

For gunshot and stab victims, on-scene spine immobilization may do more harm than good

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Immobilizing the spines of shooting and stabbing victims before they are taken to the hospital -- standard procedure in Maryland and some other parts of the country -- appears to double the risk of death compared to transporting patients to a trauma center without this time-consuming, on-scene medical intervention, according to a new study by Johns Hopkins researchers.

The findings, published in January issue of the *Journal of Trauma*, suggest that prehospital spine [immobilization](#) for these kinds of patients provides little benefit and may lethally delay proven treatments for what are often life-threatening injuries. Wounds from guns and knives are often far from the spine, yet patients are routinely put in a cervical collar and secured to a board, the investigators say.

"If you're twice as likely to die, that seems like a bad thing to do," says Elliott R. Haut, M.D., an assistant professor of surgery at the Johns Hopkins University School of Medicine and the study leader. "We like to use interventions that preserve life."

Haut says he hopes that as a result of his study, Maryland will consider changing its protocol, which encourages spine immobilization for nearly all shooting and stabbing victims.

The researchers caution that spine immobilization has been shown to be well worth the time and quite effective in saving lives and reducing disability from injuries sustained in car crashes and similar events.

One finding that Haut says startled his team: Some of the least injured gunshot or stab wound victims appear to be at greater risk of death if time is spent on prehospital immobilization.

"The patients who are very, very severely injured from their penetrating trauma are going to die no matter what you do," says Haut, a trauma surgeon at The Johns Hopkins Hospital. "But if someone is stabbed in the lung or shot in the liver, what we do for them and how fast we do it make a huge difference. That time difference in getting them to the hospital for treatment may make the difference between life and death."

EMTs and others who immobilize gunshot and stab wound patients don't intend to do harm, Haut emphasizes, but a cervical collar may, for example, conceal an injury to the trachea or make inserting a needed breathing tube more difficult.

The merits of other prehospital protocols, such as the need for universal intravenous fluid administration, have also been called into question in recent studies.

Haut and his colleagues looked at records from more than 45,000 patients with penetrating trauma included in the National Trauma Data Bank from 2001 to 2004. They calculated that the chance of benefiting from spine immobilization in those cases was 1 in 1,000, while 15 additional people potentially died for every 1,000 shooting or stabbing victims immobilized before being taken to the hospital.

"The idea of putting a board and collar on everybody is probably not the way to go," Haut says.

While standard protocol in Maryland requires spine immobilization for nearly all patients with bullet and knife wounds, there is more flexibility in other jurisdictions, Haut says. In the national data used by his group, only 4.3 percent of shooting and stabbing victims were immobilized before being

taken to the emergency department.

Provided by Johns Hopkins Medical Institutions

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