WARFIGHTER BRAIN HEALTH: Mild Traumatic Brain Injury Training

Courtney Sadler, MPH, CTRS, CBIS
Kristen Benson, MSW, LMSW
Roya Lackey, MSOT, OTR/L, CBIS
Regional Education Coordinator
11 February 2021
The views expressed in this presentation are those of the authors and do not necessarily represent the official policy or position of the Defense Health Agency, Department of Defense, or any other U.S. government agency. This work was prepared under Contract HT0014-19-C-0004 with the Defense Health Agency (DHA) Contracting Officer and, therefore, is defined as U.S. Government work under Title 17 U.S.C.§101. Per Title 17 U.S.C.§105, copyright protection is not available for any work of the U.S. Government. Oral presentation at the Ohio State University Neuro-Nights series, February, 2021. For more information, please contact dha.TBICOEinfo@mail.mil.
Briefing Agenda

- About the Traumatic Brain Injury Center of Excellence (TBICoE)
- Worldwide numbers
- Traumatic brain injury (TBI) basics
- Resources
About TBICoE

- Congress established TBICoE in 1992 after the first Gulf War in response to the need to treat service members with TBI.

- Our mission today remains to serve active-duty military and veterans with TBI, and their families, through state-of-the-art medical care, innovative clinical research initiatives, educational products and programs.

- TBICoE assists the DoD and Department of Veterans Affairs (VA) in optimizing care of service members and veterans who have sustained a TBI, in deployed and non-deployed settings, through TBICoE’s three branches: Research, Clinical Affairs and Education.
TBICoE Sites

To find a point of contact in your region, please visit Health.mil/TBICoE or email dha.ncr-9.mbx.tbicoe-info@mail.mil

This map reflects TBICoE support services across the MHS as of 01 JAN 2021

"Medically Ready Force...Ready Medical Force"
The TBICoE Branches

These three boxes illustrate the many ways TBICoE supports service members, veterans, their families and health care providers at 21 network sites, located at both military treatment facilities and VA medical centers.

**Research**
- Clinical investigations
- Congressionally-mandated studies
- Epidemiological research
- Statistical analysis
- Translation of research

**Clinical Affairs**
- Care and consultation
- Identification/ sharing best practices
- Clinical guidelines and recommendations (CRs)
- TBI surveillance

**Education**
- Educational tools
- TBI awareness training
- Product distribution/ dissemination
- Congressionally-mandated Family Caregiver Resources
- Regional Education Coordination (REC)
DoD Worldwide TBI Numbers

DoD Numbers for Traumatic Brain Injury Worldwide — Totals

2019 Q1-Q3

- Penetrating: 31
- Severe: 15
- Moderate: 1,451
- Mild: 13,765

Total - All Severities: 15,262

90.2% Mild
9.5% Moderate
0.2% Severe
0.1% Penetrating

Source: 2000 to 2018 Q1 data provided by the Armed Forces Health Surveillance Branch (AFHSB) using the Defense Medical Surveillance System (DMSS) and Theater Medical Data Store (TMDS); data starting 2018 Q2 provided by the Defense and Veterans Brain Injury Center (DVBIC) using the MHS Data Repository (MDR).

Prepared by the Defense and Veterans Brain Injury Center (DVBIC)

2019 Q1-Q3, as of November 08, 2019

"Medically Ready Force...Ready Medical Force"
Recognize what is new in concussion/mTBI

a) Review the definition of TBI and current understanding of concussion

b) Understand the causes of concussion

c) Understand signs and symptoms of concussion
Learn the definition of TBI & current understanding of concussion

Two conditions must be met before a mild TBI/concussion can be diagnosed:

- An injury event
- AND at least one of the following

  - An alteration of consciousness (AOC) lasting < 24 hours
  - A loss of consciousness (LOC) lasting < 30 minutes
  - Post-traumatic amnesia (PTA) caused by the injury event lasting < 24 hours

Key Points:

