

Traumatic Brain Injury in Active Duty Service Members and Veterans: Incidence, Effects, and Resources

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Overview



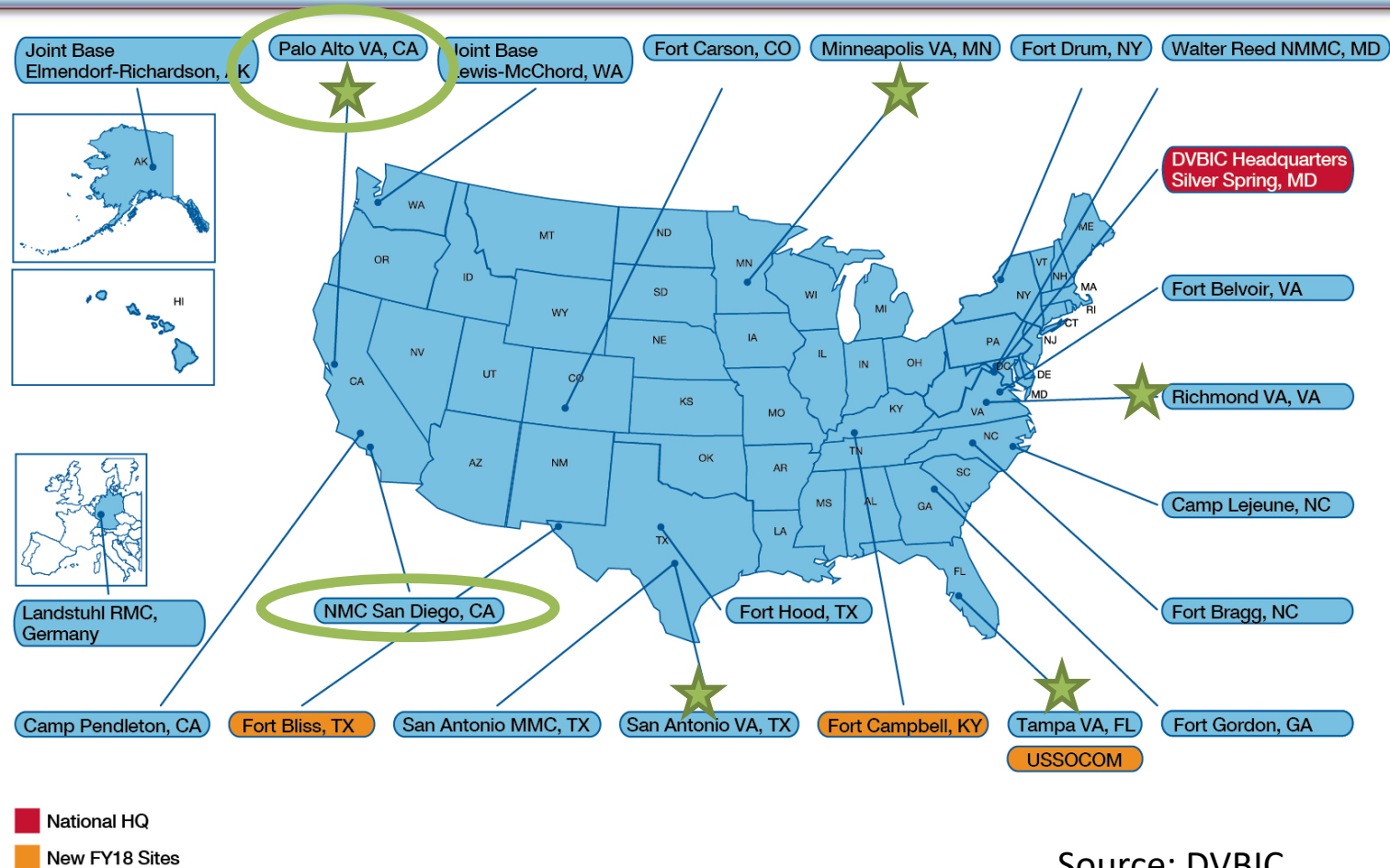
1. Defense and Veterans Brain Injury Center
2. TBI basics and prevalence in military/veterans
3. Prevention
4. Treatment for military and veterans
5. Resources and more information

Defense and Veterans Brain Injury Center



- Traumatic Brain Injury (TBI) Center of Excellence for the Defense Health Agency
- Established by congress in 1992, post-first Persian Gulf War
- Mission: Optimize TBI care for active duty military, veterans, and the general public through
 - Research
 - Education
 - Clinical Affairs

DVBIC Network Sites



Source: DVBIC

DVBIC Covers ALL DoD and VA Sites



Source: Health.mil

Step 1 to Improving Care - Get It!



