Polytrauma and Acquired Brain Injury

Harriet Katz Zeiner, PhD
CRC/TBI Inpatient Unit- 7D
Polytrauma Rehabilitation Center
PAVAHCS

Some of the Clinical Presentation comes from CME course:

VHI Traumatic Brain Injury

Available in booklet form and on the Web at:

http://vaww.ees.aac.va.gov

or

http://www.va.gov/vhi

- While serving in Operation Iraqi Freedom and Enduring Freedom, military service members are sustaining multiple severe injuries as a result of explosions and blasts.

- Improvised explosive devices, blasts, landmines and fragments account for 65 percent of combat injuries
- (Peake JB, N Engl J Med 2005 jan 20, 352 (3):219-222)

Of these injured military personnel, 60 percent have some degree of traumatic brain injury

http://www.dvbic.org

Issues for Brain Injured Active Duty :

Problems in memory
Problems in attention
Problems in problem solving
Problems in social appropriateness
Problems in organization
Problems in fatigue
Slowed speed of information processing
Anger outbursts

What Did BI Do to Patients?

- Unable to utilize the medical system as it was constituted.
- Difficulty in maintaining social roles, marriages
- Difficulty holding jobs
- Difficulty in school (vocational/college)

The four current Traumatic Brain Injury Centers within the VA had already treated a majority of the severely combat injured requiring inpatient rehabilitation

Since Desert Storm (Iraq 1) 1992

The VA reorganized the TBI lead centers Polytrauma Rehabilitation Centers , dividing the USA into 4 geographical zones

- **Palo Alto VAHCS**
- **Maguire VAMC, Richmond Va.**
- **James Haley VAMC, Tampa Fla.**
- **Minneapolis VAMC, Minneapolis MN**

