Numerous advances have been made in trauma care since 1979, when West et al. first demonstrated the decisive survival advantage of patients treated in hospital systems specifically prepared to care for them. Then, there were few trauma hospitals nationwide, trauma education of surgical residents was inconsistent at best, emergency medicine had yet to emerge as a distinct specialty in all but a few centers, prehospital care was rudimentary in most localities throughout the nation, few-if any-states had organized systems for injured patient care, and injury fatalities were considered accidental events and accepted as inevitable occurrences of everyday life. Now, most regions have designated trauma facilities, all graduates of surgical residencies have specific education and experience in trauma care, emergency medicine is an established discipline in all but a few centers, prehospital care is both readily accessible and relatively sophisticated, most states have organized trauma care systems, and injuries are no longer considered accidents, but rather are viewed as predictable events that can be modified through the application of harm reduction strategies directed at the host, agent, and environment before, during, and after the traumatic event. Thus, in the short span of 20 years, we have fundamentally altered the structure and process of trauma care, and we are now on the verge of realizing the benefits of the continuous quality improvements envisioned by West et al. on the outcomes of trauma care for most patients in most areas, as detailed throughout this special issue of the Journal of Trauma.

Although progress in pediatric trauma care has been less obvious than that in adult trauma care, it has been substantial. Spurred, in part, by the establishment of the federal Emergency Medical Services for Children program in the Maternal and Child Health Bureau of the Health Resources and Services Administration in collaboration with the Emergency Medical Services Division of the National Highway Traffic Safety Administration, all but a few states and territories have now embarked upon comprehensive programs of education and training in the early care of injured children. Simultaneously, numerous educational offerings in the advanced life support of childhood trauma victims have been developed, and residency training programs in surgery, pediatrics, and emergency medicine alike have recognized the need to provide appropriate instruction and experience in the principles and provision of pediatric emergency and trauma care. No doubt, much work still remains to be done, but most American children can now expect emergency medical and trauma care far better than that available even a decade ago in most areas of the nation.

Yet, as with adult trauma care, improvements in pediatric trauma care have been difficult to substantiate. In this issue of the Journal, Hulka has summarized the available evidence and concluded, appropriately, that scientific proof of improved pediatric trauma survival is scant. Certainly, the task of documenting such improvements is limited by a number of confounding variables, such as the relative infrequency of major pediatric trauma (despite the fact that it remains the leading public problem of childhood), the sharply lower mortality of major pediatric trauma (about one-third the rate of major adult trauma fatalities), and the lack of statistically valid, reliable,
risk-adjusted, population-based models to predict outcome after major pediatric trauma, to name but a few. Fortunately, the development of such models and their subsequent application to large populations is now on the horizon. This will likely expand our knowledge and understanding of the effects of major pediatric trauma, and will thereby point the way toward demonstrable decreases in the untoward effects of major pediatric trauma through strategies targeting prevention as well as treatment.

What we do know, however, is that trauma systems and trauma centers that make special provision for the needs of children achieve better outcomes than those that do not. We are less sure who or what is specifically responsible for this survival advantage, given that most studies to date have lacked the statistical power to provide this specific knowledge for reasons stated above, yet it appears less likely to be the surgeon per se than the system in which the surgeon is embedded and which the surgeon has helped to create. This is hardly surprising when one considers that both "pediatric" and "adult" trauma surgeons have had increasing access in recent years to sophisticated pediatric prehospital care and knowledgeable, expert, tertiary-level pediatric emergency, critical, and nursing care services concerning the provision of care to injured children. Surprising or not, it is fortunate that most trauma surgeons are committed to the care of injured children; for while the percentage of pediatric surgeons who regularly care for major pediatric trauma (approximately 40%, according to the results of the 1988 American Pediatric Surgical Association Trauma Committee Questionnaire compiled by Burton H. Harris) vastly exceeds the percentage of general surgeons who regularly care for major adult trauma or major pediatric trauma (approximately 10% according to data compiled by Donald D. Trunkey), the total number of pediatric surgeons is small and will likely never be sufficient to care for the needs of all injured children in the nation.

Thus, the reality of pediatric trauma care, in 1999, is this: the combined total number of pediatric surgeons interested in trauma and trauma surgeons interested in pediatrics is woefully insufficient to care for the needs of all but a fraction of injured children in the nation. Thus, to paraphrase Sir Denis Browne, one of the founders of the discipline of pediatric surgery, the common goal of all trauma surgeons who care for injured children, whatever their initial training, should be "to set a standard, not to create a monopoly" for pediatric trauma care-a standard for the trauma systems of our nation that will ensure optimal care for injured children even in areas where pediatric-capable subspecialty personnel are not readily available. Reliance on population-based systems for data collection and analysis will allow us to refine and revise this standard on the basis of scientific evidence and must become the norm for pediatric trauma care nationwide. The rewards will be enormous and will lead to development of fully inclusive trauma systems entirely capable of caring for the needs of all of our nation's injured, including our nation's children.

REFERENCES


Address for reprints: Chief of Pediatric Surgery, Harlem Hospital Center, 506 Lenox Avenue, New York, NY 10037.