

## Dispelling Fatalism in a Cause-and-Effect World: 1989 E.A.S.T. Presidential Address

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Trauma is the most important, the most expensive, and the most tragic health problem facing this country and much of the rest of the world (5, 13). It accounts for more years of life lost in the United States than cancer and heart disease combined and the annual costs exceed 100 billion dollars each year (2). All of us who deal with the families or loved ones of injured patients know firsthand the personal, emotional, and societal loss inflicted by a serious or fatal injury. There is no preparation, indeed, neither time nor counsel, to alleviate the loss that descends over those who, at first, remain perplexed and disbelieving. But this is nothing new. Trauma and the trail of human suffering it wends have been with us since antiquity. British researcher Sir John Wilson was tersely cogent when he stated, "It is only in statistics that people are disabled by the millions—each person is disabled individually and in his own predicament."

The treatise that follows provides a somewhat aberrant view of the trauma problem and the inability of society as a whole and the medical profession in particular to bring lasting or substantive change to the occurrence of trauma, the tempering of injury severity, or the mitigation of injury-induced impairments. While these tenets may at first seem nihilistic, it is actually the dogma of fatalism that provides the greatest challenge to contemporary solutions to the trauma problem.

Fatalism holds that events are fixed for all time in such a manner that individuals, be they lay persons or other, are powerless to change them. From the epidemiologist's perspective, nowhere is the fatalistic message clearer than in the commonly misused term "accident." Clearly, we are our own worst enemy. The most commonly employed data source to measure the trauma

problem is reported by the National Center for Health Statistics as "accidents and adverse effects." The non-governmental National Safety Council publishes its annual *Accident Facts*, describing trauma fatalities as accidental deaths. An "accident" implies an unexpected, random circumstance leading to an unwanted, usually harmful result. Although accidents leading to injury do occur, it is now widely recognized that most traumatic events are not accidents but predictable occurrences, and therefore preventable. For example, if you place an alcohol-impaired driver behind the wheel of a 4,000-pound vehicle on a serpentine two-lane road in conditions of reduced visibility, impact with a stationary object or another vehicle appears fairly predictable. Consider the combination of a deadly weapon, i.e., handgun, in the possession of an inebriated youth with even a minor grievance. In today's society, this deadly triad predictably leads to a high likelihood of wounding, even death (9). As trauma surgeons, we see the results and are faced with the challenge to eventually return the injured party to normalcy. Let us look then not at our ability to resuscitate, operate, and provide critical trauma care, but at our inability to prevent injuries in the first place or, when this fails, to return the injured patient to productive status.

### INJURY PREVENTION

In 1983, Trunkey described the trimodal distribution of trauma deaths, identifying immediate, early, and late fatalities (13). That half of all trauma deaths occur before the possibility of clinical intervention identifies a primary role for injury prevention in the overall approach to the trauma problem. It must be further emphasized that prevention addresses not only the immediate deaths but also early and late deaths and the profoundly larger aggregate sustaining nonfatal yet disabling injuries (Fig. 1) (7). For every death, three persons become permanently disabled and 75 temporarily disabled. The potential impact of effective trauma prevention is incalculable.

