Dinner Address: Trauma Care Systems-What's the Catch?

Mark L. Rosenberg, MD, MPP; Daniel Pollock, MD; Richard Waxweiler, PhD

From the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia.

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The topic of trauma care systems is vitally important to this country; we have so much to gain, and helping to ensure its success is very important to the Centers for Disease Control (CDC). For you, as the nation's experts on trauma care systems (TCSs), to engage in this process of self-examination, asking yourselves "Where are we? Where do we want to go? And how do we get there?" is difficult but very important. Self-examination is never easy, but it may provide us an invaluable assist in moving trauma care systems forward.

Where We Are

Thirteen years ago, the book *Injury in America* laid out a path for the field of injury control and firmly established acute care as a critical part of the injury control field. *Injury in America* shaped the thinking of many academic researchers and safety and public health practitioners to believe that all three phases of injury control-prevention, acute care, and rehabilitation-are inextricably intertwined. It has led us to believe that our success in any one of these three is linked to success in the others. And it is. Now, the idea of a TCS seems simple: organize your health care resources so that injured persons are brought to the place that is appropriately equipped to deal with the nature and severity of their injuries. It seems simple, elegant in its simplicity, and completely convincing. Why hasn't it happened?

Has It Been for a Lack of Leadership?

During the past 30 years, there have been many who assumed the mantle of leadership in developing TCSs since the 1966 publication from the National Academy of Sciences, *Accidental Death and Disability*. Some of you here with us, like Don Trunkey, have been extraordinary leaders in this field for a long period of time.

David Boyd led the first TCS program in the federal government in the 1970s and really made a difference across the country. The National Emergency Medical Services (EMS) Act of 1973 carved up the country into 304 multicounty districts and awarded grants to create both trauma care systems and designated trauma centers in those districts. This helped to foster the idea of bypassing the nearest hospital when necessary. This program went out of business in 1981, when it was folded into the CDC Prevention Health Services Block Grant program.

The American College of Surgeons has published and republished criteria for designation of trauma centers and establishment of trauma systems since the mid-1970s. In 1987, the American College of Emergency Physicians published guidelines for trauma care systems and followed up with recommendations for quality improvement. In 1989, The National Highway Traffic Safety Administration (NHTSA) initiated its Development of Trauma Systems Course with a series of
national conferences and publication of a resource guide for system developers, and NHTSA's EMS Technical Assessment Teams began including trauma systems in their evaluation of state EMS programs.

In 1990, after much support from the American Trauma Society and others, the Federal Trauma Care Systems Planning and Development Act was enacted with an authorization for $60,000,000 to support trauma care systems through a variety of grant programs. However, this program was not funded at the $60 million level, only at the $5 million level. Before funding for this program was unfortunately ended in 1996, the Health Resources and Services Administration (HRSA) published its Model Trauma Care System Plan and began 4 years of awards to states to support planning and development of trauma care systems.

CDC, with guidance from Brent Eastman, Bill Schwab, Frank Lewis, Ric Martinez, Len Jacobs, Ellen MacKenzie, Howard Champion, and many others, contributed by leading a national consensus process, and, in 1991, published the position papers and National Plan from the Third National Injury Control Conference. The National Plan presented the idea of inclusive TCSs, called for extending TCSs nationwide, and outlined a TCS research agenda.

In 1992, the Coalition for American Trauma Care formed in an effort to provide additional national, private sector leadership in TCS development. In 1994, the National Institutes of Health published a task force report on trauma research, which called for new methods to evaluate trauma care systems on the basis of their performance and patient outcomes.

The most significant TCS leadership opportunity for CDC occurred when the National Center for Injury Prevention and Control was officially established in 1992. Seven years earlier, the authors of Injury in America had hoped that the creation of a national center for injury control might help to organize and lead national efforts in injury control, including the development of trauma care systems. And now, in 1998, CDC is the only agency funding both TCS research and state programs to specifically develop TCS.

**Research: Is Lack of Knowledge the Catch?**

You have been given some very impressive literature reviews at the meeting, and you can see that there is a substantial and growing body of information on TCS effectiveness. Let me mention just part of this work that CDC has sponsored, work that many of you have done or peer-reviewed, research that demonstrated that trauma care systems save lives and reduce the severity of the outcomes of injury:

- Many of our 10 multidisciplinary Injury Control Research Centers (ICRCs), (including UCLA, Harborview, UCSF, UAB, Johns Hopkins, and Pitt) carry out acute care research activities.
- We have funded 23 individual research grants addressing acute care, 13 of which specifically address TCS issues.
- Significant TCS research included funding of the Major Trauma Outcomes Study to establish norms for evaluating care (Howard Champion); evaluation of the effectiveness of a regional trauma system for urban and rural populations in Oregon (Rich Mullins) and for children in Pennsylvania (Dennis Durbin); general evaluation of EMS system factors (Gene Cayten); and specific evaluation of civilian vs. EMS transport in an urban setting (Ed Cornwell).
- We have invested in the development of methods for severity scoring of injury (Robert Holcroft), ocular injury (Ferenc Kuhn), and thermal injury (Jeffrey Saffle) that lay the...
foundation for outcomes evaluations.

