# Is your state prepared to respond to trauma?

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In 2001, with the reestablishment of the Trauma-EMS (emergency medical services) Systems Program, the Health Resources & Services Administration (HRSA) began to assess state trauma systems across the country. In August, HRSA released the results of its report, *A 2002 National Assessment of State Trauma System Development, Emergency Medical Services Resources, and Disaster Readiness for Mass Casualty Events.* This survey looked at each state's trauma/EMS program and infrastructure and its ability to respond to injuries.

### Background

In 1990, the Trauma Care Systems Planning and Development Act was signed into law. This groundbreaking legislation provided the framework necessary to assist states in developing, implementing, and monitoring statewide trauma care systems. Eighty percent of the funds appropriated for the program are used for trauma care system grants to individual states and U.S. territories. Additional funds are targeted to provide grants to public and not-for-profit entities for conducting research and demonstration projects on methods for improving the availability and quality of EMS and trauma care in rural areas.

An annual amount of $4.8 million was appropriated to the program for fiscal years (FYs) 1992, 1993, and 1994. Ironically, in 1995, the funding was rescinded to pay for disaster relief legislation, and the trauma-EMS program, then called the Division of Trauma and Emergency Medical Services (DTEMS), ceased to exist.

At the urging of the American College of Surgeons, Congress reestablished funding in 2001 at $3 million, and DTEMS, now called the Trauma-EMS Systems Program, was revived. The program continued to secure funding of $3.5 million in FYs 2002 and 2003. Congress is currently debating the FY 2004 Labor, Health & Human Services, and Education Appropriations bill, which has once again set funding for the program at $3.5 million.

To date, every state in the country has received funding under the program for a number of purposes, such as: establishing a state lead agency to administer a trauma system; developing state and regional trauma system plans; drafting state legislation to permit the development of trauma systems and the designation of trauma centers; and training EMS personnel in trauma assessment and triage protocols. In addition, rural grants were awarded to support studies on such subjects as: preventable trauma mortality in rural areas; training and skill maintenance for rural emergency medical services providers; and the impact of triage, documentation, and transport protocols on patient outcomes. Finally, special initiative grants were awarded to address access impediments or to assess emerging issues related to trauma and EMS systems, including the development of 9-1-1 telephone systems in rural areas and enhancement of the ability of EMS personnel to recognize victims of domestic violence for appropriate referral.

### Status

When the Trauma-EMS program was reestablished in 2001, the first step was to determine the status of state trauma systems across the country. According to the Senate report that accompanied the FY 2001 appropriations bill, the funds were "...intended to improve the nation's overall emergency medical system, including the joint efforts between HRSA and the National Highway Traffic Safety Administration (NHTSA) to assess state systems and recommend improvements to the current system."[1] With the approval of the Office of Management and Budget, and under the guidance of the HRSA Trauma-EMS Systems Program and the Office of Rural Health Policy, a national assessment survey was developed. Additional organizations had input into the development of the survey including NHTSA, the Maryland Institute for Emergency Medical Services Systems, and the Center for Injury Research and Policy at the Johns Hopkins Bloomberg School of Public Health.

To complete the survey, states were required to establish trauma-EMS stakeholders panels. These councils included representatives from EMS and hospital administrators, trauma nurses and surgeons, rural health officials, pediatric representatives, public health officials, and citizen advocates. Each state received approximately $40,000 to complete the needs assessment survey and send the results to HRSA.

For the trauma system development component of the survey, two sources were used to generate questions that could accurately determine a state's current trauma system status. First, in 1988, John G. West, MD, FACS; Donald D. Trunkey, MD, FACS; Charles C. Wolferth, Jr., MD, FACS; and Michael J. Williams, MPA, published "Trauma Systems: Current Status—Future Challenges" in the *Journal of the American Medical Association*. In this article, the authors established eight "key criteria" for a properly functioning trauma care system. These questions were repeated in similar articles in 1993 and 1998. Seven of the original criteria were used in this new survey. Second, during the 1993 reassessment of the criteria first identified by West and others, additional questions were posed that were "designed to identify key structural and operational characteristics of functioning trauma centers and systems."[2] These questions were added to the survey.

### Survey results

The results of the survey indicate that states continue to make progress toward organizing successful trauma care systems, but, due to significant financial shortfalls, the presence of key trauma care system components continues to vary across the country. "Survey results specific to EMS resources suggest that Americans have some degree of ready access to well-trained prehospital emergency personnel...but 10 to 25 percent of the U.S. population do not have access to basic emergency medical and communications services."[2]

Because the survey was conducted after September 11, 2001, it provides many details regarding a state's ability to handle a mass-casualty event. The findings conclude that although most states have developed "disaster readiness plans," the programs and policies of these plans are incomplete.[3] Although communication systems remain fragmented, it is important to note that the survey questions were asked just a few months after 9/11, and states have successfully improved their systems for a mass-casualty event since then.

