

# Preventing Suicidal Behavior After Traumatic Brain Injury



## From Science to Practice

Using Research to Promote Safety and Prevent Suicide

### Issue

Traumatic brain injury (TBI) is a risk factor for suicidal ideation and behavior.<sup>1,2</sup> A TBI is “a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head, or penetrating head injury.”<sup>3</sup>

The severity of TBI — mild, moderate, or severe — is assessed using several factors, including the duration of unconsciousness following the injury, the results of structural imaging tests, and the presence of posttraumatic amnesia.<sup>4</sup> For most people, the symptoms of mild TBI resolve within a week. However, all people with TBI more generally can experience persistent cognitive, somatic, or psychological symptoms that can lead to poorer mental health, physical function, and quality of life.<sup>5</sup> Veterans with a history of TBI were found to be at higher risk for suicide than Veterans with no TBI history.<sup>6</sup>

### Key Findings

- Approximately 2.87 million TBI-related emergency department visits, hospitalizations, and deaths were reported in the general population in 2014, and the rate of TBI-related deaths due to intentional self-harm increased by 17% (from 4.7 to 5.5 per 100,000) between 2006 and 2014.<sup>7</sup>
- Between 2000 and 2019, 413,858 service members were diagnosed with a mild, moderate, or severe TBI.<sup>8</sup>
- Mild injuries are the most common form of TBI, with the Defense and Veterans Brain Injury Center estimating that mild TBIs account for approximately 82% of all TBI diagnoses in service members.<sup>8</sup> People with a history of mild TBI are twice as likely as those without a history of TBI to die by suicide.<sup>2</sup>

- The rate of suicide for Veterans with moderate to severe TBI was 136 per 100,000 person-years, compared with 37 per 100,000 person-years for Veterans without TBI. Seventy-eight percent of Veterans with moderate to severe TBI who died by suicide used a firearm.<sup>6</sup>
- Among service members, those who reported post-TBI symptoms in the month following a moderate to severe TBI had a higher risk for attempting suicide than did those who reported no history of TBI.<sup>9</sup>
- Veterans with a history of moderate to severe TBI and suicide attempts may have poorer cognitive and decision-making ability than those without such a history. A combined history of TBI and suicide attempts may indicate greater risk for making impulsive decisions to relieve psychological distress, leading to a greater risk for suicide.<sup>10</sup>

### Implications

The risk for suicide is elevated after a TBI.<sup>1</sup> The duration of increased risk and which people go on to die by suicide are not well understood, however. Some researchers have found that elevated suicide risk lasts only up to six months following the injury,<sup>11</sup> while others have found that increased risk following a TBI persists for many years or even the individual's lifetime.<sup>12,13</sup>

Treatments for patients with TBI and suicide risk are insufficiently studied. Developing treatments and demonstrating their efficacy require further research. Some studies have shown promising results in reducing hopelessness in patients with moderate to severe TBI,<sup>14,15</sup> but no studies have examined treatments for patients with mild TBI.<sup>16</sup> Research also suggests that patients with mild TBI can benefit from traditional pharmacologic and psychotherapeutic interventions.<sup>4</sup>

## Ways You Can Help

- Screen patients with a history of TBI for suicidal thoughts and behaviors, particularly during periods of transition or the first few months after injury.
- Follow the appropriate VA/Department of Defense clinical practice guidelines in treating patients with a TBI and a co-occurring mental health condition (e.g., PTSD, major depressive disorder, suicide risk, or substance use disorder). These guidelines can be found at [www.healthquality.va.gov](http://www.healthquality.va.gov).
- Consider traditional evidence-based psychotherapies for patients with TBI, such as problem-solving therapy for suicide prevention, a cognitive behavioral therapy that combines problem-solving skills with safety planning.<sup>15</sup>
- Discuss the safety of lethal means (e.g., medications, firearms) in the home with:
  - Patients with a history of moderate to severe TBI who are transitioning from acute rehabilitative care to home care
  - Patients with TBI and a history of suicidal behavior
  - Patients with TBI and stressors that may increase risk for suicide
- Familiarize yourself with VA resources on how to care for patients with a history of TBI:
  - VA/DoD Clinical Practice Guideline for the Management of Concussion-Mild Traumatic Brain Injury ([www.healthquality.va.gov/guidelines/rehab/mtbi/index.asp](http://www.healthquality.va.gov/guidelines/rehab/mtbi/index.asp))
  - Rocky Mountain Mental Illness Research, Education and Clinical Center TBI Toolkit ([www.mirecc.va.gov/visn19/tbi\\_toolkit](http://www.mirecc.va.gov/visn19/tbi_toolkit))
  - Conceptualizing Suicide Risk in TBI Supplemental Handbook ([www.mirecc.va.gov/visn19/docs/conceptualizing\\_suicide\\_risk\\_in\\_tbi.pdf](http://www.mirecc.va.gov/visn19/docs/conceptualizing_suicide_risk_in_tbi.pdf))
- Suggest to patients with a TBI that they use Concussion Coach — a mobile app that can help them manage their symptoms — which is available at [mobile.va.gov/app/concussion-coach](http://mobile.va.gov/app/concussion-coach).

**There is no single cause of suicide. It is often the result of a complex interaction of risk and protective factors at the individual, interpersonal, community, and societal levels. To prevent Veteran suicide, we must maximize protective factors and minimize risk factors at all of these levels.**

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