Source: DVIDS

DoD Definition of Traumatic Brain Injury



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:

TBI Diagnostic Criteria: At Least One of the Following



- Any period of **loss of** or a decreased level of **consciousness (LOC)**
- Any **alteration of consciousness (AOC)** at the time of the injury (confusion, disorientation, slowed thinking, etc.)
- Any loss of memory for events immediately before or after the injury (**post-traumatic amnesia, or PTA**)

What is Concussion?



Concussion = Mild Traumatic Brain Injury (mTBI)

TBI Severity



Severity	GCS	AOC	LOC	PTA	CT Imaging
Mild	13-15	≤ 24 hours	0-30 min	≤ 24 hours	Negative
Moderate	9-12	> 24 hours	> 30 min to < 24 hours	> 24 hours to $<$ 7 days	Negative or positive
Severe	3-8	> 24 hours	≥ 24 hours	≥ 7 days	Negative or positive

Common Symptoms of Mild TBI

Physical

- Headache
- Sleep disturbances
- Dizziness
- Balance problems
- Nausea and/or vomiting
- Fatigue
- Visual disturbances
(blurred vision, double vision)
- Sensitivity to light or noise
- Ringing in ears

Cognitive (Thinking)

- Slowed thinking
- Poor concentration
- Memory loss
- Confusion
- Difficulty making decisions
- Difficulty finding words

Emotional

- Anxiety
- Feeling depressed
- Irritability
- Mood swings

Source: DVBIC

Know the Symptoms

**PROTECT
YOUR STRONGEST
WEAPON**

Concussion
Know the symptoms



H Headaches and/or Vomiting ✓

E Ears Ringing ✓

A Amnesia, Altered/Loss of Consciousness ✓

D Double Vision and/or Dizziness ✓

S Something Feels Wrong or Is Not Right ✓

If you or a buddy experiences symptoms of a **CONCUSSION**, get checked out.

Events That Require a Medical Evaluation for Possible Concussion

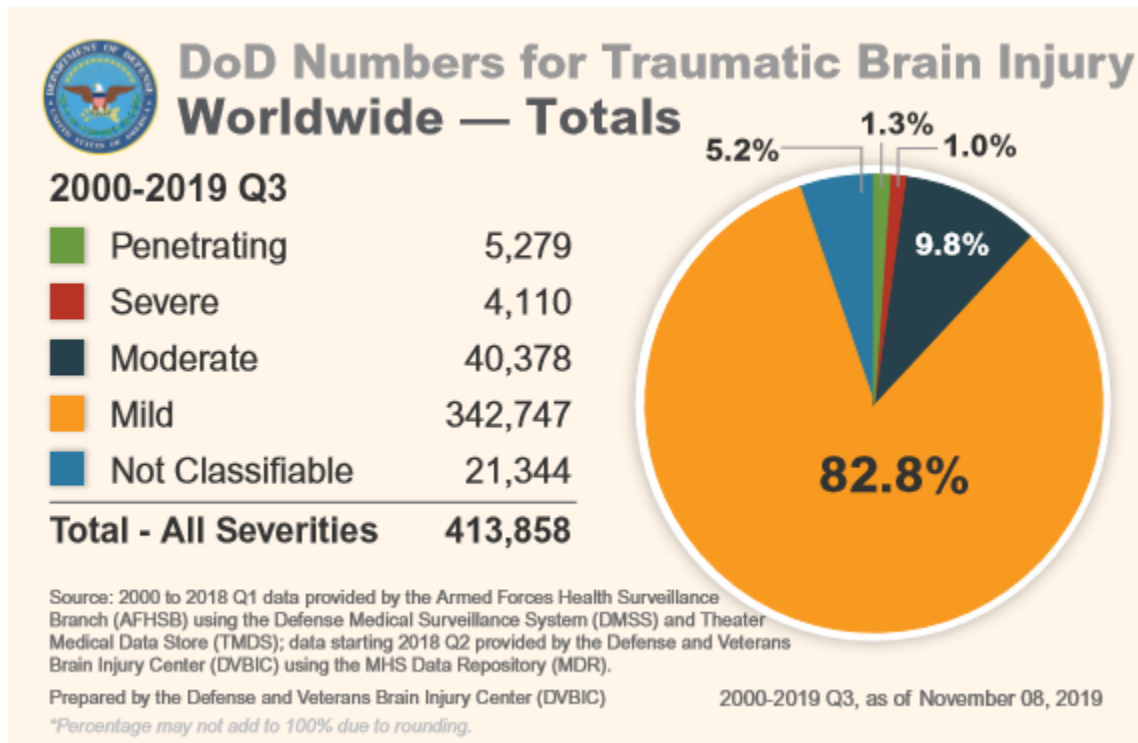
- Being in a vehicle blast event, collision or rollover
- Being within 50 meters of a blast (inside or outside)
- A direct blow to the head – Including non-combat head injuries in-theater
- Someone says – or you feel – you may have lost consciousness
- Exposure to more than one blast event

