2011 Military Health System Conference

Research Contributing to Psychological Health and Traumatic Brain Injury Programs and Guidance

The Quadruple Aim: Working Together, Achieving Success

Michael E. Kilpatrick, MD, Interim Director

24 January 2011
**Research Contributing to Psychological Health and Traumatic Brain Injury Programs and Guidance**

Defence Centers of Excellence for Psychological Health & Traumatic Brain Injury, 2345 Crystal Drive, Crystal Park 4, Suite 120, Arlington, VA 22202

Approved for public release; distribution unlimited

Presented at the 2011 Military Health System Conference, January 24-27, National Harbor, Maryland

12. DISTRIBUTION/AVAILABILITY STATEMENT

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Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std Z39-18
Agenda

- Surveillance

- Psychological Health
  - *inTransition* Program
  - Respect-Mil Program

- Traumatic Brain Injury
  - Directive Type Memorandum (DTM) #09-033
  - Cognitive Rehabilitation Therapy
  - Hyperbaric Oxygen
  - Neuroendocrine Dysfunction
  - Driving Assessments after traumatic brain injury (TBI)
Surveillance

- 2795 Predeployment Health Assessment (1998)
- 2796 Post Deployment Health Assessment (1998)
  - Modified April 2003 – PTSD Screening
  - Modified late 2007 – TBI
- 2900 Post Deployment Health Assessment (2005)
  - Modified late 2007
- All being modified in 2011
The *inTransition* Program: Maintaining Continuity of Care Across Transitions

- *inTransition* is a Department of Defense (DoD) program created to assist service members who are receiving mental health services while transitioning between health care systems or providers.

- Developed in response to the DoD Mental Health Task Force recommendation to “Maintain continuity of care across transitions” (5.2.2).

- Provides voluntary one-on-one coaching to service members.

- Designed as a bridge of support for service members when:
  - Relocating to another assignment
  - Returning from deployment
  - Transitioning from active duty to reserve, reserve to active duty, or returning to civilian life.
Transitions Between Care Settings

- Identifiable problems with half or more transitions
- Adverse consequences in 15-25% of patients
- Re-hospitalization in 20-30% within 60 days of discharge
- Effective transitional processes linked with strong home care can reduce re-hospitalization by 33-50% (Boling, CLIN GERIATR MED 2009)
Re-Engineering Systems of Primary Care Treatment in the Military

Defense Centers of Excellence for Psychological Health & TBI
Office of The Surgeon General, Army
Deployment Health Clinical Center
Uniformed Services University
3CM®
Primary Care Intervention is Evidence-Based

Randomized trials offer sound evidence that systems level approaches benefit…

- **Depression** (e.g., IMPACT Trial BMJ 2006)
- **Suicidal ideation & depression** (Bruce et al, JAMA 2004)
- **Depression and physical illness** (e.g., Lin et al, JAMA, 2003)
- **PTSD and physical injury** (Zatzick, AGP, 2004)
- **Panic disorder** (e.g., Roy-Byrne et al, AGP 2005)
- **Somatic symptoms** (e.g., Smith et al, AGP 1995)
- **Health anxiety** (e.g., Barsky et al, JAMA 2004)
- **Substance dependence** (e.g., O’Connor et al. Am J Med. 1998)
- **Dementia** (e.g., Callahan et al, JAMA 2006)
Primary Care: The Fulcrum for Deployment Health Services

Engel et al, 2004, Can We Prevent A Second Gulf War Syndrome?
Advances in Psychosomatic Medicine

2011 MHS Conference
RESPECT-Mil: Feasibility of a Systems-Level Collaborative Care Approach to Depression and Post-Traumatic Stress Disorder in Military Primary Care

COL Charles C. Engel, MC USA*; Thomas Oxman, MD†; MAJ Christopher Yamamoto, MC USA‡; MAJ Darin Gould, MC USA§; Sheila Barry, BA¶; Patrice Stewart, PhD‖; COL Kurt Kroenke, MC USA (Ret.)#; John W. Williams, Jr., MD**; Allen J. Dietrich, MD††
OPORD 07-34-42 clinics at 15 sites

- Phase I

- Phase II

- Phase III
  - Ft. Lewis, Schofield Barracks, Vilseck and Schweinfurt, GE and Vicenza, IT
The Army Surgeon General mandates that all Soldiers routinely receive the following primary health care screen. Please check the best answer to each of the questions on this page. Enter your personal information at the bottom and return this page to the medic or nurse.

