

Improving trauma care and saving lives in Iowa

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For over two decades the University of Iowa Injury Prevention Research Center (UI IPRC) has played a key role in Iowa's trauma system— from its development to its evaluation. Our research using the Iowa trauma registry has focused on optimizing trauma care for rural populations, ranging from children to farmers to the elderly.

The UI IPRC's research informs the Iowa Trauma System.

Our research using the Iowa Trauma Registry has found:

- ⇒ Private vehicle transport of pediatric trauma patients was a risk factor for undertriage (when a patient is transported to a hospital that doesn't have the trauma capacity to treat them).
- ⇒ Nearly 43% of severe pediatric trauma patients arrived by private vehicle, and there was an almost 47% overall undertriage rate.
- ⇒ Undertriaged pediatric patients were more likely to be non-white, have a lower injury severity, reside in rural or micropolitan counties, and be injured farther from Level 1 & 2 trauma centers.
- ⇒ More serious and complex injuries may take longer to evaluate and led to longer times to definitive care.
- ⇒ After the trauma system was implemented, severely injured and specifically Traumatic Brain Injury (TBI) patients— those transferred and those directly admitted— were less likely to die in 72 hours (compared to pre-trauma system).
- ⇒ Non-fatal tractor injuries are a burden in the state, with rollover the most common and causing the most severe injuries.
- ⇒ Motor vehicle traffic injuries and hip fractures were also associated with ambulance usage, while arm fractures and farm-related injuries were not.
- ⇒ On-road ATV crash victims suffered more trauma and severe brain injuries than those off-road.
- ⇒ Non-fatal farm injuries and severity of injuries are rising.
- ⇒ Farm environments pose hazards for those working and living on the farm, regardless of whether they are working.



2016 Trauma System Overview

- Over 2,000 Iowa resident trauma deaths occur each year
- 114 out of 118 hospitals reported to trauma registry
- All Level 1, 2 & 3 facilities are reporting, as well as 97% of Level 4
- Nearly 18,000 emergencies among over 16,000 unique patients
- 6.5% of incidents were work-related
- 2.6% of incidents were farm-related
- 22.6% of incidents were motor vehicle crashes
- 1,561 incidents of transfer delay
- Over 292,000 Emergency Medical Service (EMS) incidents— notified to respond.

The UI IPRC has a long history with the Iowa Trauma System — from its development to its evaluation.

Iowa has 118 hospitals providing care for around three million people in 99 counties. In 1995, Iowa's Trauma System, housed at the Iowa Department of Public Health (IDPH), was developed to create an organized system of transporting and treating patients with traumatic injuries. Level 1 & 2 hospitals (located in Iowa City and Des Moines) are the only trauma centers in the state with resources for significant trauma injuries.

1992-97

The UI IPRC's surveillance research in rural hospital emergency departments highlights the need for improved rural trauma coordination and care in Iowa, especially in the least populated areas.

The UI IPRC joins a consortium including the IDPH, hospitals, medical and surgical specialists, representatives of EMS provider agencies. The consortium obtains funding from the Health Resources & Services Administration (HRSA) to develop a trauma plan. This plan serves as a blueprint for the Iowa Trauma System Development Act, passed by the Iowa Legislature in 1995.

The UI IPRC develops the data dictionary and data entry protocol for the state-wide trauma registry during the development of the Iowa Trauma System.

2001

The Iowa Trauma System becomes fully operational. Major components include standards for trauma care, triage and transfer protocols, the trauma registry, education and training, and hospital self-categorization and verification (Level 1—Level 4).

2010

The UI IPRC evaluates the first decade of the Iowa Trauma System. There is a decrease in patient deaths and UI IPRC researchers estimate that **43 lives were saved each year** after the trauma system. Findings show more referrals to Level 1 and 2 hospitals and an increase in the presence of a trauma surgeon in the emergency department within five minutes of patient arrival.

2015

The American College of Surgeons Committee on Trauma (ACS) completes a trauma system consultation visit to assess the Iowa trauma system. Recommendations included improving the use of data to drive and document changes in the trauma system and regionalization of trauma triage and care.

2017-18

IDPH establishes Health Coalitions to address regional preparedness. The UI IPRC is working with the Subcommittee on System Evaluation and Quality Improvement to develop indicators (i.e. total transport time > 30 mins) at the EMS and hospital level for the regions; working with IDPH to develop a system plan and evaluation, and; evaluating the use of private vehicles instead of EMS in Iowa.

"...the efforts and collaboration of the Injury Prevention Research Center of the University of Iowa is an extremely positive relationship with the trauma system program."

— American College of Surgeons Committee on Trauma, Trauma Systems Evaluation and Planning Committee, 2015 Trauma System Consultation Report