

TBI Theater Systems of Care

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Disclaimer

- ▶ The views expressed in this presentation are those of myself and do not reflect the official policy of the Department of the Army, DoD, or U.S. Government.
- ▶ No financial/commercial disclaimers, no off label discussion

Poll Question #1

- What is your primary role in VA?
 - student, trainee, or fellow
 - clinician
 - researcher
 - manager or policy-maker
 - other

Poll Question #2

- Which best describes your experience treating symptoms after concussion/mTBI?
 - have no experience
 - some experience with chronic persistent sx's after mTBI
 - some experience with both acute and chronic sx's after mTBI
 - have significant overall experience with mTBI



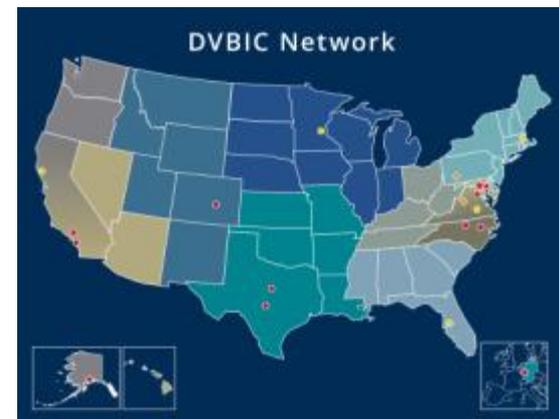
Defense and Veterans Brain Injury Center (DVBIC)



Established as a Department of Defense organization by a Defense Appropriation Bill in 1991, DVBIC was directed to track and evaluate head injury survivors; ensure appropriate treatment and rehabilitation; study treatment outcomes; and counsel family members.

DVBIC's mission is to serve active duty military, their beneficiaries, and veterans with traumatic brain injuries (TBIs) through state-of-the-art clinical care, innovative clinical research initiatives and educational programs, and support for force health protection services. DVBIC fulfills this mission through ongoing collaboration with the DoD, military services, Department of Veterans Affairs, civilian health partners, local communities, families and individuals with TBI.

DVBIC assists the DoD and VA in optimizing care of service members and veterans who have sustained a TBI, in deployed and non-deployed settings through DVBIC's three divisions: Research, Clinical Affairs, and Education.



Serving Those Who Have Served

These three pillars illustrate the many ways DVBIC supports service members, veterans, families and providers at our 18 network sites, which can be military treatment facilities, VA medical centers, or in community settings.

Research

- Clinical Investigations
- Congressionally Mandated Studies
- Epidemiological Research
- Statistical Analysis
- Translation of Research

Clinical Affairs

- Care & Consultation
- Identification & Sharing Best Practices
- Clinical Guidelines & Recommendations
- TBI Surveillance
- Neurorehabilitation & Community Reintegration Centers
- Regional Care Coordination

Education

- Educational Tools & Resource Development
- TBI Awareness & Training
- Product Distribution & Dissemination
- Family Caregiver Program
- Regional Education Coordination

Defense and Veterans Brain Injury Center Network Sites and Catchment Areas



www.DVBIC.org or email: info@DVBIC.org

September 2012

Department of Defense TBI Incidences

Annual Defense Department TBI Diagnoses (All Severities) 2000 - 2012 (Q3)	
Year	Number
2000	10,958
2001	11,580
2002	12,408
2003	12,815
2004	14,469
2005	15,531
2006	17,037
2007	23,217
2008	28,462
2009	28,875
2010	29,181
2011	32,609
2012	29,668
Total	266,810

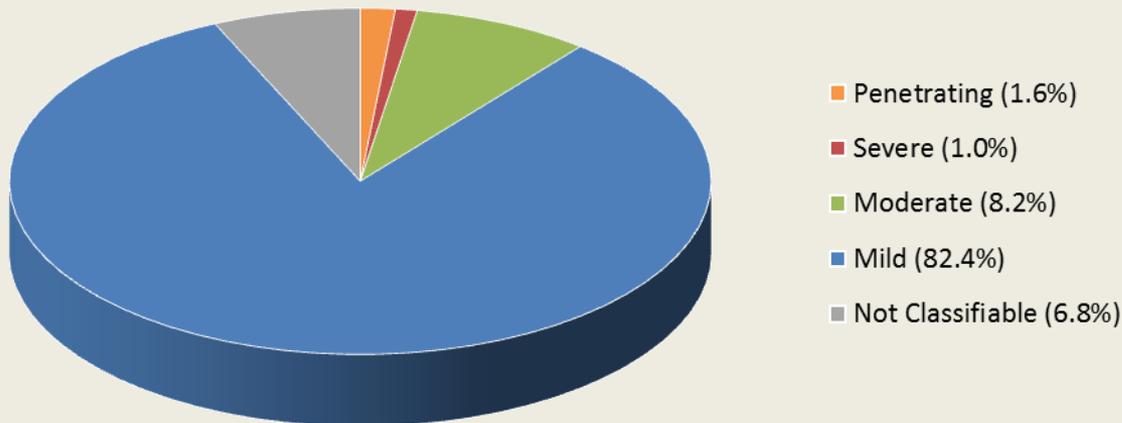
80% of all TBIs are non-deployment related