Released: December 2013 | Revised March 2019
This product is reviewed annually and current until superseded.
Visit dvbic.dcoe.mil for the latest information.

DVBIC is the TBI center of excellence
for the Defense Health Agency.
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Source: DVBIC

DoD Worldwide Numbers for TBI



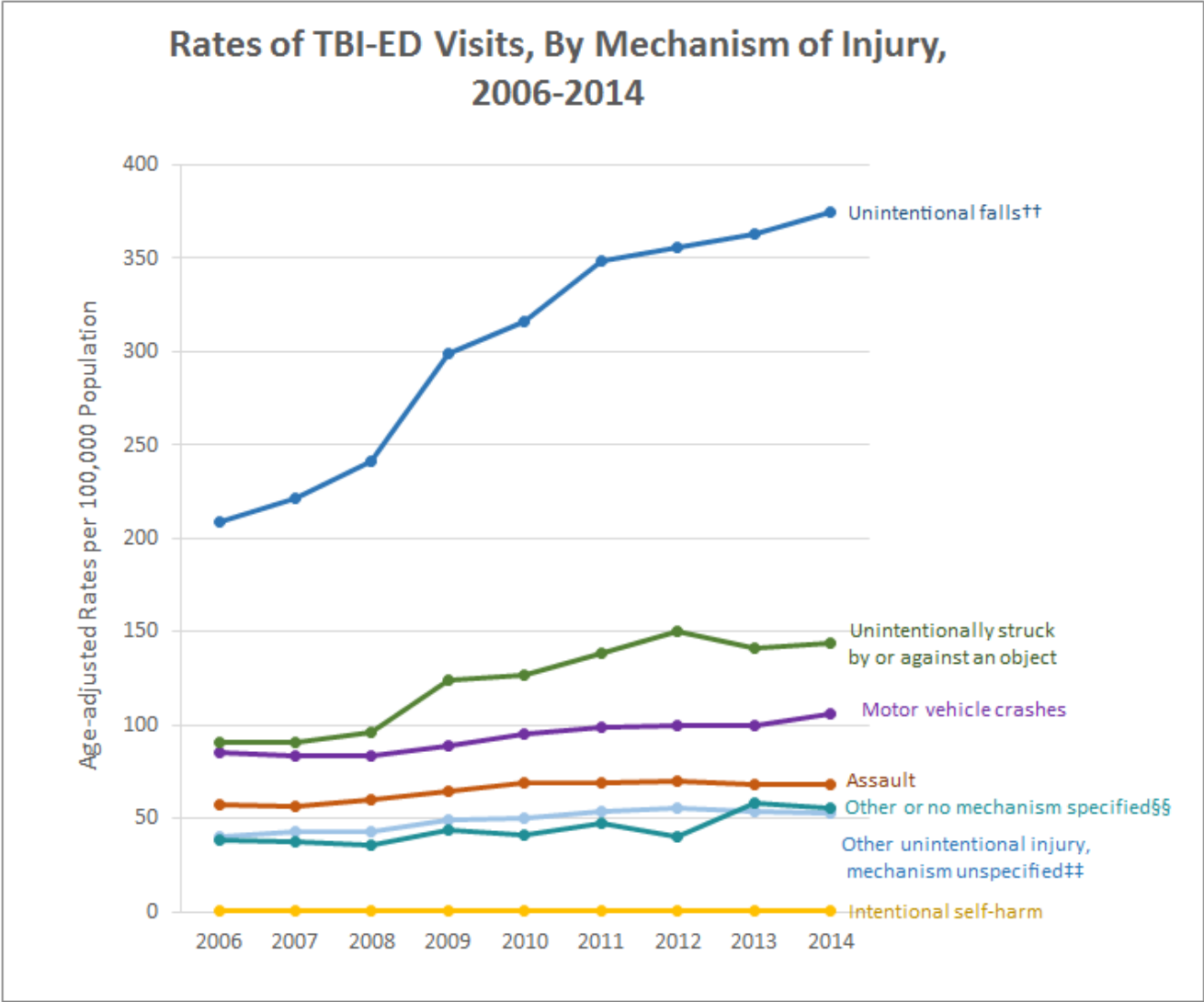
To get the most up-to-date totals use this link: dvbic.dcoe.mil/dod-world-numbers-tbi

