

# Traumatic Brain Injury in Utah, 2008

## Introduction

Traumatic brain injuries (TBIs)\* can have a dramatic impact on a person's ability to lead an active, fulfilling life. TBIs can affect an individual's ability to work, their short and long-term memory, vision, sleep, mood, and movement. TBIs vary in their severity, cause, and affected region.

Every day in Utah, 33 people visit the emergency room due to a TBI. Another seven are hospitalized or die from a TBI. In 2008, TBIs resulted in the hospitalization or death of 2,673 Utahns. Of these, 364 died from a TBI prior to hospital admission and an additional 147 died as a result of their TBI sometime after receiving initial treatment.

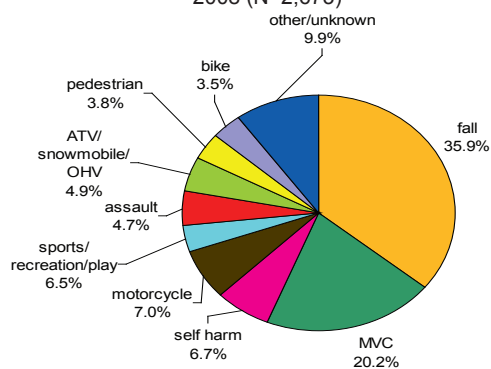


## Causes of TBI

The leading causes of TBI hospitalizations and deaths in Utah in 2008 were (Figure 1):

- Falls (36.8%)
- Motor vehicle crashes (20.6%)
- Motor cycle crashes (6.8%)

Figure 1: Causes of TBI Hospitalizations and Deaths, Utah, 2008 (N=2,673)



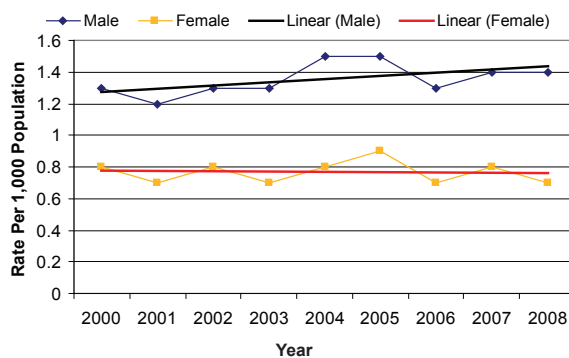
## Utah Trends, 2000-2008

From 2000-2008, the overall female age-adjusted TBI rate has been relatively constant and the overall male age-adjusted TBI rate has increased somewhat (Figure 2). In 2008, the crude rate of TBIs was 9.7 injuries per 10,000 population or nearly one in every 1,000 Utahns.

## Age and Sex

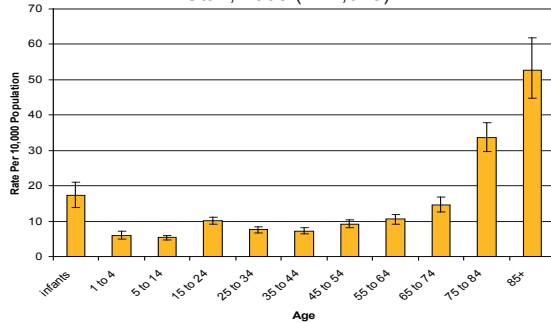
In 2008, TBIs were the most common among the elderly and infants under age one. One in every 200 Utahns ages 85 and older suffered a TBI (52.8 per 10,000 population), the highest rate among all ages. Individuals between 75-84 years of age also had a high rate with one out of every 300 individuals suffering a TBI (33.5 per 10,000).

Figure 2: Age-adjusted Rates for TBI Hospitalizations and Deaths, Utah, 2000-2008 (N=2,673)



population). Infants under age one had the third highest rate of TBIs in Utah, with nearly one in every 580 infants experiencing a TBI (17.2 per 10,000 population) (Figure 3).