80% of all TBIs are mild / concussion

DoD TBI Incidence by Severity

Traumatic Brain Injury Diagnoses in All Services As of March 5, 2013	
Classification	2000 - 2012
Penetrating (1.6%)	4,213
Severe (1%)	2,709
Moderate (8.2%)	21,779
Mild (82.4%)	219,921
Not Classifiable (6.8%)	18,188
Total	262,065

Severity of DoD TBI Diagnoses 2000 - 2012



Source: www.dvbic.org

Policy Guidance for the Management of Concussion/mTBI in the Deployed Setting

- Department of Defense Instruction (DoDI) 6490.11
- Issued 18 September 2012, cancelling 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

DESIRED END STATE: the mitigation of the effects of potential concussive events on both Service member health, readiness and ongoing operations

Mandatory Events Requiring Evaluation

Exposure to the following mandates prompt command and medical concussion evaluation, event reporting and a 24-hour rest period:

- Involvement in a vehicle blast event, collision, or rollover
- Presence within 50 meter of a blast (inside or out)
- A direct blow to the head or witnessed loss of consciousness
- Exposure to more than one blast event (the service member's Commander shall direct a medical evaluation)

In-Theater Tools

Military Acute Concussion Evaluation (MACE)



MACE

Military Acute Concussion Evaluation



Patient Name: _____
 Service Member ID#: _____ Unit: _____
 Date of Injury: _____ Time of Injury: _____
 Examiner: _____
 Date of Evaluation: _____ Time of Evaluation: _____

CONCUSSION SCREENING
 Complete this section to determine if there was both an injury event AND an alteration of consciousness.

1. Description of Incident

A. Record the event as described by the service member or witness.
 Use open-ended questions to get as much detail as possible.

Key questions:

- Can you tell me what you remember?
- What happened?

B. Record the type of event.
 Check all that apply:

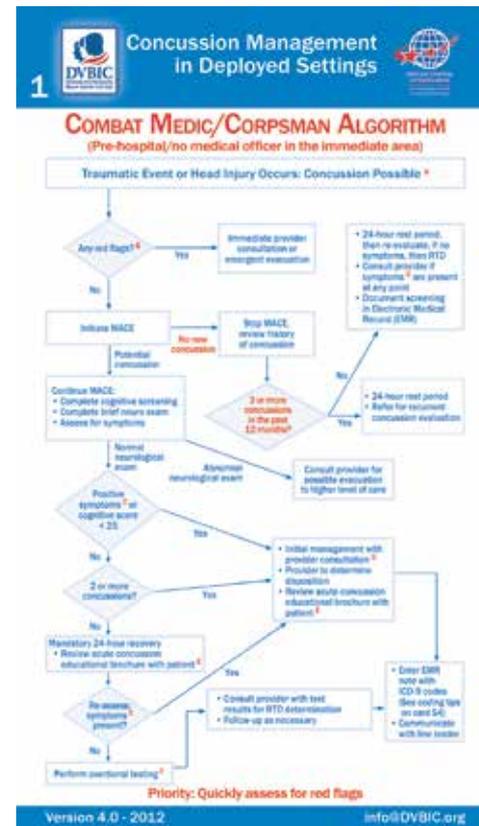
Explosion/Blast Fragment Motor Vehicle Crash
 Blunt Object Sports Injury Gunshot Wound
 Fall Other _____

C. Was there a head injury event? Key questions:

YES NO

- Did your head hit any objects?
- Did any objects strike your head?
- Did you feel a blast wave? (A blast wave that is felt striking the body/head is considered a blow to the head.)

