VA TBI Model Systems/I-MAP Newsletter

10 years of VA TBI Model Systems Research

Issue 10: Fall 2020

How TBI Model Systems Research Has Informed Clinical Care and Promoted Successful Recovery Following Severe TBI

Veterans and Service Members enrolled in the VA TBI Model Systems (TBIMS) longitudinal program[1] are followed by a team of researchers to better understand their injuries, the course of their hospital care, and how they improve during (and after) rehabilitation for their TBI. The VA TBIMS has provided evidence that independence in the skills necessary for typical day-to-day functioning increases during inpatient rehabilitation.[1] Below is the story of a remarkable Veteran who, through comprehensive rehabilitation, achieved her goal to regain her independence, return to active duty, and complete her college education (and how VA TBIMS research informed her recovery). Her name and details have been modified to protect her identity.

Josephine's TBI

Josephine was injured in a motorcycle crash at the age of 21. At that time, she was enlisted in the U.S. Army and a college senior studying computer science. When emergency medical services arrived, she was unresponsive. She was transported to a local trauma hospital, still comatose. The brain scans showed tearing of the blood vessels surrounding the brain and destruction within the tissue deep inside the brain (diffuse axonal injury), which is evidence of widespread brain damage. Because of the extent of her injury, there was concern that she may not awaken from her coma. However, she soon began to show signs of awareness. Her doctors did not consider her to be a rehabilitation candidate because she did not consistently follow commands or communicate.

Research helps Josephine get the right care at the right time

Her family found educational materials from the Model Systems Knowledge Translation Center about Severe TBI and Disorders of Consciousness **(https://msktc.org/tbi)**. The materials included questions that her family could ask hospital staff about options for inpatient rehabilitation treatment which helped to get Josephine referred to an inpatient TBI program at one of five VA Polytrauma Rehabilitation Centers. She was accepted to the VA's Emerging Conscious Program, with a more promising prognosis based on TBIMS research showing that 67% of patients recover consciousness during inpatient care (further justifying the value of this program).[2]

Josephine survives a severe TBI, now what?

Upon admission to the Emerging Consciousness Program, she was evaluated by the rehabilitation team using the Coma Recovery Scale-Revised (developed by TBIMS researchers) to evaluate the severity of her disorder of consciousness. Using clinical treatment guidelines published by VA and civilian TBIMS researchers, her rehabilitation team addressed comorbid health conditions and provided education to the family about her diagnosis and potential for ongoing recovery.

*story continues on page 2

New VA Research- Sleep Apnea

MSKTC SCI · TBI · BURN | Model Systems Knowledge Translation Center

Are you a Veteran with TBI that was diagnosed with Sleep Apnea?

If so, we want to talk with you about a research study that is focused on helping Veterans with TBI who are treating their sleep apnea with CPAP, BiPAP, or APAP. The information from this study will be used to help other Veterans with chronic health conditions such as sleep apnea.
The study is voluntary. Choosing to participate (or not) will not affect the VA medical care to which you are entitled. Persons who are eligible for and complete the study receive $100 for their time.
If you are considering participating in this study, or if you just want to learn more about it, contact the director of the study, Dr. Marc Silva, at: (888) 716-7787 ext. 5613 (toll free), or (813) 537-9445 (VA cell).

Study Title: Improving Sleep Apnea Treatment Adherence after Brain Injury: A Feasibility Study

USF IRB # Pro00041471 ClinicalTrials.gov ID: NCT04221009

The Model Systems Knowledge Translation Center (MSKTC) is recruiting individuals with traumatic brain injury and their caregivers to provide feedback on new consumer factsheets. To be eligible, participants must be at least 18 years old. Interviews will last approximately 60 minutes. Participants will receive $25 for their time.

Call 202-403-5600 or email msktc@air.org to register.

*story continued from page 1

Early emerging consciousness interventions pay off

As Josephine recovered from consciousness and entered a confused state (as expected), therapists and doctors evaluated her thinking skills using the Confusion Assessment Protocol, developed by TBIMS researchers for tracking progress at this state of recovery.[3] Consistent with her injury severity, she had no memory of the motorcycle accident or events prior to her transfer to the VA hospital. Based on years of TBIMS experience documenting cognitive recovery after TBI, her rehabilitation team helped to normalize this memory gap for her and her family. At this point in her recovery, Josephine was able to comprehend basic questions but had trouble forming new memories. More concerning was that she was unaware of her physical and cognitive impairments which posed a safety risk, requiring ongoing supervision by her medical team (and likely by family after discharge). TBIMS research has shown that 1/3 of Veterans and Service Members still require supervision one-year after a moderate to severe TBI.[4] As such, her social workers and case managers worked with her family to help plan for Josephine's supervision needs after rehabilitation discharge.

