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Navy and Marine Corps Public Health Center

• Established in 1964 for Occupational Health
• Mission:
  “As the Navy and Marine Corps’ center for public health services, we provide leadership and expertise to ensure mission readiness through disease prevention and health promotion in support of the National Military Strategy.”
• Vision: Protection through Prevention

Health Analysis Department

• Provide clinical performance measurement to change clinical processes and improve patient outcomes and reduce costs.
• Customers include: Bureau of Navy Medicine and Surgery (BUMED), Navy Medicine Regional Commands, Military Treatment Facilities (MTF), clinicians, residents, administrators and business staff
• Provide input to guide Navy policy, lectures on epidemiology, health care measurement, scientific articles, and focused studies to examine feasibility of implementation and evaluation of specific interventions
Objectives

• Provide a general overview of Traumatic Brain Injury (TBI), more specifically, mild Traumatic Brain Injury (mTBI).
• Describe trends and distribution of mTBI encounters for Navy Medicine
• Recognize the importance of proper resource allocation for treatment and program planning

Background

• TBI has emerged as a signature condition among members of the U.S. Armed Forces
• As of 2009, approximately 1.5 million Americans survive a TBI.
  • Most reported TBIs (77%) are mild TBI (mTBI).
• mTBI is unlike moderate to severe TBI because:
  • Physical injuries may not be apparent
  • Course of treatment is not clearly defined

Background-Classification of mTBI

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Mild TBI</th>
<th>Moderate TBI</th>
<th>Severe TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of Consciousness (LOC)</td>
<td>0-30 min</td>
<td>&gt;30 min and &lt;24 hrs</td>
<td>&gt;24 hrs</td>
</tr>
<tr>
<td>Admission GCS (A)</td>
<td>24 hrs</td>
<td>&gt;24 hrs and &gt;7 days</td>
<td>&gt;24 hrs</td>
</tr>
<tr>
<td>Pre-Traumatic Amnesia (PTA)</td>
<td>24 hrs</td>
<td>&gt;7 days</td>
<td>&gt;7 days</td>
</tr>
<tr>
<td>Glasgow Coma Scale (GCS)</td>
<td>Score 3-15</td>
<td>Score 3-12</td>
<td>Score 3-8</td>
</tr>
</tbody>
</table>

*Data adapted from the Joint Mild Traumatic Brain Injury Peer Review Committee (JMTBIC)
Background-Clinical Practice Guidelines

• VA/Department of Defense Clinical Practice Guidelines Definition
  • At least 1 of the following must occur:
    – Any LOC
    – Any Post-traumatic amnesia of immediately before/after injury
    – Any AOC at time of injury
    – Neurological deficits
    – Intracranial lesion

Background-mTBI Symptoms

• mTBI symptoms can be behavioral, cognitive, and/or physical alterations.
  Examples include, but are not limited to:
  • Irritability, Impulsivity, Aggression
  • Attention difficulties, Memory and Judgment problems
  • Headache, Nausea, Vomiting, and Blurred Vision

Background

• It is important to ensure the numerous military medicine resources available are well allocated to treat the various symptoms.
• Assessment performed at request of BUMED M9 TBI Program subject matter experts
  – Results assist M9 in determining if each MTF has the correct category of care rating and capabilities to meet each care rating

Methods-Coding Guidance

• Department of Defense Coding Guidance for Traumatic Brain Injury
  • Coding initial encounter for TBI:
    – 8XX series code as primary code following by appropriate TBI V code
    • May be associated with skull fracture (800-801/803-804) or without (850-854)
  • Subsequent encounters for TBI care:
    – Use symptom codes for patient’s present complaint as primary code followed by:
      • Personal history of TBI code (V15.52_X)
      • Late effect code (905.0 or 907.0)
      • Appropriate deployment status code
Methods-Parameters

- Project is based on proper coding
- Other military definitions are based on more comprehensive groups
- mTBI ICD-9 Codes as defined by DoD Coding Guidance:
  - Personal History of TBI, GWOT related, Mild (V15.5_2, V15.59_2, V15.52_2)
  - Personal History of TBI, non-GWOT related, Mild (V15.5_7, V15.59_7, V15.52_7)
  - Person History of TBI, unknown if GWOT related, Mild (V15.5_C, V15.59_C, V15.52_C)
  - Concussion (850.x)

Methods-Data Collection

- Data collected via MHS Management and Analysis Reporting Tool (M2)
- Comprehensive Ambulatory/Professional Encounter Record (CAPER) detail table
  - Includes only direct care; in-theater and shipboard data are not included
- Encounters, clinic type where the encounter was coded, how the encounter was coded, and patient enrollment location were examined to determine overall burden
- Encounter trends, clinic type prevalence, and frequency of proper diagnostic code used were reported
Results-Overview

• Since FY06, coded mTBI encounters have increased
• From FY06 to Quarter 2 of FY13, there were 77,447 mTBI encounters within Navy Treatment Facilities
• Of all mTBI encounters, approximately 77% were from active duty patients
• As of FY13Q2, Sailors and Marines were 26% and 60% of the unique active duty mTBI cases, respectively
• 5 Navy MTFs had 76% of coded active duty mTBI cases as of FY13Q2

New mTBI Episodes within Navy Military Treatment Facilities, Active Duty Navy and Marines, FY08-FY13Q2

Conclusions
• Results of the assessment have become a biannual report delivered to BUMED
• The assessment allowed BUMED TBI subject matter experts to identify specific MTFs that have high mTBI encounter rates and may not yet have a TBI program at that institution
• Allocation of resources and additional training for wounded warrior care
• MTFs with TBI program were also looked at to ensure proper resources still available to meet each facility’s TBI care rating
Conclusions-Future Directions

- Future directions:
  - Analyze mTBI treatment resources at baseline to present day.
    - Were resources allocated properly then?
    - Are they properly allocated now?
  - Data analysis of all TBI programs.
    - Are the programs effective in treating and rehabilitating a TBI?
    - How long-lasting are the effects of the program?

Conclusions

- You should now:
  - Have a general understanding of TBI, more specifically, mTBI
  - Be able to describe trends and distribution of mTBI encounters for Navy Medicine
  - Have a deeper understanding of the importance of proper resource allocation for treatment and program planning

References

Health on the Homefront:
Assessing Resource Demand for Treatment of Mild Traumatic Brain Injury in Navy Medicine
Ambulatory Clinics

Contact
Health Analysis Department
Email: Health-analysis@nehc-mar.med.navy.mil
Website:
www.nmcpch.med.navy.mil/Data_Statistics/Health_Analysis/ha_overview