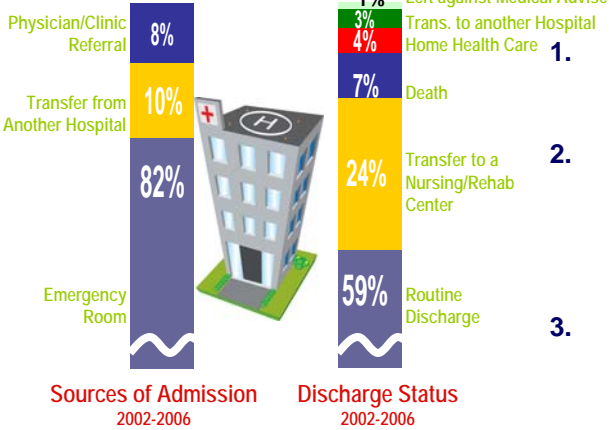


# Traumatic Brain Injury: Prevalence, External Causes, and Associated Risk Factors – Focus on Hospitalizations<sup>1</sup>

## Background

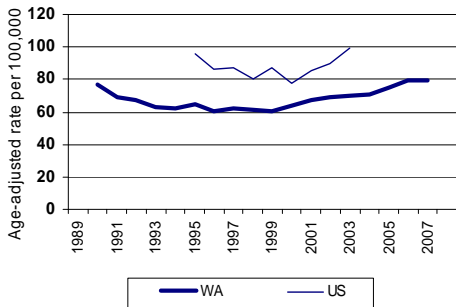


## Overview

1. Washington's rates for traumatic brain injury (TBI) hospitalizations have been rising since 2000. TBI hospitalizations due to falls propelled the increase.
2. TBI hospitalizations are concentrated in certain areas of the state. There are eight distinct areas where these hospitalizations are more likely. TBI hospitalizations are mainly due to transport-related injuries, falls, and being hit by or against an object.
3. TBI prevention programs targeting young male residents of the state will likely have the greatest impact. They are in the highest known risk group.

## How is Washington State doing nationally?

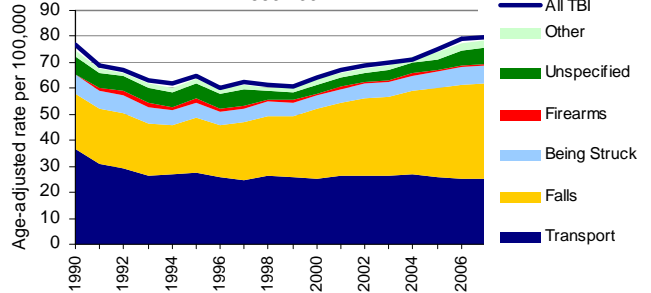
Chart 1: Traumatic Brain Injury Hospitalizations 1990-2007



Washington's rates for TBI hospitalizations declined during the 1990s. From 2000 to 2007, there was an upward trend. National rates from 1995 to 2003 suggest a similar u-shaped pattern.

## What is the reason for the recent rise in TBI hospitalizations?

Chart 2: Traumatic Brain Injury Hospitalizations by Cause 1990-2007

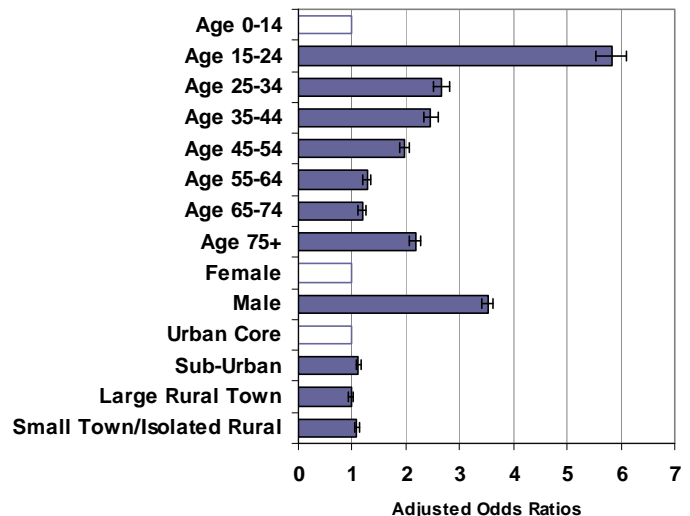


TBI hospitalizations due to transport injuries of various types fell in the earlier years, and then leveled out. Falls, on the other hand, gradually rose since the late 1990s. They explain the overall rise in TBI hospitalizations.

## Who is at risk for TBI Hospitalizations?

- Using the DOH hospitalization data, we can look at the influence of age, gender, and the rural-urban location of residence on TBI hospitalizations.
- The likelihood of TBI hospitalizations is strongly associated with age and gender (Chart 3).
- Adjusting for these factors, the likelihood of TBI hospitalizations is highest among the 15-24 age group. The likelihood decreases by age in age groups from 25-34 to 65-74. Elderly people age 75 and older appear to have a higher likelihood of hospitalization due to TBI than people in age groups from 45 to 74.
- Men are three and half times more likely to have TBI-related hospitalizations than women.
- Where one lives – urban or rural – might have a marginal effect on the likelihood of hospitalization.