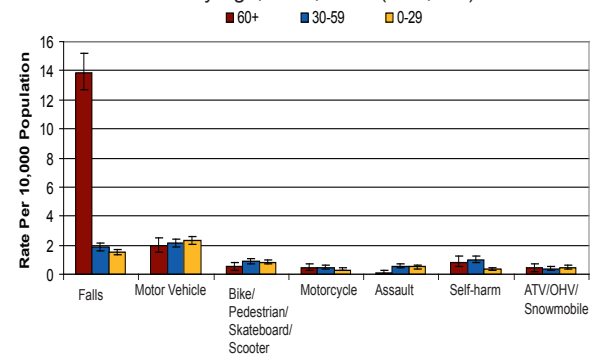
Figure 3: Rates for TBI Hospitalizations and Deaths by Age, Utah, 2008 (N=2,673)



Falls and motor vehicle crashes were the leading causes of TBIs among Utah residents. Fall-related TBIs were significantly higher for Utahns ages 60 and older than for any other age group (14.5 TBIs per 10,000 population) (Figure 4).

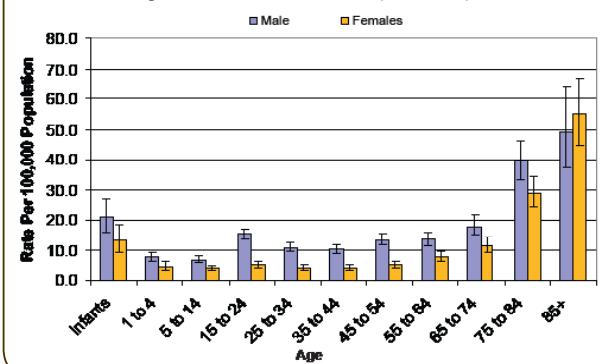
Males have higher rates of TBIs than females for all age groups, except for the very young (under

Figure 4: Leading Causes of TBI Hospitalizations and Deaths by Age, Utah, 2008 (N=2,673)



age five) and the old (75 and older) (Figure 5).

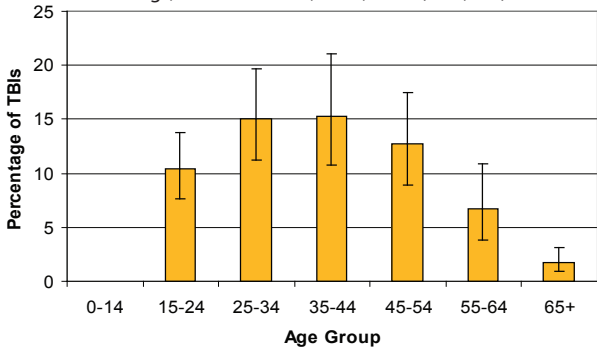
Figure 5: Rates for TBI Hospitalizations and Deaths by Age and Sex, Utah, 2008 (N=2,673)



## Alcohol, Drugs, and Medication Use

It is estimated that the presence of alcohol, drugs, or medication may have been involved in 11% of TBIs among Utahns in 2008. The presence of these substances varied by age (Figure 6). The highest occurrence was among persons 25-44 years of age (15%). No children under the age of 14 were identified as having these substances in their bodies at the time of their injury. Among adult

Figure 6: TBI Hospitalizations and Deaths with Presence of Alcohol, Drugs, or Medications, Utah, 2008 (N=1,747)

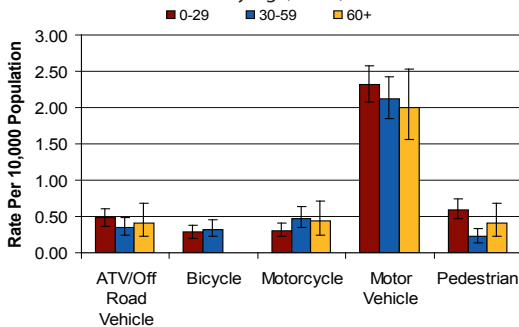


age groups, those age 65 and older had the lowest percentage (1.8%) of alcohol, drugs, or other medication present.