We have also made tremendous progress in helping people to collect comparable trauma care information at the local level. Imagine the potential value of the data we would have if we had systems that used consistent guidelines to collect uniform data.

Trauma Registry Guidelines was published and software was made available to the more than 500 organizations that requested copies. More importantly, these guidelines were used by major software developers and have contributed to the progress that the American College of Surgeons and others have made in achieving our current level of standardized data collection.

DEEDS (Data Elements for Emergency Department Systems), a guideline for the computerized collection of emergency department data, was developed from national consensus. It is now being integrated into national standards and into new software being developed by private vendors.

How much more do we need to know to make TCSs a reality? The better questions may be "What exactly do we need to know? What information do we need and how do we get it?" By the end of this symposium, we should at least know what we need to know.

Programs: Is It for Lack of Trying? Is It a Lack of Experience?

We have set systems in place that should help us get to the bottom line, which is expansion of trauma care systems across the country. We know that the implementation of programs that save and improve lives, such as TCSs, is the eventual goal in injury control. To encourage the development of TCSs, we supported and worked closely with HRSA during the years that they supported state TCS programs. Recently, since the loss of that program, we have directly supported the development of TCSs through state health departments in Montana and Texas. We have assisted and applauded the efforts of the American College of Surgeons and their partners in developing the guidance document for states who are developing TCSs. According to the wonderful survey carried out by the National Association of State EMS Directors, there is still a substantial part of our country without TCSs. The market for guidance in TCS development is still substantial.

Barriers to the Development of Trauma Care Systems

With all of this leadership, knowledge, and experience, one might expect that TCSs would have flourished throughout the country by now. But they haven't. One would expect that the federal government would be encouraging every state with seed money to develop TCSs. But it isn't. What's the problem? What's the catch?

We are missing critical information, and we need to get it together. What is it? First, we need to agree on a definition of the TCS that we are talking about. We need clarity and agreement from all interested parties. We also need broad buy-in up front by the right people, including health care professionals, policy analysts, and economists. We should listen to and learn from Jeff Michaels' experience at NHTSA with the EMS Vision Process. He brought EMS experts together with representatives of the relevant federal agencies as well as state and community groups and politicians.

Some of the issues we need to examine include:

Effectiveness
How effective is each part of the TCS, and how effective are these parts when combined into a complete system? It is obvious that we need much more knowledge about what works in the prehospital setting, the emergency department, the surgical department, and during the rehabilitation process. We need evidence that hospital and managed care decisionmakers can use to change practices and continually improve them. Furthermore, we know much less than we should about effective implementation of these interventions in a trauma center and the effectiveness of trauma centers in various systems settings. We know very little about their value from the perspective of the payers. For instance: How effective is the TCS when seen as part of the larger healthcare system? How well does the TCS work with different modes of healthcare delivery? Who pays the costs and what is the cost-effectiveness? What are the best ways to address unreimbursed trauma care for indigents? What different structures are needed for urban, suburban, and rural settings? Are they meeting the needs of the community? Is the TCS contributing to our prevention knowledge by providing surveillance data? How do we make sure TCSs are implemented with and for the community? How can we continually improve it?

The most important barriers to the development of TCSs, especially the economic barriers, may well be local ones. Hospital administrators are concerned that if their hospitals become trauma centers, then they may not be reimbursed for large amounts of trauma care for indigents. On the other hand, if a competitor becomes a trauma center, they might lose paying nontrauma patients to them as well. For all of these, we need to say what we know and to prioritize what we still need to know. We need a focused and prioritized research agenda. The bottom line is that we cannot wait for perfect knowledge; to accelerate progress, we need to be systematic and organize our development of new knowledge about TCSs.

We Need to Communicate More Effectively

Communication is a problem for everyone. In far too many situations, doctors are downright terrible communicators. I recently had surgery to repair a torn tendon in my right foot. After the surgery, my doctor told me to rest in bed for 10 days with my foot higher than my heart at all times. No one told me that if I took painkillers and lay on my backside, I would get bedsores after only 3 days. And then what position would be available? Things would have been much better if I had been instructed ahead of time on methods of avoiding pressure ulcers. Once I was up and walking on crutches, I fell over backwards trying to get up the concrete steps in front of my home. No one had told me how to get up steps on crutches. The communication of simple information could have made a world of difference. My point? We can do a better job of communicating, in this case about TCSs. Once we get the information, we need to use it effectively.