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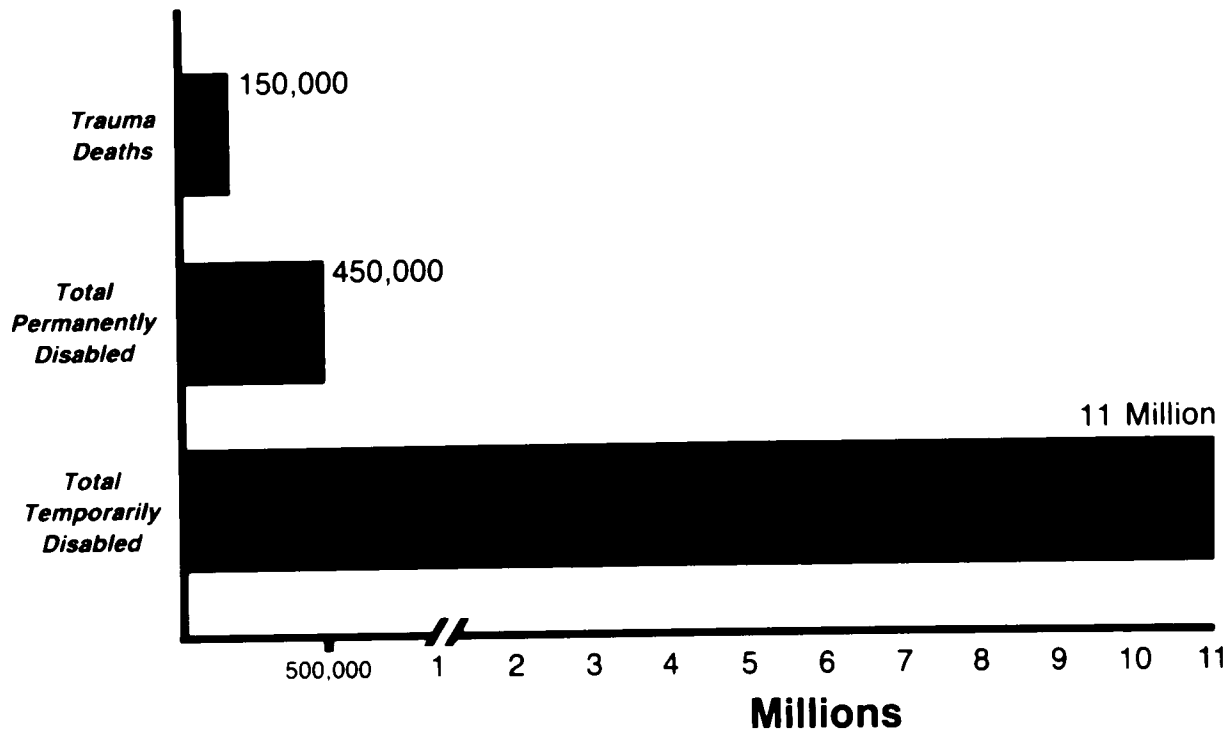


FIG. 1. Relationship of trauma deaths to disabling injuries.

Financial gains are obvious, but consider the alleviation of pain and suffering, the reduction of hardship, days off work, etc. Despite these obvious benefits, trauma prevention programs have failed to make an impact on the leading cause of trauma deaths (Table I). Perhaps the lessons can best be learned from industry where safety programs and, more recently, on-site safety advocates have succeeded in reducing injuries in the workplace. A simple measure such as wearing safety goggles can reduce the estimated one million annual work-related ocular injuries (11). Can these or similar measures be translated to the general population? From a program standpoint, there are a number of currently active efforts under way. Recently, the fiftieth state enacted a child restraint law after the initial legislation was introduced in Tennessee in 1978. Safety belt use laws show a similar trend, although the reversal of safety belt laws in Massachusetts and Nebraska and, more recently in Oregon, may be a harbinger of a pattern akin to state initiatives (or lack

thereof) regarding motorcycle helmet laws. Data from our own institution reported at the 1988 Session of the American Association for the Surgery of Trauma convincingly shows the savings in health care costs afforded by routine safety belt use (10). These legislative reversals in helmet laws and safety belt use laws point out our failure to inform, to educate, indeed to appeal in human terms to those who would govern us in beneficence. Money talks. *Yet, the money message of trauma prevention has not been translated into compelling public policy.*

It has been said that the solution to the trauma problem lies not in research but in the implementation of what is already known. This is certainly true in issues of trauma system development and the institution of organized regional approaches to the injured, but the analogy holds as well for the institution of trauma prevention programs. And the resistance is just as great. The economic and societal impact of firearms is a case in point. Looking only at hospitalization costs at one hospital in one year (1984 in San Francisco), Martin et al. calculated a \$900,000 financial drain or an approximate cost of \$7,000 per patient (8). Unlike the hospital population as a whole, 85% of the cost attributed to firearms victims was billed to public sources. Canada, on the other hand, has vigorous handgun legislation and a far different experience with handgun violence. In an article subtitled "A Tale of Two Cities" published in the *New England Journal of Medicine* last fall, Sloan et al. from the University of Washington compared handgun violence in Seattle and Vancouver (12). Virtually all of the increased risk of death from homicide in Seattle was due to a five fold higher use of firearms. Eighty-five per cent of these

TABLE I  
Leading causes of trauma deaths (includes intentional & unintentional fatality estimates)\*

Cause	Approximate Annual Mortality
Traffic crashes	50,000
Suicide	27,000
Homicide	24,000
Falls	13,000
Drownings	7,000
Burns	6,000

\* From *Injury in America—A Continuing Health Problem* (5).

deaths were caused by handguns. Most surgeons from the United Kingdom (excluding Northern Ireland) have neither seen nor treated gunshot wounds while, on any night in any busy metropolitan trauma center in the United States, celiotomy for penetrating wound may be the most common operation encountered. Powerful lobby groups and organizations with vested interests constitute part of the resistance to implementation of trauma prevention programs or, at the very least, legislative initiatives to provide such programs. However, fatalism provides the underpinning for the resistance to reducing the toll of trauma both here and abroad. In some parts of Europe, for example, trauma is viewed simply as an act of God; trauma system development and prevention programs have no constituency.

