

## Public Abstract

**Background:** Scientists have established that TBI patients experiencing multiple medical problems have worse outcomes. Sleep disorders, including sleep apnea, are common after traumatic brain injury and affect recovery and negatively influence participation in rehabilitation. Sleep apnea is a breathing problem while persons sleep and causes further brain damage and problems with thinking, daily functioning, and overall health. Earlier diagnosis and treatment is so important for TBI survivors to maximize the recovery process.

**The Problem:** There is little information that guides TBI doctors on how to identify sleep apnea during inpatient TBI rehabilitation, a phase in which people experience the potential for a rapid pace of improvement. The Agency for Healthcare Research has highlighted gaps in best methods for identifying sleep apnea and separately in helping consumers with TBI rehabilitation choices. Partnering with survivors, caregivers, and administrators, we developed this study to compare sleep apnea screening and diagnostic tools in TBI rehabilitation settings. This information will provide clinicians, providers, and patients with the best information for early identification of sleep apnea to remove its negative influence on the pace of recovery in early phases after TBI.

**The Goal:** We will compare existing screening (Aim 1) and diagnostic tools (Aim 2) in TBI patients undergoing inpatient rehabilitation. For the second aim, we will determine if a more accessible diagnostic test is sufficient to diagnose sleep apnea compared to the traditional method used which is less accessible to consumers. If the more accessible test is good enough, this will increase recognition of this problem and increase patient access to sleep apnea treatment which may help with the chronic disability that TBI patients experience.

**Stakeholders and Products.** TBI survivors, caregivers, researchers, and policymakers working together on this study helped develop the study questions. Idea exchanges included ways to reach clinicians and TBI survivors/caregivers via existing educational programming and online tools for consumers such as fact sheets and patient/caregiver-focused videos. Other traditional methods will include targeting professional magazines, conferences, and research journals that reach professionals working with TBI survivors and their families at the time of admission to rehabilitation and during the recovery process. This study will occur at rehabilitation hospitals around the country who enroll TBI survivors into a lifetime study called the TBI Model System funded by the Departments of Health and Human Services and VA. Resources are already in place to identify, recruit, follow, and translate information to reach patients, caregivers, clinicians, and other scientists.