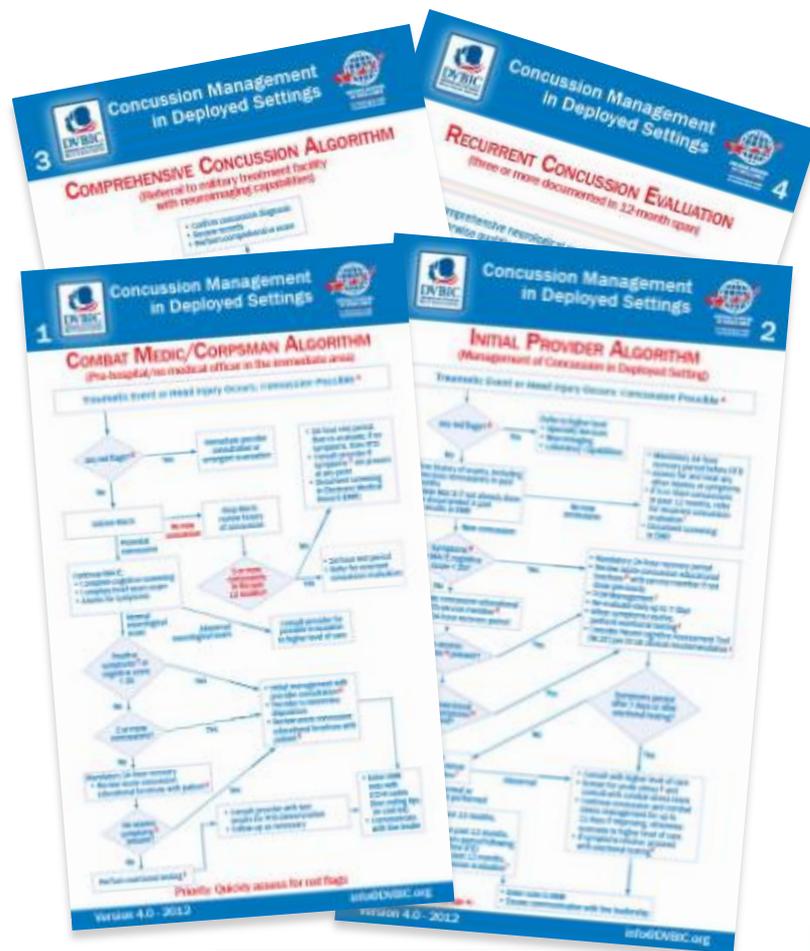
Concussion Management Algorithm





Clinical Algorithms

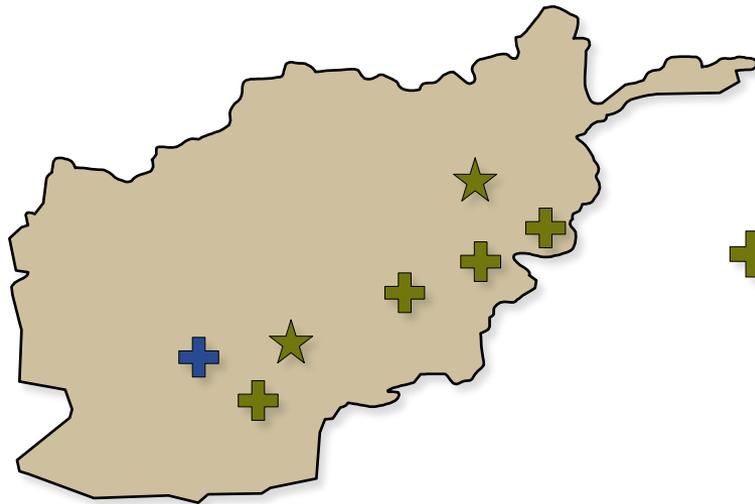
- Department of Defense (DoD) policy includes four concussion management clinical algorithms
 - Combat Medic/Corpsman
 - Initial Provider
 - Comprehensive Concussion
 - Recurrent Concussion
- Clinical algorithms were updated in 2012; current version is 4.0



Version 4.0 - 2012



Concussion Care in Afghanistan



★ CSCCs: 2

Bagram Air Field

Kandahar Air Field

✚ CCCs: 4

FOB Salerno

FOB Shank

FOB Sharana

FOB Pasab

✚ CRCC: 1

Camp Leatherneck

THEATER NEUROLOGIST

Supporting Entire
CJOA-A

RC-EAST

Concussion Specialty Care Center (CSCC)

- Neurologist
- Neuropsychologist
- Primary Care Provider
- Occupational Therapist
- OT Technician

4 CCCs

- Part-time Provider
- Occupational Therapist
- OT Technician

CCC: Concussion Care Center

RC-SOUTH

CSCC

- Neurologist
- Psychologist
- Physical Therapist
- Occupational Therapist
- OT Technician

2 CCC's

- Part-time Provider
- Occupational Therapist
- OT Technician

CRCC: Concussion
Restoration Care Center

RC-SOUTHWEST

CRCC (Primary Care Model)

- Sports Medicine Physician
- 2 Primary Care Physicians
- Psychologist
- Nurse
- Occupational Therapist
- Physical Therapist
- Research Psychologist
- Navy Corpsman

FOCUS: CAM, pain intervention,
Warrior Recovery Care, tracking,
cohesion of CCC/CSCC in Theater
TBI System of Care.

