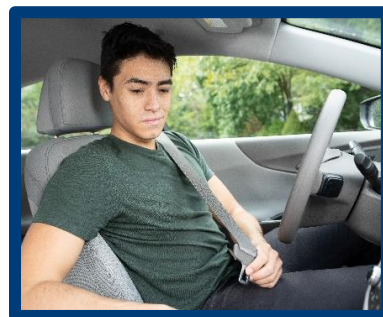


Motor Vehicle Crashes and Traumatic Brain Injury (TBI) in Wisconsin

Everyone has a part to play in reducing motor vehicle crash injuries and deaths, including taking simple steps to reduce the likelihood of injury if a crash occurs. In a crash, force on the head as a vehicle quickly speeds up or slows down or the impact from falling off a motorcycle or bike can cause a TBI.¹ TBIs can cause lifelong impacts to brain function. Even TBIs that are considered mild can make it more difficult to carry out daily activities due to impacts on thinking and memory.²

Nearly 1 out of 3 non-fatal motor vehicle traffic crash injury hospitalizations among Wisconsin residents between 2017 and 2023 involved a TBI diagnosis. However, TBI diagnoses were less common in hospitalizations that involved safe behaviors. TBI diagnoses were significantly less common among crash hospitalizations involving the following scenarios:

- Alcohol use was not suspected by law enforcement.
- Speed was not involved in the crash.
- Restraints (like a seat belt or car seat) were worn by motor vehicle occupants.
- Helmets were worn by motorcyclists.



In crash injury hospitalizations among Wisconsin residents from 2017 to 2023, a TBI diagnosis was more common when restraints and helmets were not used and when speed or alcohol use may have been involved in the crash.

Percent of non-fatal motor vehicle crash hospitalizations with a TBI diagnosis

Crash characteristic

Suspected alcohol use*



Suspected drug use



Speed involvement*



Restraint use*



Motorcycle helmet use among motorcyclists*



Bicycle helmet use among bicyclists



● Hospitalizations **with** characteristic indicated in the crash

○ Hospitalizations **without** characteristic indicated in the crash record

*Percentage of TBI diagnoses among hospitalizations with and without characteristic differs significantly based on non-overlapping 95% confidence intervals. This is a conservative method for identifying significant differences meaning some significant differences may be missed.

Data note: For this report, data from the Wisconsin Department of Transportation's crash report data system was linked to non-fatal in-patient hospital records for Wisconsin residents hospitalized between 2017 and 2023. This report does not include all crash-related, inpatient injury hospitalizations that occurred in this period. Where patients had multiple visits, only the first was included. Hospitalizations were not included if they could not be linked to crash data or if it was not possible to identify whether the patient had multiple hospitalizations. TBI cases were defined by [CDC \(Centers for Disease Control and Prevention\) Injury Indicator definition](#). Visit the [crash hospitalization technical documentation](#) for more information about the scope and limitations of this linkage.

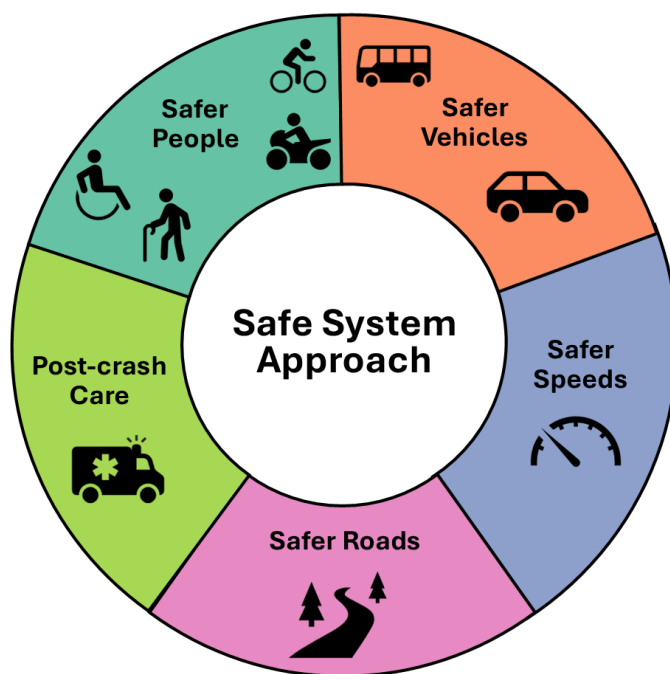
Interested in exploring more crash hospitalization data?

The [Wisconsin Interactive Statistics on Health \(WISH\) crash hospitalization module](#) allows users to explore data on Wisconsin crash hospitalizations. Users can view crash counts overall and by a variety of crash characteristics like speed involvement, type of injury, and suspected influence of alcohol and drugs. Demographic variables, like age group, sex, and geographic region are also available for analysis.

The [WISH injury-related health outcomes modules](#) allow users track differences in motor vehicle traffic crash emergency department visits, hospitalizations, and deaths over time or between demographic groups. A wide variety of other injury types are also included in these modules.

Preventing motor vehicle crashes

Wisconsin is working to prevent crashes with the Safe Systems Approach. This approach focuses on changes to both the environment (like roadway design, speed limits, and post-crash care) and individual behaviors (like seatbelt use and sober driving) to prevent injury and save lives. Learn more about this approach on the [Wisconsin traffic safety webpage](#).



1 Texas Brain Institute. (n.d.). *Mechanism of Injury*. <https://tbi.clinic/mechanism-of-injury/>

2 CDC. 2025. *Symptoms of Mild TBI and Concussion*. <https://www.cdc.gov/traumatic-brain-injury/signs-symptoms/index.html>

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