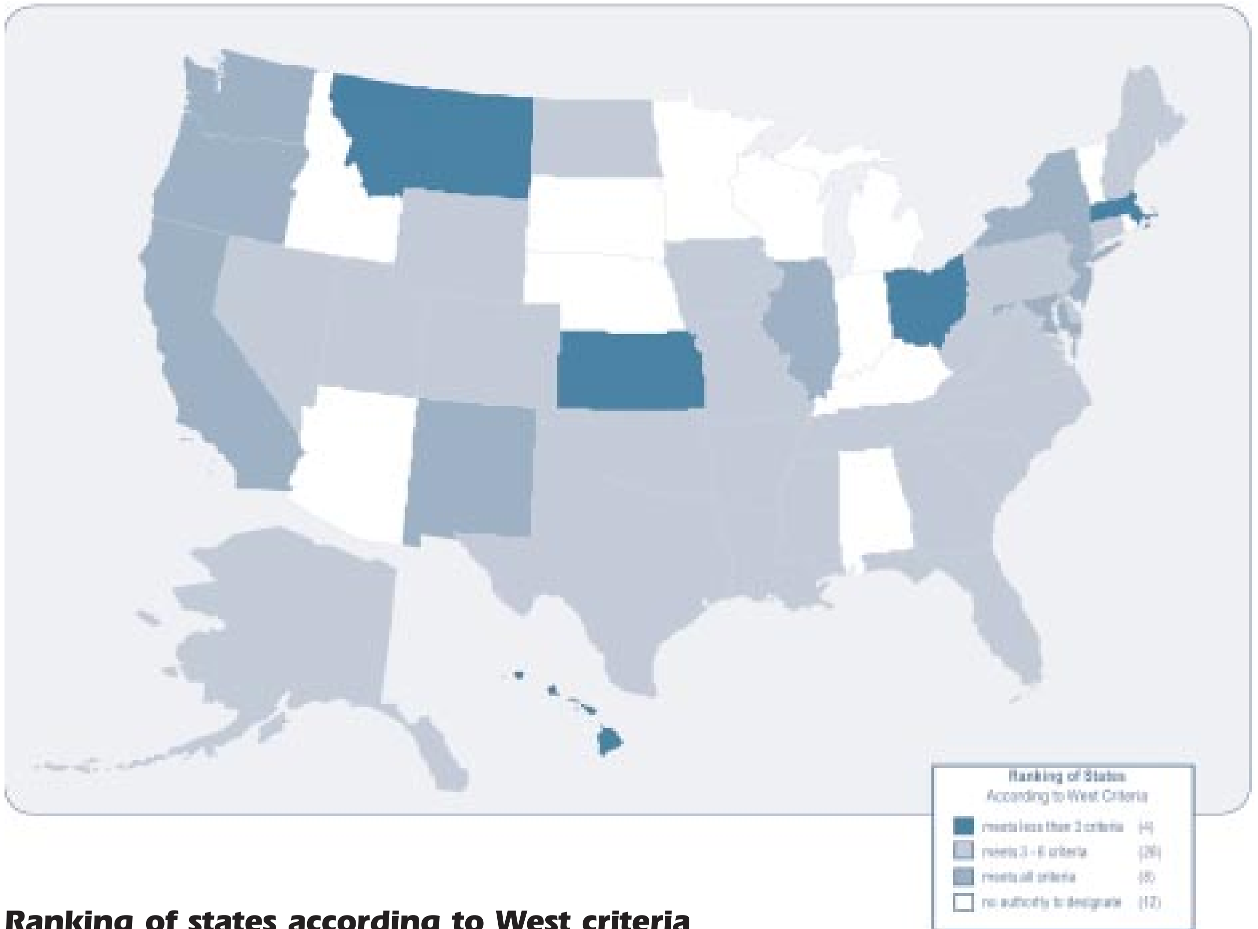
Using seven of the original West criteria, the survey posed the following questions to determine states' trauma system development:

1. Does your organization have the legal authority to formally designate and accredit hospital trauma centers?
2. Does your organization or some other organization designate, verify, accredit, and categorize hospital trauma centers within your service area?
3. What sources or guidelines were used as a basis for the trauma center standards in your service area?
4. Is an on-site hospital visit required to determine a hospital's initial compliance with trauma center standards?
5. Were (or will) the number of trauma centers identified for your service area (be) limited based on the results of a needs assessment?
6. What type of transport practice occurs in your service area when a field assessment identifies a trauma patient with severe injuries that threaten loss of life or limb?
7. Is a trauma registry present in your service area?