TBI Numbers by Service



Army	225,144
Marines	54,373
Air Force	52,282
Navy	52,148
TOTAL (2000-Q1 2018)	383,947

To get the most up-to-date totals use this link: dvbic.dcoe.mil/dod-world-numbers-tbi



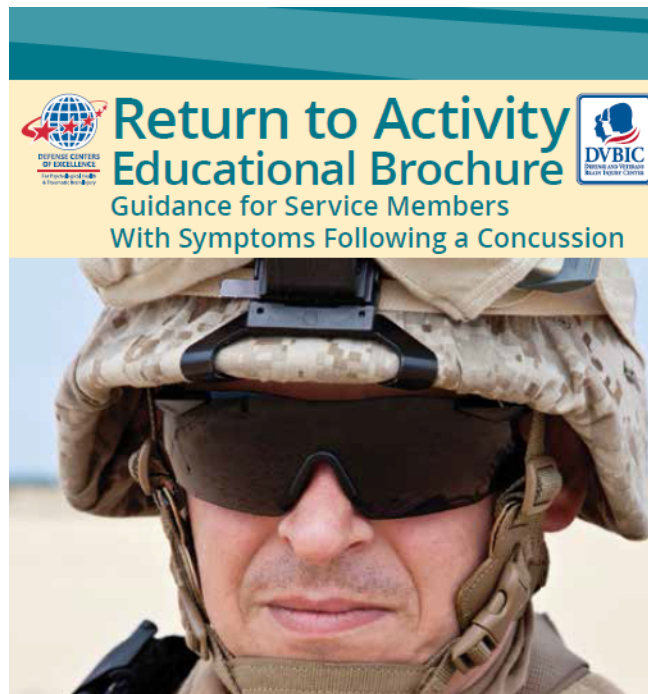
Data Table

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Source: Healthcare Cost and Utilization Project's (HCUP) Nationwide Emergency Department Sample. [†]Age-adjusted to the 2000 U.S. standard population. ^{††}Includes falls of undetermined intent to maintain consistency with past data releases. [‡]E-codes specify that the injury was unintentional but do not specify the actual mechanism of injury. ^{§§}Includes TBIs in which the intent was not determined as well as those due to legal intervention or war. Includes TBIs in which no mechanism was specified in the record. Does not include falls of undetermined intent.

Expectations for Recovery

About 90% of concussions heal within days or weeks when you follow a progressive return to activity guided by a healthcare professional.



Source: DVBIC

PTSD vs TBI

Overlapping Symptoms

Possible Symptoms of TBI

- headaches
- dizziness/balance problems
- nausea
- sensitivity to light and sound
- vision changes
- impulsivity

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

Possible Symptoms of PTSD

- on high alert
- startled easily
- fearfulness
- flashbacks
- nightmares
- guilty feelings
- avoidance
- numbness
- self-destructive behavior

Source: DVBIC

Recovery Complications: Multiple Concussions



- Symptoms may be more severe with each additional concussion
- Each additional concussion may take longer to resolve

Prevention



- 2 pronged approach:
 - Prevent the causal event from happening
 - Take steps to lessen the impact if event occurs

Prevention: Review of Causal Events



- Top 4 events:
 - Falls
 - Struck by or against an object
 - Motor vehicle accidents
 - Assault

If An Injury Occurs



- See a health care professional ASAP after an injury.
 - Concussion screening tool similar to MACE 2
- Rest, rest, rest!
 - 24 hour rest prescribed even if no diagnosis
 - Remember, most people recover fully and quickly.
- Resume normal activities gradually under the advice of your health care provider.
- Take precautions to prevent another injury.

