

Summary of the 1989 Scudder Oration by H. David Root, MD, PhD

Introduction:

Traumatic injuries remain the leading cause of death in the ages 4 to 54, ranging from falls, to auto collisions to penetrating mechanisms. Great advances in the care of the injured learned through military conflicts, have been made in the latter half of the 20th century. These remarkable advances include early and rapid evacuation of the victims to near-by treatment facilities for rapid restoration of lost blood and fluids while controlling blood losses through skilled management of damaged organs and blood vessels. Pulmonary injuries are better managed.

Through these lessons learned the average mortality of ICU patients has dropped, on average from 25% to less than 5%. Thus the next frontier for improvement is the prevention of these injuries. Or decreasing the severity of them.

FALLS

This is the most common admitting diagnosis of injured patients coming to the Emergency Department. They occur most commonly in the elderly (65 and older). Much can be accomplished through educational programs warning the people how to avoid them, through elimination of scatter rugs in the house, well-lighted stairways both top and bottom, with handrails, flat-bottomed foot-wear, use of canes with multiple rubber tips, especially helpful for people with deteriorating sense of balance and coordination. Also helpful is strict avoidance of slippery porches, sidewalks and passages when wet or icy. Generous use of salt-sand on these surfaces can be helpful. People on anticoagulants should wear a bracelet with the medicine name and dosage to help treating personnel reverse the effect if necessary.

VEHICULAR COLLISIONS:

Thorough drivers -education programs and examinations for new drivers and for drivers involved with prior vehicular collisions should be required. Some of these programs reward by reducing the cost of auto insurance. Emphasis on avoiding distractions while driving is important, as is avoiding driving under the influence of drugs or medications. Giving full attention to driving should be emphasized.

The idea that driving is a privilege, not a right and can be lost, should be repeated. Severe penalties should be available such as large fines, loss of driver's license, and even loss of vehicle with repeated offenses. Drivers who try to escape the police by speeding should be severely punished because of the risks to innocent people.

1. AUTO COMPARTMENT DESIGN:

Passenger compartment design should emphasize ways to reinforce the structure to prevent intrusion and deformity of the compartment. Reinforcing metal ceiling hoops, and strong metal side bars could

help. Much can be learned from the design of racing car compartments. Replacement or reinforcing the firewall with metal should be considered, as it would limit intrusion in a frontal collision.

Side airbags will further protect occupants even if wearing seat belts. Seat belts with chest restraint must be mandatory.

The rate of deceleration will be reduced by the front and rear wheel suspensions as well as by the engine.

The severity of impact is directly related to the rate of deceleration

HIGHWAY SPEED LIMITS

The speed of vehicles is a major factor in highway fatalities which relates to the rate of deceleration as noted above. The emphasis on horsepower, rate of acceleration from 0 to 60 mph, and top speed complicate the setting and enforcement of speed limits. The highest mortality from highway deaths is in the 16 to 34 year-old age group who thirst for the excitement of high performance vehicles and at the same time their self-appraisals tell them that they are great driver as well as feeling 'bullet-proof' from injury.

The state of Montana, thinly populated, with long stretches of empty highways declared 'No-Speed Limits' on their interstate highway system until rising highway fatalities caused them to set a limit of 75 mph on their interstate system.

Warnings of the dangers of high speed, distracted driving or driving with ability impaired fall on young deaf ears. Stiff penalties to the point of impounding the offending vehicle may help.

Routine inspection of vehicle brakes, tires, and function are a must to avoid the related crashes.

PENETRATING INJURIES;

A) Firearm Injuries:

These remain the most difficult of mechanisms of injury to control because of the multiple groups with different interests focusing on firearm possession, from profit motives, to American frontier culture of gun ownership, facilitated by wide interpretations of the Second Amendment of our Constitution.. Hunting for meat and personal protection are no longer necessary. Sport hunting, shooting contests and the awe of new more lethal military type weapons with its related macho issues are all part of the problem. Capitalizing on this situation are groups which monetize it, such as the National Rifle Association, firearm manufacturers and distributors. The numbers of firearms in the USA are now so huge that controlling sales and ownership are not possible.

One approach is creating rules for ownership such as barring sales to felons, to people who are psychologically unstable, people who proclaim intent to harm others. Cooperation among practicing psychologists, psychiatrists, and social workers would be of great help in identifying

individuals who should not own or possess a weapon. Changing the doctor-patient relationship will have to be considered. Open -carrying of pistols leads to shooting over parking spaces or road -rage events. Competing gangs are now well-armed and fiercely defend their 'territories' and girl friends. Thus it is very difficult to control these injuries. Educational programs for parents to keep firearms in the home secured from children under lock and key could help. Stressing the dangers of having firearms in the house can help. Encouraging families and neighbors to report unstable or threatening individuals to a community center anonymously can help identify gang leaders who can be brought together with efforts to resolve territorial or social issues. Involvement with parents and neighbor leaders can defuse tensions. Providing athletic equipment and space for gangs to compete in a safe way and to talk out their complaints could calm the participants. The local police could hold regular meetings with gang leaders to discuss gang territories. This could enhance trust of the police and settle boundaries.

Developing volunteer programs for the antagonists could give them community recognition and a sense of purpose as could volunteering at food centers to help in distribution of food to the needy.

CONCLUSIONS:

The treatment of injured patients who arrive alive at the Emergency Department has greatly improved over the past several decades. The ideal management of the injured is to identify means for prevention or minimizing the magnitude of the injuries. This requires the coordinated efforts of engineers and manufacturers of vehicles and educational programs for the public to gain their understanding and cooperation in eliminating identified risk factors as outlined above.