THE NATIONAL INTREPID CENTER OF EXCELLENCE

an instrument of hope, healing, discovery and learning

NASHIA

Federal Panel on TBI Initiatives
Dr. James Kelly, Director, NICoE
TBI Numbers By Severity

DoD Numbers for Traumatic Brain Injury
’00 – ’12 Q1 Totals

- Penetrating: 9,883 (2%)
- Severe: 3,877 (1%)
- Moderate: 2,469 (16%)
- Mild: 40,449 (77%)
- Not Classifiable: 187,539 (4%)

Total: 244,217

Source: Armed Forces Health Surveillance Center
Highlights from the DTM (Directive Type Memorandum)

• Mandatory **event driven protocols**, for exposure to potentially concussive events

• Requires a medical evaluation and **24-hour 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 **2** or more mTBIs within 12 months
Locations Where TBI Screening Occurs

- In-theater
- Landstuhl Regional Medical Center (LRMC)
- CONUS, during Post Deployment Health Assessment (PDHA) and Post Deployment Health Re-Assessment (PDHRA)
- VA Medical Centers

Numerous screening safety nets to ensure capture of Service members requiring intervention

Diagnosis is confirmed through clinical interview

The Center for the Intrepid (CFI) opened at Brooke Army Medical Center in 2007 for amputation prostheses and functional limb loss care.

The successful fundraising efforts of Arnold Fisher have generated philanthropic contributions to the IFHF for advanced medical facilities for military service members.

The National Intrepid Center of Excellence (NICoE) is a gift from the American people through the IFHF, built on the NSA Bethesda base MD. The dedication ceremony was on June 2010 and treatment of patients began in October 2010.
**Vision:** To be the nation’s institute for traumatic brain injury and psychological health dedicated to advancing science, enhancing understanding, maximizing health and relieving suffering.

**Mission:** As the Military Health System institute dedicated to understanding complex, comorbid traumatic brain injury and psychological health conditions, we deliver comprehensive and holistic care, conduct focused research, and export knowledge to benefit service members, their families and society.

- **Research:** A DoD Institute with a unique patient base and the most current technical and clinical resources for initiating innovative pilot studies designed to advance the characterization of the pathophysiology of the co-morbid state, while additionally serving as a “hub” for exchanging information with federal and academic partners.

- **Training and Education:** A venue for the dissemination of next generation standards of care and resilience to providers as well as service members and families.

- **Clinical:** A model of holistic, interdisciplinary evaluation and treatment in a family focused, collaborative environment that promotes physical, psychological and spiritual healing of service members (SM) with the complex interaction of TBI and PHI who are not responding to conventional therapy elsewhere in the Military Health System (MHS).
Medical Imperative: Challenging Co-morbidity

PTSD
- Flashbacks
- Avoidance
- Hypervigilance
- Nightmares
- Re-Experiencing

TBI
- Cognitive Deficits
- Irritability
- Insomnia
- Depression
- Fatigue
- Anxiety

Polypharmacy

Pain

- Headache
- Sensitivity to Light or Noise
- Nausea & Vomiting
- Vision Problems
- Dizziness

Medical Imperative:
Challenging Co-morbidity

- Headache
- Sensitivity to Light or Noise
- Nausea & Vomiting
- Vision Problems
- Dizziness
NICoE has seen 329 cohort patients through August 2012

### Breakdown of Patients Admitted by Service, October 2010 – August 2012

<table>
<thead>
<tr>
<th>Service</th>
<th>Count</th>
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<tbody>
<tr>
<td>Marine</td>
<td>107</td>
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<tr>
<td>Army</td>
<td>142</td>
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<tr>
<td>Navy</td>
<td>64</td>
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<tr>
<td>Air Force</td>
<td>16</td>
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### Referral Sources by Service

