



SOUTH DAKOTA DEPARTMENT OF HEALTH

Traumatic Brain Injury

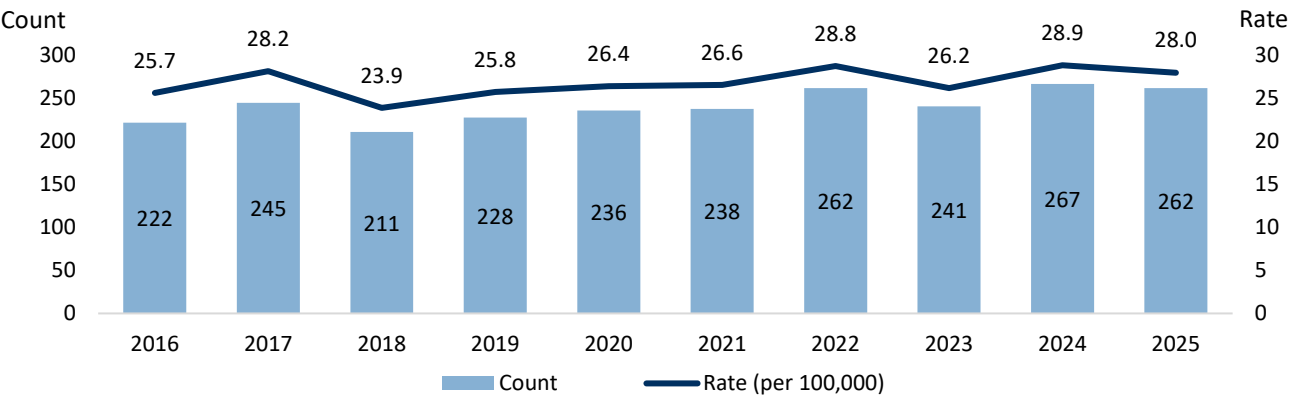
Background

Traumatic brain injury (TBI) is a head injury caused by an external force to the head or body, resulting in disruption of normal brain function. Traumatic brain injury contributes to a substantial proportion of death and disability in South Dakota. This report examines the causes of TBI-related deaths and morbidity among South Dakota residents, and which populations are at greater risk of getting a TBI, which provides an opportunity for focused prevention efforts through awareness and risk mitigation.

TBI-Related Deaths in South Dakota

From 2016 to 2025, there were 2,412 TBI-related deaths among South Dakota residents. In 2025 alone, there were 262 TBI-related deaths, which was a 2% decrease from 267 deaths in 2024; see Figure 1.

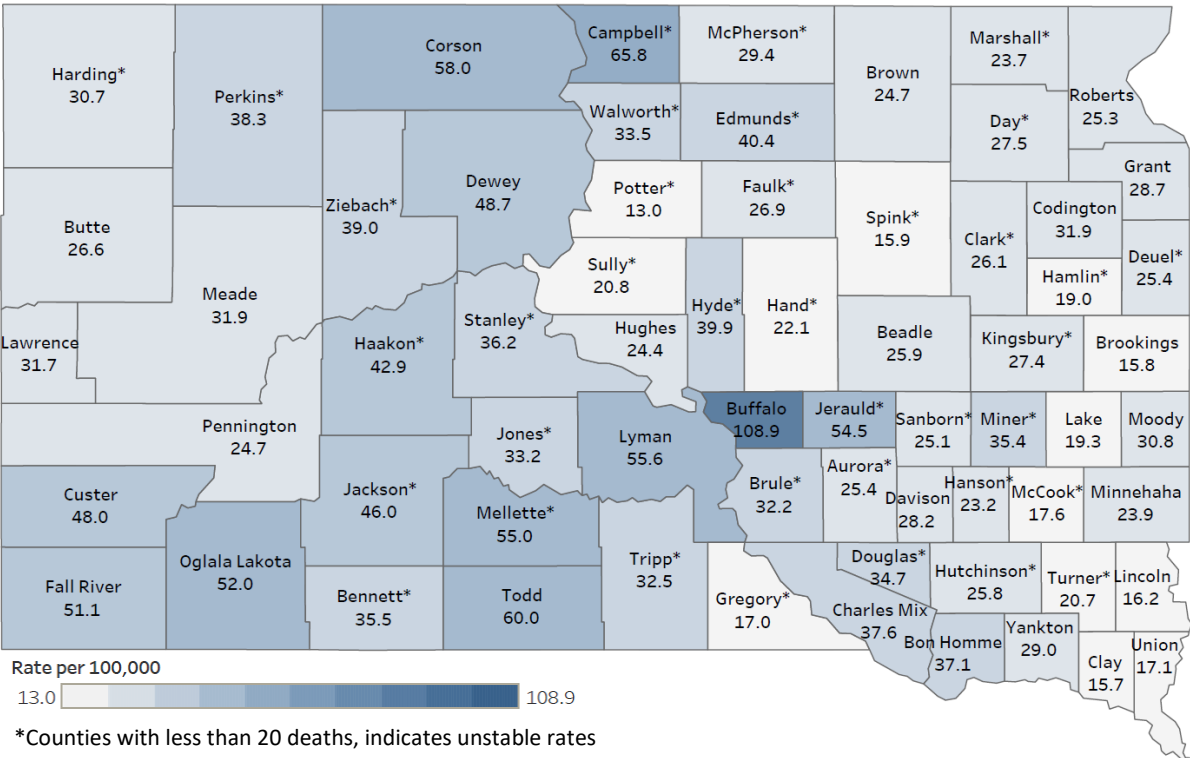
Figure 1: TBI-Related Deaths by Year, South Dakota



