

THE INFORMED PATIENT

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A Dangerous Gap in Trauma Care

Systems to Transfer Patients  
To Best-Equipped Hospitals  
Fall Short in Most States  
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Catapulted off his motor scooter after hitting a deer in Big Lake, Minn., last month, 74-year-old Robert Johnson was bleeding internally from a ruptured kidney and spleen and had multiple broken bones when he was brought by ambulance to the emergency room at Monticello-Big Lake Hospital.

Staffers at the small community facility quickly arranged for Mr. Johnson, a pastor, to be transported via helicopter to North Memorial Medical Center, a designated Level I trauma center that serves

Minneapolis and areas to its northwest. There, specialists with high-tech imaging equipment inserted a tiny filter in one of Mr. Johnson's veins to prevent potentially deadly complications from the bleeding, and another device to prevent his kidneys from leaking fluid into his body.

"I should have been dead after what happened to me," Mr. Johnson says. "The local hospital just didn't have the facilities to take care of my injuries, but I was lucky that there is a web of protection in Minnesota."

[photo]

Emergency responders in Kentucky rush an injured patient to transport after a car crash.

Many patients in the U.S. who are severely injured aren't so lucky. Trauma from injuries including accidents, falls and violence is the leading cause of death for Americans under the age of 44, claiming more than 140,000 lives and permanently disabling 80,000 people annually. But only one in four lives in an area served by a coordinated system to transfer patients to designated trauma centers from less-equipped hospitals, according to the American College of Surgeons, which sets standards for trauma care. And only eight state trauma systems met nationally recommended preparedness levels in a study by the federal government after the Sept. 11, 2001, terrorist attacks. While some progress has been made, many states remain woefully unprepared, trauma experts say.

Efforts are under way to develop a national trauma system to ensure referral of severe injuries to qualified centers, but funding is tight. In the meantime, it's often up to patients and families to be prepared and know what level of trauma care their local hospital can provide before an accident happens -- or what arrangements the hospital has to transfer patients if necessary. Patients can check out the American College of Surgeons Web site, which has a list of verified trauma centers and the level of care they provide ([www.facs.org/trauma/verified.html](http://www.facs.org/trauma/verified.html)).

At highest risk are those in rural areas, where nearly 60% of trauma deaths occur even though such areas account for only 20% of the population. But some big cities such as Washington and heavily populated states such as California are still struggling to put all the pieces of a failsafe trauma system together. Since 1990, the federal government has provided only about \$34.1 million to help develop statewide trauma systems. A law passed in the spring authorized an additional \$12 million for all 50 states. Some states have passed or are considering their own legislation to create formal trauma systems.

While the biggest threat, of course, is a mass casualty like a natural disaster or terrorist attack, hundreds of thousands of victims suffer injuries each year that can quickly turn into life-threatening events, from car crashes and gunshot wounds to falls or a child's injuries on a football field. Studies show that patients who suffer traumatic injury

are 25% more likely to survive if they are treated at a verified trauma center.

[chart]But emergency departments are plagued with overcrowding and long waits, which make it harder to determine quickly which patients are in need of transfer. And while many community hospitals may have experienced surgeons on staff, often there is no on-call system to make them available 24/7.

"While patients can pick and choose where to go for elective procedures, if you are in a car accident or fall off a ladder, you are at the mercy of the system -- or the lack of a system," says A. Brent Eastman, chief medical officer of Scripps Health, a nonprofit health system based in San Diego, and an American College of Surgeons trauma expert. "Americans think if they call 911 that everything is going to be taken care of, but there has to be a trauma system in place to ensure that you are taken to a center that can provide the level of care commensurate to the degree of your injury," Dr. Eastman says.

While local and state authorities designate trauma facilities, the American College of Surgeons verifies their level of expertise: Level I centers are the most highly equipped, with a full range of specialists and equipment such as CT scans available 24 hours a day, as well as trauma research and education programs. Level II centers provide trauma care but aren't required to do research or have a surgical residency program. Further down the chain are Level III centers, which don't have all the specialists but can perform emergency resuscitation, surgery and intensive care of most trauma patients, and have transfer agreements with higher-level centers. Finally, Level IV centers can stabilize and treat severely injured patients in remote areas where no alternative care is available.

Michael Rotondo, who heads the American College of Surgeons group that consults on trauma-system development, suggests that consumers who aren't located near a Level I or II trauma center should ask if their local hospital has staffers trained in the Advanced Trauma Life Support Course, which is used to train emergency workers around the world. And they should ask whether the hospital has a transfer arrangement with a trauma center, especially since ambulances often take patients directly to the nearest hospital or to hospitals specified by local ordinance.

State health-department Web sites usually have information on trauma care; if there is no formal trauma system in place, Dr. Rotondo urges residents to lobby local and state officials to create one, no matter how rural or remote the community.

Trauma systems coordinate care in a specified geographic region with air-transport arrangements and written transfer agreements between hospitals that cut through red tape. In San Diego, for example, which created a trauma system two decades ago, the mortality rate from preventable deaths has dropped to just 1% from 22%. Triage experts working by phone can quickly help determine if a patient is severely injured. They can then guide emergency responders -- including firefighters, emergency medical technicians and ambulance drivers -- to the nearest trauma center instead of just the nearest emergency room.

A recent beneficiary of the San Diego system was Bubba Blackwell, a stunt rider who suffered massive injuries in a crash when he attempted to jump over 22 cars with his motorcycle at an event in nearby Del Mar in July 2001. With a shattered pelvis, broken vertebrae and ribs, punctured lungs and a severe head injury, he was immediately taken by helicopter to the Scripps Memorial Hospital in La Jolla -- rather than another facility not designated as a trauma center. There an MRI revealed a subdural hematoma. "Not only did I recover, but everything still works," says Mr. Blackwell, who credits the trauma center with saving his life.

Some large trauma centers work closely with hospitals in their region to create their own de facto system. The Department of Surgery at the Brody School of Medicine at East Carolina University worked with University Health Systems of Eastern Carolina over the past five years to develop the Pitt County Memorial trauma center in Greenville, N.C. The center hired experts in surgical critical care, paying specialists extra to be on-call 24 hours, and bought new high-tech equipment. And it set up transfer arrangements and collaborative agreements with 19 other regional hospitals.

Over five years, according to Dr. Rotondo, head of Brody's surgery department and chief of trauma at Pitt County Memorial, the death rate in severely injured adult patients fell from 22.4% to 16.4%, and fell in injured children from 27% to less than 10%, saving more than 200 lives. The cost -- \$15 million or about \$70,000 per patient -- is a bargain, he says.

Minnesota, meanwhile, is attempting to improve its system and has provided 80 grants of up to \$5,000 to hospitals for equipment or training. Larger trauma centers like North Memorial, where Mr. Johnson was treated, also help train physicians and nurses in nearby hospitals to better recognize the less-obvious trauma cases and quickly transfer patients they can't handle.

"The more they know, the quicker they can make the decision to move patients up the chain of care," says Kevin Croston, surgical director of trauma at North Memorial and chairman of the state trauma committee. "If someone walks into a rural hospital with an ax in their head, it shouldn't take three hours to make the decision that he needs a neurosurgeon."