<table>
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<tr>
<th>Marine</th>
<th>Army</th>
<th>Navy</th>
<th>Air Force</th>
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<tbody>
<tr>
<td>Camp Lejeune, NC</td>
<td>Camp Pendleton</td>
<td>CBWTU-AR</td>
<td>Andrews Air Force Base</td>
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<td>CBWTU-Rock Island, IL</td>
<td>Camp Lejeune, NC</td>
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<td>Fort Bliss, TX</td>
<td>Fort Bragg, NC</td>
<td>Fort Belvoir, VA</td>
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<td>Fort Campbell, KY</td>
<td>Fort Carson, CO</td>
<td>Great Lakes, IL</td>
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<td>Fort Drum, NY</td>
<td>Guantanamo Bay</td>
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<td>Fort Huachuca, AZ</td>
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<td>Fort Hood, TX</td>
<td>Fort Knox, TN</td>
<td>Naples, Italy</td>
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<td>Hurlburt Field, FL</td>
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Active duty service members with a mild to moderate TBI complicated by other impairing PH conditions, who are not responding to conventional therapy and who are having challenges with military duty requirements and interpersonal relationships

The profile of service members seen includes:

- Active Duty (to include National Guard and Reservists on orders)
- Mild to moderate TBI and Psychological Health conditions (OEF/OIF/OND related)
- Persistence of symptoms despite receiving treatment
- No active/untreated substance abuse disorder (no potential for withdrawal)
- Service Members will be assigned temporary duty to the NICoE on unit funded travel orders as required (lodging at the Fisher House will be provided at no cost to the Service Member)
- Capable of participating in an Intensive Outpatient Level of Care, including:
  - Able to perform all ADLs and live independently in a Fisher House at NNMC
  - Able to independently obtain/provide for their own food, transportation and conduct their own financial affairs
  - Not a danger to self or others
  - Not in need of services requiring a level of nursing care or medical monitoring higher than what can safely be provided in an outpatient setting
Collaborative, Patient-Centered Evaluation and Assessment

Nurse

Physiatrist
Psychiatrist
Clinical Pharmacist
Family Therapist
Neuropsychologist
Optometrist/Ophthalmologist
Art Therapist
Audiologist
Nutritionist

Internist
Radiologist
Neurologist
Occupational Therapist
Physical Therapist
Speech Pathologist
Chaplain
Recreational Therapist

4 WEEKS
Reduce Suffering, Instill Hope, and Address Moral Injury

The NICoE Approach systematically targets specific areas of focus:

**Goal Set 1**
~ Day 1 and throughout program
- Ensure Safety
- Improve Sleep
- Decrease Physical Pain
- Decrease Psychological Pain
- Decrease Moral/Ethical Pain
- Facilitate Positive Use of the Health Care System/Restore Trust in the System

**Goal Set 2**
~ Day 1 – 4 and throughout program
- Intensive/Integrative Diagnoses
- Decrease Polypharmacy
- Self-Awareness – patient and family centric approach to understand problems preventing recovery
- Establish Goals for recovery

**Goal Set 3**
- Enhance Self-Management/Self-Efficacy
- Improve Relationships (family, chain of command, peers)
- Improve Functional Cognitive Performance
- Improve Psychosocial Functioning
- Improve Physical Performance
**Typical NICoE Evaluation and Treatment Activities**

While at NICoE, the SM is evaluated by:
- Nursing
- Internal Medicine/Family Medicine
- Neurology (including EEG prn)
- Sleep Neurology (including Actigraphy, PSG)
- Psychiatry
- LCSW (Family therapist)
- Art Therapy
- Spirituality
- Physical Therapy including NeuroCom, CAREN
- Neuropsychology
- Occupational Therapy including Visual Perceptual Evaluation, Assistive Technologies
- Speech Language Pathology
- Optometry
- Audiology/Vestibular Evaluation
- Nutrition
- Radiology (MRI, PET/CT of the brain)
- Other consultations as needed

