Traumatic Brain Injury: Department of Defense Programs

“Advancing Treatment and Care for Veterans with TBI and PTSD”

COL Sidney R. Hinds II, MD, MC, USA, National Director, Defense and Veterans Brain Injury Center (DVBIC)

24 June 2014
Agenda

- Defense and Veterans Brain Injury Center (DVBIC) Overview
  - Surveillance
  - Prevention
  - Screening
  - Diagnosis
  - Treatment: Acute to Recovery
  - Reintegration

- Traumatic Brain Injury in the Department of Defense
  - Surveillance
  - Prevention
  - Screening
  - Diagnosis
  - Treatment: Acute to Recovery
  - Reintegration

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) Overview
Learning Objectives

At the conclusion of this talk, the participant will be able to:

- Describe various policies and programs that support traumatic brain injury (TBI) care in the military environment

- Reference numerous clinical support tools that will aid in providing state of the science care to TBI patients

- Describe the current DoD research portfolio and areas of greatest promise
DCoE is the lead agency for the Department of Defense (DoD) accountable for the advancement of psychological health and traumatic brain injury (TBI) prevention and care in the Military Health System (MHS). We are responsible for creating, evaluating and integrating psychological health and TBI practices and policies across the Services.

- Identify priorities and gaps in policy, practice and research
- Create clinical tools and recommendations
- Promote scientific or evidence-based care practices
- Lead program evaluation efforts and effectiveness studies, assess cost saving measures
DCoE: PH/TBI Integrator in the System of Care

“Effectively leveraging our knowledge and clinical expertise to improve the system of care”
Strengthening Our Impact on Service Members, Veterans, and Families
Strategic Focus

- Advances in clinical practice guidelines and other clinical guidance. Goal to eliminate undetected mTBI.
- Cultural changes related to Departments of Defense and Veterans Affairs (VA) TBI awareness and screening
- Improving deployment-related assessments and deploying effective treatments
- Improvements in TBI surveillance efforts/ ICD-10 coding
- Methodology for evaluating and translating large TBI research portfolio (over 650 studies funded since 2007)
- Significant partnerships with VA, academia and civilian facilities
DVBIC and its network of military, veteran, and civilian healthcare partners serve active duty military and veterans who have sustained TBI. DVBIC’s multi-center network and collaborations with forward medical commands allow for clinical innovation along the entire continuum of care.

**DVBIC NATIONAL HEADQUARTERS**

**MILITARY / DoD SITES**
- Ft Belvoir
- Ft Carson
- Ft Bragg
- Camp Pendleton
- Camp Lejeune
- Walter Reed National Military Med Center
- Wilford Hall / Brooke Army
- Naval Medical Center San Diego
- Ft Hood
- Landstuhl Regional Medical Center
- Joint Base Elmendorf-Richardson

**VA SITES**
- Richmond VAMC
- Tampa VAMC
- Palo Alto VAMC
- Minneapolis VAMC
- Boston VAMC
Continuum of Care

- Surveillance
- Prevention
- Screening
- Diagnosis
- Treatment Acute / Recovery
- Reintegration
DoD TBI Definition
(OCT 2007)

- Traumatically-induced structural injury or physiological disruption of brain function as a result of external force to the head

- New or worsening of at least one of the following clinical signs:
  - Loss of consciousness or decreased consciousness
  - Loss of memory immediately before or after injury
  - Alteration in mental status (confused, disoriented, slow thinking)
  - Neurological deficits
  - Intracranial lesion

- DoD definition parallels standard medical definition:
  - Centers for Disease Control, World Health Organization, American Academy of Neurology, American Congress of Rehabilitation Medicine
### All DoD TBI Incidence

#### Annual Department of Defense TBI Diagnoses (All Severities) 2000 – 2013

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<tr>
<td>2013</td>
<td>26,561</td>
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<tr>
<td>Total</td>
<td>294,172</td>
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- **84.3%** of all TBIs are non-deployment related
- **82.4%** of all TBIs are mild / concussion
All DoD TBI Incidence by Severity

DoD Numbers for Traumatic Brain Injury
Worldwide – Totals

2000-2013

- Penetrating: 4,389
- Severe: 2,920
- Moderate: 23,754
- Mild: 242,676
- Not Classifiable: 20,433