TBI-Related Deaths by County

The figure below shows TBI-related death rates (crude rates per 100,000) by county. Among counties with stable rates for comparison (≥ 20 deaths), counties with the top 5 highest rates were Buffalo (108.9 per 100,000), Todd (60.0 per 100,000), Corson (58.0 per 100,000), Lyman (55.6 per 100,000), and Oglala Lakota (52.0 per 100,000).

Figure 2: TBI-Related Deaths by County, 2016-2025



TBI-Related Deaths by Type of Injury

TBI-related deaths can be categorized by injury type, which describes the head injury sustained. Intracranial injuries made up the largest proportion of TBI-related deaths at 38%. The second most common type was open wounds of the head (32%), followed by other/unspecified injuries of the head (30%).

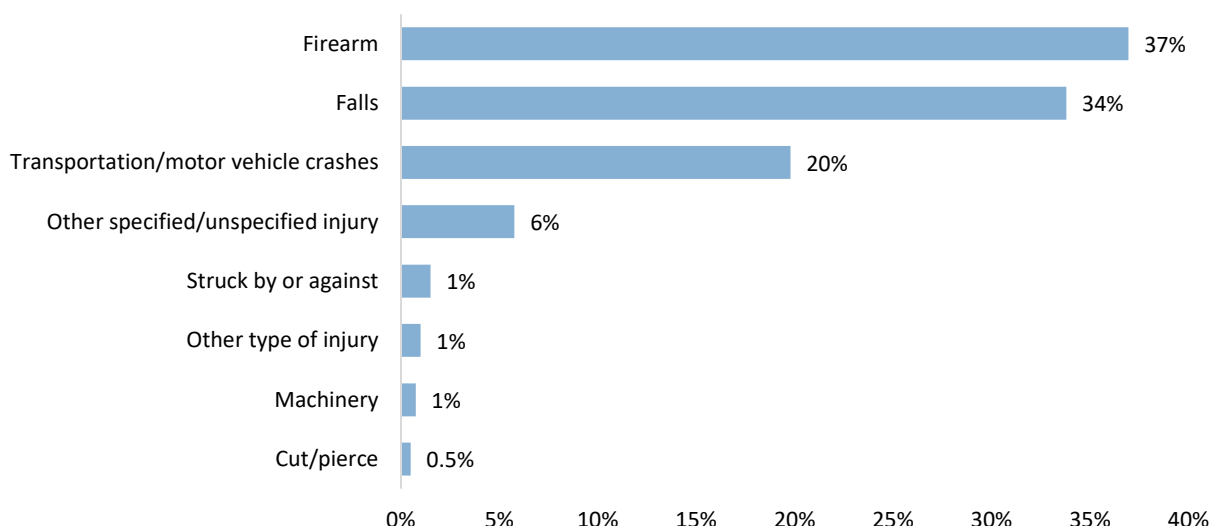
Causes of TBI-Related Deaths

37%

of TBI-related deaths were due to firearms

Most TBI-related deaths were unintentional (58%). Suicides accounted for 33% of TBI-related deaths, homicide 7%, undetermined intent 1%, and legal intervention <1%. Of the 2,412 TBI-related deaths, all had a cause other than TBI listed as the primary cause of death. The top three primary causes of death were firearms (37%), falls (34%), and transportation accidents (20%), Figure 3.