Treatment: Active Duty (Ex. San Diego)



1. Primary Care

- Most patients recover fully under primary care

2. Naval Medical Center San Diego

- Same services as Intrepid Spirit at Camp Pendleton and NICOE
- Fast Track program

3. NMCSD may refer to Intensive Outpatient Program at Intrepid Spirit Camp Pendleton (aka ACHIEVE)

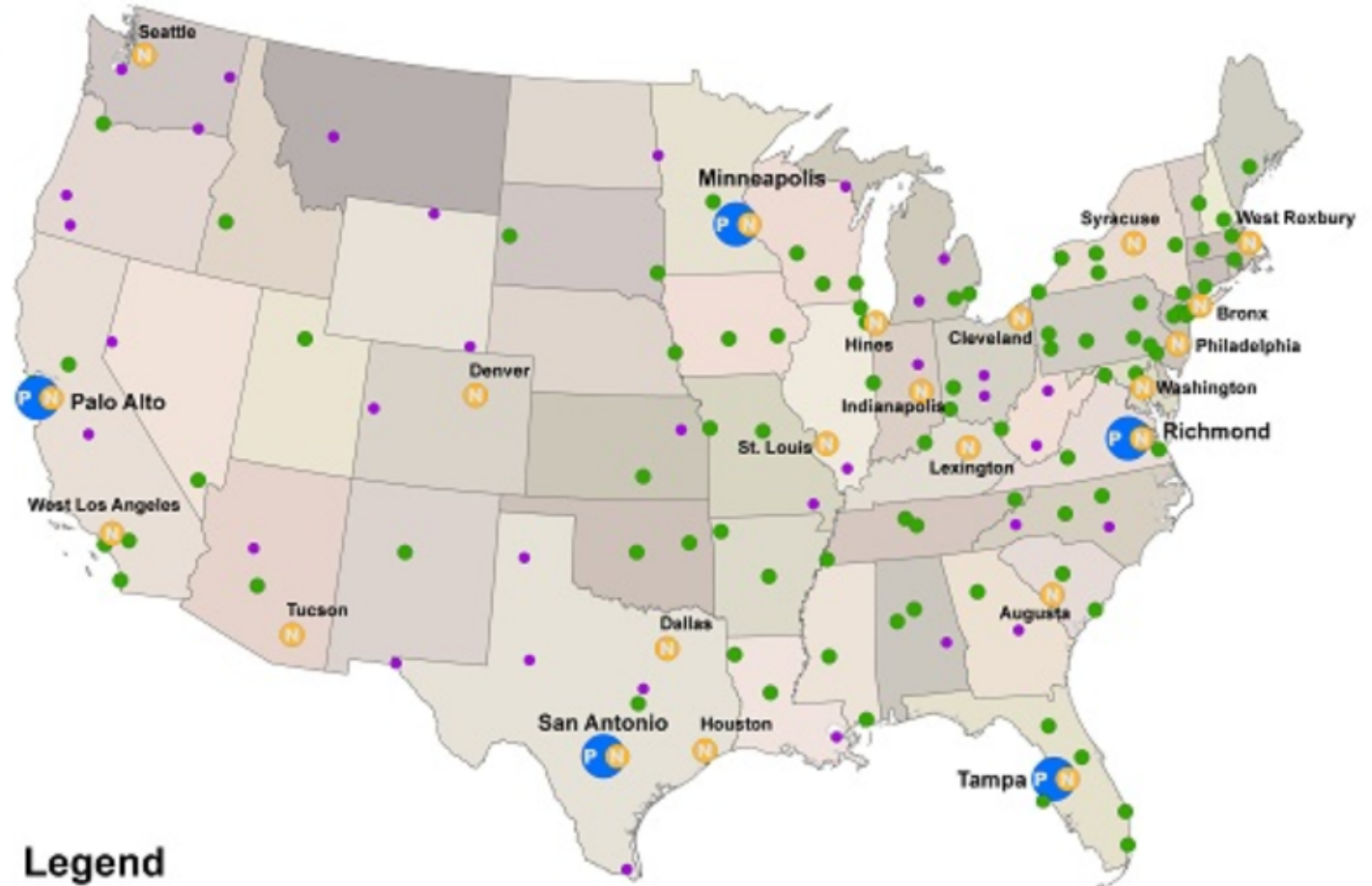
- Main differences-TAD & group sessions

Treatment: Veterans



- “VA Polytrauma/TBI System of Care is an integrated network of specialized rehabilitation programs dedicated to serving Veterans and Service Members with both combat and civilian related TBI and polytrauma.” (Source: Linda Picon, DVBIC VA Senior Consultant)
- 5 polytrauma rehab centers (DVBIC VA Sites)
- 23 national rehabilitation programs
- Full range of inpatient and outpatient programs
- TBI managed as a chronic condition
- Treatment location determined by closest to home + necessary expertise
- VA Liaisons assigned to MTFs <https://www.oefoif.va.gov/valiaisons.asp>