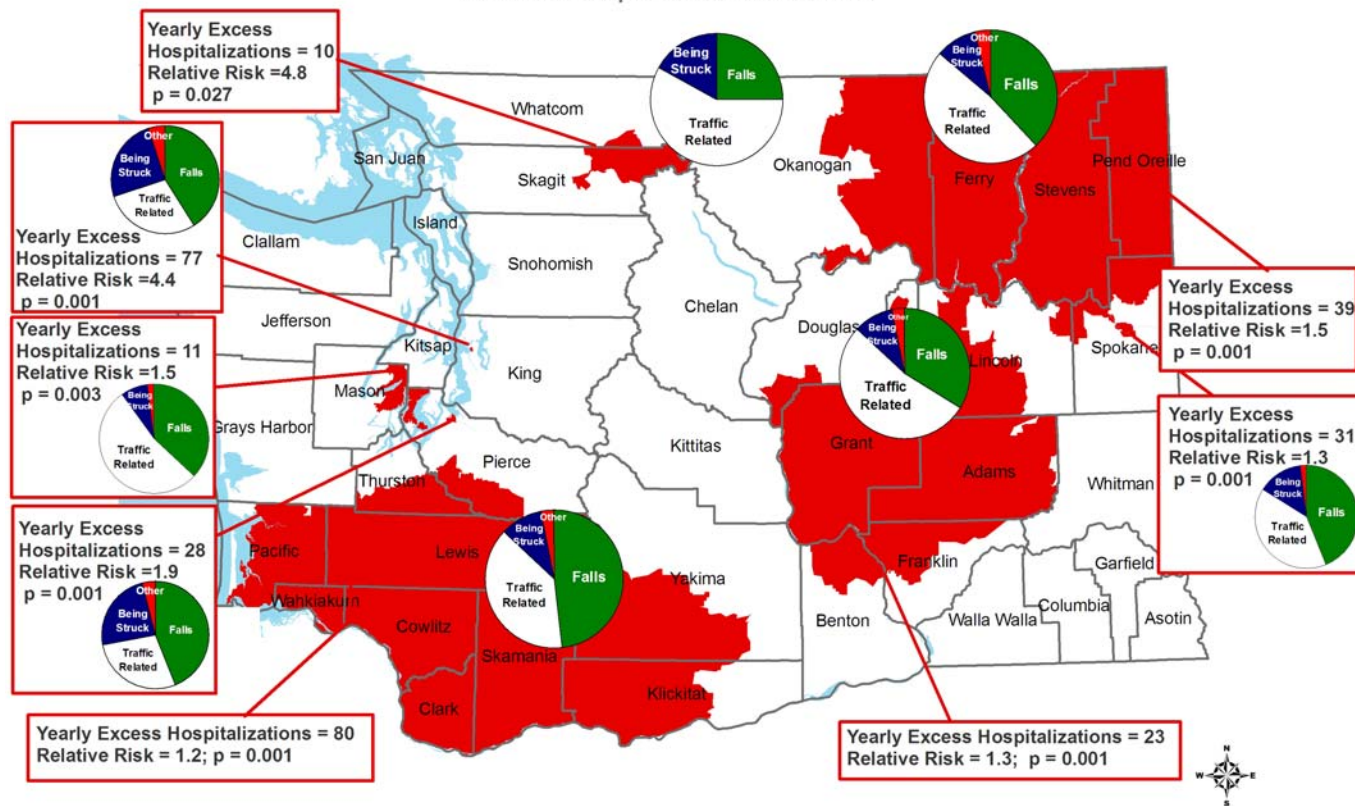
Chart 3: Traumatic Brain Injury Hospitalizations 2002-2006



## Are there areas in the State more at risk for TBI Hospitalizations?

### Clusters Where Traumatic Brain Injury (TBI) Hospitalizations are More Likely than in the Rest of Washington State, 2002-2006

Pie charts show proximate causes of TBIs.



Data Source: Washington State Department of Health, Center for Health Statistics, Comprehensive Hospital Abstract Reporting System and Washington Residents Hospitalized in Oregon

Prepared by Zeyno Shorter, 02/16/09  
Adjusted for Age and Sex

- Traumatic brain injury hospitalizations show clusters in eight distinct areas of the state. The two highest concentrations of yearly TBI hospitalizations are in the southwest and in Seattle, King County. The highest risk of such hospitalizations is in an area connecting Skagit and Whatcom Counties. Seattle, King County has the second highest relative risk.
- In each cluster, falls, being struck by or against an object, and transport-related injuries are the known leading causes of TBI deaths. Transport-related injuries involve motor vehicle occupants, pedestrians, bicyclists, motorcyclists, and others.

### Endnote

<sup>1</sup> The Department of Health data sources for civilian hospitalizations are Washington State Comprehensive Hospital Abstract Reporting System and Washington State residents hospitalized in Oregon. Data source for the national rates is the National Hospital Discharge Survey.