

Surveillance of Traumatic Brain Injury-Related Hospitalizations in Tennessee

Surveillance Summary, July-December 2014

Introduction

An annual average of 8,000 traumatic brain injury-related hospitalizations occurs in Tennessee. A **Traumatic Brain Injury (TBI)** is defined as an acquired injury to the brain caused by an external physical force that may result in impairment, partial or total disability or death.

Data collected by the Tennessee TBI Registry is used to:

- Identify TBI survivors every quarter and notify them about the availability of services to support their recovery.
- Perform statistical analyses that identify those most at-risk for a TBI, leading causes of TBI and any relative information. This information is then made available to the public through reports and surveillance summaries.
- Support planning efforts related to the implementation of initiatives aimed to reduce the number of traumatic brain injuries in Tennessee.

Overview

The information presented in this surveillance summary is based upon provisional data collected by Tennessee’s TBI Registry from July to December of 2014. The following list provides a quick highlight of the information collected:

- There were 3, 936 TBI-related hospitalizations reported with a discharge status of alive for the second six months of 2014.
- Over 55% ($n = 2,180$) of the cases resulted in the patient being discharged and requiring only home self-care. Almost 20% ($n = 786$) of the cases resulted in the patient being discharged to an inpatient or outpatient rehabilitation facility.

TBI by External Causes

The two leading external causes of TBIs since 2008 were accidental falls and motor vehicle traffic accidents. Below is a summary of these cases from July-December 2014.

- Accidental falls accounted for over 47% ($n = 1,877$) of external cause of injury-related TBI hospitalizations. Those aged 65 years and older were the most at risk (see Figure 1).
- Motor vehicle traffic accidents accounted for nearly 19% ($n = 732$) of external cause of injury-related TBI hospitalizations.

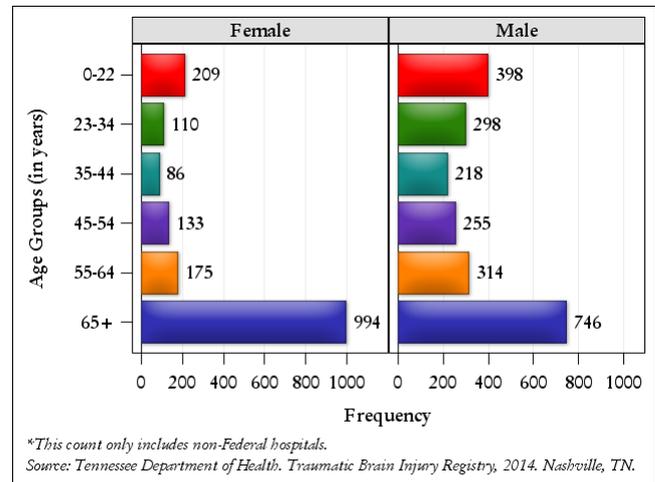


FIGURE 1: Number of TBI-related Hospitalizations by Age Group and Sex during July-December 2014.

TBI by Injury Type

Every type of TBI was assigned a specific ICD-9-CM diagnostic code. These codes were then categorized into three types of TBI using the Barell Injury Matrix¹. However, cases ($n = 512$) where the only TBI diagnosis code assigned was 959.01 (brain injury, unspecified) were excluded from this section due to the lack of specificity of this code.

- Over 75% ($n = 2,569$) of the cases had a TBI diagnostic code labeled as a Type 1 TBI. A Type 1 TBI denotes recorded evidence of intracranial injury or a moderate or a prolonged loss of consciousness (LOC), shaken infant syndrome or injuries to the optic nerve pathways.
- Over 21% ($n = 733$) of the cases had a TBI diagnostic code labeled as a Type 2 TBI. A Type 2 TBI includes injuries with no recorded evidence of intracranial injury and LOC of less than one hour, or LOC of unknown duration or unspecified level of consciousness.
- Nearly 4% ($n = 122$) of the cases had a TBI diagnostic code labeled as a Type 3 TBI. A Type 3 TBI is reported when a patient had no evidence of intracranial injury and no loss of consciousness.