Figure 3: TBI-Related Deaths by Cause, 2016-2025

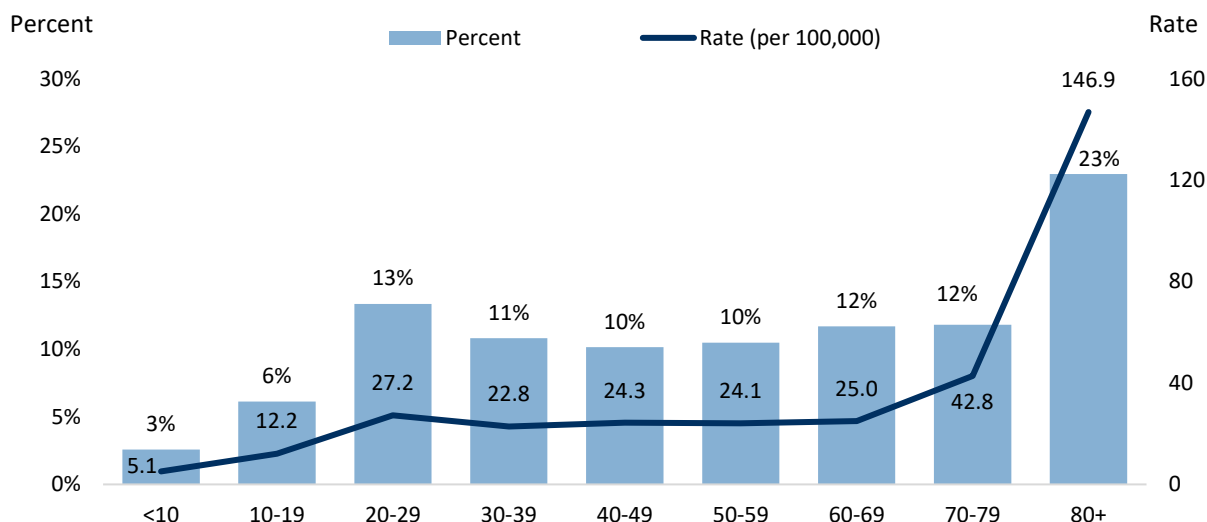


Demographics

Age

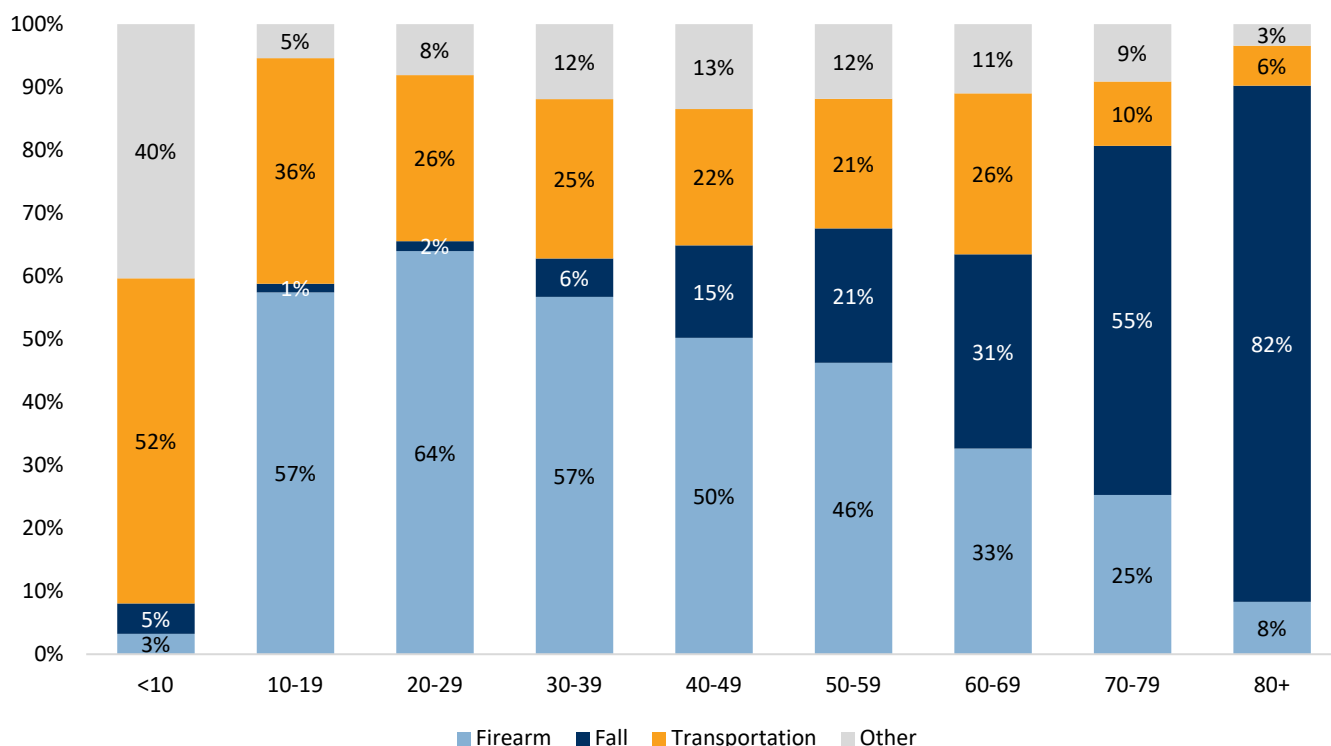
Although TBI-related deaths can occur at any age, the likelihood of dying from a TBI-related cause increases with age. The highest proportion and rate of TBI-related deaths were among South Dakotans aged 80 years and older, and the second-highest percentage was among 20-29-year-olds, Figure 4.

