

Acceptance Speech of  
**PROFESSOR DONALD D. TRUNKEY**  
Co- Winner of the 2008  
King Faisal International Prize for Medicine  
Sunday 09 March 2008 (1.3.1429H)

Your Majesty, King Abd Allah Ibn Abd Al- Aziz  
Your Royal Highness, Prince Sultan Ibn Abd Al- Aziz  
Your Highnesses  
Your Excellencies

## Distinguished Guests

I am humbled and honored to share in this year's King Faisal International Prize in Medicine (Traumatology). I wish to thank King Abd Allah Ibn Abdul Aziz Al Saud, Patron of the King Faisal Foundation and [?? Will the crown prince be there?].

This prize is particularly significant to me at this time as I increase my efforts to improve trauma care delivery on an international basis. A prestigious prize such as this recognizes my efforts, but more importantly, recognizes the terrible impact injury has worldwide and in particular in developing regions. Injury often times causes premature death in young people and causes significant morbidity and/or mortality that has a negative impact economically on society and the injured person's family. It is now recognized that in the European market economies, the mortality is approximately 6% of all deaths every year. In contrast in developing countries, 11-14% of all deaths are due to trauma.

In order to reduce mortality and morbidity from intentional and unintentional injury, I have found it useful to approach the problem as a public health issue. I have looked at the cause of death as determined by autopsies, and these deaths have a trimodal distribution: immediate, early, and late deaths. The deaths in the immediate category usually occur at the scene of the injury, and include lacerations of brain, the brain stem, the upper spinal cord, the heart, or one of the major blood vessels. The second peak (early deaths) corresponds to people who die within the first hours after injury. Most of these deaths are attributable to major internal hemorrhage or to multiple lesser injuries resulting in severe blood loss. The third peak corresponds to patients who die days or weeks after an injury. These deaths are usually due to infection or multiple organ failure. It is this late death period that has had the most dramatic reduction and success rate in the last few years due to better critical care management. Early deaths have also been reduced by establishment of trauma systems and getting the patient to a designated trauma center as soon as possible.

It is the immediate deaths that are the most problematic in a public health paradigm. Most of these injuries are so severe that it is unlikely to save many of them by rapid transport to a trauma center, and it would require very short pre-hospital times. The primary way to reduce the number of immediate deaths is through prevention. Perhaps as many as 40% of all deaths from trauma could be averted by the introduction of various prevention programs. Most of these programs involve controversial social issues, however, so their chances of success are unpredictable. In the United States, approximately 35% of fatal motor vehicle accidents are caused by drunk drivers. An additional 15-20% are caused by drugs. Many programs have been set

up throughout the European market economies to address drunk driving and substance abuse. There has been some initial success. Another way of approaching prevention is to make automobiles safer. Mandatory usage of seat belts has been in place for approximately 40 years. More recently, airbags have had a major impact on reduction of fatalities; however, many of these patients end up with serious injuries. Motorcycle helmet laws have been used to reduce fatalities from motorcycle accidents, but in some states, these have been repealed. A study by the National Highway Traffic Safety Administration concluded that, "The use of a safety helmet is the single most critical factor in the prevention and reduction of head injury."

Prevention is particularly problematic in dealing with gun control. Again, this is a phenomenon that is found in Sub-Saharan Africa, Latin America, but also in some of the European market economies. There is no question that gun control laws do work, but in many countries, this is considered a violation of individual rights.

The major advances in trauma management and systems have occurred in Western societies, but systems are still imperfect, and many countries lag behind others in development of trauma systems. The greatest need, however, is in developing countries. Unfortunately, these countries lack even the basic components of a public health system, including ambulances, clinics, and hospitals that can care for the injured. In many instances, the problem is compounded by corrupt governments that do not use money donated to their countries for development of these public health systems.

There are several international surgical organizations that are committed to aid developing countries by education and consultation in system development. During the next few years, I plan to use the International Association for the Surgery of Trauma and Intensive Care and the parent organization, International Surgical Society, to do precisely this effort. This will require consultation and help from the World Health Organization, and in many instances, to get grant money from large charitable organizations, to sponsor education either in developed country universities or to go to the countries with the most problems to help establish education programs and curriculums in the already established universities. It is also my intent to try to reduce the "brain drain" from developing countries. Surgeons and nurses who are educated and trained in these countries should ideally remain there.

Again, I wish to thank the King Faisal Foundation for this humbling and honored award.