- LOC is NOT required for diagnosis of concussion
- Symptoms alone do not equate to a diagnosis of concussion
- A CT scan is not indicated for most patients with a mTBI, if obtained, it is normal
- Symptom severity does not define TBI Classification
Learn the definition of TBI & current understanding of concussion

DoD Definition of TBI: A traumatically induced structural injury or physiological disruption of brain function, as a result of an external force, that is indicated by new onset or worsening of at least one of the following clinical signs immediately following the event: AOC, LOC, PTA

<table>
<thead>
<tr>
<th>Severity</th>
<th>Mild (Concussion)</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural imaging</td>
<td>Normal</td>
<td>Normal or abnormal</td>
<td>Normal or abnormal</td>
</tr>
<tr>
<td>(Computed tomography)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of consciousness (LOC)</td>
<td>0 to 30 minutes</td>
<td>30 minutes and &lt;24 hrs</td>
<td>&gt;24 hrs</td>
</tr>
<tr>
<td>Alteration of consciousness (AOC)</td>
<td>A moment up to 24 hrs</td>
<td></td>
<td>&gt;24 hours</td>
</tr>
<tr>
<td>Post-traumatic amnesia (PTA)</td>
<td>0 to 1 day</td>
<td>&gt;1 day &lt;7 days</td>
<td>&gt;7 days</td>
</tr>
</tbody>
</table>

Source: Assistant Secretary of Defense for Health Affairs, Health Affairs Memorandum (October 1, 2007). Traumatic Brain Injury: Definition and Reporting

“Medically Ready Force...Ready Medical Force”
2.b. Become familiar with the new MACE 2 as a multimodal tool

The MACE 2 is the DoD concussion assessment tool to be used as soon after an injury event as possible. This multimodal assessment helps identify prominent symptom clusters.

- **Oculomotor dysfunction:**
  - MACE 2 VOMS, q14

- **Vestibular dysfunction:**
  - MACE 2 VOMS, Neuro q11 & 12

- **Cervicogenic pain:**
  - MACE 2 VOMS, q9

- **Anxiety/mood symptoms:**
  - MACE 2 q4C

- **Cognitive/fatigue:**
  - MACE 2 Cog, Neuro q7 & 8

- **Post-traumatic migraine:**
  - MACE 2 q4B

"Medically Ready Force...Ready Medical Force"
Understand the causes of concussion

Concussions can occur on the battlefield and when playing sports, but they also occur in everyday situations.
Understand the signs and symptoms of concussion

<table>
<thead>
<tr>
<th>Observable signs that could indicate concussion:</th>
<th>Common symptoms after a concussion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Lying motionless on the ground</td>
<td>□ Headache</td>
</tr>
<tr>
<td>□ Slow to get up after a direct or indirect blow to the head</td>
<td>□ Dizziness</td>
</tr>
<tr>
<td>□ Disorientation, confusion, or an inability to respond appropriately to questions</td>
<td>□ Memory problems</td>
</tr>
<tr>
<td>□ Blank or vacant look</td>
<td>□ Balance problems</td>
</tr>
<tr>
<td>□ Balance difficulties, stumbling, or slow labored movements</td>
<td>□ Nausea/vomiting</td>
</tr>
<tr>
<td>□ Facial injury after head trauma</td>
<td>□ Difficulty concentrating</td>
</tr>
<tr>
<td></td>
<td>□ Irritability</td>
</tr>
<tr>
<td></td>
<td>□ Visual disturbances</td>
</tr>
<tr>
<td></td>
<td>□ Ringing in the ears</td>
</tr>
</tbody>
</table>
Differences of TBI and Posttraumatic Stress Disorder Symptoms

**Overlapping Symptoms**

**Possible Symptoms of TBI**
- headaches
- dizziness/balance problems
- nausea
- sensitivity to light and sound
- vision changes
- impulsivity

**Possible Symptoms of PTSD**
- on high alert
- startled easily
- fearfulness
- flashbacks
- nightmares
- guilty feelings
- avoidance
- numbness
- self-destructive behavior