Total - All Severities: 294,172

Source: Defense Medical Surveillance System (DMSS), Theater Medical Data Store (TMDS)
Prepared by MHS Office of Strategic Communications
An estimated 1.7 million people sustain a TBI annually in the U.S. Of them:

- 52,000 die
- 275,000 are hospitalized
- 1.365 million (80%) are treated and released from the ER
- About 75% of TBIs are mild

Source: Centers for Disease Control and Prevention (CDC)
Continuum of Care

- Surveillance
- Prevention
- Screening
- Diagnosis
- Treatment Acute / Recovery
- Reintegration
Prevention

- Head-borne system
  - Improve protection from ballistic threats
  - Reduce injury from blast events
- Use of seat belts/Personal Protective Equipment
- Sports-related injuries
  - Helmets
- Public awareness campaigns aimed at educational and prevention strategies
  - CDC: Heads Up
  - NFL Partnerships
Continuum of Care

- Surveillance
- Prevention
- Screening
- Diagnosis
- Treatment Acute / Recovery
- Reintegration
Exposures to Potentially Concussive Events and Resulting Number of Concussions Diagnosed

- For the period Aug. 2010 – Jan. 2014, BECIR identified:
  - 16,517 service member exposures to potentially concussive events
  - 2,661 concussion diagnoses resulting from those exposures
  - 16.1% of all exposures during the period had diagnosed concussions

Cumulative report of potentially concussive events and medically documented concussions among BECIR identified service members by quarter, Aug. 2010 - Dec. 2013*

* Graph does not include Q1 CY14 because data are only currently available through Jan. 2014
Policy Guidance for the Management of Concussion/mTBI in the Deployed Setting

- Department of Defense Instruction (DoDI) 6490.11
- Issued 18 September 2012 following termination of Directive Type Memorandum (DTM) 09-033 which was issued 21 June 2010
- Involves commitment of line commanders and medical community
- Describes mandatory processes for identifying those service members involved in potentially concussive events
- Exposed to blast, vehicle collision, witnessed loss of consciousness, other head trauma
- Specific protocols for management of concussed Service members and those with recurrent concussion
- Transition from symptom driven reporting to incident driven
- Reporting requirements to track those involved in potentially concussive events

**DESIREND END STATE:** the mitigation of the effects of potential concussive events on both Service member health, readiness and ongoing operations
The Concussion Care Center Model

**Level I**
- Medic/Corpsman
- Unit Physician
- MACE Screening

**Level II**
- Occupational therapist (OT)
- OT Tech
- Level II Physician
- Cognitive testing

**Level III**
- OT, OT Tech
- Neurologist
- Neuropsychologist
- Sports Medicine
- Imaging (CT/MRI)

**Level IV (LRMC/CONUS)**

- Aid Station (BAS)
- Concussion Care Center (CCC)
- Concussion Specialty Care Center (CSCC)

**Theater Treatment**

BLAST up to 48 hrs

1-7 days
Continuum of Care

- Surveillance
- Prevention
- Screening
- Diagnosis
- Treatment Acute / Recovery
- Reintegration
Objective Markers of Concussion

Examples for possible objective markers of concussion (not limited to):

Objective Test for Post Concussion Syndrome

- Pupillary response/visual tracking (EYE-TRAC: Eye-Tracking Rapid Attention Computation)
- Biomarkers – serum, saliva, skin (BANDITS: Biomarker Assessment for Neurotrauma Diagnosis & Improved Triage System)
- Imaging – Diffusion Tensor Imaging (DTI) (Blast-related TBI using DTI)
- Electrophysiologic parameters – qEEG, event related potentials, heart rate (Hand Held Real time multichannel EEG : Brainscope Ahead M-100)
Continuum of Care

- Surveillance
- Prevention
- Screening
- Diagnosis
- Treatment Acute / Recovery
- Reintegration
Clinical Tools to Use for TBI

