



Colorado

Special Emphasis Report: Traumatic Brain Injury 2011

Understanding TBI

Traumatic brain injury (TBI) is a serious public health problem and in the United States. A TBI is caused by a bump, blow, jolt, or penetration to the head that disrupts the normal function of the brain. Each year, traumatic brain injuries contribute to a substantial number of deaths and cases of permanent disability.

Impact and Magnitude of TBI

During 2011, TBI contributed to more than 35,000 deaths, hospitalizations, and ED visits among Colorado residents, either as the only injury or in combination with other injuries or conditions. Among those injured, 995 persons died where TBI was reported as a cause of death on the death certificate, resulting in an age-adjusted rate of 19.5 deaths per 100,000 persons. There were 4,788 hospitalizations (96.2 per 100,000) and an additional 29,627 emergency department visits (593.4 per 100,000) that mentioned a TBI alone or in combination with other injuries or conditions. An unknown number of Colorado residents sustained injuries that were treated in other settings or went untreated.

Causes of TBI

Causes of injury varied across the three levels of severity. Death by suicide was the leading cause of deaths that mentioned TBI as one of multiple causes of death. Suicide accounted for 40% of the TBI deaths. Unintentional falls was the leading cause of non-fatal TBI, mentioned on 40% of the TBI-related hospitalizations* and 45% of the emergency department visits,* where TBI could be the only diagnosis or one of other injury or medical diagnoses. Unintentional falls was the second leading cause of death among Colorado residents who died with a TBI in 2011.

Notes: Firearm-related traumatic brain injuries are not shown in Figure 1 and are a subset of homicides, assaults, and suicides. Firearms are mentioned as part of the cause in 44% of deaths, in less than 1% of hospitalizations, and in less than 1% of emergency department visits. Valid cause coding is available on 85.4% of the TBI-related hospitalizations and 97.9% of the emergency department (ED) visits. ED visits are limited to ones where the persons were treated and released.

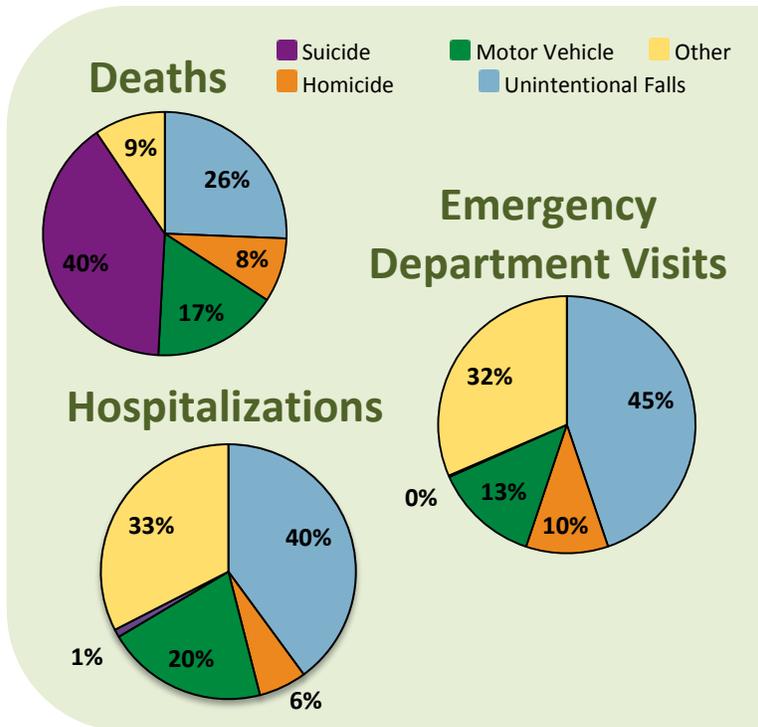


Figure 1: Percentage of Annual TBI-Related Deaths, Hospitalizations, and Emergency Department Visits, by External Cause, in Colorado, 2011

TBI by Age

The highest number of TBI-related deaths* were among persons ages 45-54 years old, based on 10-year age groups. Persons ages 15-24 years old had the highest number of TBI-related hospitalizations* and emergency department visits,* based on 10-year age groups. In contrast, persons age 85 years or older had the highest rate of TBI-related deaths, hospitalizations, and ED visits, because their numbers were high compared to the size of this population in Colorado.

