Reducing the Toll of Injuries in Childhood Requires Support for a Focused Research Effort

Injury is the leading cause of death and disability in childhood and early adult life. Trauma represents the largest loss of potential years of life and burdens the nation with enormous costs in terms of human suffering and disability, lost productivity, and medical services. In 1977, deaths from unintentional injuries ("accidents") accounted for nearly half of all deaths of children aged 1 to 14 years. Nonfatal, unintentional injuries, which are estimated to outnumber fatalities by 100 to 1, frequently result in permanent disability. Fatal inflicted injury (homicide) is a large and growing pediatric problem. Nonfatal child abuse and neglect affect more than 500,000 children per year, resulting in a progressive burden for its victims and society.

If those who are young are to be protected from life-threatening injury, a quickened pace of progress in injury care and prevention is needed. Efforts to build Emergency Medical Services were begun in the 1970s, but these services are not yet widely developed. Advances in other aspects of critical care for the injured have also evolved slowly. In the area of injury prevention, considerable progress has been made in the development of ways to understand and control childhood injury; this is evident by the reductions in certain types of childhood injury. The most notable successes have been the reduction of poisoning and flame burns as causes of death and disability in childhood. Important theoretic advances have been (1) the elimination of the term "accident," which suggests chaotic and random effects, and its replacement with the notion of "injury," which suggests the transfer of physical or chemical energy to a victim; (2) recognition that the types of interventions most likely to succeed are ones that require infrequent participation by the potential victim and his family (or none at all); and (3) awareness that different types of measures are needed to prevent different types of injury. Unfortunately, effective prevention programs have not developed in tandem with advances in theory and technology, eg, children still die in cars in which they ride unrestrained, and children die in fires in dwellings with no smoke detectors. Moreover, effective preventive approaches are lacking for many types of injuries.

One reason why progress toward injury control has not been commensurate with the scope of the problem is that trauma research is not coordinated, focused, or well funded. Excellent research on unintentional injury has been done under private funding (notably by The Insurance Institute for Highway Safety), but such research has not yet become a national priority. In 1980, a dozen federal agencies sponsored trauma-related research totaling $150 million, compared with $1 billion for research sponsored by the National Cancer Institute and $527 million for research sponsored by the National Heart, Lung, and Blood Institute.

There is considerable need for an expanded and coordinated trauma research and development effort in at least the following areas.

1. Epidemiologic research is needed on the distribution of injurious death and disability from various causes and in various subgroups of the population (defined by geography, age, race, sex, and socioeconomic status).

2. Biomechanical research is needed on the effects of transfer of various types of energy to various sized human bodies in various situations, eg, using anthropometric childhood dummies to study the effects of various types of trauma on the bones and soft tissues of children. This information will significantly advance the understanding of both inflicted and unintentional injuries.

3. Research is needed on injury-promoting be-
behavior, ie, the children's behaviors that put them in danger of injury, and the adults' behaviors that fail to protect the children from injuries (inflicted and unintentional).

4. Devices and programs that interfere with the transfer of injurious forms of energy to childhood victims at the various points at which intervention is possible need to be developed.

5. Educational, administrative, and legislative programs are needed to reduce childhood injuries; these should include improved systems for care of the injured.

6. There is a need for evaluation of the implementation of educational, legislative, and environment-modifying programs on an ongoing basis, with continual modifications until serious injury to children is as rare as possible. Augmentation of current injury surveillance systems will be necessary for such evaluation.

The Academy's campaign for car seats, "The First Ride—A Safe Ride," has helped to draw attention to one aspect of the injury problem. The Academy now joins the American Trauma Society, the Ad Hoc Injury Control Work Group, the American Association for Automotive Medicine, and others in recognizing the need for increased emphasis on injury research. Pediatricians, epidemiologists, sociologists, traffic engineers, and others with knowledge and skill pertinent to understanding and reducing the incidence and human toll of childhood injuries must turn increasing attention to these problems. Furthermore, there must be dramatic increases in support for research on injury care and prevention by private foundations, and, especially, by government agencies at the federal, state, and local levels. The proposal to establish a National Trauma Institute as part of the National Institutes of Health to focus and coordinate injury research has much merit and warrants careful consideration.

The Academy is committed to promoting development in the 1980s of a major initiative directed toward injury control through research and application of the results of research. Such an initiative may be compared—in terms of lives saved and function preserved—with the assault on infectious diseases a generation ago.

COMMITTEE ON RESEARCH, 1982–1983
Moses Grossman, MD, Chairman
Robert L. Brent, MD
Robert A. Hoekelman, MD
Robert C. Neerhout, MD

REFERENCES
1. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States, Table V. MMWR 1982;31:599
2. American Trauma Society: The need for a National Trauma Institute. Chicago Trauma Center Newsletter 1982, vol 3, no. 29
5. Office of the Center Director, Center for Health Promotion and Education, Centers for Disease Control: Child homicide—United States. MMWR 1982;31:392
10. Office of Program Planning and Evaluation, Office of the Director, Centers for Disease Control: State action to prevent motor vehicle deaths and injuries among children and adolescents. MMWR 1982;31:488

Robert W. Miller, MD
Robert H. Parrott, MD
James M. Sutherland, MD

Liaison Representatives
Lawrence M. Gartner, MD
Joseph B. Warshaw, MD
Katherine K. Christoffel, MD
Mark Sperling, MD

COMMITTEE ON ACCIDENT AND POISON PREVENTION, 1982–1983
H. James Holroyd, MD, Chairman
Regine Aronow, MD
Joseph Greensher, MD
Leonard S. Krassner, MD
H. Biemann Othersen, Jr, MD
Mark D. Widome, MD

Liaison Representatives
Andre l'Archeveque, MD
Jerry Foster, MD
Gerard Breitzer, DO
Reducing the Toll of Injuries in Childhood Requires Support for a Focused Research Effort

Pediatrics 1983;72;736

Updated Information & Services
including high resolution figures, can be found at:
/content/72/5/736

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml
Reducing the Toll of Injuries in Childhood Requires Support for a Focused Research Effort

Pediatrics 1983;72;736

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/72/5/736