- Progressive Return to Activity
- Neuroimaging following MTBI in the Non-Deployed Setting
- Assessment and Management of Visual Dysfunction Associated with Mild TBI Clinical Support Tools
- Assessment and Management of Dizziness Associated with Mild TBI Clinical Support Tools
- Indications and Conditions for Neuroendocrine Dysfunction Screening Post mTBI Recommendations
- Mild TBI Pocket Guide and Mobile Application
- Case Management of Concussion/Mild TBI Guidance
- DoD – ICD-9 Coding Guidance for Traumatic Brain Injury
- Neurocognitive Assessment Tool (NCAT) Clinical Recommendations
- Military Acute Concussion Evaluation (MACE), revised 2012
- Deployed Guidelines for Management of Concussion, revised 2012
- Cognitive Rehabilitation Clinical Guidance Package
Concussion Management Algorithms

Military Acute Concussion Evaluation (MACE)

2012 mTBI Screening & Assessment
Progressive Return to Activity Following Mild TBI

- Released January 2014

- Gives providers and patients a practical “how to” manual for concussion recovery.

- Provides guidance for primary care managers in deployed and non-deployed settings for progressive return to activity following a concussion/mild TBI

- Offers a standardized approach for service members who remain symptomatic after sustaining a concussion/mTBI

- Identifies recommended criteria for referral to the rehabilitation provider for the daily monitored return to activity process

- This Clinical Recommendation is the first clinical tool to define “rest”
<table>
<thead>
<tr>
<th>Rehabilitation Stages</th>
<th>Description</th>
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<tr>
<td>Stage 1</td>
<td>Rest</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Light Routine Activity</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Light Occupation-oriented Activity</td>
</tr>
<tr>
<td>Stage 4</td>
<td>Moderate Activity</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Intensive Activity</td>
</tr>
<tr>
<td>Stage 6</td>
<td>Unrestricted Activity</td>
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</table>
Quick reference resource on treatment and management of mTBI including:

- Evidence-based recommendations
- ICD-9 coding guidance
- Clinical recommendations for cognitive rehabilitation
- Clinical recommendations on assessing ability to drive safely
- Patient education materials
- Clinical tools and resources
Clinical Recommendations currently in development:

- Evaluation and Treatment of Sleep Disturbances Associated with mTBI
- Post traumatic Headaches following mTBI
Treatment: Cognitive Rehabilitation

- Cognitive domains affected after TBI
  - Attention
    - Foundation for other cognitive functions/goal-directed behavior
    - Efficacy of attention training established
  - Memory
    - True memory impairment vs. poor memory performance from inattention
    - Evidence to support development of memory strategies and training in use of assistive devices (‘memory prosthetics’)
  - Social/Emotional
    - Evidence to support group sessions in conjunction with individual goal setting
  - Executive Function
    - Evidence to support training use of multiple step strategies, strategic thinking and/or multitasking

- Compensatory vs. restorative therapy
Traumatic Brain Injury

Education & Prevention

Rehabilitation, Recovery, Reintegration & Research

Early Detection

Treatment & Tracking

Educate – Train – Treat – Track

Source: DCoE TBI-CSOC Employee Onboarding
The “A Head for the Future” program will provide educational materials for service members, line leaders, veterans, medical providers and family members to educate them on how to prevent head injuries and to take proper safety precautions during high-risk activities, such as playing sports, conducting military training or operating motor vehicles.

Goal is to facilitate improved availability and access to health care for all service members and veterans at risk for traumatic brain injury by improving and expanding education and public awareness campaigns to highlight prevention strategies, promote safety, and heighten awareness and understanding of signs and symptoms of TBI within the Department of Defense and Veterans Affairs*.

* FY 2013-2015 Joint Strategic Plan, Strategic Objective 2.2.A
Primary target audience:
Service members and veterans who have ongoing symptoms from a traumatic brain injury

This guide helps:
- Navigate campus life
- Manage ongoing symptoms
- Learn strategies for success
- Ease the transition to a civilian setting

Secondary target audience:
Providers can use this guide as a teaching tool to help patients do the following:
- Build a list of helpful contacts
- Track their progress
- Create a detailed schedule to manage their time
Family Needs Product Line

Addressing Family Needs: This booklet is essential to families with a service member/veteran with a TBI. Everyone in the family is affected, and this tool will assist during this time of transition.

Taking Care of Yourself While Caring for Others: This booklet offers coping techniques for caregivers and families who are trying to manage stress, anxiety or sadness, while caring for an injured service member/veteran. Experts provide advice on relaxation and self-care.