Families are essential members of the TBI rehabilitation team

To be proactive, psychological health services were provided during her hospitalization to monitor and promote emotional adjustment while the family therapist provided education and support to Josephine's parents. Josephine, her parents, and the therapists worked collaboratively to set rehabilitation goals and plan for participating in therapeutic activities. They utilized infocomics about depression and adjustment from the Model Systems Knowledge Translation Center website **(https://msktc.org/tbi/infocomics)** to learn more about the emotional journey ahead.

Josephine's successes one year after injury

Josephine's inpatient rehabilitation occurred over a 3-month time frame and she made a remarkable recovery. At discharge, she was able to walk, manage her basic hygiene, and communicate without assistance. She continued to have deficits in memory and problem solving requiring occasional supervision by her parents and which continued to be addressed with outpatient rehabilitation therapies. Subsequently, Josephine was discharged back to her Army Base to reintegrate into the military community. One year later, she finished her bachelor's degree. At her last TBIMS follow up interview, she expressed excitement about starting a new job with the Army using the skills she learned in her computer science program. Looking forward, future interviews with Josephine will include the Rehabilitation Needs Survey, created by VA TBIMS researchers[5] to better understand how Josephine's recovery and service needs evolve as she reintegrates back into the society.

References for above story:
1. Ropacki S, Nakase-Richardson R, Farrell-Carnahan L, Lamberty GJ, Tang X. Descriptive findings of the VA polytrauma rehabilitation centers TBI Model Systems national database. *Arch Phys Med Rehabil.* 2018;99(5):952-9.
2. Whyte J, Nakase-Richardson R, Hammond FM, McNamee S, Giacino JT, Kalmar K, Greenwald BD, Yablon SA, Horn LJ. Functional outcomes in traumatic disorders of consciousness: 5-year outcomes from the National Institute on Disability and Rehabilitation Research Traumatic Brain Injury Model Systems. *Arch Phys Med Rehabil.* 2013;94(10):1855-60. doi: 10.1016/j.apmr.2012.10.041.
3. Sherer M, Nakase-Thompson R, Yablon SA, Gontkovsky ST. Multidimensional assessment of acute confusion after traumatic brain injury. *Arch Phys Med Rehabil.* 2005;86(5):896-904.
4. Nakase-Richardson R, Stevens LF, Bailey EK, Patel N, Dillahunt-Aspillaga C, Ropacki SA, Sander AM, Stevens L, Tang X. Supervision needs following Veteran and Service Member moderate to severe traumatic brain injury: A VA TBI Model Systems study. *J Head Trauma Rehabil.* 2017;32(4):245-54.
5. Silva MA, VandenBussche Jantz AB, Klocksieben F, Monden KR, Rabinowitz AR, Cotner BA, Dillahunt-Aspillaga C, Nakase-Richardson R. Unmet rehabilitation needs indirectly influence life satisfaction 5 years after traumatic brain injury: A VA TBI Model Systems study. *Arch Phys Med Rehabil.* 2020; Advanced online publication. 10.1016/j.apmr.2020.08.012

Meet the Project Investigators

The US Department of Veterans Affairs Traumatic Brain Injury Model Systems is comprised of 5 sites. The 5 sites are housed at the Polytrauma Rehabilitation Center's across the United States. Each site has a Project Investigator that is in charge of the TBI Model Systems research activities.

James A. Haley Veterans' Hospital
Tampa, Florida

Dr. Richardson's (left) and Dr. Silva's (right) research focuses on sleep and outcomes following TBI

VA Palo Alto Health Care Systems
Palo Alto, California

Dr. Joyce Chung's research focuses on epidemiology within traumatic brain injury.

Impact on care

Below are comments from clinicians and health care administrators sharing their thoughts about the VA TBI Model Systems.

"The JAHVH Psychology Training Program has significantly benefited from the TBIMS through its inclusion in our healthcare system. Interns and numerous Postdoctoral Residents have been mentored by research psychologists using data and the expertise of TBI Model Systems researchers to enhance their professional development in research design, data analysis, and manuscript dissemination...our trainees have developed advanced research acumen that otherwise would not have been feasible."

Jessica Vassallo, PhD, ABPP
Director of Psychology Programs at James A Haley Veterans' Hospital in Tampa, FL

"VA's collaboration with TBIMS has proved invaluable as this has allowed VA to partner with other premiere TBI programs in the United States to better understand and improve care following TBI. This has been a productive collaboration and multiple Veteran specific needs following TBI have been identified. As a result VA has adjusted clinical programming to:

- increase integration of Mental health services in inpatient rehabilitation programs,
- increase monitoring of long term comorbidities and new/unmet rehabilitation needs through the 360 initiative to reduce rehospitalizations and support evolving rehab needs,
- increase integration of sleep specialists in inpatient polytrauma teams with focus on sleep as a modifiable factor to improved outcomes, and
- improve integration of vocational rehabilitation into core TBI/Polytrauma programming.

