

# Minnesota Facts on Traumatic Brain Injury

2016-2021

A traumatic brain injury (TBI) is caused by a blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. Not all blows or jolts to the head result in a TBI. The severity of a TBI may range from mild to severe and can cause a wide range of functional changes affecting thinking, sensation, language, or emotions. Over 100,000 Minnesotans live with TBI-related disabilities, and 83% of people entering the Minnesota prison system have a history of TBI.

- **Mild TBI**  
Brief change in mental status of consciousness
- **Moderate TBI**  
Loss of consciousness (30 min to 24 hrs) and amnesia (1 to 7 days)
- **Severe TBI**  
Extended period of unconsciousness (>24 hrs) or amnesia (>7 days) after the injury

## Traumatic Brain Injury Trends

The COVID-19 Pandemic had a dramatic effect in reducing the number of emergency department (ED) treated TBI cases in 2020 and 2021, possibly due to the reduction in motor vehicle use, the cancelation of organized sports participation, and people staying home. Prior to the Pandemic, the number of cases treated in the ED had been almost three times as high as hospitalized cases, but by 2021 ED visits had declined to almost the same number as hospitalized cases.

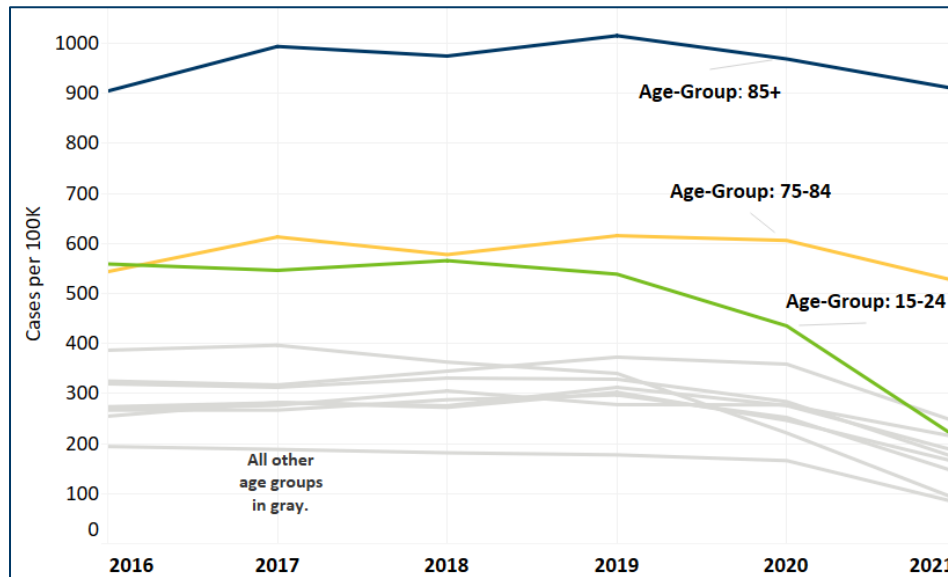
## Non-fatal TBI cases

Location of Treatment	2016	2017	2018	2019	2020	2021
Emergency Departments	14,019	14,250	14,608	14,966	11,877	5,492
Hospitalized	5,004	5,509	5,398	5,604	5,393	5,355

- Minnesotans ages five to 24 years old and those 65 years and older made up most hospital treated TBI cases.
- Minnesotans hospitalized for TBI are more likely to be 65 years old or older.
- The number of TBIs treated in EDs increased each year until 2019 and then declined for all age groups through 2021. This decrease may be due to individuals not seeking treatment for less severe TBIs during the COVID-19 Pandemic.

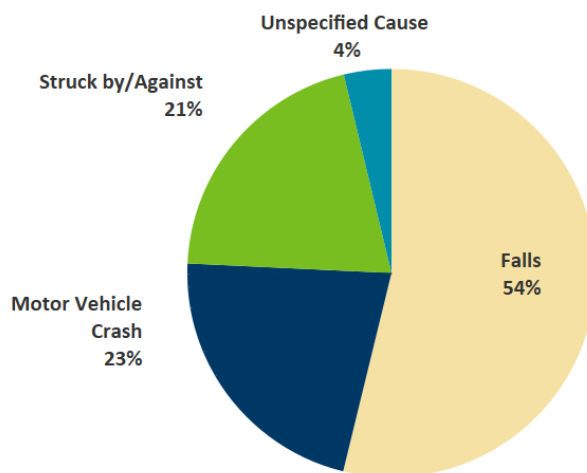
- Hospitalizations increased slightly and then remained steady through 2021.