Talking with Children About TBI: This booklet offers communication techniques that can help you explain the effects of TBI to children in a way they can understand. Includes tips for every age group, from toddlers to teens.

Talking With Children About Moderate or Severe TBI: This booklet provides essential tips on how to explain to children what a moderate or severe TBI is and how to cope with the changes in their loved one.
Comorbidities Associated with mTBI

- Sleep Disorders
- Substance Abuse
- Psychiatric Illness
- Vestibular Disorders
- Visual Disorders
- Cognitive Disorders

Currently we know that the more concussions sustained the more symptoms that a person will have in addition to longer recovery times. We also know that other conditions may complicate recovery including conditions such as PTSD, depression, chronic pain, sleep problems, or substance use disorders.

The DoD has several programs in place to better understand the long-term effects of TBI and the effects that occur with it.

- The DoD through the Center for Neuroscience and Regenerative Medicine (CNRM) has developed a brain bank to conduct research on the long term effects of brain injury. The CNRM has a process in place by which families of deceased SM’s can contribute.
- The DoD and the Department of Veterans Affairs have jointly sponsored the Chronic Effects of Neurotrauma Consortium (CENC), to understand the chronic effects of mild TBI, determine what neurodegenerative processes may be associated with mild TBI, and to identify diagnostic and prognostic indicators of those processes.
- The DoD’s 15 Year Longitudinal Study on the effects of TBI from OEF/OIF started in 2011, and will provide information on the service needs of service members and Veterans with TBI, as well as the quality of life and impact of the TBI on caregivers of those service members and Veterans with TBI.
- An interagency National Research Action Plan was developed in 2013 by the DoD in collaboration with the Department of Veterans Affairs, the Department of Health and Human Services and the Department of Education.
Continuum of Care
National Intrepid Center of Excellence (NICOE) Institute

- Located on WRNMMC campus in Bethesda, MD
- Serves service members and their families with complex TBI and PH care needs
- Primarily evaluative in nature
  - Generally to be used by those who have refractory or difficult-to-diagnose/manage conditions
  - Provides case management and referral capabilities to leading experts in the field
Hot Topics
Until future scientific evidence demonstrates the effectiveness of HBO2 as a treatment for TBI, the DoD does not recommend its off-label use.

Some study participants did show some improvement from treatment— including those who went into the chamber but did not receive HBO2.

Data showed there were no additional benefits to the participants who received HBO2 compared to those who received pressured oxygen.

A long-term follow-up study on the subjects from the first three trials is pending Institutional Review Board approval to determine whether any of the subjects reporting improvement in the prior studies showed a lasting effect.
Chronic Traumatic Encephalopathy (CTE)

- Gross pathologic and clinical features, such as dilated ventricles and early onset dementia, first described nearly 90 years ago as associated with multiple concussions. (esp. boxers)

- Unique molecular and histologic findings described more recently: deposition of amyloid plaques (early) and phosphorylated tau protein (chronic).
  - Tau deposition most common in sulci

- Epidemiology uncertain at this time because of case ascertainment bias in largest reports
  - Individual risk?
  - Predisposition?
  - Effect of gender?

Coronal sections immunostained for tau with monoclonal antibody AT8 and counterstained with cresyl violet
What are the population prevalence and incidence of CTE?

What is the number of impacts to the head and their magnitude that cause CTE?

Is participation in contact sports a CTE risk factor for school-aged children and young adults?

Is exposure to single or multiple blast exposures a risk factor for CTE in returning service members?

How can CTE be diagnosed in living people?

What are the relevant animal models of CTE pathology, especially TBI-related tau abnormalities?
Examples of Ongoing Research

• Funding provided by the Sports and Health Research Program, a partnership among the NIH, the National Football League, and the Foundation for the National Institutes of Health (FNIH).
  – In 2012, the NFL donated $30 million to FNIH for research studies on injuries affecting athletes, with brain trauma being the primary area of focus

• CTE and Post-traumatic Neurodegeneration: Neuropathology and Ex Vivo Imaging
  – Principal Investigator: Ann C. McKee, M.D., Boston University School of Medicine and U.S. Department of Veterans Affairs

• Neuropathology of CTE and Delayed Effects of TBI: Toward In Vivo Diagnostics
  – Principal Investigator: Wayne Gordon, Ph.D., Mount Sinai Hospital, New York City

U.S. Navy photo by Mass Communication Specialist 1st Class Curtis K. Biasi
Congressionally Mandated Studies for TBI
SEC. 721. LONGITUDINAL STUDY ON TRAUMATIC BRAIN INJURY INCURRED BY MEMBERS OF THE ARMED FORCES IN OPERATION IRAQI FREEDOM AND OPERATION ENDURING FREEDOM.

