Family Practice Forum

Injury Prevention in Children

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Accidental injuries are the leading cause of childhood morbidity and mortality. In 1971 to 1972 there were about 74,000 days of restricted activity due to injury in children less than 17 years of age, and there were more than 15,000 days lost in school among children 6 to 16 years old.[1] Accidents are the leading cause of death among all people aged 1 to 38 years. For children aged 1 to 14 years, accidents cause more deaths than the next six causes of death combined and almost four times more deaths than the next leading cause, cancer.[2] For adolescents and young adults aged 15 to 24 years, accidents cause more deaths than all other causes combined, and almost five times more deaths than the next leading cause, homicide.[2]

This morbidity and mortality experience is often not caused directly by the accidents, but is due to the injuries sustained during the accidents. Therefore, a useful focus for study can be injury prevention and reduction.[3,4]

The majority of injuries occur because of an abnormal or uncontrolled exchange of energy—mechanical, thermal, electrical, or ionizing—between two objects. A minority of injuries are due to interference with normal bodily functions such as that which occurs during drowning.

There are two broad categories of injury control measures: active and passive. An example of an active control measure, which is directed at changing human behavior and requires the cooperation of many individuals on multiple occasions, is the automobile seat belt. An example of a passive control measure, which is directed at changing the environment and requires the cooperation of rela-

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tively few individuals on a few occasions, is the automobile air bag.

There have been several attempts to teach parents about the broad area of safety in the home,[5-7] but none have been successful in reducing the number of childhood injuries or making the homes measurably safer. Even when safety education has been focused on one narrow area, such as motor vehicle safety, it has not been successful. Reisinger and Williams compared several approaches to educating mothers in the first few postpartum days about the importance of using infant automobile seat restraints.[8] They observed that at two to four months of age, seat restraint use was 21 percent in the control group and 22 to 28 percent in the experimental groups.

Television has been used to attempt to teach people to buckle their seat belts. Robertson et al have demonstrated how ineffective commercials are at increasing seat belt use.[9]

Changes in the environment (ie, passive interventions) have been demonstrated to decrease childhood injuries. Scherz described the efficacy of child resistant containers in preventing poisonings.[10] This type of experience with a passive intervention was duplicated in Great Britain. After all aspirin for children were required to be in safety packages, there was a significant decrease in salicylate poisoning ($P<0.001$).[11]

Sorensen has used predominantly passive techniques to decrease the frequency of several types of burn injuries in Copenhagen, Denmark.[12] Scald burns were prevented by requiring a redesign of washing machine doors that prevented them from being opened when the machine was filled with water at 80 C. Electrical burns were prevented by redesigning the ends of a vacuum cleaner plug and replacing old models with the new plugs. Scald burns from a coffee maker were prevented by redesigning the filter to prevent it from spilling.

Of the various attempts at injury reduction, the more passive the intervention has been, the more successful it has been. Health care providers and others interested in safety must reorient their thinking and their activities to emphasize the passive approach to injury reduction. This should begin with a change in the education of health care providers. Also, health care providers need to become more active in the political arena: individuals should contact elected officials and various agencies of government, and professional societies should use their influence to advocate passive approaches to injury reduction.

This proposed change in emphasis from active to passive intervention has broad social implications. The changes brought by passive modes of injury reduction will affect a large number of people in an effort to protect what will always be a minority population. In many instances these changes require that the majority of the population or various powerful minorities, eg, the automobile industry, accept new burdens or relinquish existing privileges.[13] Because the changes may, in fact, be to the disadvantage of some segments of the population, it will probably be necessary for government or other powerful organizations to become involved to make the changes obligatory.

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