¹“The Barell Injury Diagnosis Matrix, Classification by Body Region and Nature of Injury.” *Centers for Disease Control and Prevention*, 24 June 2010. Web, 24, Oct. 2014. http://www.cdc.gov/nchs/injury/ice/barell_matrix.htm

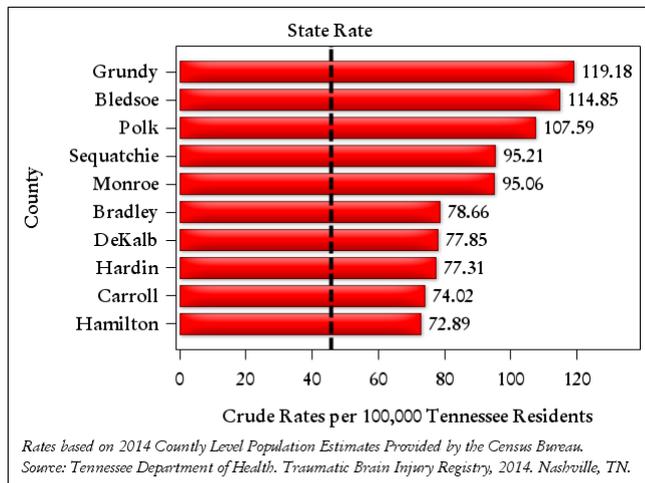


FIGURE 2: Top Ten Tennessee Counties with the highest TBI-related hospitalization rates per 100,000 TN residents during July-December 2014.

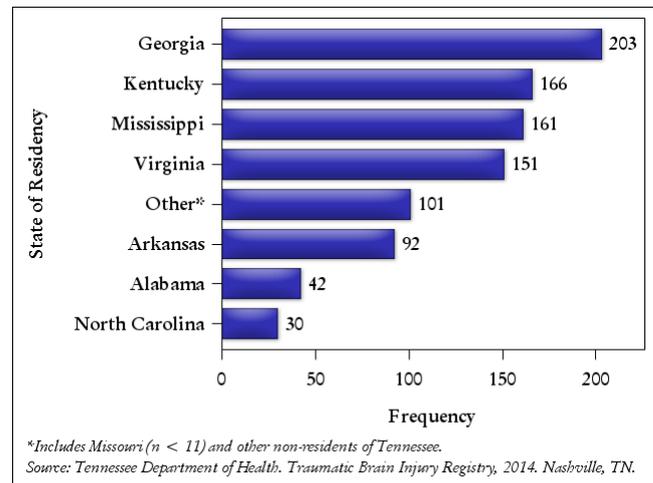


FIGURE 3: Number of cases involving non-residents of Tennessee who sustained a TBI alone or in conjunction with other injuries and required inpatient care during July-December 2014.

TBI by Age Group

- Over 44% ($n = 1,740$) of the cases reported were aged 65 years or older and those 22 years and younger made up over 15% ($n = 607$).
- Over 76% of those 65 years and older were involved in an accidental fall-related TBI hospitalization. Moreover, over 25% of those 22 years and younger were involved in a motor-vehicle related TBI hospitalization.

TBI by Sex

- Males made up over 56% ($n = 2,229$) of TBI cases reported from July-December 2014.
- A vast majority (65%) of motor-vehicle related TBI hospitalizations involved a male. However, 53% of fall-related TBI hospitalizations involved females.

TBI by Race

- Nearly 68% of TBI-related hospitalizations involving blacks were male. Those aged 22 years or younger (24%) and those 65 years and older (26%) had the highest percentages for TBI-related hospitalizations among blacks.
- Nearly 55% of TBI-related hospitalizations involving whites were male. Those aged 22 years or younger (14%) and those 65 years and older (47%) had the highest percentages for TBI-related hospitalizations among whites.

Concussions

During July-December 2014, there were 604 hospitalizations where the person was diagnosed with having sustained a concussion.

- Over 21% ($n = 130$) of those who were hospitalized and diagnosed with having sustained a concussion were 0-22 years of age. In addition, over 26% ($n = 161$) were 65 years and older.
- Over 59% ($n = 358$) were males with over 24% ($n = 87$) of these reports occurring among those 0-22 years of age.

Additional Key Findings

- The average length of stay for a TBI-related hospitalization during July-December 2014 was 5.9 days.
- During July-December 2014, the counties of Grundy, Bledsoe, Polk, Sequatchie, and Monroe had TBI-related hospitalization rates that were over 2 times higher than the state rate for Tennessee (45.65 per 100,000 residents) (see Figure 2).
- Nearly 76% ($n = 2,900$) of the TBI-related hospitalizations during 2014 involved Tennessee residents and nearly 22% ($n = 854$) involved persons from one of the eight states bordering Tennessee (see Figure 3).

Contact Information

Additional TBI reports and fact sheets may be found at <http://health.state.tn.us/tbi>. For any additional information on the Traumatic Brain Injury Program, please call **1.800.882.0611**.



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