## State assessment of West criteria

| State | Authority | Designation | Standards | Survey | Limit | Protocols | Monitor |
|---|---|---|---|---|---|---|---|
| Alabama | No | No | — | — | — | — | — |
| Alaska | Yes | Yes (1996) | Yes | Yes | No | No | Yes |
| Arizona | No | No | — | — | — | — | — |
| Arkansas | Yes | Yes (2002) | Yes | Yes | No | No | Yes |
| California | Yes | Yes (1980) | Yes | Varies | Yes | Yes | Yes |
| Colorado | Yes | Yes (1998) | Yes | Yes | No | Yes | Yes |
| Connecticut | Yes | Yes (1995) | Yes | Yes | No | Yes | Yes |
| Delaware | Yes | Yes (1998) | Yes | Yes | No | Yes | Yes |
| Florida | Yes | Yes (1985) | Yes | Yes | No | Yes | No |
| Georgia | Yes | Yes (1981) | Yes | Yes | No | No | No |
| Hawaii | Yes | Yes (1995) | Yes | Yes | No | Yes | No |
| Idaho | No | No | — | — | — | — | — |
| Illinois | Yes | Yes (1980) | Yes | Yes | Yes | Yes | Yes |
| Indiana | No | No | — | — | — | — | — |
| Iowa | Yes | Yes (2001) | Yes | Yes | No | Yes | Yes |
| Kansas | Yes | No* | — | — | — | — | — |
| Kentucky | No | No | — | — | — | — | — |
| Louisiana | Yes | Yes (1980) | Yes | Yes | No | No | No |
| Maine | Yes | Yes (1990) | Yes | Yes | No | Yes | Yes |
| Maryland | Yes | Yes (1973) | Yes | Yes | Yes | Yes | Yes |
| Massachusetts | Yes | No* | — | — | — | — | — |
| Michigan | No | No | — | — | — | — | — |
| Minnesota | No | No | — | — | — | — | — |
| Mississippi | Yes | Yes (2000) | Yes | Yes | No | Yes | Yes |
| Missouri | Yes | Yes (1987) | Yes | Yes | No | No | No |
| Montana | Yes | No* | — | — | — | — | — |
| Nebraska | No* | No | — | — | — | — | — |
| Nevada | Yes | Yes (1988) | Yes | Yes | No | Yes | No |
| New Hampshire | Yes | Yes (1997) | Yes | No* | No | Yes | No |
| New Jersey | Yes | Yes (1981) | Yes | Yes | Yes | Yes | Yes |
| New Mexico | Yes | Yes (1986) | Yes | Yes | Yes | Yes | Yes |
| New York | Yes | Yes (1990) | Yes | Yes | Yes | Yes | Yes |
| North Carolina | Yes | Yes (1982) | Yes | Yes | No | No | No |
| North Dakota | Yes | Yes (1993) | Yes | Yes | No | Yes | No |
| Ohio | Yes | No* | — | — | — | — | — |
| Oklahoma | Yes | Yes (2001) | Yes | Yes | No | Yes | Yes |
| Oregon | Yes | Yes (1987) | Yes | Yes | Yes | Yes | Yes |
| Pennsylvania | Yes | Yes (1986) | Yes | Yes | No | Yes | Yes |
| Rhode Island | No | No | — | — | — | — | — |
| South Carolina | Yes | Yes (1980) | Yes | Yes | No | Yes | No |
| South Dakota | No | No | — | — | — | — | — |
| Tennessee | Yes | Yes (1980) | Yes | Yes | No | Yes | No |
| Texas | Yes | Yes (1993) | Yes | Yes | No | Yes | Yes |
| Utah | Yes | Yes (1985) | Yes | Yes | No | No | Yes |
| Vermont | No | No | — | — | — | — | — |
| Virginia | Yes | Yes (1981) | Yes | Yes | No | Yes | Yes |
| Washington | Yes | Yes (1993) | Yes | Yes | Yes | Yes | Yes |
| West Virginia | Yes | Yes (1989) | Yes | Yes | No | No | Yes |
| Wisconsin | No | No | — | — | — | — | — |
| Wyoming | Yes | Yes (2001) | Yes | Yes | No | No | Yes |
| Total Yes | 38 | 34 | 34 | 32 | 8 | 25 | 23 |

— = Not applicable  *In process




**Ranking of states according to West criteria**

8. Do you have a designated trauma advisory committee that evaluates the performance of trauma care delivery within your service area?