VHA Polytrauma/TBI System of Care



Legend

- Polytrauma Rehabilitation Center
- Polytrauma Network Site
- Polytrauma Support Clinic Team
- Polytrauma Point Of Contact

Source: https://www.polytrauma.va.gov/facility_locations.asp?isFlash=1

Vet Centers



- Community-based counseling centers
 - Social and psychological services
 - Professional readjustment counseling
 - Individual, group, marriage, and family counseling
 - Referrals
 - Staff are prepared to discuss the tragedies of war, loss, grief and transition after trauma

- Who qualifies:
 - Combat veterans, active duty service members, including National Guard and Reserve components, and their families

Vet Center Statistics



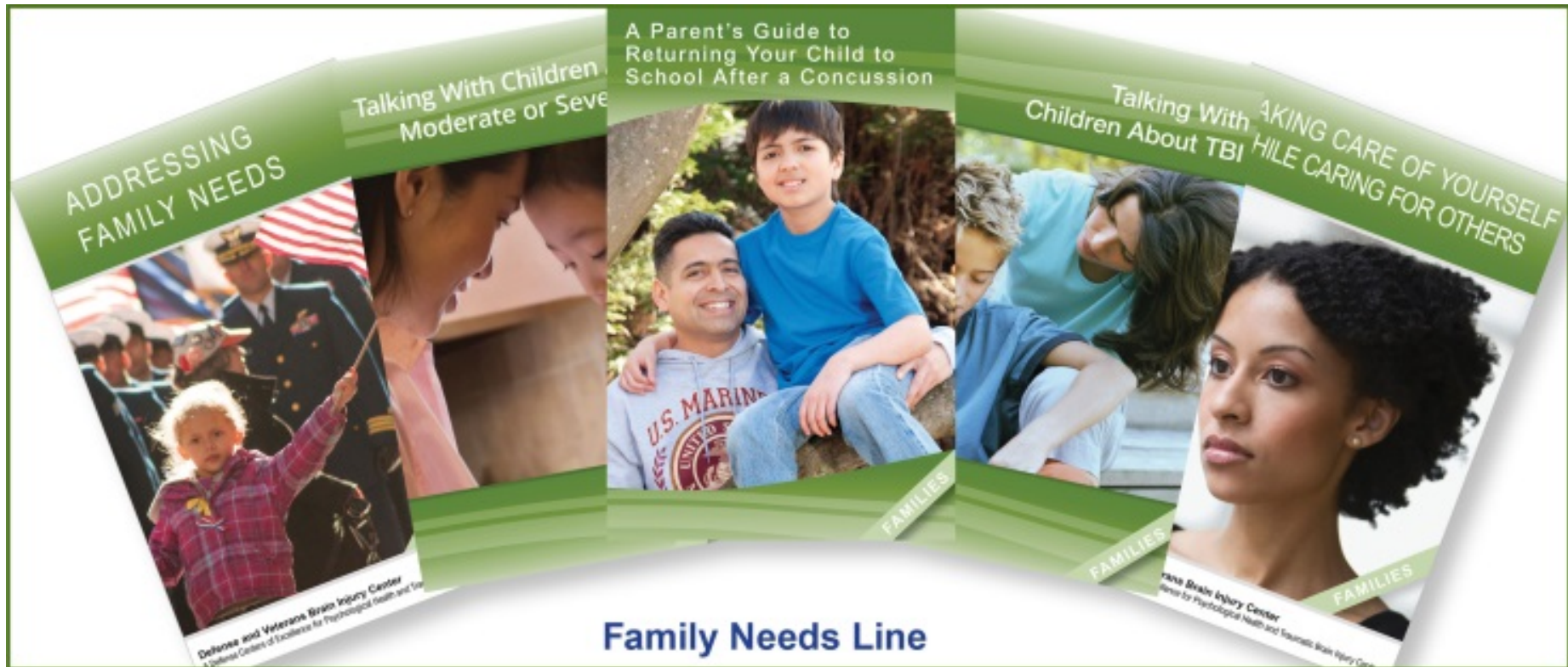
- 298,576 Veterans, active duty service members and their families received readjustment counseling
- 300 Vet Centers
- 1.9 millions visits in 2018