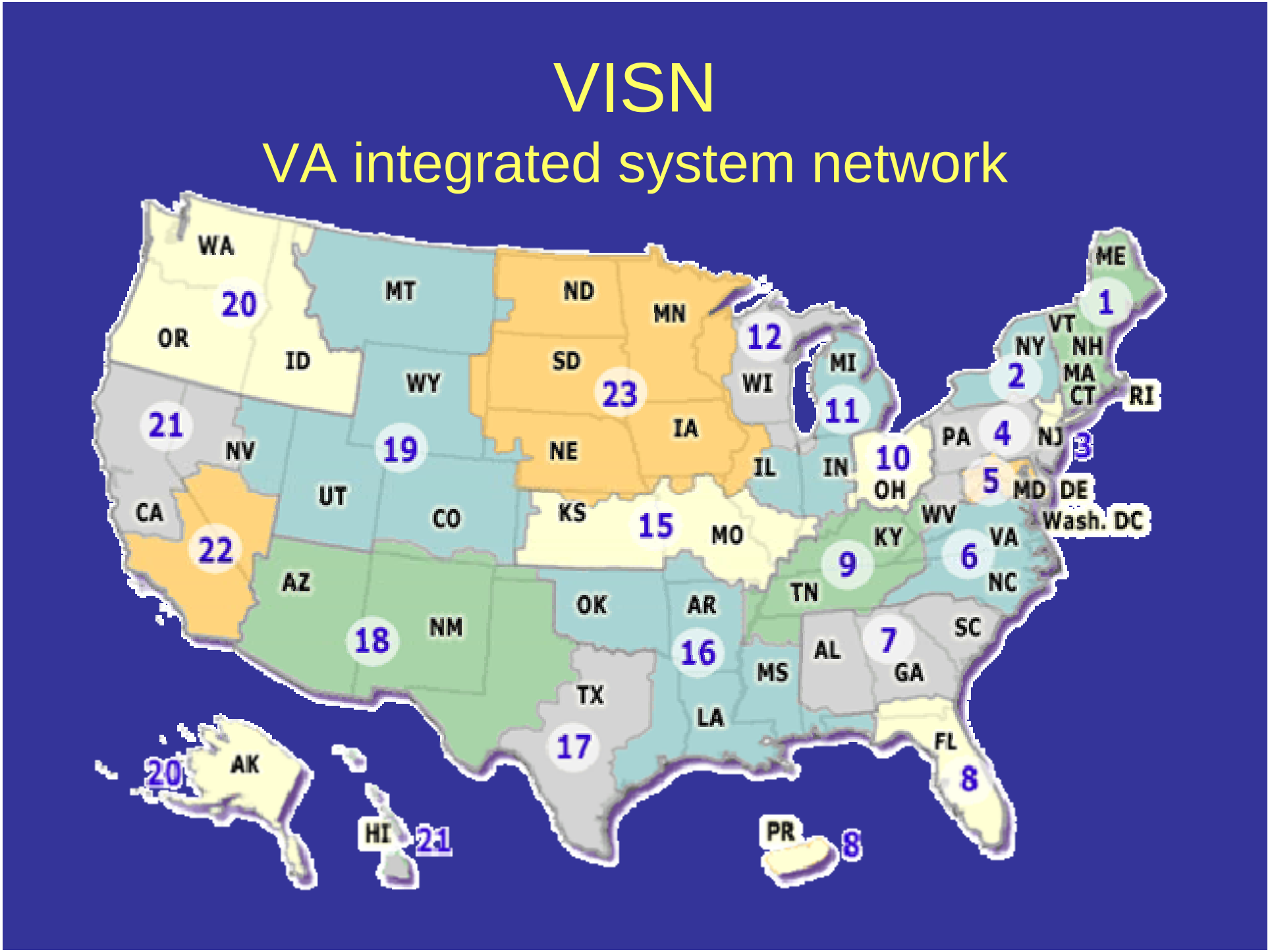
Polytrauma Network Sites

Each PNS Team consists of:

- Physiarist
- Neuropsychologist
- Occupational Therapist
- Case Manager
- Social Worker
- Physical Therapist
- Speech Pathologist
- Prosthetist

VISN

VA integrated system network



The Mission of the Polytrauma Center

- Provide comprehensive inpatient rehabilitation services for individuals with complex physical and mental health sequelae of severe and disabling trauma and provide support to their families.

- Intensive case management is essential to coordinate complex components of care for polytrauma patients and their families

- Coordination of care from combat theater to acute hospitalization to acute rehabilitation to his/her home community ultimately

  MUST OCCUR SEAMLESSLY

- The treatment of brain injury sequelae needs to occur before or in conjunction with rehabilitation of other disabling conditions.

- Scope of services to include inpatient, transitional, and outpatient rehabilitation as well as community re-entry tailored to the individual pattern of impairment sustained in the trauma, as well as management of associated conditions through consultation

- All levels of injury are included (Rancho Los Amigos Cognitive Levels 1-8)

Admission Criteria

- Individual with polytrauma is an eligible veteran or active duty military service member
- Who has sustained multiple physical, cognitive and/or emotional impairments secondary to trauma
- Who has the potential to benefit from inpt, opt, transitional community re-entry
- Or, the individual requires an initial comprehensive rehabilitation evaluation and care plan (disposition indirectly included)

IED Mechanisms of Injury

- 1. Dynamic pressure wave
- 2. Shrapnel
- 3. Acceleration / Deacceleration injury from hitting objects
- 4. Crush injuries from collapsing buildings

Polytrauma Sequelae

Auditory-TM rupture, ossicular disruption, cochlear damage, foreign body

Eye, Orbit, Face-perforated globe, foreign body, air embolism, fractures

Respiratory-blast lung, hemothorax, pneumothorax, pulmonary contusion and hemorrhage, A-V fistulas (source of embolism), airway epithelial damage, aspiration pneumonitis, sepsis

- Digestive- Bowel perforation, hemorrhage, ruptured liver or spleen, sepsis, mesenteric ischemia from air embolism

- Circulatory- Cardiac contusion, myocardial infarction from air embolism, shock, vasovagal hypertension, peripheral vascular injury, air embolism induced injury

- CNS injury- Concussion, closed and open brain injury, stroke, spinal cord injury, air embolism induced injury, anoxia, hypoxia

- Renal injury- Renal contusion, laceration, acute renal failure due to rhabdomyolysis, hypotension, and hypovolemia

- Extremity injury- Traumatic amputation, fractures, crush injuries, compartment syndrome, burns , cuts, lacerations, acute arterial occlusion, air embolism induced injury

Who Are The Obviously Wounded?

