

Special Topic



Alaska Native Risk for Traumatic Brain Injuries

The Centers for Disease Control and Prevention describes a traumatic brain injury (TBI) as a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head, or penetrating head injury¹. Per the Mayo Clinic, these injuries can range from mild to severe², causing a variety of symptoms:

Mild TBI

Physical symptoms

- Feeling dazed, confused or disoriented
- Headache
- Nausea or vomiting
- Fatigue or drowsiness
- Sleeping too little or too much
- Problems with speech
- Dizziness or loss of balance

Cognitive or mental symptoms

- Memory or concentration problems
- Mood changes or mood swings
- Feeling depressed or anxious

Sensory symptoms

- Changes in hearing sight, smell, taste
- Sensitivity to light or sound

Moderate to Severe TBI

Physical symptoms

- Weak or numb in fingers and toes
- Persistent or increasing headache
- Repeated vomiting or nausea
- Convulsions or seizures
- Inability to awaken from sleep
- Pupil dilation in one or both eyes
- Loss of coordination

Cognitive or mental symptoms

- Profound confusion
- Agitation, combativeness
- Slurred speech
- Coma and consciousness disorders

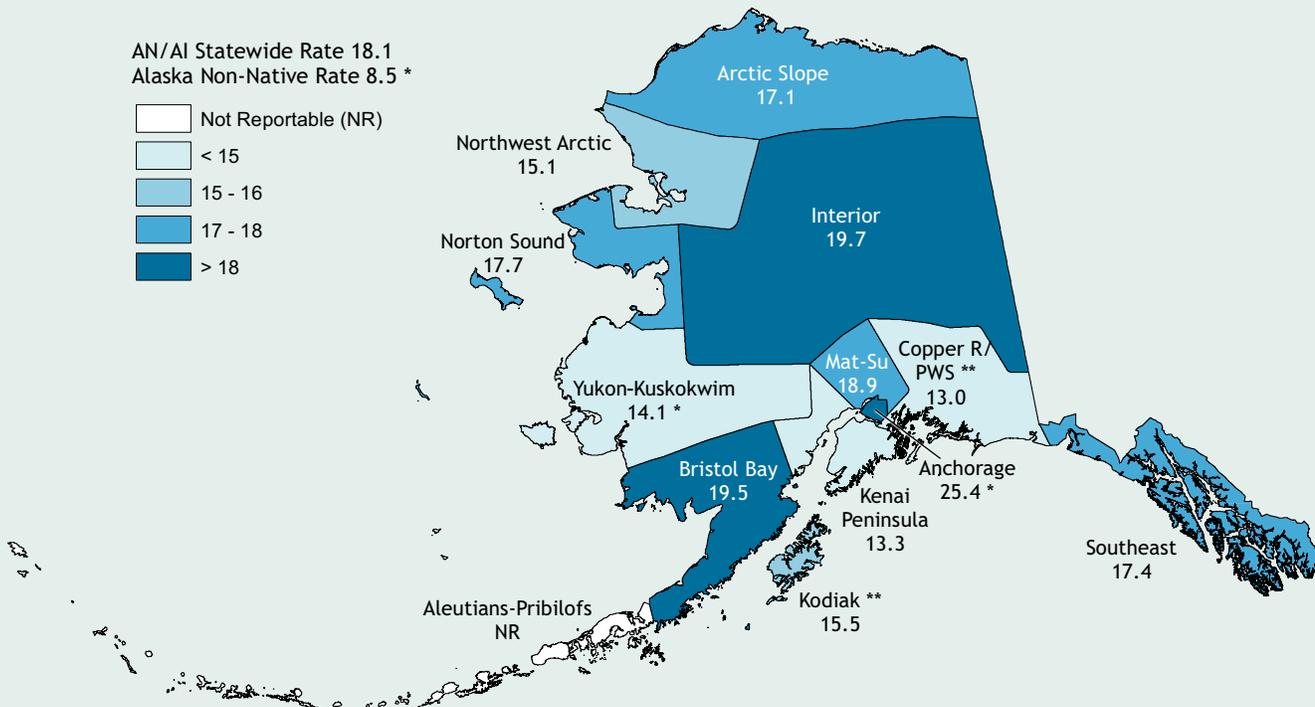
For patients who experience any of these symptoms, especially symptoms resulting from moderate to severe TBI, the injury may lead to life-long developmental difficulties and challenges with educational, occupational, and social endeavors. Patients whose TBI causes more severe physical and mental disabilities may need long-term or lifetime care and treatment.

The statewide 2012-2016 Alaska Native rate for TBI is nearly twice that of the 2014 national population¹ (18.1 and 8.5 per 10,000, respectively). Within Alaska, regional Alaska Native TBI rates range from the lowest in the Kenai Peninsula (13.3 per 10,000) to nearly twice that in the Anchorage Municipality (25.4 per 10,000). The map illustrates the regional variation in TBI rates.

¹ Centers for Disease Control and Prevention. (2019). *Traumatic Brain Injury and Concussion*. Retrieved from www.cdc.gov/traumaticbraininjury/index.html.

² Mayo Clinic (2019). *Traumatic brain injury, Symptoms and causes*. Retrieved from www.mayoclinic.org/diseases-conditions/traumatic-brain-injury/symptoms-causes/syc-20378557.

TBI Injury Hospitalization Rate by Region, AN/AI People, 2012-2016



Note: Hospitalization rates per 10,000 age-adjusted to 2000 US standard population.

* Statistically significant difference between the regional and AN/AI people statewide rate, $p < 0.05$.

** Rates based on 10-19 cases are not statistically reliable and should be used with caution.

NR: Rate is not reported for fewer than 10 cases.

