Pediatric Emergency Care: A Survey of Michigan Emergency Departments

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Recent studies suggest a lack of preparation in emergency medical systems for pediatric patients. Michigan emergency departments were surveyed to determine their degree of preparedness regarding equipment, space, and pediatric on-call coverage. More than 50% of responding emergency departments did not have a pediatrician on call and lacked a pediatric "crash cart," and 34% had to send their personnel to other areas in the hospital to obtain pediatric equipment during resuscitations. This survey suggests a lack of preparation for pediatric emergencies in Michigan. (Henry Ford Hosp Med J 1988;36:217-8)

Emergency medical systems have been developed to deal with adult trauma and myocardial infarction patients (1-4). The special needs of pediatric patients may be neglected because of this orientation. Seidel et al (2) demonstrated increased mortality among children with head injuries compared to similarly injured adults. The reasons for this are unknown. One possible problem is the absence of appropriate pediatric resuscitation equipment or difficulty in accessing such equipment. In a study by Luten (5), 30% to 40% of the 1,200 participants in an advanced pediatric life-support course had difficulty identifying age-related resuscitation equipment. A second factor may be the unavailability of immediate pediatric consultation for emergency physicians. We surveyed the emergency departments in Michigan to determine their preparedness for critically ill pediatric patients.

Survey Methods
Questionnaires addressed to emergency department directors were sent to all 185 members of the Michigan Hospital Association. All Michigan hospitals (except one at the time of our survey) belong to the association. Questionnaires were sent to all members since it was unknown which hospitals did not have an emergency department. Recipients were asked to list total annual visits, percent of pediatric visits, and number of hospital beds. No age boundary was used to define pediatric patients since this age group can be defined in many ways (from ≤ 12 years to ≤ 17 years) depending on the institution. Questions specific to pediatric emergencies included whether the emergency departments had a pediatrician on call, designated pediatric emergency bed space, and presence of a pediatric "crash cart" with posted drug doses and equipment charts for children. Survey recipients were also asked whether personnel had to leave the emergency department during a resuscitation to find pediatric equipment.

Results
Of the 98 (53%) questionnaires returned, nine were from institutions without an emergency department. Not every question was answered on some returned questionnaires. The 89 responding emergency departments ranged in size from small (less than 10,000 visits per year) to large (more than 40,000 visits per year) (Table I). Of these emergency departments, 67% had more than 20% of their patients in the pediatric age range.
The survey results presented in Table 2 are as follows: 45% of the responding emergency departments had a designated pediatrician on call, 21% had designated pediatric emergency bed space, 42% had a pediatric crash cart, 87% had posted emergency drug charts, and 54% had posted pediatric emergency airway charts. However, in 34% of the emergency departments, personnel had to leave during a resuscitation to obtain pediatric equipment from other areas of the hospital.

Discussion

The results of this survey indicate that many emergency departments in Michigan are not fully prepared to care for the critically ill pediatric patient. This may be because most critically ill patients seen in emergency departments are adults. However, a system should be in place to quickly access pediatric expertise when needed. Surprisingly, only 45% of the responding emergency departments had a pediatrician on call. The reason for the low rate of coverage is not clear. Some communities may have no pediatricians, or the emergency department may have difficulty consulting them. Pediatricians may also hesitate to become involved with acutely ill patients in the emergency department, particularly if the child is not their patient.

While pediatric drug doses and equipment have been problematic for emergency physicians (2,6,7), age-related drug charts are readily available, which accounts for the large percentage (87%) of emergency departments with posted drug charts. Only recently have pediatric crash carts been developed to assist physicians (2,8), which explains why only 42% of the emergency departments had a pediatric crash cart and 54% had a chart for airway sizes. That personnel in 34% of the emergency departments had to leave during a resuscitation to obtain pediatric equipment could be a factor that would increase morbidity and mortality in severely ill pediatric patients. The type of equipment that was obtained in this way is not known. While some equipment is more critical than others, the absence of needed equipment for critically ill patients as well as the absence of the person obtaining the equipment are serious problems.

Although the composition of the nonresponding emergency departments is not known, certainly some of these include hospitals without an emergency department. If there was a responder bias, one might expect that a greater percentage of nonresponding emergency departments did not have pediatric equipment and drug charts than the responding group. However, this cannot be proven.

These data suggest a lack of preparation for pediatric emergencies in Michigan emergency departments. Critically ill pediatric patients have been shown to have a worse outcome when not cared for in a pediatric center (2). The reasons for this are not known, and additional studies need to be performed to study the problem. Meanwhile, it seems prudent for emergency departments to have a pediatric physician on call at all times and to develop systems to make age-appropriate equipment more readily available. Readily accessible pediatric drug/equipment carts and drug and equipment charts could ameliorate some of the identified shortcomings in pediatric emergency care.

References