VA's ongoing partnership and collaboration with TBIMS will continue to advance knowledge and improve care for Veterans with TBI and serve as a cornerstone in our efforts to create a culture of continuous learning and improvement of TBI care."

Joel Scholten , M.D.
National Director, Physical Medicine and Rehabilitation, Veteran's Health Administration

"TBI is a complex condition that often results in chronic disability. TBI Model Systems has a sustained record of focused research by some of the top researchers in the world. The program has developed an extensive database that provides a foundation for translational research that is shared on public facing websites to benefit both health care providers as well as and people with TBI and their families."

Don MacLennan, SLP, MA-CCC
Chief of Speech Language Pathology at MVAHCS

"TBI Model Systems has been helpful in understanding the trends of brain injury care...I understand that each client with a TBI has a unique experience based on their location of injury, severity, and premorbid factors, but TBI Model Systems has helped provide an understanding of TBI as a whole..."

Lydia Marie Fritzsche, OTD, OTR/L, CBIS
Certified Brain Injury Specialist at James A. Haley Veterans Hospital

Hunter Holmes McGuire VAMC
Richmond, Virginia

(Left) Dr. Perrin focuses on psychosocial adjustment to TBI with a particular emphasis on TBI caregiving and adjustment in underserved and racial/ethnic populations.
(Right) Dr. Klyce's research focuses on caregiver support, substance use, adjustment to trauma, and clinical measurement within traumatic brain injury.

Audie L. Murphy Memorial Veterans' Hospital
San Antonio, Texas

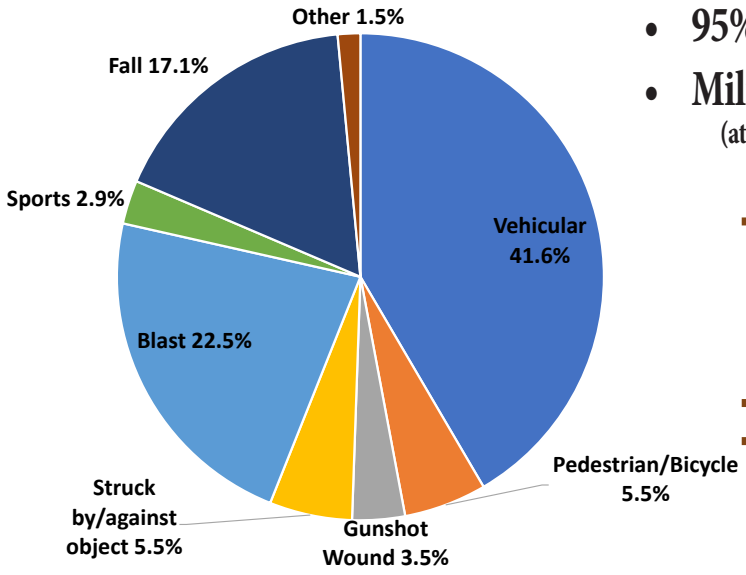
Dr. O'Rourke is a board-certified neuropsychologist who has spent his career assessing patients with acquired brain injury. His work has focused on assessing symptom validity and cognition after traumatic brain injury.

Minneapolis VA Healthcare Center
Minneapolis, Minnesota

Dr. Finn's research broadly examines the mental health of Veterans/Service Members with TBI and their family caregivers, as well as the role of personality and mental health factors in improving recovery and social functioning post-TBI.

A Look at our VA TBIMS Participants

Cause of TBI:



Total of 1456 participants across the 5 VA Polytrauma sites

- Age Range: 17-91 (average age: 36)
- 95% male, 5% female
- Military Status: (at time of injury) 64% Active duty, 36% Veteran

"I feel that you've done a good job, a really good job and kept me relaxed enough to deal with this. I think this whole approach is extremely valuable so I commend you"

-V/SM during TBIMS interview

"But, I know that organizations like yours can evaluate the services you offer and possible unmet needs and try to make it better all around. So, I appreciate that."

-V/SM during TBIMS interview

TBI Resources

Make the Connection
Veteran and Service Members connection to the resources, tools, and support you need:
MakeTheConnection.net

Military Health System TBI Fact Sheets
These fact sheets provide information and coping and recovery tips to help patients manage TBI
Health.Mil/About-MHS/OASDHA/Defense-Health-Agency/Research-and-Development/Traumatic-Brain-Injury-Center-of-Excellence/Patient-and-Family-Resources

Military and Veteran Crisis Line
1.800.273.8255, Press 1 to Connect

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