

**QUERI currently focuses on nine conditions that are prevalent and high-risk among veterans: Chronic Heart Failure, Diabetes, HIV/Hepatitis, Ischemic Heart Disease, Mental Health, Polytrauma and Blast-Related Injuries, Spinal Cord Injury, Stroke, and Substance Use Disorders.**

Nearly 26,000 service members have been Wounded in Action (WIA) or killed in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Blasts are the most common cause of injury in this Global War on Terror. A blast injury is a biophysical and pathophysiological event, along with the clinical syndromes that occur when a living body is exposed to an explosion. 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 (RPGs). Blast injuries are often polytraumatic, meaning that they affect multiple body systems or organs.

Because of improvements in body armor as well as in battle site and acute trauma care, service members from OIF and OEF are surviving beyond the acute phase of blast injuries. However, they are surviving with new and complex patterns of injuries including Traumatic Brain Injury (TBI), traumatic or partial limb amputation, nerve damage, burns, wounds, fractures, vestibular damage, vision and hearing loss, pain, mental health and adjustment problems. Information available to date suggests TBI is particularly common among OEF and OIF service members compared with those who sustained combat injuries in previous wars. For example, through October 2005 almost one third ( $n = 600$ ) of those service members with battlefield injuries severe enough to warrant evacuation from Iraq to

the Walter Reed Army Medical Center had traumatic brain injury, and the majority of these cases were blast-related.

To meet the complex rehabilitation needs of severely injured service members, the VA has designated four Polytrauma Rehabilitation Centers (PRCs) to provide specialized rehabilitation treatment and expand clinical expertise in polytrauma and blast-related injuries throughout the VA. These Centers are co-located with the TBI Lead Centers at the Minneapolis, Tampa, Palo Alto, and Richmond VA Medical Centers and build upon the clinical expertise and collaborative ties to the Department of Defense (DoD) that these teams have developed. From October 2001 through the end of December 2005, the PRCs provided inpatient rehabilitation treatment to approximately 566 post Vietnam Era service members, including 188 service members

who sustained injuries in Iraq and Afghanistan. Most patients had injuries to multiple body systems or organs and brain injuries were by far the most common type of injury. In addition to rehabilitating the severely injured, the PRCs play a central role in defining and disseminating best practice for polytrauma and blast-related injuries within the Polytrauma System of Care. This system includes:

- 17 newly designated polytrauma specialty rehabilitation teams (Polytrauma Network Sites) located in VA tertiary care facilities within each VISN;
- Polytrauma Support Clinic Teams (PSCT) located in local facilities, yet to be formally designated at the time of this printing; and
- Polytrauma Points of Contact (PPOC), located at all other VHA facilities, which have the responsibility to assist polytrauma patients in their local areas

### **The PT/BRI-QUERI Executive Committee**

Each QUERI Executive Committee is co-chaired by a research expert and a clinician. The research chair for the PT/BRI-QUERI is **Nina Sayer, PhD**, and the clinical co-chairs are **Barbara Sigford, MD, PhD**, and **Steven Scott, DO**. **Carmen Hall, PhD, RN** is the Implementation Research Coordinator. This Executive Committee brings together a diverse group of researchers, clinicians, and leaders from the VA, DoD, and consumer organizations committed to improving care for individuals with polytrauma and blast-related injuries. The PT/BRI QUERI Executive Committee members include: Lucille Beck, PhD; Adam Darkins, MD, MPH; Robert Kerns, PhD; Laurent Lehmann, MD; Henry Lew, MD, PhD; Audrey Nelson, PhD, RN; Paul Pasquina, LTC, MD, MC, US Army; Patricia Rossbach, RN; Robert Smith, EdD; and Deborah Warden, MD.

with accessing the necessary and appropriate services (yet to be formally designated).

### **PT/BRI Quality Enhancement Research Initiative**

Funding for the Polytrauma and Blast-Related Injuries (PT/BRI) QUERI began in October 2005. The mission of the PT/BRI-QUERI is to promote the successful rehabilitation, psychological adjustment, and community re-integration of individuals who have experienced polytrauma and blast-related injuries. The scope of the research portfolio includes the full range of health problems, health care system and psychosocial factors represented in this mission, including care structures and processes within the DoD, the VA, and the community, as well as the transfer of care within and across systems. Because polytrauma and blast-related injuries affect multiple body organs and systems, this research is not disease or problem-specific. However, PT/BRI-QUERI focuses on filling gaps and implementing research to improve health outcomes for two high priority and prevalent blast-related injuries that occur in the context of other combat injuries: Traumatic Brain Injury (TBI) and traumatic amputation. Our efforts are focused primarily on enhancing the new and rapidly evolving Polytrauma System of Care which has targeted individuals whose combat injuries frequently include TBI. As amputation care becomes more integrated into the Polytrauma System of Care, PT/BRI-QUERI will sharpen its focus on traumatic amputation.

### **PT/BRI QUERI Projects**

In addition to the necessary breadth of its focus, the PT/BRI-QUERI faces a significant challenge in that there is a lack

of well-established evidence from which to create clinical practice standards and against which to measure performance gaps. Put simply, the evidence-base and standard of care for the rehabilitation of individuals with multiple battlefield injuries is just emerging. To address this challenge, PT/BRI-QUERI conducts regular needs assessment studies, uses expert consensus, draws from research identifying best practices in related fields of medicine, and promotes the development of tools, strategies, and research to build the needed evidence base.

Based on Needs Assessment Studies, Executive Committee consensus, and input from VA leadership, PT/BRI-QUERI has identified four priority areas for research including: **Database Development**, **Coordination of Care** within and across care systems, **Support for Family Members** who fulfill caregiving roles, and **Screening and Evaluation** for highly prevalent comorbidities in combat service members. We have funded and unfunded projects in each of these areas. However, because data system development is foundational, it is our main priority area.

### **Data Systems Development**

PT/BRI-QUERI has been working closely with VHA Physical Medicine and Rehabilitation to enhance the VA's system for monitoring rehabilitation care processes and outcomes. PT/BRI-QUERI is also working to develop a separate registry of patients with polytrauma and blast-related injuries (e.g., TBI, amputations), who present to the VA for medical care, regardless of setting or injury type. These products have administrative, clinical, and research value.

## **THE QUERI PROCESS**

QUERI utilizes a six-step process to diagnose gaps in performance and identify and implement interventions to address them:

- 1) Identify high-risk/high volume diseases or problems;
- 2) Identify best practices;
- 3) Define existing practice patterns and outcomes across VA and current variation from best practices;
- 4) Identify and implement interventions to promote best practices;
- 5) Document that best practices improve outcomes; and
- 6) Document that outcomes are associated with improved health-related quality of life.

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PT/BRI-QUERI direct web link: [www.hsrp.minneapolis.med.va.gov/PTqueri](http://www.hsrp.minneapolis.med.va.gov/PTqueri)**