Figure 4: TBI-Related Deaths by Age Group, 2016-2025



Differences in the cause of TBI-related deaths can be seen by age group. Firearms were the most common cause of TBI-related death among ages 10 to 69 years. Falls were the most common cause among ages 70 years and older. Transportation accidents were the most common cause among children aged 9 years and younger.

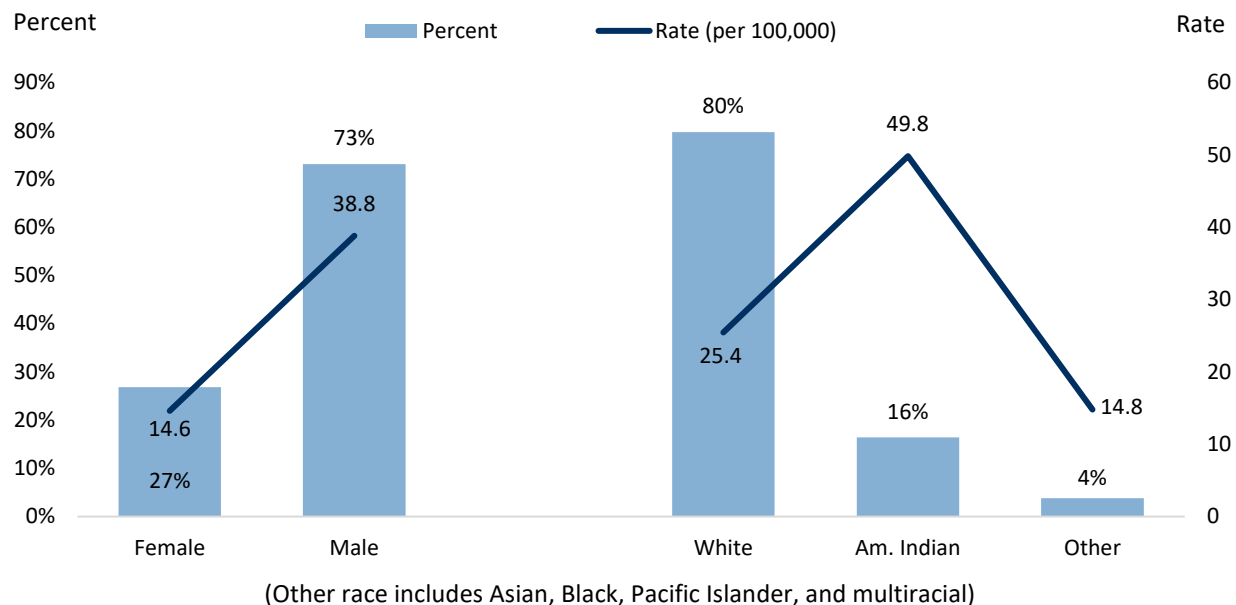
Figure 5: Cause of TBI-Related Deaths by Age Group, 2016-2025



