

Polytrauma & Blast-Related Injuries

MINNEAPOLIS, MINNESOTA

APRIL 2012

Background

More than 54,000 Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) service members have been wounded in action or killed. Blasts are the most common cause of combat injury. In combat, sources of blast injury include artillery, rocket and mortar shells, mines, booby traps, aerial bombs, improvised explosive devices (IEDs), and rocket-propelled grenades. Blast injuries are often polytraumatic, meaning that they affect multiple body systems or organs.

Because of improvements in body armor, as well as battle-site and acute trauma care, OEF/OIF service members are surviving beyond the acute phase of blast injuries. However, they are surviving with new and complex patterns of injuries that include: traumatic brain injury (TBI), traumatic limb amputation, nerve damage, burns, wounds, fractures, vestibular damage, and vision and hearing loss. Pain, mental health, and adjustment problems also are common. Because TBI is particularly prevalent among OEF/OIF/OND service members, it has been referred to as the “signature injury” of these wars.

Polytrauma and Blast-Related Injuries Quality Enhancement Research Initiative

The mission of the Polytrauma and Blast-Related Injuries (PT/BRI) QUERI is to promote the successful rehabilitation, psychological adjustment, and community reintegration of individuals who have sustained polytrauma and blast-related injuries. The scope of PT/BRI-QUERI includes the full range of health problems, the healthcare system,

and psychosocial factors represented in this mission. Therefore, PT/BRI-QUERI focuses on a complex pattern of comorbidities and related functional problems and healthcare needs among combat-injured Veterans, some of whom remain on active duty during their initial course of treatment within the VA healthcare system. Thus far, our efforts have been focused primarily on enhancing the TBI/Polytrauma System of Care, which cares for individuals whose combat injuries frequently include traumatic brain injury.

The Polytrauma System of Care

Recognizing the need for new systems of care to meet the rehabilitation needs and optimize functional outcomes in patients with polytraumatic combat injuries, the Secretary of Veterans Affairs designated five Polytrauma Rehabilitation Centers (PRCs) to provide specialized inpatient rehabilitation treatment and expand clinical expertise in polytrauma throughout the VA. These Centers are located in Minneapolis, MN, Palo Alto, CA, Richmond, VA, Tampa, FL, and San Antonio, TX.

PRCs are the hub of the Polytrauma System of Care, which also includes:

- Polytrauma Transitional Rehabilitation Programs, co-located with the PRCs;
- Specialized outpatient and sub-acute rehabilitation programs (n=23), referred to as Polytrauma Network Sites and located within each of VA's 21 integrated service networks (VISNs); and
- Designated polytrauma teams at smaller, more remote VA facilities, and a point of contact at all other VA facilities.

About QUERI

VA/HSR&D's Quality Enhancement Research Initiative (QUERI) currently focuses on ten areas of great importance related to healthcare for Veterans: Chronic Heart Failure, Diabetes, eHealth, HIV/Hepatitis, Ischemic Heart Disease, Mental Health, Polytrauma and Blast-Related Injuries, Spinal Cord Injury, Stroke, and Substance Use Disorder.

Working with health system partners to develop research that speeds improvements in Veterans' healthcare, QUERI utilizes a six-step process to diagnose gaps in performance and identify and implement interventions to address them.

- Identify priority conditions and opportunities for improving the health of Veterans.
- Identify effective practices for improving outcomes for priority conditions.
- Examine variations in existing practices, the sources of variation, and their relation to health outcomes.
- Identify and test interventions to improve the delivery of best practices.
- Evaluate the feasibility, adoption, and impact of coordinated improvement programs to spread best practices.
- Evaluate the effects of improvement programs on Veterans' health outcomes, including quality of life.

PT/BRI-QUERI Projects

PT/BRI-QUERI goals have been identified through literature reviews, needs assessment studies, as well as priorities identified by VA leaders, clinical partners, and stakeholder groups. Improving the Polytrauma System of Care is the overarching goal. PT/BRI-QUERI researchers also take into consideration barriers to improved practice, including the lack of an evidence base for polytrauma rehabilitation; new and evolving expertise in TBI and polytrauma within VA; and the fact that problems associated with invisible injuries may not be recognized until years after injury.

PT/BRI-QUERI's primary clinical goals are to:

- Ensure that Veterans exposed to blasts receive screenings and evaluation for high-frequency “invisible” problems, including TBI, PTSD and other psychiatric problems, pain, and sensory loss (vestibular, hearing, visual impairments);
- Promote identification and evaluation of best practices for polytrauma rehabilitation, including practices that help Veterans establish expectations for recovery; and
- Optimize the ability of caregivers and family members to provide supportive

assistance to Veterans with impairments resultant from polytrauma and blast-related injuries.

PT/BRI-QUERI investigators also have the following two implementation science goals:

- Identify and test methods for improving processes of care and outcomes, even when the evidence base is not well established; and
- Identify and test methods for measuring readiness to implement and sustain practice improvements.

PT/BRI-QUERI has projects in each of these goal areas. Within the screening and evaluation clinical goal area, investigators are prioritizing screening and evaluation of mild TBI. Other projects focus on vision loss, PTSD, and pain in individuals with TBI. Projects that fall into the best practices goal area target post-screening patient education, care coordination, as well as the implementation of appropriate clinical practice guidelines in patients with TBI and polytrauma. Within the family/caregiver goal area, investigators are conducting and promoting research to better understand the needs and preferences of family caregivers, the direct and indirect costs of caregiving, and interventions to improve and spread family-centered services throughout the Polytrauma System of Care.

Contact information

for PT/BRI-QUERI:

Carmen Hall, R.N., Ph.D.
Implementation
Research Coordinator
Tel: (612) 467-4015
E-mail: Carmen.Hall@va.gov

Contact for general QUERI information:

Linda McIvor, M.H.S., M.S.
QUERI Program Manager
Tel: (202) 443-5740
E-mail: Linda.McIvor@va.gov

The PT/BRI-QUERI Executive Committee

Each QUERI Executive Committee is co-chaired by a research expert and a clinician. The research expert and Director for the PT/BRI-QUERI is **Nina Sayer, Ph.D.**, and the clinical co-coordinators are **Joel Scholten, M.D.** and **Steven Scott, D.O.**, **Carmen Hall, R.N., Ph.D.** is the Implementation Research Coordinator. The Executive Committee brings together a diverse group of researchers, clinicians and leaders from VA and DoD, committed to improving care for individuals with polytrauma and blast-related injuries. The PT/BRI-QUERI Executive Committee members include: Leigh Anderson, M.D.; Adam Anicich, MBA, Lucille Beck, Ph.D.; Doug Bidelspach, MPT; David Cifu, M.D.; Robert Kerns, Ph.D.; Laurent Lehmann, M.D.; RyAnne Noss, PhD; Andrew Quanbeck, M.S.; Barbara Sigford, M.D., Ph.D.; and Rodney Vanderploeg, Ph.D.

QUERI web link:

www.hsrd.research.va.gov/queri