• STUDY REQUIRED. The Secretary of Defense shall conduct a longitudinal study on the effects of traumatic brain injury incurred by members of the Armed Forces serving in Operation Iraqi Freedom or Operation Enduring Freedom on the members who incur such an injury and their families.

• DURATION. The study required by subsection (a) shall be conducted for a period of 15 years.

• ELEMENTS. The study required by subsection (a) shall specifically address the following:

  1. The long-term physical and mental health effects of traumatic brain injuries incurred by members of the Armed Forces during service in Operation Iraqi Freedom or Operation Enduring Freedom.

  2. The health care, mental health care, and rehabilitation needs of such members for such injuries after the completion of inpatient treatment through the Department of Defense, the Department of Veterans Affairs, or both.

  3. The type and availability of long-term care rehabilitation programs and services within and outside the Department of Defense and the Department of Veterans Affairs for such members for such injuries, including community-based programs and services and in-home programs and services.

  4. The effect on family members of a member incurring such an injury.
DVBIC TBI Military Natural History Study

Louis M. French, Psy.D.

- Co-Director CNRM Phenotyping Core
- Scientific Director/National Lead 15-Year Studies
- Chief, Traumatic Brain Injury Service (WRNMMC)
15 Year Studies

Archival Studies

Existing Databases
CTF & CORE: WRAMC/WRNMMC
Scientific Directors: Drs. Rael Lange and Tracey Brickell

TBI Outcome (Acute)
Neurocognitive/Neurobehavioral
- Influence of Bodily Injury
- Poor Effort, Blast, TBI Sev
- Risk factors of PTSD & PCD

TBI Outcome (Chronic)
Neurobehavioral/HRQOL
- 5-year longitudinal outcome
- Risk factors of poor recovery within first 5 years of injury

Natural History Study

Comprehensive Pathway
Scientific Director: Dr. Rael Lange

Brief Pathway
Scientific Director: Dr. Tracey Brickell

Intensive Clinical Evaluation
Abbreviated Clinical Evaluation
Telephone/Web Based Evaluation

Caregiver Study

Three Study Phases
Scientific Directors: Drs. Tracey Brickell and Rael Lange

HRQOL Evaluation
- Caregiver Burden
- Access/Barriers to Care Health
- Care Needs
- Family/Marital

HRQOL Development
- Use PROMIS Methodology
- Identify TBI-CareQOL Items
- Validate TBI-CareQOL
- Develop CATs & Short Forms

Blood Banking
Genomics
Proteomics

Sensory/Motor
Vestibular
Speech Pathology
Audiology
Optometry
Physical Therapy

Neuroimaging
DTI
MR Spectroscopy
SWI
fMRI
SPECT/PET

Neurocognitive
Attention/Concentration
Executive Functioning
Visuospatial
Language
Processing Speed
Memory

Neurobehavioral
Postconcussion Sx
Posttraumatic Stress
Psychological
Combat Exposure
HR-QOL
Psychopathology

Clinical Interview
Health/Mental Health
Return to Duty
Access/Barriers to Care
Health Care Needs
Family/Marital
Service Needs

National Lead: Dr. Louis French
• Pre-deployment cognitive testing was mandated by federal law via the National Defense Authorization Act (NDAA) in January 2008
  – Section 1618: “The development and deployment of evidence-based means of assessing traumatic brain injury, posttraumatic stress disorder, and other mental health conditions in members of the Armed Forces, including a system of pre-deployment and post-deployment screenings of cognitive ability in members for the detection of cognitive impairment.”
• NDAA 2011
  – Section 722 – 5(a): “Not later than January 31, 2011, the Secretary of Defense shall develop and implement a comprehensive policy that will consist of 8 neurological (cognitive) assessment domains for members of the Armed Forces before and after deployment.”
• Department of Defense Instruction (DODI) (June 2011)
A Psychometric Comparison of Four Computerized Neurocognitive Assessment Tools (NCATs)

Wesley Cole, Ph.D.