In the United States, despite the struggle for and, to some extent, the failings of effective injury prevention programs, an advocate is beginning to emerge and be heard—the trauma surgeon. Widely acknowledged as the leading player in the management of the injured patient, is it not appropriate, even vital, that the credibility and competence of the trauma surgeon be directed to the important issues of trauma prevention?

#### TRAUMA REHABILITATION

Whatever the outcome of ongoing efforts at trauma prevention and improvements in resuscitation/acute care, quality of life after injury remains a principal concern of all who care for the injured patient. The individual who lives a long and healthy life measures quality of living as a function of human performance (Fig. 2). All of us pass through stages of total and partial dependency during infancy and childhood. Following a normal life span, if death is sudden, late dependency is not a factor. Some older persons, due to loss of mental or physical faculties, require partial or total care for weeks, months, or years until death supervenes. The typical trauma victim subtends a contrasting scenario (Fig. 3). Since trauma is typically an affliction of the young, following the obligatory early dependence period, self-sufficiency may be interrupted by an injury resulting in impairment. Whether the impairment results in disability and whether the disability leads to further handicap is of more than semantic importance. *Impairment* is a temporary or permanent anatomic, physiologic, or psychologic loss of body structure or function. *Disability* means a restriction, partial or total, in the ability to perform an activity within a normal range or in a normal manner. *Handicap* refers to the social disadvantage resulting from an impairment or disability that limits or prevents fulfillment of a role deemed normal for the individual.

During World War II, Doctor Howard Rusk, considered the father of modern physiatry, showed the U.S. Army that rehabilitation, not convalescence, was the key to returning soldiers to active duty (6). Rusk referred to rehabilitation as the "third phase" of medical care follow-

ing preventive medicine and curative medicine/surgery. This concept is certainly relevant to trauma patients. For the injured, lack of rehabilitation condemns patients to continued dependency and resource consumption without improving productivity or quality of life. While returning trauma patients to the work force is ideal, simply retraining injured persons to become self-sufficient offers profound financial savings to society.

Rehabilitation today only scratches the surface of the problem. The World Health Organization estimates that 350 million of the world's 500 million disabled people live out of reach of rehabilitative assistance of any kind (3). Even in the highly industrialized nations, prevention or reduction of disability through treatment of impairment falls far short of what is optimal. There appears to be little incentive to overcome this wide disparity between rehabilitative treatment and the need for such treatment. These facts are true despite recognition of tremendous societal costs of disability and the favorable benefit cost ratio of both trauma prevention and early rehabilitation measures. Comparing the increased earnings of those rehabilitated to the costs incurred in their behalf, estimates in the United States vary from 6 to 35 dollars returned for each dollar invested (3). Just as much of trauma is both predictable and preventable, many impairments are treatable and their resulting disabilities preventable.

The lack of effective trauma prevention programs means lost opportunities to deal with the trauma problems in America. Likewise, the lack of available rehabilitation means lost opportunities for thousands of trauma victims injured but not killed. There is a pervasive fatalistic attitude that equates impairment with disability and concludes that accidents happen and nothing can be done to prevent them. Both beliefs are largely false, yet they condemn all of us to greater risks of being injured and fewer benefits when we are.

#### SURGEON AS ACTIVIST

The trauma surgeon is in a unique and opportune position to influence issues of injury prevention and control. In order to educate, one must be heard, understood, and believed. The surgeon is knowledgeable, credible, and can speak authoritatively to the public, to industry, to local, state, and federal legislators, and to the medical profession itself where there is vast ignorance and, indeed, fatalism concerning many aspects of the trauma problem.