## Transportation-related TBIs

TBIs involving cars, trucks, and SUVs were the most common transportation-related causes of TBIs for all ages. TBIs for pedestrians were significantly higher (0.6 per 10,000 population) for Utahns under the age of 30 compared to those ages 30-59 (0.2 per 10,000 population) (Figure 7).

Figure 7: Transportation-related TBI Hospitalizations and Deaths by Age, Utah, 2008

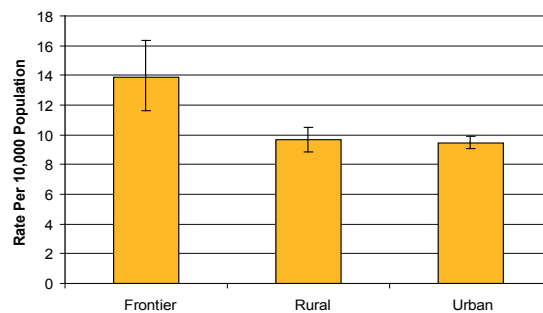


Where helmet use is known, 57% of motorcyclists, bicyclists, and ATVs/ORVs riders who sustained a TBI were not wearing a helmet.

## Geographic Location

Residents of frontier counties had a significantly higher age-adjusted TBI rate (13.9 per 10,000 population) than residents of rural (9.7 TBIs per 10,000 population) or urban counties (9.5 TBIs per 10,000 population) (Figure 8). Utah TBI data are also available for the state's 61 small areas in the *Utah Violence and Injury Small Area Report* available at <http://health.utah.gov/vipp>.

Figure 8: TBI Hospitalizations and Deaths by Residential Location, Utah, 2008



## Safety Tips

- Wear a seat belt every time you drive or ride in a motor vehicle.
- Buckle kids in the back seat of a car using a child safety seat or booster seat (according to the child's age, height, and weight) until eight years of

age and at least 4 feet 9 inches tall.

- Wear a helmet on bicycles, motorcycles, scooters, ATVs, snowmobiles, and during sporting activities.
- Reduce hazards in the home that can lead to falls.
- Exercise to increase strength and improve balance to help prevent falls.

### Cost

TBI hospitalization charges totaled over \$73 million in 2008. The median charge was \$17,000 per TBI. There were 137 patients with TBI hospital charges that exceeded \$100,000.

### Laws

The Utah State Legislature established a Traumatic Brain Injury Fund in 2008. The funds are used to: 1) educate Utahns on TBI treatment and prevention; 2) provide evaluations and coordinate short-term care for persons with a TBI and; 3) develop an information referral system for persons with a TBI and their families. To contribute to the fund or learn more, visit [http://health.utah.gov/vipp/traumaticBrainInjury/tbi\\_trust\\_fund.html](http://health.utah.gov/vipp/traumaticBrainInjury/tbi_trust_fund.html).

### \*Traumatic Brain Injury Database

Since 1990, the UDOH Violence and Injury Prevention Program has collected data on TBI in Utah through review of hospital discharge data, death certificates, and hospital records. TBIs are included in the database when they result in hospitalization or death with one or more of the following:

- Observed or self-reported unconsciousness or decreased level of consciousness;
- Amnesia;
- Skull fracture;
- Changes in motor function, sensory function, reflexes, or speech; or
- Seizures; hemorrhages, bruising, or other trauma of the brain.

### Resources

- Brain Injury Association of Utah [www.biau.org](http://www.biau.org)
- CDC Traumatic Brain Injury [www.cdc.gov/TraumaticBrainInjury/index.html](http://www.cdc.gov/TraumaticBrainInjury/index.html)

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#### Our Mission

We are a trusted and comprehensive resource for data related to violence and injury. Through education, this information helps promote partnerships and programs to prevent injuries and improve public health.

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