



# Moderate to Severe Traumatic Brain Injury is a Lifelong Condition

Moderate and severe traumatic brain injury (TBI) can lead to a lifetime of physical, cognitive, emotional, and behavioral changes. These changes may affect a person's ability to function in their everyday life. Despite initial hospitalization and inpatient rehabilitation services, about 50% of people with TBI will experience further decline in their daily lives or die within 5 years of their injury. Some of the health consequences of TBI can be prevented or reduced. Attending to these lifelong issues also known as chronic disease management, is crucial for improving the lives of persons with TBI.

This fact sheet outlines the estimated burden of moderate and severe TBI on public health, and highlights key policy strategies to address the long-term consequences of TBI. The national estimates are based on data from the TBI Model Systems (TBIMS) National Database. It contains data from the largest study of people with moderate or severe TBI who receive inpatient rehabilitation, and includes information from the time of injury to the end of life. Those requiring inpatient rehabilitation are among the most severely injured and constitute less than 10% of all persons hospitalized with a TBI.

## Five-year outcomes of persons with TBI\*



\*Data are US population estimates based on the TBIMS National Database. Data refer to people 16 years of age and older who received inpatient rehabilitation services for a primary diagnosis of TBI.

## Long-term negative effects of TBI are significant.

Even after surviving a moderate or severe TBI and receiving inpatient rehabilitation services, a person's life expectancy is 9 years shorter. TBI increases the risk of dying from several causes. Compared to people without TBI, people with TBI are more likely to die from:



**Seizures**  
50 x more likely



**Drug Poisoning**  
11 x more likely



**Infections**  
9 x more likely



**Pneumonia**  
6 x more likely

## After inpatient rehabilitation for TBI, the following groups are more likely to die sooner:

- Older adults
- Men
- Unemployed
- People who are not married
- People with fewer years of education
- People with more severe TBI
- People with fall-related TBI

In addition, people with moderate to severe TBI typically face a variety of chronic health problems. These issues add costs and burden to people with TBI, their families, and society. Among those still alive 5 years after injury:

- 57%** are moderately or severely disabled.
- 55%** do not have a job (but were employed at the time of their injury).
- 50%** return to a hospital at least once.
- 33%** rely on others for help with everyday activities.
- 29%** are not satisfied with life.
- 29%** use illicit drugs or misuse alcohol.
- 12%** reside in nursing homes or other institutions.

[www.cdc.gov/TraumaticBrainInjury](http://www.cdc.gov/TraumaticBrainInjury)

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## Policy Implications: Proactive Management of TBI

With proper health care and community services, some causes of TBI-related problems can be prevented or treated, and the impact can be reduced. Because the problems faced by people with TBI are lasting, they require long-term solutions. While coordinated approaches to acute care and rehabilitation after TBI are available, only a few promote long-term health and well-being. The public health burden of TBI suggests important implications for future policies to address proactive, lifelong disease management.

**Coordinated long-term care can help prevent or reduce many costly consequences of TBI, such as:**

- Decreased life expectancy
- Limited function
- Poor health
- Low quality of life



### TBI researchers and the TBI Model System Program should continue to:

- Study TBI as a chronic health condition.
- Investigate the contribution of pre-existing and co-occurring conditions.
- Identify risk factors, such as sleep, weight, depression, aging, and alcohol use.
- Study the benefits of exercise, diet, social support, and engagement in the community.
- Test treatments for depression, irritability, sleep disorders, and cognitive impairment.



### At the federal level, decision-makers can:

- Recognize TBI as a chronic health condition.
- Review policies that affect access to rehabilitation services over the life span.
- Further research that addresses the future management of TBI.
- Enhance surveillance to monitor the national burden of TBI.



### At the state level, decision-makers can:

- Identify the prevalence of disabilities due to TBI among their residents.
- Screen for TBI history among persons who receive state-funded health and social services.
- Train health and social service professionals to recognize and minimize the effects of TBI on behavior.
- Make home and community services more accessible to people with TBI.



### Health care providers can:

- Determine if their patients have experienced TBI and understand the impact of TBI on the current health status of patients.
- Screen for and treat common, late-developing problems, such as depression, substance misuse, and weight gain.
- Encourage lifestyles that promote brain health.
- Educate patients and their families to prevent or reduce late-occurring problems.