National Center for Excellence in PTSD Managed by Veterans Administration



- World's leading research and educational center of excellence on PTSD and traumatic stress
- PTSD is a mental health problem that some people develop after experiencing or witnessing a life-threatening event, like combat, a natural disaster, a car accident, or sexual assault
- Symptoms can be upsetting memories, feel on edge, or have trouble sleeping after this type of event. If symptoms last more than a few months, it may be PTSD
- There are effective treatments
- www.ptsd.va.gov for more information and treatment comparison chart

Family Resources-DVBIC Website



Source: DVBIC

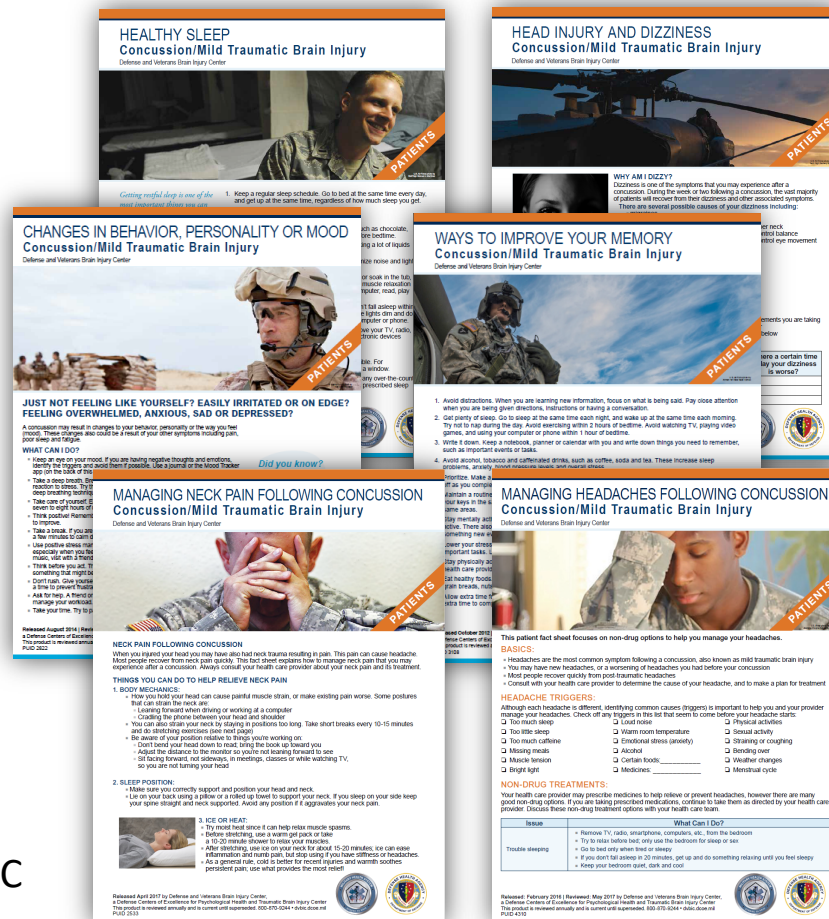
Patient Education



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

<https://dvbic.dcoe.mil>

Source: DVBIC



What is A Head for the Future



- DVBIC educational initiative launched in March 2015
- Signs, symptoms and treatment of TBIs **diagnosed in non-deployed settings**
- Importance of **preventing brain injuries** at home
- <https://dvbic.dcoe.mil/aheadforthefuture>

AHEAD FOR THE
FUTURE



Source: A Head
for the Future

March Is Brain Injury Awareness Month



Source: DVBIC

More Information



- Defense and Veterans Brain Injury Center
 - <https://dvbic.dcoe.mil/>

- Air Force Center of Excellence for Medical Multimedia (CEMM)
 - <https://www.cemmlibrary.org/category/traumatic-brain-injury>
 - <https://tbi.cemmlibrary.org/Interactive-Brain/Interactive-Brain>

- CDC
 - <https://www.cdc.gov/traumaticbraininjury/index.html>

Thank You!