As surgeons toil daily to restore injured persons, it is with the benefit of future patients in mind that surgeons must speak out on issues of injury prevention, trauma system design and development, and the expansion of rehabilitation efforts. It has been stated that notwithstanding how brilliant the surgical solution to trauma, the end result cannot be considered satisfactory unless the patient is rehabilitated to function at his maximum.

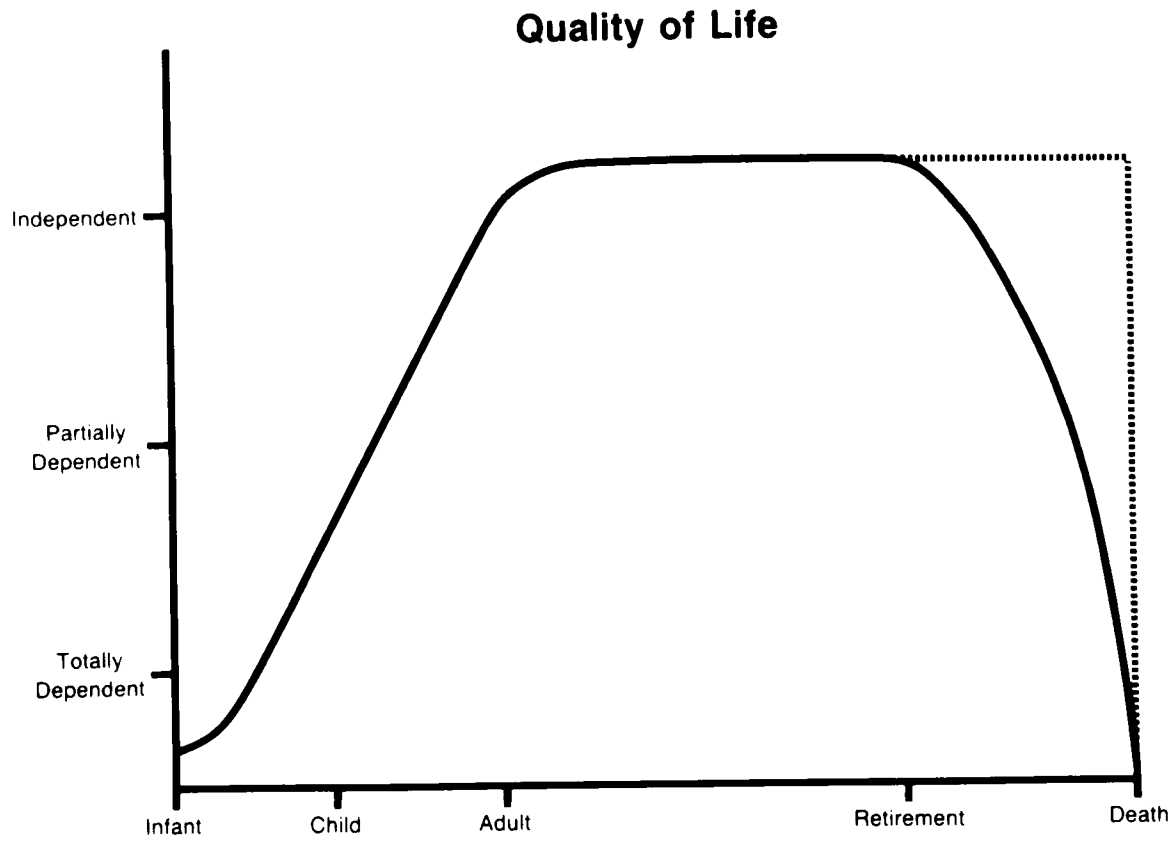


FIG. 2. Quality of life curve demonstrates senescence and sudden death.

