



## Traumatic Brain Injury

VA researchers are conducting cutting-edge research to help veterans with traumatic brain injury (TBI)—a diagnosis covering a wide range of injuries to the brain—to regain maximum function. VA research in TBI focuses on gaining a better understanding of the brain changes in TBI; refining diagnostic tools; developing drugs to prevent or treat brain injury; designing improved methods for assessing treatment effectiveness; and helping veterans with TBI to reintegrate into their community.

### *Examples of VA research advances*

- **Brain changes**—VA researchers are conducting sophisticated imaging studies to better characterize brain changes in TBI and are studying cellular repair after brain injury to lead to practical treatments and enhancements to quality of life. Using animal models of brain injury, VA researchers have shown that injecting bone marrow stem cells from adults can protect against brain trauma.
- **Personalized medicine**—Because genetic factors may determine which veterans develop TBI after being injured and how they respond to treatment, a new VA registry will analyze DNA samples for veterans of Operation Enduring Freedom and Operation Iraqi Freedom toward tailoring medical approaches for these patients.
- **Screening approaches**—VA researchers are refining methods of screening to reliably diagnose TBI and predict patients' outcomes and care needs.
- **Community reintegration**—VA investigators are examining ways to help veterans with TBI achieve a smooth transition back into daily life, including family, school, and work roles. Investigators are also looking at ways of restoring independence to veterans with TBI—for example, by using a simulator to retrain them to drive.
- **Research impact**—VA's Quality Enhancement Research Initiative (QUERI) focuses on rapidly translating new discoveries in TBI into patient care, as well as providing care for affected families. In another effort to maximize the yields from TBI research, a VA state-of-the-art conference recently focused on the identification and conduct of research to improve health care for veterans with this form of injury.

### Facts About Traumatic Brain Injury

Traumatic brain injury is a complex type of injury that can result in physical symptoms as well as intellectual and emotional problems. TBI is a substantial cause of civilian and military death and disability among Americans, with annual economic costs of TBI in the civilian sector alone being conservatively estimated at over \$50 million. TBI, in forms ranging from mild to severe, is estimated to affect at least 20 percent of U.S. troops wounded in Afghanistan or Iraq and has been called the signature injury of modern combat.