Sex and Race

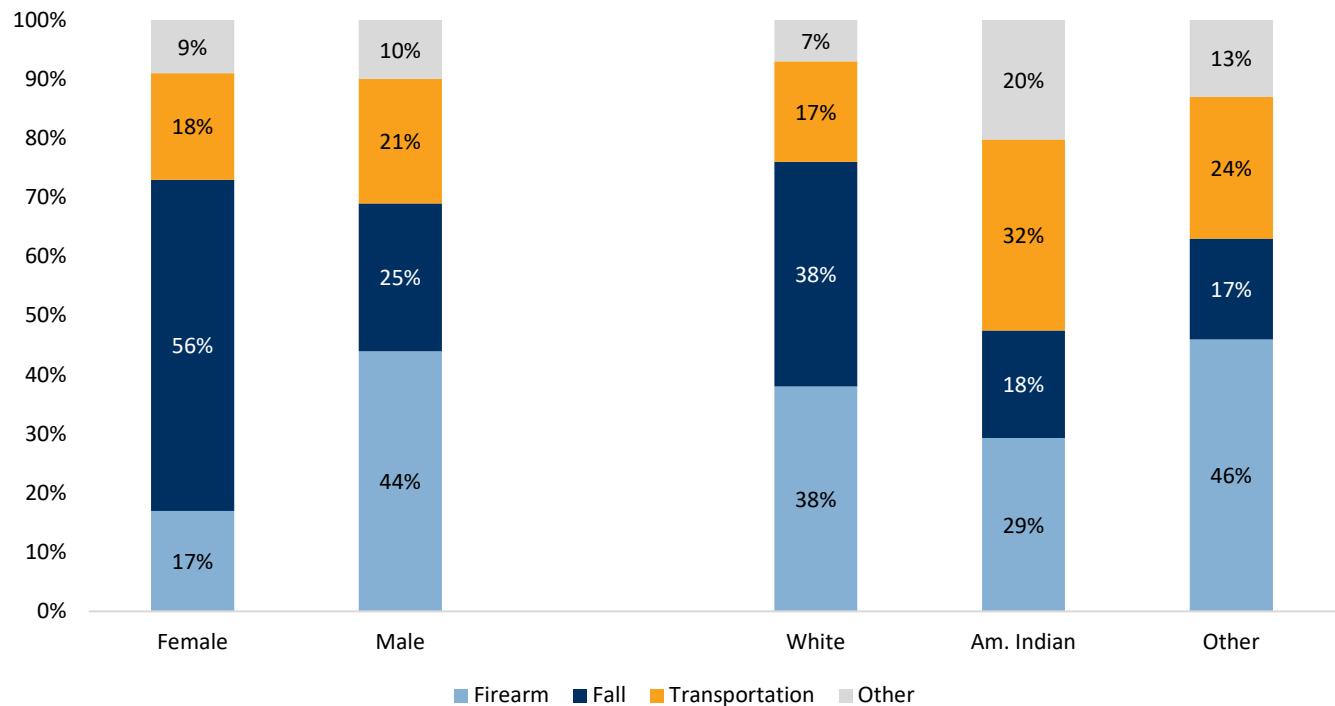
By sex, males were more likely to die from a TBI-related death than females. Males made up 73% of deaths and had a rate 2.7 times higher than the female rate (38.8 vs 14.6 per 100,000). The largest proportion of TBI-related deaths were among the White population (80%). However, American Indians experienced TBI-related deaths at twice the rate of the White population (49.8 vs 25.4 per 100,000), Figure 6.