What do people know about trauma care? What do people know about TCSs, or the answers to those questions I have just listed? Are people aware of how trauma care really is provided? I am afraid that they learn what goes on in emergency departments from the television shows "ER" and "Chicago Hope." People think that if they get hurt, they will magically end up at the right place at the right time, and then they will automatically get care of that caliber. Most people don't even know what a trauma care system is. Have you ever asked a stranger at a cocktail party if he or she is covered by a trauma care system? Do they have any idea where they would be taken after a car crash? Or the quality of care they might receive? Public awareness can significantly affect political outcomes. To bring about the changes we want, who needs to know? What do they need to do? What is it they need to know so they will do what needs to be done? In other words, how do we create advocates? How do we speak to, treat, care for, and care about our patients to get them to become advocates? How do we build a movement based on the experiences of individual patients, the survivors of trauma care? We need to see their faces and hear them tell their stories.
It is hard to sell prevention, but this is best done when connected to acute care. Few people would voluntarily pay $10 a year for cancer prevention, but that totally changes once they are told they have it. At that point, they would pay $10 a minute. It is the same with me and my leg: I would have paid big bucks if, knowing what I know now, I could have avoided surgery.

We all need effective partnerships. Right now, the leadership and the supportive public and private organizations interested in TCSs are somewhat isolated from each other. Because of this, they do not have a very loud voice. Because resources are scarce, this creates competition that discourages working together toward one goal—the development of TCSs. And with the field fractionated, advocates for particular issues do not have the clout they would have if they could speak for the field as a whole.

**The Solution**

What will it take to overcome these barriers?

**Research**

You are the experts. You need to identify the key research issues that must be addressed before we can convince managed care organizations, hospital administrators, and local legislators that TCSs are effective in improving outcomes and are worthwhile. Once we demonstrate that TCSs are effective in reducing deaths, disabilities, and the severity of injuries, we must then show that they are cost-effective. It is important to us, to NHTSA, and throughout the Department of Health and Human Services that your efforts here at Skamania will lead to a research agenda, not an inventory of every possible research idea that 100 scientists can imagine, but a highly selective, prioritized research agenda that can capture the attention of funding organizations.

**Local Information**

Secondly, TCSs are not, in the end, theoretical units. They must operate within a community. That community can benefit from the information collected on it by the TCSs. Local data are needed by communities to assess the public health burden of injury and the effectiveness and costs of trauma care. A TCS should be a community information system. From a public health perspective, information systems are most valuable when all prehospital providers, acute care hospitals, and rehabilitation services contribute. Individual trauma center databases, although useful in assessing hospital performance, provide an incomplete view of the trauma problem in a community, local response capabilities, and expenditures. Population-based data are needed for a comprehensive assessment. In the future, TCSs will become even more important resources for developing, testing, and implementing specific injury countermeasures, particularly clinical preventive services.

**Partnerships**

Third, we need to form a coalition on the national level that will work together to promote TCSs. This is not a new idea. Ken Mattox envisioned a Federation of Trauma Organizations and convened an organizational meeting 2 years ago. Unfortunately, the momentum slipped away. CDC would like to reinvigorate that effort by supporting an organizational structure that can nurture an ongoing national coalition. We will commit to the development of this coalition under the SAFE USA partnership council, which includes NHTSA, HRSA, the American Trauma Society, and CDC.
As the authors of *Injury in America* pointed out, it is critical that acute care be linked to prevention. Thus, a TCS coalition should be linked to prevention through the SAFE USA coalition. *Injury in America* detailed some of the benefits for trauma care and injury prevention that could be realized by linking the two. These benefits still exist today. The most important of these is stronger advocacy from a combined constituency, not only at the national level but also at the state and local levels. In addition, prevention research evolves naturally from trauma care. The opportunities to identify new injury problems are enormous in the acute care setting. Furthermore, the acute care setting provides a natural link because it is a golden opportunity for prevention. Providers can facilitate prevention because they have a captive audience, respect from the public, and the motivation to prevent repeat visits. Studies have shown that about 20 percent of persons visiting emergency departments for injuries return with another injury within a year. That is what a public health practitioner would call a very high-risk population, one worthy of intervention efforts in the clinical and nonclinical settings. These are powerful reasons to connect prevention and acute care.

Linkage among advocacy groups is a critical survival skill these days for influencing public policy and garnering support. And today more than ever, we need to use coalitions to get the attention and commitments of key legislators. Harry Teter was very effective in doing this when the Trauma Care Systems Planning and Development Act was under debate in Congress. And he continues to make inroads in the congressional appropriations arena. The American Trauma Society is an example of an organization that can be an effective locus for TCS coalition efforts.

**Public Awareness**

Finally, we must understand what the public knows and needs to know about TCSs. NHTSA has already convened focus groups to assess public attitudes and awareness of EMS. We need to build upon those efforts. Our Safe USA program will develop a broad public communications campaign to change the public perception of safety, including the role of TCSs.

**Closing**

I would like to close by asking each of you to make every effort you can to produce a concise document from this conference and to work with your professional associations after this conference to turn that document into action. We pledge to you that we will work with you and with the broader group of partners committed to TCSs to get the support we need to improve the research, local data, and public awareness required to promote TCSs. Thank you.


Address for reprints: Mark L. Rosenberg, MD, MPP, Director, National Center for Injury Prevention and Control (K02), Centers for Disease Control and Prevention, 4770 Buford Highway, NE, Atlanta, GA 30341; Fax: 770-488-4422.