**TBI alone or in combination with other causes of death or diagnoses of injuries and/or conditions*



Colorado Department of Public Health and Environment

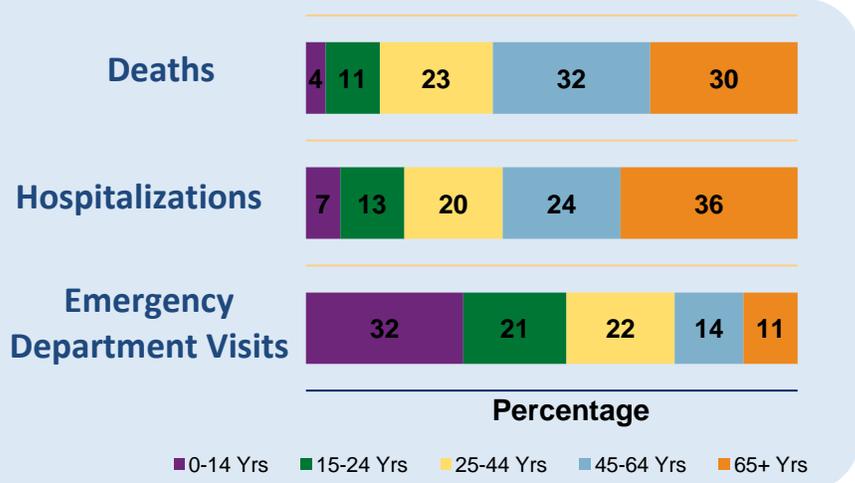


Figure 2: Percentage of Annual TBI-Related Deaths,* Hospitalizations,* and Emergency Department Visits, by Age, in Colorado, 2011**



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TBI by Gender

Men were more likely to sustain a traumatic brain injury than women. This difference was greatest among those who died. Men accounted for 73% of deaths where TBI* was reported as one of the causes of death on the death certificate, resulting in a rate of 28.5 deaths with TBI per 100,000 Colorado men in 2011. The age-adjusted rate for men was 29.7 deaths per 100,000 persons, (a standard adjustment to allow for fair comparison of two or more groups by removing the effects of any difference in their ages). Men accounted for 63% of the TBI* hospitalizations (an age-adjusted rate of 124.3 hospitalizations per 100,000 persons) and 52% of emergency department visits for TBI* (613.6 per 100,000). In contrast, Colorado women has a rate of 10.3 TBI-related deaths per 100,000 Colorado women and age-adjusted rates of 9.9 deaths, 68.3 hospitalizations, and 566.9 emergency department visits per 100,000 persons.

**TBI alone or in combination with other causes of death or diagnoses of injury and/or conditions*



TBI Prevention Strategies

CDC's National Center for Injury Prevention and Control protects people from preventable TBI by putting science into action.

- **State Injury Prevention Programs** - The Injury Center's Core Violence and Injury Prevention Program (Core VIPP) funds state health departments to estimate the impact of TBIs and define the groups most affected. www.cdc.gov/injury
- **Heads Up** – Injury Center campaigns with free tools for health care providers, school administrators, nurses, teachers, coaches, and parents to help them recognize and respond to a TBI. www.cdc.gov/traumaticbraininjury
- **Motor Vehicle Safety** – Motor vehicle crashes are a leading cause of death, injury and TBI in the US. CDC's primary prevention focuses on child passenger safety, seat belt use and reducing impaired driving. www.thecommunityguide.org/mvoi
www.cdc.gov/motorvehiclesafety

Colorado TBI Activities

Preventing an injury often prevents a traumatic brain injury, because of the common causes. In 2011, TBI accounted for 28% of the injury deaths, 18% of the injury hospitalizations, and 13% of the emergency department visits in Colorado.

Surveillance: Colorado has basic TBI data from death certificates, hospitalizations, and emergency departments since 2010 and more detailed data from 2004-2009.

Prevention: The Colorado Maternal, Infant, and Early Childhood Home Visiting Program funds evidence-based home visits for families in at-risk communities to improve outcomes, such as reducing child maltreatment. Education on injury prevention is included. See: MIECHV

In July 2012, the Colorado Office of Suicide Prevention, Cactus advertising agency, and the Carson J. Spencer Foundation launched <http://mantherapy.org> – a multi-media campaign that uses humor to attract men and reduce stigma while helping men tackle tough issues such as depression, divorce, and suicidal thoughts. The Colorado Healthcare Communicators recognized Man Therapy as the best in healthcare marketing and communications in 2012. In June 2013, Beyond Blue, Australia's leading organization that fights depression, launched their adaptation in Australia.

A Success: The Colorado Brain Injury Program at the Colorado Department of Human Services received a grant from the federal Health Resources and Services Administration to increase capacity of:

- Colorado schools to assist students with brain injury,
- families and survivors of brain injury to learn and conduct civic leadership, and
- community mental health centers to support recent veterans with co-occurring brain injury and behavioral health.

To accomplish the last aim, their contractor Denver Veterans Administration developed a toolkit for community mental health clinicians to screen, assess and support clients. Details in: Olson-Madden, J.H. Brenner, L.A. Matarazzo, B.B., & Signoracci, G.M. Identification and treatment of TBI and co-occurring psychiatric symptoms among OEF/OIF/OND veterans seeking mental health services within the state of Colorado: Establishing consensus for best practices. *Community Mental Health J*, 2013 49(2): 220-9.

Note: TBI-related cases were identified by selecting injury cases based on external cause of injury (deaths), primary diagnosis (hospitalizations), or both (emergency department visits). All fields were then searched for TBI diagnostic codes. Reference to any commercial entity or product or service on this page should not be construed as an endorsement by the Government of the company or its products or services.