“Homecoming”
Traumatic Brain Injury & Psychological Health
William Bograkos, MA, DO, FACOEP, FACOFP
Colonel, MC, FS, USA (retired)

Objectives
1) Improve our understanding of military medicine (Health Services Support Systems)
2) Discuss civil military cooperation in an integrated health services support system
3) Advance our knowledge of traumatic brain injury and strengthen a civil-military coalition of interdisciplinary stakeholders

Disclosure
The presenter DOES NOT have an interest in selling a technology, program, product, and/ or service to CME/ CE professionals.

Restriction Periods
30 Day- a boxer who receives a stunning head blow & demonstrates a lack of normal response
90 Day- a boxer who has been knocked unconscious & is unresponsive to normal stimuli for less than two minutes
180 Day- a boxer who has been knocked unconscious & is unresponsive to normal stimuli for at least two minutes

MMWR Weekly
March 14, 1997 / 46 (10); 224 - 227
300,000 sports-related traumatic brain injuries (TBIs) of mild to moderate severity, most of which can be classified as concussions (i.e., conditions of temporarily altered mental status as a result of head trauma), occur in the United States each year.

Grading the Severity of Cerebral Concussion

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Grade I</th>
<th>Grade II</th>
<th>Grade III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-traumatic amnesia</td>
<td>&lt; 30 minutes</td>
<td>&gt; 30 minutes and ≤ 24 hours</td>
<td>&gt; 24 hours</td>
</tr>
<tr>
<td>Loss of consciousness</td>
<td>None</td>
<td>&lt; 5 minutes</td>
<td>&gt; 5 minutes</td>
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How would a Civil War Veteran and medical officer like Major Andrew Taylor Still approach blast injury and the nature of man?

Examine the structure & function of the battlefield. Then add time & space.

Then add body, mind and spirit
Pre-deployment Threat Assessment
Preparedness/Deployment Risks

Trauma:
- Blasts
- Penetrating
- Mechanical
- Emotional

Medical

Tactical Field Care
Casualties with an altered mental status should be disarmed immediately.

CASEVAC Care
I. Shock Trauma Platoon
II. FST Forward Resuscitative Surgery
III. CSH, MSH / EMEDS + 25 / Fleet Hospital, Hospital Ship
IV. Field Hospital, General Hospitals
V. Continent of the United States

Navy Fleet Hospitals
Transportable, medically and surgically intensive medical treatment facility
Designed to provide the operational Unified Commander/COCOM medical support during intense combat operations; and protracted low-intensity scenarios (MOOTW)

Patient Movement Aircraft
CH-46
On support ships (AO, AOE)
12 litters plus 2 attendants
100 nm range
100 knots

“Tailored” Medical Care
…with a Building Block Approach

Mobilization Stressors & Mitigation
Proactive leadership identifies & addresses Service Member & families transition through:
- Pre-deployment
- Deployment
- Post-deployment
www.seamlesstransition.va.gov
Homecoming/ Recovery
Post-deployment Screening:
- Periodic Health Assessments
- Traumatic Brain Injury- www.dvbic.org
  TBI Screening Tool
  www.biausa.org
- Behavior Health- www.ncptsd.va.gov
  PDHA and PDHRA
  www.behavioralhealth.army.mil

TBI: Etiology
Civilian population
50% vehicular
20% falls
20% assaults/ violence
10% sports

Differential Diagnosis of Head Injury
- Epidural hematoma
- Subdural hematoma
- Intracerebral hematoma
- Intracerebral contusion
- Subarachnoid hemorrhage
- Cerebral concussion
- Malignant brain edema syndrome
- Second-impact syndrome
- Cervical spine injury

National Center for Injury Prevention and Control
www.cdc.gov/ncipc/tbi/TBI.htm

Of the 1.4 million who sustain a TBI each year in the United States:
- 50,000 die;
- 235,000 are hospitalized; and
- 1.1 million are treated and released from an emergency room.

BLASTS
88% Service Members treated at Echelon II in Iraq injured by IED or munitions
Primary- Injuries as a direct result of blast wave-induced changes in atmospheric pressure
Secondary- from objects put in motion by the blast hitting people
Tertiary- by people being forcefully put in motion by the blast wave
MCIs involving bombings & explosions in Madrid, Oklahoma City, Beirut & Belgrade suggest that head injuries including TBI, are among the most common injuries & experienced by 12-33 % of injured survivors.

Traumatic Brain Injuries after Mass-Casualty Incidents: Lessons from the 11 September 2001 World Trade Center Attacks
May- June 2007  http://pdm.medicine.wisc.edu

“The highest officer in command is the artery of nourishment, which must be assisted by the nerve of motion and the vein of renovation.”


Integrative Medicine  
www.ICHPcenter.org

- Personalized
- Patient Centered
- Multidimensional interventions
- Total Body Model
- Evidenced based
- Connected to acute and chronic care
- Ideally, with feedback, automated prompts and outcomes tracking

Stress Management and Heart Disease  
Randomized trial, 107 patients with CHD over 5 years

Stress management reduced ischemia, less distress/hostility
Blumenthal, JA, Arch Internal Med, 1997; 157:2213

Homecoming  
Lessons Learned from the Integrative Cardiac Health Project at Walter Reed Army Medical Center  
www.ichpcenter.org

Recommend Primary Care Physicians address:
- Cardiac: Risk Assessments / Reduction Plans
- Sleeping for Healthy Heart; improve sleep, improve hypoxia, improve vasodilatation, improve RV output, improve energy/wt loss, IMPROVE Brain & kidney function
- Stress Management, Heart Healthy Eating, Exercising for Life
May 2005 Psychiatric Issues in Emergency Care Settings

“The psychological consequences of disasters have become increasingly clear in recent years. These include post-traumatic stress disorder (PTSD), major depression, anxiety disorders, and substance abuse disorders.”

Anthony T. Ng, M.D.

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Public Awareness & Warnings
Leads to community supported integrated response
EMS/PC/BH

Axis I: PTSD 309.89
1) Trauma event re-experienced
2) Avoidance or numbing
3) Persistent symptoms of increased arousal
4) Duration of disturbance > 1 month
5) Significant distress or impairment
6) Outside the range of human experience

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OMT Strategies
Intrusive Thoughts
Avoidance
ANS

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"This is my shield. I bear it before me into battle, But it is not mine alone. It protects my brother on my left. It protects my city. I will never let my brother out of its shadow nor my city out of its shelter. I will die with my shield before me facing the enemy.”  From: Steven Pressfield- "Gates of Fire"
The first targets in war are bridges. Let us view the threat (Global War on Terrorism) as an opportunity to strengthen our bridges between disciplines and communities.

“If the guardians fail, the democracy will crumble.”
(From Plato’s Republic, 400 BC.)