The table on page 15 provides an overview of the responses to the survey, and the map on this page ranks states' ability to meet the West criteria.[3] A summary and discussion of the results follows.

- *Legal authority to designate trauma centers.* A total of 38 states now have the legislative authority to designate trauma centers. This is an increase from the 19 states that had this authority in 1988. Four additional states that "identify" hospitals as ACS-designated trauma centers may be added to this list, bringing the total to 42.

- *Formal process for designating trauma centers.* The number of states that have initiated a formal process for trauma center designation has increased dramatically. Since 1988, this number has climbed from 19 to 34.

- *Use of ACS standards for trauma center designation.* The American College of Surgeons has played an important role in developing the trauma center designation process by creating the standards necessary to achieve Level I through IV status. The number of states using some form of ACS criteria has increased from 20 in 1988 to 34 currently. Nine states that do not have legislated trauma systems recognize ACS standards and use them for trauma center designation.

• *On-site hospital verification of compliance with trauma center standards*. These visits are designed to ensure that hospitals that have already been formally designated as trauma centers maintain those high standards. This number has dropped from 37 in 1988 to 36 today.

• *Number of designated trauma centers limited based on community need*. The original 1988 West study concluded that it was important for states to limit the number of designated trauma centers based on community need. The reasoning behind this theory was to keep crucial resources and personnel at key hospitals to treat severe and complex injuries. The number of states that limit the number of designated trauma centers based on community need has grown from five to eight since 1993.

• *Prehospital triage criteria allowing for the bypass of nondesignated hospitals*. It is very important that emergency medical personnel be allowed to bypass nondesignated centers to deliver critically injured patients to the center that can best treat their injuries. In 1993, 18 states had implemented triage bypass protocols. The new survey found that 25 states now have these protocols.

• *Processes to monitor trauma system outcomes*. The establishment of a state trauma registry and committee that monitors patient outcomes is considered an important component of any trauma care system. These elements may provide valuable information in determining a system's strengths and weaknesses. From 1993 to today, this number has increased from 18 to 23, a small but important improvement.

### Other survey characteristics

In addition to the information discussed above, the HRSA survey also looked at very detailed and specific characteristics of selected trauma centers as well as trauma systems. These characteristics included the limitations of a hospital's initial designation as a trauma center, hospital standards specific to pediatric care, and burn referral centers. Characteristics discussed for trauma systems were divided into three categories: prehospital categorization and triage, interhospital transfer arrangements, and trauma registry submission information. To order a copy of this survey, go to *http://www.ask.hrsa.gov/detail.cfm?id=HRS00327.*

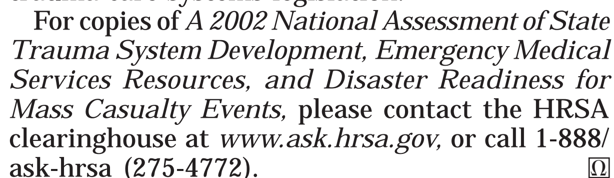
### What's next?

The findings from this survey confirm that the status of trauma care systems in this country have improved dramatically over the last decade. But great strides still need to be made to protect the lives and limbs of trauma victims. Many of the successes discussed in this article are largely due to the passage and subsequent years of funding of the Trauma Care Systems Planning and Development Act.

When asked to identify the number one weakness of its trauma systems, a lack of funding was the overwhelming response from all states.[3] Just as illuminating is the fact that while the number one weakness listed was financial, the number one strength identified was system planning and operation.

### Action needed

Both federal and state policymakers need to recognize the importance of having a fully funded trauma system that responds to both conventional injuries and acts of unconventional terrorism. Please visit the College's Legislative Action Center at *http://capwiz.com/facs/home/* to encourage your congressional delegation's support for the trauma care systems legislation.



For copies of *A 2002 National Assessment of State Trauma System Development, Emergency Medical Services Resources, and Disaster Readiness for Mass Casualty Events,* please contact the HRSA clearinghouse at *www.ask.hrsa.gov,* or call 1-888/ask-hrsa (275-4772). Ω

### *References*


1. Senate report 106-293 to accompany S. 2553, May 12, 2003, p. 73.
2. Bazzoli GJ, Madura KJ, Cooper GF, and others: Progress in the development of trauma systems in the United States: Results of a national survey. *J Am Med Assoc*, 259:3597-3600, 1988.
3. U.S. Department of Health and Human Services' Health Resources and Services Administration: *A 2002 National Assessment of State Trauma System Development, Emergency Medical Services Resources, and Disaster Readiness for Mass Casualty Events*. Report on the Trauma-EMS Systems Program. Rockville, MD:HHS, August 2003.