising, proven injury prevention technologies have yet to be generally adopted. And we still have much to learn.

To achieve our vision of an emergency medical services system that works for all children in the US will require the sustained efforts of many groups. The Maternal and Child Health Bureau, Health Resources and Services Administration, and the National Highway Traffic Safety Administration have jointly developed a five year plan for moving EMSC into the next century. The plan includes numerous objectives, each with specific action steps. Only with the commitment, dedication, and collaboration of many groups — community groups and professional groups, national coalitions, and next door neighbors — will this plan succeed.

In short, an EMSC infrastructure now exists in the US. All of the pieces are there. Our challenge is to pull these pieces together so that our vision for the future can become a reality nationwide.

For additional information contact the Emergency Medical Services for Children (EMSC) National Resource Center, Children's National Medical Center, 111 Michigan Avenue, NW, Washington, DC 20010, USA, +1 202 884 4927, fax +1 301 650 8045; or the National EMSC Resource Alliance, 1124 West Carson Street, Building, N-7, Torrance, CA 90502, USA, +1 310 328 0720, fax +1 310 328 0468. Or use <http://www.emsc.com/nera/index.htm> to access our World Wide Web site.

- 1 Seidel JS. A needs assessment of advanced life support and emergency medical services in the pediatric patient: state of the art. *Circulation* 1986; 74 (suppl IV): 129.
- 2 Seidel IS, Hornbein M, Yoshiyama K, et al. Emergency medical services and the pediatric patient: are the needs being met? *Pediatrics* 1984; 73: 769-72.
- 3 Committee on Pediatric Emergency Medical Services, Durr JS, Lohr KN, eds. *Emergency medical services for children*. Washington, DC: Institute of Medicine, National Academy Press, 1993.