Figure 6: TBI-Related Deaths by Sex and Race, 2016-2025



Differences in the causes of TBI-related deaths can also be seen by sex and race. Among females, falls were the most common cause of TBI-related deaths, whereas for males, firearms were the most common cause. By race, firearms and falls were the two most common causes of TBI-related deaths among the White population, and transportation accidents were the most common cause among the American Indian population.

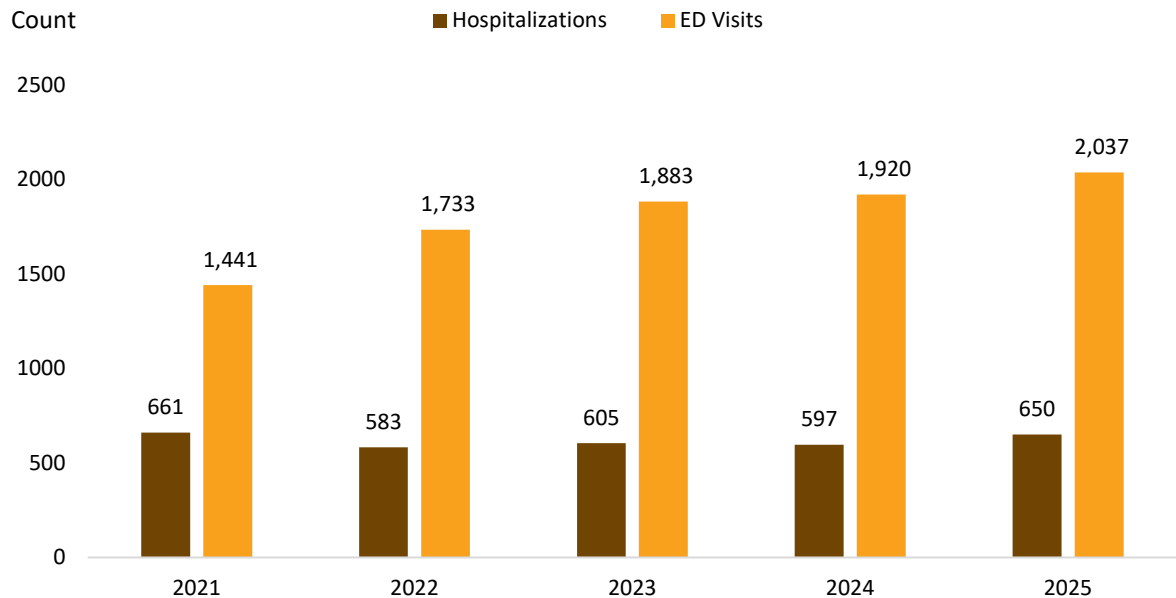
Figure 7: Cause of TBI-Related Deaths by Sex and Race, 2016-2025



TBI-Related Hospitalizations and Emergency Department Visits in South Dakota

Not all head-related injuries lead to death. From 2021 to 2025, there were 3,096 TBI-related hospitalizations and 9,014 emergency department (ED) visits among South Dakota residents, Figure 8. In 2025 alone, there were 2,687 visits, a 7% increase from 2,517 visits in 2024.

Figure 8: TBI-Related Hospitalizations and ED Visits, 2021-2025



TBI-Related Hospitalizations and ED Visits by Type of Injury

The most common head injury type sustained was an intracranial injury, which accounted for 96% of visits. Fractures of the skull accounted for 4% of visits, and fractures of other specified skull and facial bones accounted for less than 1% of visits.