**Figure 1: Hospital-treated TBIs among Minnesotans declined after March 2020 for most age groups, with the largest decline among those aged 15 through 24 years.**



*Figure 1. Age Adjusted TBI based on population estimates from Census.gov*

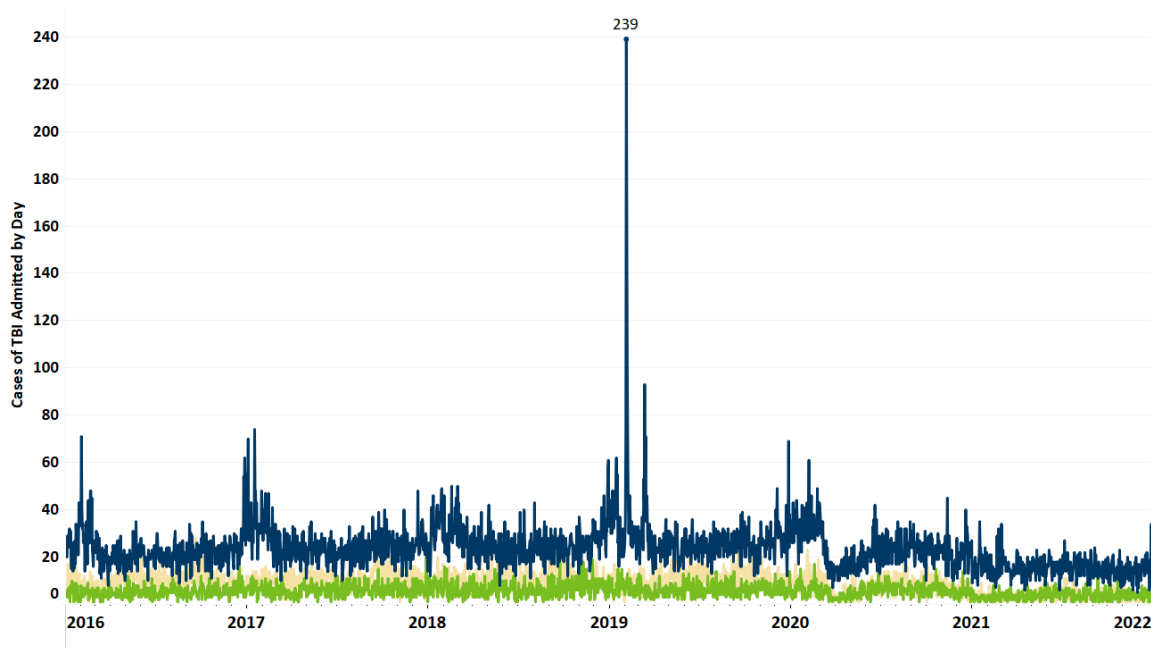
**Figure 2: Falls remained the leading cause of TBI for Minnesotans, accounting for more than half of all cases reported from 2016 through 2021.**



*Figure 2. Causes of TBI Minnesota, 2016-2021*

The most common causes of TBI are the same across all age, gender, and race groups. Falls accounted for 54% of all hospital-treated TBI, with almost one-third of falls associated with ice and snow. The second highest cause was motor vehicle crashes (23% of cases) followed by struck by or against other objects (21% of cases).

**Figure 3: Falls associated with TBI increased during winter months, particularly in early 2019, when the number of cases peaked.**



*Figure 3. TBI caused by Falls, Motor Vehicle Crashes, and Being Struck by or against object.*

In 2019, Minnesota had its 4th snowiest February ever recorded (Source for weather information: [National Weather Service \(https://www.weather.gov/mpx/snowymonth\)](https://www.weather.gov/mpx/snowymonth)). This chart shows there was a surge in hospital treated TBI falls caused by ice and snow for all adult age groups. Overall, TBI falls increase during the winter months while the number of TBIs from other causes remain relatively stable month to month.

## Preventing TBI

The best way to reduce traumatic brain injuries is through prevention. For example:

1. Always wear a helmet, regardless of your age when bicycling, skateboarding, snowboarding, skiing, or using scooters.
2. Prepare for ice and snow events and stay informed on weather conditions and warnings.
3. Do not leave infants/children unattended on elevated surfaces such as changing tables, counters, or sofas.

4. For older adults, decrease fall risk through regular physical activities and exercises that strengthen legs and improve balance, such as tai chi.
5. Avoid driving while sleep deprived or distracted (e.g., cell phone usage).
6. Use seat belts for “everybody, every seat, every time.”

## For more information

Sports-Related Concussions in Minnesota High School Athletes  
(<https://www.health.state.mn.us/communities/tbi/data/sportsconcussions.html>) Minnesota Department of Health

Traumatic Brain and Spinal Cord Injury Services and Agencies  
(<https://www.health.state.mn.us/communities/tbi/basics/index.html>), Minnesota Department of Health

Minnesota Brain Injury Alliance (<http://braininjurymn.org/>)

Brain Injury Safety Tip and Prevention  
([https://www.cdc.gov/headsup/basics/concussion\\_prevention.html](https://www.cdc.gov/headsup/basics/concussion_prevention.html)), Centers for Disease Control and Prevention

Older Adult Fall Prevention (<https://www.cdc.gov/falls/>), Centers for Disease Control and Prevention

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Injury and Violence Prevention Section  
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St. Paul, MN 55164-0975  
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