- Neuropsychologist, Senior Scientific Director
- Contract support to Defense and Veterans Brain Injury Center
“Head to Head” Study

- Assess the psychometrics of multiple NCATs in a “head to head” manner in active duty soldiers
- Four NCATs:
  - ANAM4 (version 4.3.01)
  - CNS Vital Signs (version 3.2.0.51)
  - CogState (version 5.6)
  - ImPACT (version 3, standalone for the Army)
- Phase 1: Assess Test-retest Reliability
- Phase 2: Assess Validity
Cognitive Rehabilitation

- National Defense Authorization Act (NDAA) for FY 2010

SEC. 723. CLINICAL TRIAL ON COGNITIVE REHABILITATIVE THERAPY FOR MEMBERS AND FORMER MEMBERS OF THE ARMED FORCES.

(a) CLINICAL TRIAL REQUIRED.—The Secretary of Defense shall provide for a clinical trial to assess the efficacy of cognitive rehabilitative therapy for members or former members of the Armed Forces described in subsection (b).

(b) COVERED MEMBERS AND FORMER MEMBERS.—A member or former member of the Armed Forces described in this subsection is a member or former member of the Armed Forces who—

1. has been diagnosed with a traumatic brain injury (TBI) incurred in the line of duty in Operation Iraqi Freedom or Operation Enduring Freedom; and

2. is referred by a qualified physician, as determined by the Secretary, for cognitive rehabilitative therapy.

- DVBIC is partnering with investigators in the Brain Injury Rehabilitation Service at San Antonio Military Medical Center (SAMMC) to execute this research proposal.

- Investigators from the Veterans Health Administration national office serve as consultants.
• Scientific debate about the proven effectiveness of various treatment strategies resulted in a US DoD request to the Institute of Medicine (IOM) in September 2010 to perform a comprehensive review of the effectiveness of the many identified modalities of CRT in treating the specific impairments associated with traumatic brain injury (TBI).

• The IOM delivered its report entitled Cognitive Rehabilitation Therapy for Traumatic Brain Injury on October 11, 2011.

• The IOM report emphasizes that CRT is actually a collection of treatments which must be tailored to an individual's pattern of cognitive impairments, activity limitations, related medical issues, and the existing family or social support system.

• The current medical literature is insufficient to state with high confidence which cognitive rehabilitation practices would be the most effective treatment(s) for a particular patient. However, there is sufficient information to suggest that current practices of brain injury rehabilitation professionals focus on safe and well-established treatments suited to address the cognitive problems experienced by our Service members.
Neurorehabilitation:
The SCORE and iSCORE studies

Amy Bowles, MD

- Chief, Brain Injury Rehabilitation Service
- Brooke Army Medical Center
Goal of the Study

– To improve the health and quality of life for wounded warriors with mild traumatic brain injury (mTBI) injury in the line of duty in support of Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) through the development of empirically-validated rehabilitation interventions.

Research Design

– Prospective, randomized control treatment trial of cognitive rehabilitation for OEF/OIF service members with a history of mTBI and persistent (3-24 months post-injury) cognitive complaints. Sample size=160 (40 per arm). Four treatment arms
To provide neurobiologically plausible explanation for the effectiveness of treatment of mild TBI using non-invasive brain imaging (structural/anatomical and functional) indices in combination with behavioral measures that include treatment outcome data

- Baseline imaging data will be used to characterize any significant structural, diffusion, and/or functional differences between cognitive rehabilitation patients and controls that can be used to predict positive response to cognitive rehabilitation.

- Prospective imaging data will be used to characterize the evolution and progression of any structural, diffusion, and/or functional changes associated with various treatment modalities.

Examine the relationships between observable changes and the cognitive/functional outcomes from the SCORE! study.
Connect with DCoE

dcoe.mil  dcoe.mil/blog  facebook.com/dcoepage  
twitter.com/dcoepage  YouTube.com/dcoepage  scribd.com/dcoepage
DCoE Centers

Deployment Health Clinical Center
pdhealth.mil

Defense and Veterans Brain Injury Center
dvbic.dcoe.mil

National Center for Telehealth & Technology
t2health.mil
Questions?
info@dvbic.org