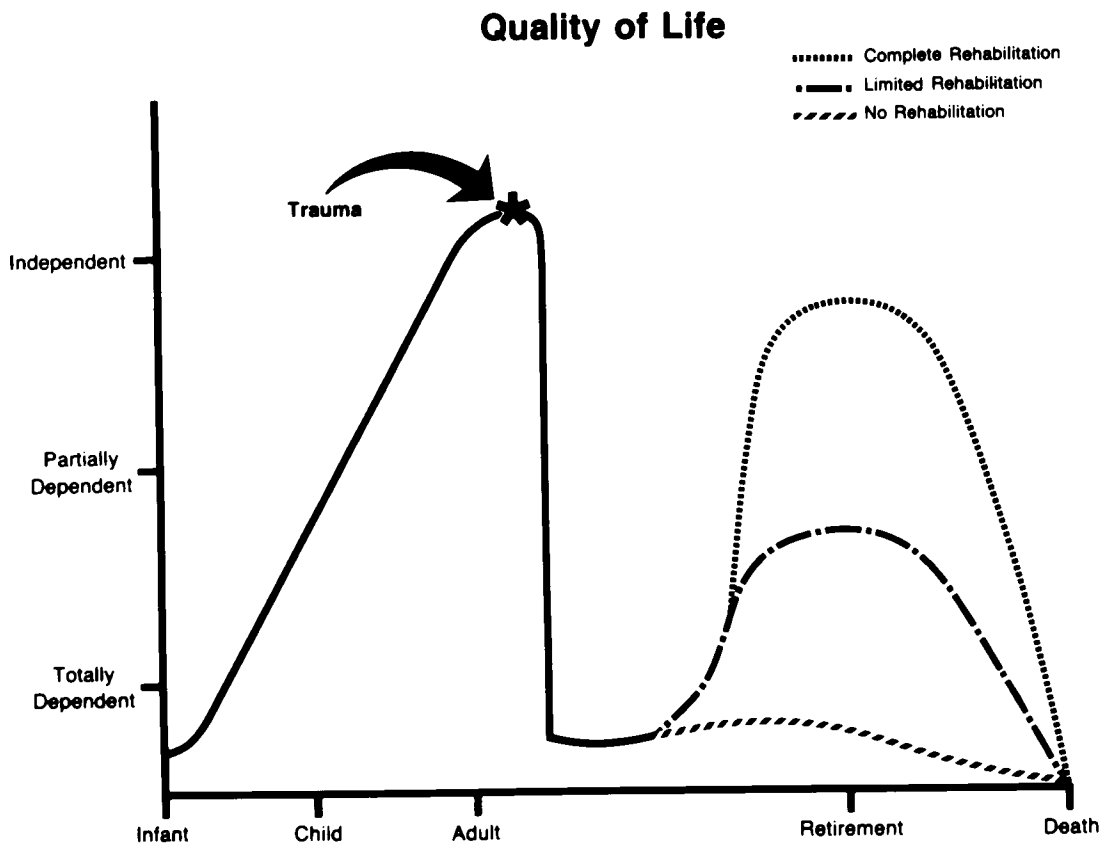


FIG. 3. Quality of life following trauma as a function of rehabilitation provided.

As surgeons, short of preventing the injury in the first place, it is in our patients' best interests to optimize outcome. Optimal care is the tenet of the American College of Surgeons Committee on Trauma and the resource documents that constitute the standards of trauma care in this country (1).

The Eastern Association for the Surgery of Trauma is a young organization but therein lies both its strength and its challenge. We cannot and should not passively accept the consistently grim statistics concerning trauma in our country. As citizens, we are all accountable, but as surgeons we bear a heavy responsibility to educate, to influence, and to speak out. We must be activists on issues of highway safety, including safety belt, child restraint, and helmet laws; on alcohol and drug abuse and their implications which permeate every injury mechanism and etiology; on firearms violence and its societal costs; on the broad issue of trauma care where policy should be set by those who care for the patients and not by administrators and special interest groups; and last, we must describe the goal of returning the injured to a productive existence whenever possible and emphasize the savings to society that follow. In his introduction to the 1988 symposium on motor vehicle injuries, Doctor David Harris of the New York Academy of Medicine asked the question, "Can it be that the horrors of motor vehicle traumas have become so commonplace—so much a feature of the modern American landscape—that we have come to accept them as part of existence?" (4). While attributing this lack of public resolve to society's icy indifference, it is a pervasive fatalism that remains the greatest obstacle to our ability to effect social policy. We as surgeons must dispel this fatalism and expose the cause-and-effect nature of the trauma problem if we are to overcome the barriers to injury control.

It has been a great privilege and honor for me to serve as the first President of E.A.S.T. All of us, but I espe-

cially, owe a great deal of gratitude to Doctors Howard Champion, Burton Harris, and Lenworth Jacobs, whose wisdom and vision brought an idea to reality and to other members of the Board of Directors who have toiled unselfishly in order to develop an Association based on congeniality and concern—concern for our patients, concern for each other, and concern for the future of trauma surgery. The legacy from the formative years of E.A.S.T. summon those who follow to continue the search for solutions to the trauma problem through good science and a good-spirited exchange of thoughts and ideas.

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