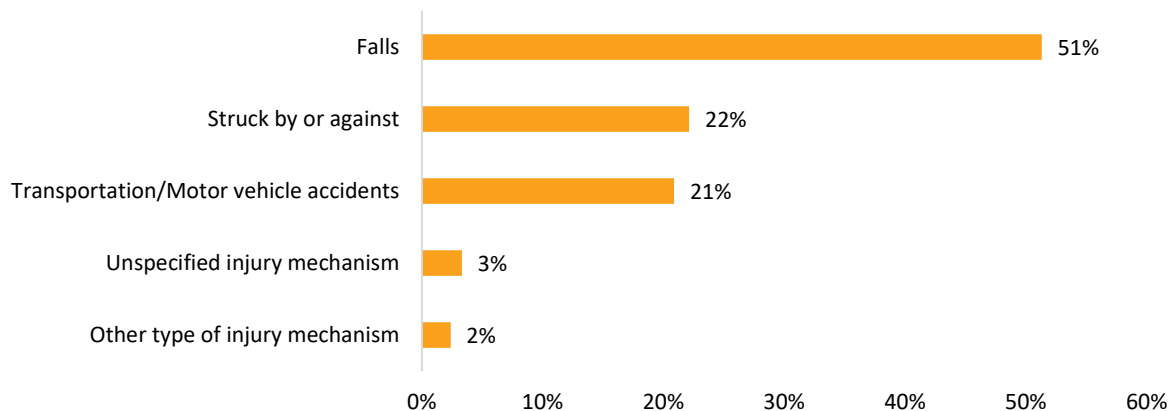
Causes of TBI-Related Hospitalizations and ED Visits

51%

of TBI-related hospitalizations & ED visits were due to falls

Of the 12,110 TBI-related visits, nearly all (93%) had a valid external cause of injury code listed. External cause of injury refers to the intent and mechanism by which an individual sustained their injury. Of the records with a valid external cause of injury listed (n=11,299), 89% were unintentional, 10% were due to assault, and 1% were due to other intent (intentional self-harm, undetermined, legal intervention). By mechanism of injury, 51% were due to falls, 22% were due to being struck by or against, and 21% were due to transportation/motor vehicle crashes, see Figure 9.

Figure 9: TBI-Related Hospitalizations and ED Visits by Cause, 2021-2025

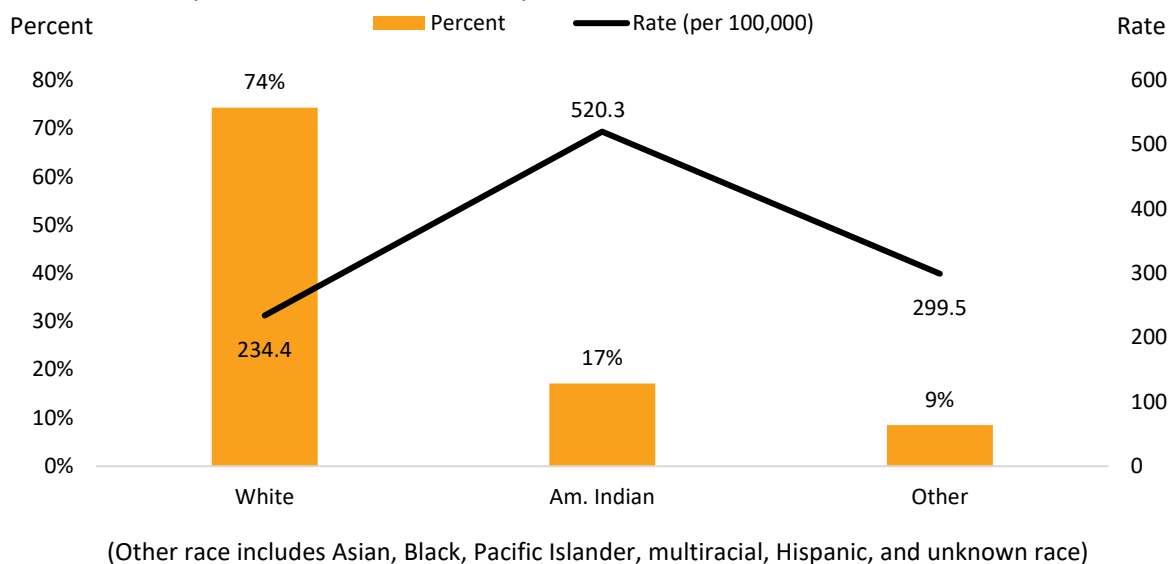


Demographics

Sex and Race

Overall, males are more likely to suffer from a TBI-related injury and seek medical care. Males made up 57% of TBI-related visits and had a rate 1.3 times higher than females (294.8 vs 232.6 per 100,000). The largest proportion of TBI-related hospitalizations and ED visits were among the White population (74%). However, American Indians were seen for TBI-related injuries at a rate 2.2 times higher than the White rate (520.3 vs. 234.4 per 100,000), Figure 10.