Summary, 2012-2016

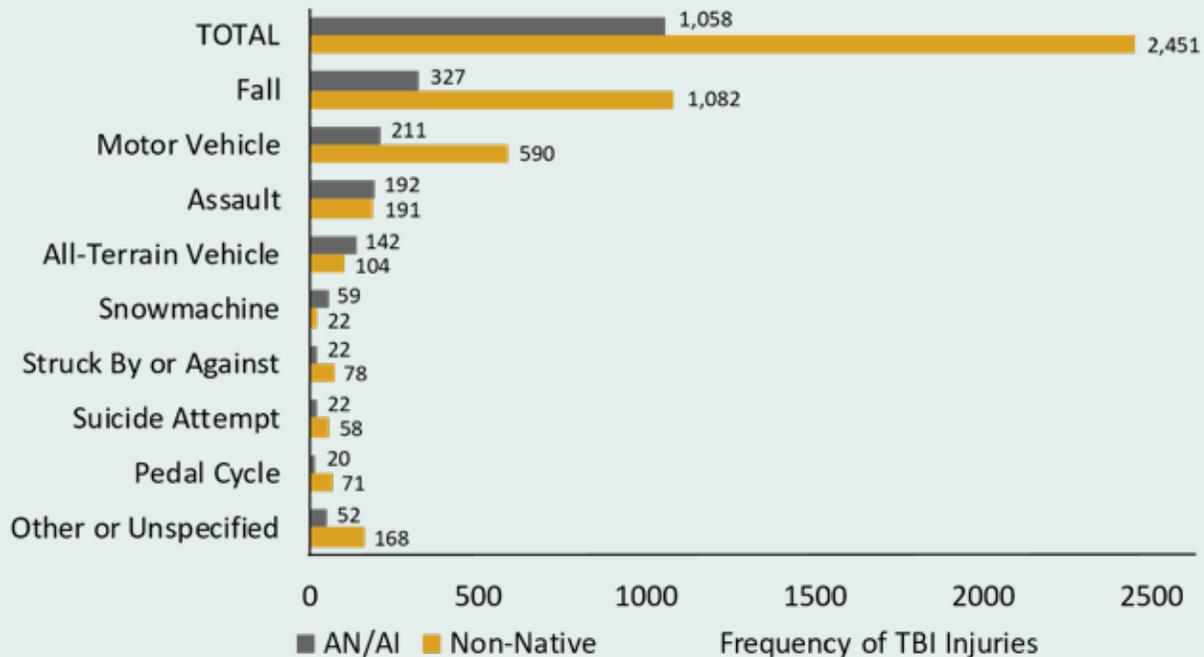
- 18,636 injuries were reported in the Alaska Trauma Registry (ATR), with 3,573 (19.2%) involving brain injuries.
- For Alaska Native (AN/AI) people, 18.6% of all injury hospitalizations involved TBI, similar to non-Native patients (19.4%).
- Patients aged 70 years and older had the highest rate of TBI among AN/AI people (29.4 per 10,000), followed by 20 to 29 year olds (26.0 per 10,000), and 40 to 59 year olds (20.9 per 10,000).
- The TBI hospitalization rate of AN/AI males was 1.9 times that of AN/AI females (23.9 and 12.3 per 10,000, respectively, $p < 0.05$).
- The TBI hospitalization rate of AN/AI people was 2.1 times that of non-Native Alaskans (18.1 and 8.5 per 10,000, respectively).
- Just under one half (48.6%) of TBI-related injury hospitalizations among AN/AI people were confirmed or suspected to be alcohol-related.
- When released from the hospital, 24.5% (259) of AN/AI TBI patients had no change in function, 29.6% (313) had a temporary change in abilities, and expected to return to normal in time, and 2.1% (22) were severely disabled or in a vegetative state.
- For all races in Alaska, fall (39.9%) and motor vehicle incidents (22.9%) were most frequently associated with TBI. AN/AI people had a substantially higher proportion of TBI caused by assault, all-terrain vehicle (ATV) and snowmachine incidents.

Summary: Trend Over Time

- Between 1992-1996 and 2012-2016, the TBI injury hospitalization rate decreased 6.1% among Alaska Native people (19.2 and 18.1 per 10,000, respectively, $p < 0.05$).

Causes of Traumatic Brain Injuries in Alaska, 2012-2016

Data Source: Alaska Division of Public Health, Alaska Trauma Registry



TBI Prevention Efforts

The decrease in rates of TBI was in part due to the work done by Tribal Health Organization Injury Prevention programs around the state. These programs have provided training, resources and outreach events to encourage local residents to improve child passenger safety, increase the use of helmets on ATVs and snowmachines, and reduce the risk of falls at home, especially for the Elder population.

One effort worth noting involves collaboration between Alaska Native Medical Center staff, a regional Tribal health organization, and their local school district. Concerns were raised over a recent surge of ATV-related TBI occurring for youth. The collaborators are developing a curriculum to get local youth engaged in ATV safety and reduce the rate of injuries.

The Alaska Native Tribal Health Consortium (ANTHC) Injury Prevention (IP) program has developed several fall prevention trainings to reduce injuries from falls, including TBI. In 2014, the IP program designed three in-person trainings, targeted to medical staff, caregivers, and community members and Elders. ANTHC IP held 23 of these trainings around the state, presenting to 340 staff and community members. These materials were further developed into an online training that Community Health Aides around the state can take to earn continuing education credits without having to travel to a training center. Currently, in collaboration with the State of Alaska and University of Alaska Anchorage, the online training is being adapted for assisted living staff, to allow them to earn continuing education credits and help prevent falls at their facilities.

NOTES