**PATIENT HEALTH QUESTIONNAIRE**

**SECTION I**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>Over the LAST 2 WEEKS, have you been bothered by any of the following problems?</td>
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<td>1. Feeling down, depressed, or hopeless.</td>
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<td>2. Little interest or pleasure in doing things.</td>
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**SECTION II**

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<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<td>Have you had any experience that was so frightening, horrible, or upsetting that IN THE PAST MONTH, you...</td>
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<td>3. Had any nightmares about it or thought about it when you did not want to?</td>
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<td>4. Tried hard not to think about it or went out of your way to avoid situations that remind you of it?</td>
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<td>5. Were constantly on guard, watchful, or easily startled?</td>
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<td>6. Felt numb or detached from others, activities, or your surroundings?</td>
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**FOR OFFICIAL USE ONLY**

**PATIENT’S HEALTH QUESTIONNAIRE (Additional Comments):**

Provider please reference section and question number when entering additional comments from patient. Please sign and date entry.
Respect-Mil Implementation Results

- 36 clinics now implementing (of 42)
- 70% of visits screened (versus 2-5% in non-RESPECT-Mil teaching clinic)
- 13% of all screened visits are positive
- 48% of positive screens result in a diagnosis of ‘depression’ or ‘possible PTSD’
- 3% of visits involve recognition & assistance for previously unrecognized mental health needs

* Data through May 2010
Policy Guidance for the Management of Concussion/mTBI in the Deployed Setting

- Directive-Type Memorandum (DTM) 09-033
- Issued 21 June 2010 by DEPSECDEF
- Involves commitment of line commanders and medical community
  - DCoE coordination with FHP/R, JS, CENTCOM, JTAPIC, Service TBI POC’s
- 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
- DCoE developed specific protocols for management of concussed service members and those with recurrent concussion
- Transition from symptom driven reporting to incident driven

**DESIRED END STATE:** the mitigation of the effects of potential concussive events on both service member health, readiness and ongoing operations
Highlights from the DTM

- Mandatory **event driven protocols**, for exposure to potentially concussive events
- Requires a medical **evaluation and a rest** period
- All sports and **activities with risk** of concussion are prohibited **until medically cleared**
- Military Acute Concussion Evaluation (MACE) documentation will include **MACE 3-part score**
- Service Members diagnosed with mTBI will be given a **standardized educational sheet**
- New **protocols** for anyone sustaining **3** or more mTBIs within 12 months
MTBI DTM Data Flow

Data drivers:
- Inform DoDTBI policy updates and MHSStrategic Communications

BECIR = Blast Exposure and Concussion Incident Report
CIDNE = Combined Information Data Network Exchange
JTAPIC = Joint Trauma Analysis and Prevention of Injury in Combat
OASD (HA) FHP&R = Office of the Assistant Secretary of Defense for Health Affairs, Force Health Protection and Readiness
DDR&E = Director, Defense Research & Engineering
JIEDDO = Joint Improvised Explosive Device Defeat Organization
BIR PCO = Blast Injury Research Program Coordinating Office

Timeline
2011 MHS Conference

End of month (EoM)
EoM + 10 days
EoM + ? days
Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury and Defense and Veterans Brain Injury Center

Consensus Conference on Cognitive Rehabilitation for Mild Traumatic Brain Injury

27 and 28 April, 2009, Washington, DC
Majority of civilian patients with mTBI (75-90% have symptoms that are transient and self-limiting.

Apparent full recovery occurring within minutes to several weeks following injury (Levin et al., 1997).

Approximately 5-15% of persons with mTBI do not show the expected rapid and uneventful recovery and have persistent symptoms and/or functional limitations (Iverson et al., 2006; Ruff et al., 1996).

Persistent mTBI symptoms include cognitive and emotional sequelae that can result in significant functional impairment and disability.

Cognitive rehabilitation is a well-accepted component of comprehensive rehabilitation for persons with moderate and severe TBI (Cicerone et al., 2005).

