



# North Carolina

## Special Emphasis Report: Traumatic Brain Injury, 2015\*

### 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

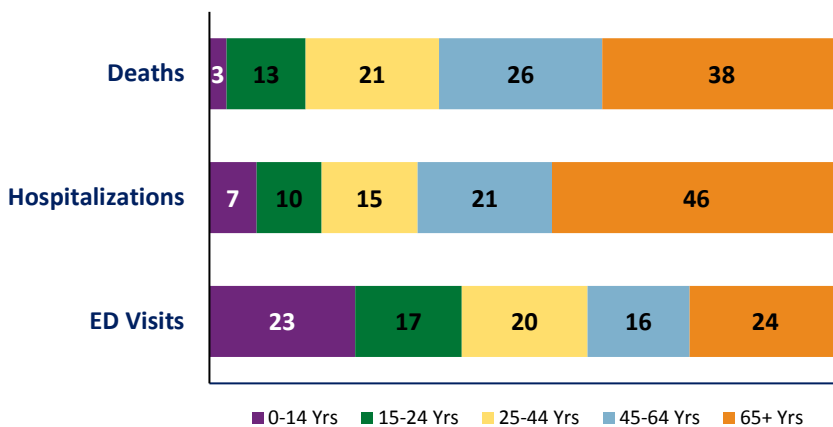
During 2015\*, a TBI was sustained by 78,775 of people in North Carolina. Among those injured, 1,825 (18.7 per 100,000) died where TBI was reported as a cause of death on the death certificate alone or in combination with other injuries or conditions, another 7,062 (66.8 per 100,000), were hospitalized with a TBI alone or in combination with other injuries or conditions, and an additional 69,729 (701.2 per 100,000) were treated and released from emergency departments (ED) with a TBI alone or in combination with other injuries or conditions. An unknown number of individuals sustained injuries that were treated in other settings or went untreated.

### Causes of TBI

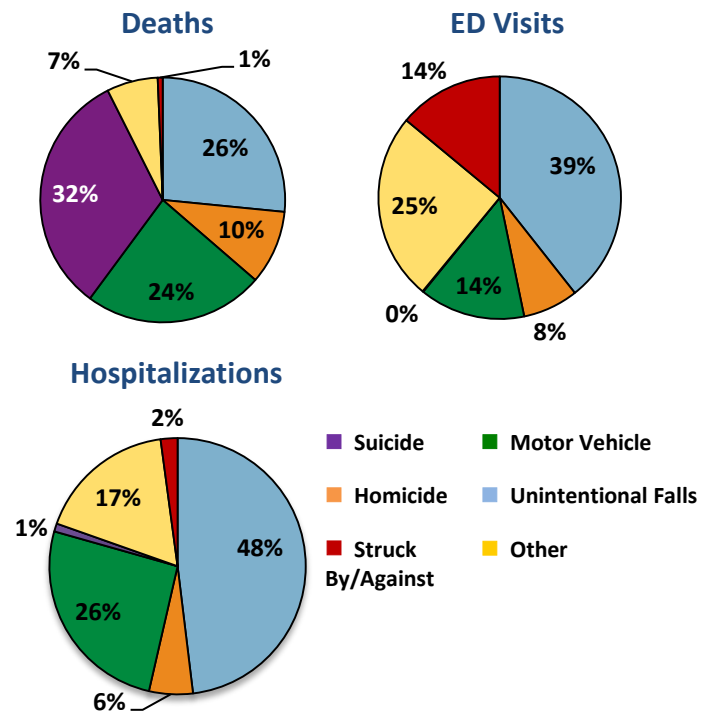
Cause of injury varies across the three levels of severity. *Suicide* was the leading cause of injury among those who died where TBI was reported as a cause of death on the death certificate alone or in combination with other injuries or conditions. *Falls* were the leading cause of injury among those who were hospitalized with a TBI alone or in combination with other injuries or conditions, and the leading cause of injury among those who were treated and released from emergency departments with a TBI alone or in combination with other injuries or conditions.

**Notes:** Firearm-related injuries were reported but excluded from the etiology graphic due to overlap with multiple categories (e.g., homicide/assault, suicide). Firearms were related with 40% of deaths, 2% of hospitalizations, and 0% of emergency department visits. Completeness of external-cause coding for TBI-related cases can impact the accuracy of the cause classifications for hospitalizations and emergency department visits.

**Figure 2: Percentage of Annual TBI-Related Deaths,\*\* Hospitalizations,\*\*\* and Emergency Department Visits,\*\*\* by Age, in North Carolina, 2015\***



**Figure 1: Percentage of Annual TBI-Related Deaths, Hospitalizations, and ED Visits, by External Cause, in North Carolina, 2015\***



### TBI by Age

The highest number of TBI-related deaths\* were among persons ages 65 and older. Persons ages 65 and older were most affected by TBI-related hospitalizations,\*\* and made the most TBI-related emergency department visits.\*\*

\* Due to data quality issues caused by the transition from ICD-9-CM to ICD-10-CM in the last quarter of 2015, Oct 1-Dec 31, 2014 was substituted for Oct 1- Dec 31, 2015 for ED and hospital discharge data.

\*\*TBI was reported as a cause of death on the death certificate alone or in combination with other injuries or conditions

\*\*\* TBI alone or in combination with other injuries or conditions





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### TBI by Gender

Men were more likely to sustain a traumatic brain injury than women. The magnitude of this difference was greatest among those who *died*. Men accounted for 72% (29.5 per 100,000) of deaths where TBI was reported as a cause of death on the death certificate alone or in combination with other injuries or conditions, 59% (87.1 per 100,000), of hospitalizations for TBI alone or in combination with other injuries or conditions and 49% (721.9 per 100,000) of emergency department visits for TBI alone or in combination with other injuries or conditions.



### TBI Prevention Strategies

CDC's National Center for Injury Prevention and Control (Injury Center) is committed to protecting people against 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](http://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](http://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](http://www.thecommunityguide.org/mvoi) [www.cdc.gov/motorvehiclesafety](http://www.cdc.gov/motorvehiclesafety)

### North Carolina TBI Activities

Prevention activities are coordinated by the Division of Mental Health/Developmental Disabilities/Substance Abuse Services (DMHDDSAS) TBI Program, the Brain Injury Association of NC (BIANC), the NC Brain Injury Advisory Council and the NC Department of Public Instruction among others.

The NC Division of Public Health-Injury & Violence Prevention Branch produces the CDC State Injury Surveillance, periodic short reports and surveillance updates that include TBI information/data. The NC BRFSS has asked about TBIs in several recent surveys, including the specific cause of the brain injury in 2010, 2014 and 2016, and as part of a veteran's health module in 2011. The NC BRFSS will ask questions about TBI in 2017.

Partnerships include the NC DMH/DD/SAS TBI Program, the Brain Injury Association of NC (BIANC) and the University of North Carolina Injury Prevention Research Center, NC Department of Public Instruction, along with the Division of Public Health for information and education.

Accomplishments/Successes include statewide TBI screening using the Ohio State University TBI identification method tool, claims data reviews to assist in determining the number of individuals with TBI currently receiving public services statewide and the implementation of a TBI Grant from the Administration for Community Living (ACL). The grant focus is on training, TBI screening, improved Information & Referral and Resource Facilitation.

Note: TBI-related cases were identified by first limiting the datasets to 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.

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