Additional interventions include:
- BOTOX
- Nerve Blocks, Trigger point injections
- Acupuncture
- Biofeedback
- Heart Math
- Autogenic Training
- Frequency Specific Microcurrent
- Comprehensive Soldier Fitness-PREP
- Mind-Body Skill building
- Group therapy
- Education course
- Journaling
- Bibliotherapy
- Positive psychology
- Neurofeedback
- Recreation therapy
- Animal Assisted Therapy
- Music, Laughter and Humor
Sample patient encounters across a four week stay (19 weekdays)

**Week 1**
- Introduction to NICOE
- Interdisciplinary Intake
- Pre-NICOE Assessments Review
- Vitals, Med Rec/InterD Meet
- Alpha Stim
- Pharm D
- Audiology
- Sleep, Neuro, IM, Pain Intervention
- Introduction to TBI
- Psychiatry Eval
- Interdisciplinary Working Group
- Family Eval
- Neuropsychology Interview
- Psychotherapy Group
- Sleep Education/Receive Actigraphy
- Optometry
- Intro to Wellness
- Creative Arts Therapy: Mask-Making
- Pain intervention and Meet with Nurse
- Brookville, Including Intro to Nutrition
- Psychotherapy Group

**Week 2**
- OT
- CSF-PREP: Foundations
- SLP 1
- Psychotherapy Group
- TBI MRI
- CSF-PREP: Building Confidence
- SLP 2
- Psychotherapy Group
- Interdisciplinary Working Group
- Neuropsych 1
- Creative Arts Therapy: Writing
- Psychotherapy Group
- Psych Health Meeting
- Radiology Rounds/Rehab Breakout Team
- Safe Substance Use
- CSF-PREP Goal Setting
- Rec Therapy Event

**Week 3**
- Managing Triggers
- Overview of Cognitive Distortions
- Meet with Nurse
- Psychiatry Follow Up
- CSF-PREP: Attention Control
- IM Follow Up
- CSF-PREP: Energy Management
- Meet with Nurse
- Creative Arts Therapy: Collage
- PET CT
- Understanding Psychological and Emotional Health
- CSF-PREP: Individual Session
- Managing Triggers
- Family Meeting
- Psychotherapy Group
- PT HEP
- Occupational Functioning
- PT CAREN
- Safe Substance Use
- Occupational Functioning
- Community Reintegration Program

**Week 4**
- Psychotherapy Group
- Psychiatry Follow Up
- Pharm D Follow Up
- Practical Healthy Eating
- CSF-PREP: Integrating Imagery
- PT HEP
- Managing Triggers
- Self-Advocacy in the Treatment and Recovery Process
- PT HEP
- Interdisciplinary Working Group
- Psychotherapy Group
- PT HEP
- Family Meeting
- Wellness Breakout Meeting
- Safe Substance Use
- CREDO/Commencement
- D/C Meeting
- Psych Health Meeting
- Radiology Rounds
- Rehab Breakout Meeting
Major Diagnostic and Rehabilitation Equipment

- MRI (3-T) / Functional MRI
- Magneto Encephalography (MEG) Scanner
- Positron Emission Tomography with Computed Tomography (PET/CT)
- Diffusion Tensor Imaging (DTI)
- CAREN (Computer Assisted Rehabilitation Environment) system
- Trans-Cranial Doppler Ultrasound
MRI Findings

CT
Read as Normal

Routine MRI- GRE
Possible Lesion Corpus Callosum

New TBI Study- SWI
Multiple Lesions Detected
• Proffer from Intrepid Fallen Heroes Fund for nine satellites, eight have been accepted:
  – Camp Lejeune, Fort Belvoir, Fort Campbell, Joint Base Lewis-McChord, Fort Bliss, Fort Bragg, Fort Hood, Fort Carson, Camp Pendleton
  – Ground breaking at Camp Lejeune and Fort Belvoir occurred on 13 June 2012
  – NICoE Satellites will focus on clinical care with throughput of up to 1,000 patients per year per satellite and will coordinate with NICoE-Bethesda on research
  – NICoE-Bethesda will serve as a tertiary referral center while maintaining its role as a research and training and education hub
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