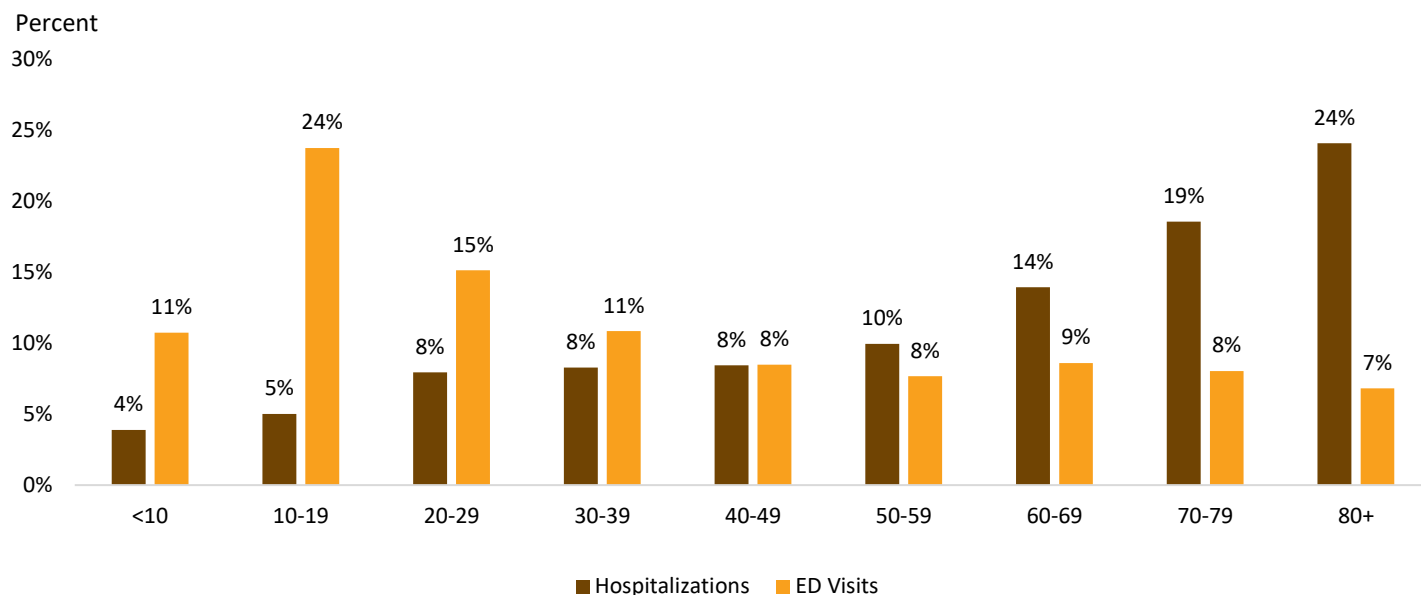
Figure 10: TBI-Related Hospitalizations and ED Visits by Race, 2021-2025



Age

South Dakotans are at risk for a TBI-related injury at any age, but certain age groups are at an increased risk for TBI-related hospitalizations and ED visits. South Dakotans aged 10-19 years made up the largest proportion of emergency department visits from 2021 to 2025, but adults aged 80 years and older had the highest proportion of TBI-related hospitalizations, Figure 11.

Figure 11: TBI-Related Hospitalizations and ED Visits by Age Group, 2021-2025



Prevention Resources

TBI is a major cause of death and disability that can lead to short- or long-term health problems, but there are numerous things to do to help prevent a TBI. To learn about available state and national resources, visit <https://doh.sd.gov/health-data-reports/injury-prevention/traumatic-brain-injury-data/>

Data Sources and Methods

Data Sources

South Dakota Department of Health (DOH) Vital Statistics
South Dakota Association of Healthcare Organizations (SDAHO)

Data Methods

Mortality (Vital Statistics data) and nonfatal visits (SDAHO) datasets were created following guidance from the State Injury Indicators (SII) Report. The SII Report can be found at the following link: <https://www.cdc.gov/injury-core-sipp/media/pdfs/2026/03/2024-Injury-Indicator-Instructions.pdf>.