A parallel situation does not exist in the area of mTBI.
Core elements of a cognitive rehabilitation program

1. Assessment prior to treatment
2. Identification of Individualized Cognitive Rehabilitation goals that target:
   - Symptom reduction through restoration and compensation
   - Functional improvements/gains: activities of daily living, return to duty, vocational, avocational, interpersonal effectiveness, and social functioning
   - Therapeutic alliance: development of trust and mutually agreed upon goals of the cognitive rehabilitation program by the patient, family, and the treating clinicians
3. Development of an interdisciplinary Individualized Treatment Plan, addressing all associated conditions, as well as different demands of operational environment, pre-injury personality traits, occupational status and psychosocial stress
4. Periodic cognitive reassessment, review of goals, and updates to the clinical and re-integration plan
5. Development of well defined discharge plan to include specific criteria for community re-integration and follow-up
Cognitive Rehabilitation for mTBI

- Implementation at 13 MTFs
- Aug 2010 MTF’s started tracking outcome measures identified in the Clinical Guidance Document
- Interim report due in February 2011

2011 MHS Conference
What is Hyperbaric Oxygen (HBO$_2$)?

- Intervention in which a patient breathes 100% oxygen intermittently inside a chamber that is pressurized to higher than sea level pressure
  - specifically to pressures of 1.4 atmospheres absolute or higher
  - creates supraphysiologic O$_2$ concentrations in blood and tissues ...
    which FDA considers a drug

FDA Approved Indications for HBO$_2$

- Decompression Sickness
- Air/Gas Embolisms
- Carbon Monoxide Poisoning and Smoke Inhalation
- Intracranial Abscess
- Gas Gangrene
- Necrotizing Soft Tissue Infection
- Osteomyelitis
  - Crush Injuries
  - Enhanced Healing of Selected Wounds
  - Exceptional Blood Loss
  - Radiation Tissue Damage
  - Skin Grafts and Flaps
  - Thermal Burns
HBO\textsubscript{2}: DoD/VA TBI Research Program

- USAF Phase II Study (n=50)
- DARPA/VA/Navy Phase II Study (n=60)
- Rivermead Validation Survey (n=1000)
- Outcome Validation and Pilot (n=80-120)
- Data Review
- Multicenter Pivotal Trial (n=300+)
- OAC Healthy Comparator Study (n=20-40)

Timeline:
- Apr 10
- Jul 10
- Oct 10
- Jan 11
- Apr 11
- Jul 11

In life until FY13
Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

Meeting on Neuroendocrine Sequelae of Traumatic Brain Injury
Literature Review

December 13, 2010, Silver Spring, MD

– In 2005, civilian guidelines (Ghigo et al.) proposed screening for pituitary dysfunction in all patients who sustained a moderate to severe TBI
– In 2010, civilian guidelines (Tanriverdi et al.) recommended screening for pituitary dysfunction in patients who sustained a mTBI
Blast Exposure/Head Trauma

Clinician Confirmed mTBI
- (-) Symptoms
  - Routine Screening on redeployment at least 3-6 months after injury
    - Abnormal
      - Endocrinology referral
    - Normal

- (+) History of symptoms (including those attributable to TBI, or psychiatric disorder) at injury, but non at 3-6 months
  - Re-evaluate at 12 months. If symptomatic (including symptoms attributable to TBI, or psychiatric disorder), proceed with Routine Screening
    - Abnormal
      - Endocrinology referral
    - Normal
      - Repeat testing at clinically indicated if the patient begins to exhibit symptoms of pituitary dysfunction as new endocrinopathies have been shown to develop at 1-3 years
Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

Driving Evaluations after Traumatic Brain Injury Conference

28 July 2009, Washington, DC

Purpose: To provide clinical recommendations to healthcare professionals within the Military Health System regarding the assessment of the ability to drive following traumatic brain injury, regardless of severity
Driving performance deficits associated with TBI-related neurocognitive impairments have been found in the areas of reaction time, visuomotor ability and perceptual and cognitive skills (Schneider & Gouvier, 2005).

It is estimated that 40% to 80% of individuals with varying degrees of cognitive impairment resulting from TBI return to driving after their injury (Lew et al., 2005).

The degree of risk for motor vehicle crashes after brain injury, however, is not consistent throughout the literature (Coleman et al., 2002).

Individuals with TBI who complete a comprehensive driving evaluation reintegrate into the driving community without increased risk for accident (Rapport et al., 2006; Schultheis et al., 2002).
Driving Following TBI

- Goal: To ensure those who have sufficiently recovered from all severities of TBI have the opportunity to safely drive government and privately owned vehicles in accordance with federal and state guidelines
  - Safe operation of a motor vehicle is a complex task requiring interaction of operational, cognitive, and higher executive functions and perceptual abilities
  - A TBI can disrupt the complex interplay of functions
  - Individuals with all severities of TBI may be at risk for developing symptoms that affect fitness to drive
  - A driving evaluation is a two-step process: 1.) Driving screening 2.) Driving assessment
  - A driving screening should be considered for every individual with a TBI
  - A comprehensive driving assessment is usually reserved for patients whose driving screening results raise concerns
Questions…

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