VA QUERI

Quality Enhancement Research Initiative

Polytrauma and Blast-Related Injuries

Minneapolis, MN

QUERI Fact Sheet **December 2008**

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.

As of October 9, 2008, nearly 37,000 service members have been killed or wounded in action (KIA, 3778; WIA, 33,216) in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Of those WIA, over 15,000 were unable to return to duty within 72 hours, presumably because of the severity of their injuries. Blasts are the most common cause of injury in the 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. Blast injuries are often polytraumatic, meaning they affect multiple body systems or organs.

Because of improvements in body armor, as well as 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 limb amputation, nerve damage, burns, wounds, fractures, vestibular damage, vision and hearing loss. Pain, mental health, and adjustment problems also are common. Because TBI is particularly prevalent among OIF and OEF service members, compared with those who sustained combat injuries in previous wars, it is referred to as the signature injury of the Global War on Terror. TBI also creates particular challenges to identification and treatment of potential comorbid conditions such as post-traumatic stress disorder (PTSD), chronic pain, and vision disturbances.

To meet the complex rehabilitation needs of severely injured service members, 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. Most patients have polytrauma along with TBI. 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, which includes: 21 polytrauma specialty rehabilitation teams (Polytrauma Network Sites) located within each VISN, Polytrauma Support Clinic Teams (PSCT) located in local facilities, and Polytrauma Points of Contact (PPOC) at all other VHA facilities that have the responsibility to assist veterans with polytrauma in their local area access services.

PT/BRI 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 experienced polytrauma and blast-related injuries. The scope of the research portfolio includes the full range of health

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, RN, PhD** 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; David Cifu, MD; Adam Darkins, MD, MPH; Michael Jaffee, MD, MC, USAF, FS; Robert Kerns, PhD; Laurent Lehmann, MD; Henry Lew, MD, PhD; Audrey Nelson, PhD, RN; Paul Pasquina, LTC, MD, MC, US Army; and Patricia Rossbach, RN.

problems, the healthcare system, and psychosocial factors represented in their mission. This includes 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: 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.

Through needs assessment studies, literature reviews and input from key stakeholders, including the PT/BRI-QUERI Executive Committee, we have identified the following five clinical areas for prioritization at this stage: 1) *database development,* 2) optimizing *care coordination and transitions* across and within care systems, 3) *screening and evaluation* for high frequency impairments in individuals with PT/BRI, 4) optimizing outcomes for *caregiver family members,* and 5) promoting identification and evaluation of *potentially best practices for individuals with war-related polytrauma.* We also have the following two implementation science goals: 1) identify methods for improving practice when the evidence base is not well developed, and 2) identify and test methods for measuring readiness for, adoption and sustainability of practice improvements.

We have projects in each of these areas. PT/BRI-QUERI is working closely with VHA Physical Medicine and Rehabilitation to enhance the VA's system for monitoring rehabilitation care processes and outcomes, and to develop new databases for patients with polytrauma and blast-related injuries. Projects within the area of screening focus on TBI, PTSD, pain, headaches, and vision loss. Care coordination projects include efforts to identify gaps in the polytrauma system of care and the implementation of tools to improve care coordination after PRC discharge. Family caregiver initiatives include a project to help standardize and improve family care during the PRC stay and a research study to characterize the needs of family caregivers after the PRC discharge. Studies that identify best practices focus on TBI/PTSD comorbidity, sleep disturbance, tinnitus, and tele-rehabilitation for OEF/OIF returnees.

PT/BRI-QUERI also is using Collaborative Learning/Action Research to identify potentially best practices for family care and will be testing the usefulness of a tool developed outside of VA for measuring readiness for change and sustainability of practice improvement efforts.

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.

Contact information for PT/BRI-QUERI:

Carmen Hall, PhD, RN
Implementation
Research Coordinator
Tel: (612) 467-4015
E-mail: Carmen.Hall@va.gov

Contact for general QUERI information:

Linda McIvor, MHS, MS
QUERI Program Manager
Health Services Research
and Development Service
Tel: (202) 461-1516
E-mail: linda.mcivor@va.gov

For more information about the QUERI program in general, and to link to all of the individual QUERI Centers, please go to www.queri.research.va.gov