- fatigue
- sleep problems
- trouble with memory and attention
- feeling depressed
- feeling anxious
- irritability
Expectations for Recovery

- Most concussions heal within days or weeks when you follow a progressive return to activity that includes:
  - Rest
  - Gradual return to activity

- Potential complications to recovery after sustaining multiple concussions:
  - Symptoms may be more severe with each additional concussion
  - Each additional concussion, may take longer to resolve
TBICoE Resources

- TBICoE provides free TBI resources for:
  - Providers
  - Service Members
  - Veterans
  - Families
  - Caregivers

- These resources include educational materials, fact sheets, clinical recommendations and much more.

- Download at [https://health.mil/TBICoE](https://health.mil/TBICoE)
Educational Resources

TBICoE handouts educate families and caregivers of patients with TBI. They describe the common signs and symptoms and stages of recovery that are available.

“Medically Ready Force...Ready Medical Force”
FACT SHEETS

TBICoE fact sheets present information on various topics related to TBI – symptom management, awareness and prevention, family resources and more.

- **Traumatic Brain Injury Awareness** fact sheet
- **Concussion Signs & Symptoms** fact sheet
- **Concussion/Mild TBI and PTSD** fact sheet
- **Mild TBI Symptom Management** fact sheets (6 topics)
- **A Head for the Future** fact sheets (7)
Patient Resources

Additional Patient Resources:

- What You Should Know About Concussion
- Help With Ongoing Symptoms After Concussion
- HEADS Card
- HEADS Poster
TBICoE created a free resource for service members and veterans who have sustained a TBI and plan to go back to school. The *Back to School Guide to Academic Success After Traumatic Brain Injury.*

The guide includes information service members and veterans need to start their academic journey, from symptom management to choosing a school and adjusting to civilian campus culture.

Available to download at [https://health.mil/TBICoE](https://health.mil/TBICoE)
A Parent’s Guide to Returning Your Child to School After a Concussion

Description: Car crashes, playground falls and sports injuries cause thousands of concussions a year among children. This guide offers practical advice and addresses common questions to parents.

- Section 1: Signs and Symptoms
- Section 2: Support Recovery
- Section 3: Return to School
- Section 4: For Children with Longer Recovery Times
Family Member and Caregiver Resources

The TBI Family Podcast

- Launched in November 2016, this series is for caregivers of service members and veterans with traumatic brain injury (TBI). Each episode offers information, resources and tips for caregivers and shares caregiver stories.

- You can listen to The TBI Family episodes or download them via SoundCloud, iTunes or Google Play.

http://www.dbvic.dcoe.mil/podcasts
Family Member and Caregiver Resources (continued)

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.

Coping techniques for caregivers and families who are trying to manage stress, anxiety or sadness, while caring for an injured service member/veteran.

Offers communication techniques that can help you explain the effects of TBI to children in a way they can understand. For every age group, from toddlers to teens.

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.

“Medically Ready Force...Ready Medical Force”
Connected Health Podcasts

https://www.health.mil/News/Articles/2018/03/05/New-DoD-educational-podcast-series-promotes-better-health

“Medically Ready Force...Ready Medical Force”
DHA Connected Health Mobile Applications

“Medically Ready Force...Ready Medical Force”
Questions?

Traumatic Brain Injury Center of Excellence
https://health.mil/TBICoE

Kristen Benson, MSW, LSW
Fort Belvoir, VA
Region: Northern VA, Washington DC, DE, OH, MD, PA
Mobile: 267.844.1482
Email: Kristen.n.benson.ctr@mail.mil

Courtney Sadler, MPH, CTRS, CBIS
Richmond, VA
Region: Virginia, West Virginia
Mobile: 804.357.3722
Email: Courtney.j.sadler.ctr@mail.mil

Roya Lackey, MSOT, OTR/L, CBIS
San Diego
Region: Southern CA, AZ, Japan, S. Korea
Mobile: 585.704.9641
Email: Roya.f.lackey.ctr@mail.mil

“Medically Ready Force...Ready Medical Force”