Walk the Ground: Combat Concussion Care Case

Situation

- 23-year-old activated reservist male, Specialist Jones, in improvised explosive device (IED) blast
- Driving up-armored 7T pushing mine roller; IED went off under front of truck
- No TBI training/education for him or unit, including both medical and personnel



Photo by Lance Cpl. Bruno J. Bego

Combat Concussion Care: Evaluation

Specialist Jones:

- Medic evaluation four hours later: had his protective gear including helmet, but chin strap loose and no seatbelt
- Hit head on window; saw stars, felt dazed
- Witness: confused, slow responses, “out of it” for 10-15 minutes but no loss of consciousness
- MACE CNS 24/**green normal** Neuro/B (has symptoms). DoD score reporting includes input on Cog score, Neuro exam and presence/absence of symptoms

CRCC



Courtesy photo by Col. Jamie Grimes

Specialist Jones: Post-Injury

Two days post injury:

- Daily HAs, in a.m.
- No improvement with inconsistent use of Motrin and Tylenol
- Neck and hip pain
- Not sleeping
- Difficulty concentrating
- Easily irritated

CCC enrollment D#3

- Review sleep hygiene
- TBI education program
- Start Ambien 10 mg/day
- Regular use of NSAID
- Provider and physical therapist evaluation
- Past TBI history: MVC with brief LOC 11 mo. HA, cognitive issues x 2 mo. then resolved

Specialist Jones: D#4 at CCC

- “Ruled-In” by MACE screen for concussion
- History of second concussion in past year
- High risk assignment
- No pre-deployment training
- History of depression in past
- No fractures
- Now he has no sx’s at rest/walking but + running
- +Chronic sleep issues; sleeping now with Rx and sleep hygiene
- Improving hip pain with physical therapy but + neck pain
- Anxious and agitated in groups at CCC

Post-Injury Assessment & Rx in Afghanistan

Assessment/Dx/Rx

- TBI Med Algo's for Rx
- MACE acute tool
- Provider Clinical Exam
- Sleep is **KEY** Rx*
- Medication & CAM Rx*
- **ASR and COSC***
- **Chaplain counsel**
- Effort and Cog testing
- CT and MRI

OT Tools

- BESS
- Graded Symptom Checklist
- Sleep Measure Index
- Performance Assess
- -----
- OT Neurovisual screen
- Gait Speed Test
- Post-injury ANAM
- Military validated performance

TBI Ongoing Questions

- Metrics to assess effectiveness of assessment?
- Updates with ongoing research to incorporate advances in objective measures/tests/studies?
- Except for logistics of transfers, should CPG in theater differ from garrison TBI care? Train as you fight...line and medical...
- Different/additional studies, assessments for high risk like EOD/route clearance/bomb squads? Pre-deployment? Post-deployment?
- Co-occurring conditions predicting outcome: literature on persistent symptoms and increased self-reported “incidence” of mTBI over time: conundrum of history/self report

Specialist Jones: Day 14

ISSUES at Entry/Day 7

- Transferred to concussion specialty care center on day 7 because of increased c/o's: HA, worsened sleep, vision, cognitive c/o's are worse
- Neck pain worse
- ASR suggests anxiety and stress reaction*

D#14 Rx & Response Recovery

- Normal full eye exam
- NP evaluation improved*
- COSC evaluation and care established with f/u*
- He reports better sleep, thinking, normal vision, controllable mild neck and head pain after CAM
- Discharge to follow up at unit

What else could we offer Specialist Jones? MRI!

- Battlefield JTS CPG #14: DoD Policy Guidance for Management of mTBI in Deployed Setting
- Battlefield JTS CPG #37: Use of MRI in Management of mTBI/Concussion in Deployed Setting
- Research underway
- Three MRIs in theater



Col Julie Stola, USFOR-A Surgeon, KAF MRI suite.
Courtesy photo by Col. Jamie Grimes

Research Relevance: Screen, Dx, Rx, Px

Predictive of True Concussion and Not Concussion

- Clinical Hx and Exam
- POI/Point of Injury and Return to Duty evals
- DTI? Brody 2011: Clinical screen greater
- Biomarkers? Timing
- Cognitive assessment? Effort output, comorbidity

Research Relevance: Screen, Dx, Rx, Px

Predictive of Recovery and Non-Recovery:

- Clinical symptoms
- Age and pre-morbidity
- Recurrent/cumulative TBI
- Cognitive baseline?
- Simple reaction time?
- Diagnostic tools?
- Co-occurring conditions?
- Mind injury?

Continuum of Care: TBI Recovery and Reset for Specialist Jones

- Jones at home less than six months later, +recurrence of symptoms on f/u with provider.
- Review of acute injury and treatment: recovered from concussion. Now new/recurring sx's.
- Further evaluation: diagnostic tests, cognitive assessments, clinical assessments, imaging, treatment trials.
- What is Dx & Rx?



Questions?

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