- 18-25 age group
  - Active duty Army
  - Marines
- 35-45 age group
  - National Guard
  - National Reserve

20% are women

- They are the veterans of the future – they often become vets during their inpatient treatment

Effects of Military vs Civilian Culture

- 1. Civil rights, privacy issues
- 2. Ecological validity of military system
- 3. Decisional capacity determinations
- 4. Attitude toward war and injury, return to service
- 5. VA regarded as “civilian”- They know their way around the military system. They are clueless about the VA (SC, C&P).

They are in the early stages of adult development.

- Issues of late adolescence- (separation, anger, appearance, jewelry, body piercing, make-up, clothes- in VA setting)
- First job, beginning job skills
- Worried about appearance, “date-ability”- developmental task is to find a partner

Problems for women in the military:

Pregnancy
Family with children
Vocation (MOS)
Friendly Fire Issues:
Sexual Harassment
Rape

Problems for women who sustain brain injury in the military

Seen as insubordinate

Seen as lazy

Seen as disorganized

Seen as passive

Frequently demoted or threatened with court martial- offered separation as an alternative

Problems for women who sustain brain injury in the military

Several were offered separation for pregnancy- no mention of brain injury

C&P affected

No service connection for brain injury

Issues for Women Warriors on Polytrauma:

Too open and vulnerable for civilian world

Don’t read social or sexual cues

Give out wrong sexual cues –wrong means “unintended cues”

Gumballing- saying what you think

Issues for Women Warriors on Polytrauma

Failure to use birth control

Failure to self-protect during sex- VD, HIV

No memory of pregnancy

No memory of infant daughter's first milestones

Issues for Women Warriors on Polytrauma

Custody battles in divorce

Visitation versus care of children

Supervision of children and household

Driving and being dependent

Financial dependence

Being competent to make decisions over medical needs, legal needs, personal needs

- Women Warriors are different in the abilities they bring to war- they are not simply “little men”
- Women Warriors are different in how they are treated in the military after they sustain an unrecognized head injury
- Women Warriors have different social issues and place in society, and their head injuries affect them in their roles and in their place in the family and society.

If the War Ended Today:

- 18,000 WIA
- 65% of these are IED = 11,700
- 60% of IED injuries involve head injuries = 7200
- 340 combat wounded polytrauma patients have been treated at the 4 PRCs (1000 active duty “supporting”)

  Currently, 6,680 people with head injury have been discharged home- and don’t know why they think, feel and behave differently

* These numbers are from March 2006- Why

- When Large Systems Confront Change, There Are Different Strategies:

- It is a problem for us at the VA that the DoD and the VA are confronting change differently- we have different pressures.

- The DoD, as a security institution chooses to deal with the number of wounded as both a political and a security issue:

  Manage information-

- The VA as a health care institution has chosen to frame the issue in public health terms: VA response to a new health care crisis

- 6680 people with undiagnosed mild TBI have been sent home.
- Mild TBI refers to the time period of unconsciousness, not to the effects on the person's life.
- Mild TBI can have MAJOR impact on marriages, jobs, relationships, children and roles
- This is not a political issue– It is a major health care problem in America, which the VA is charged to deal with.

Occult (Hidden) Brain Injury

- How many patients you find depends on whether or not you are looking.
- Degree to which you look is the degree to which you find.
- If your facility uses PTSD/BI screen, you will find them in the outpatient clinics- at a large VA the rate is 6-10 new cases per month.

Occult (Hidden) Brain Injury

- Half the patients with head injury will be blast exposed- half will be the result of motor vehicle accidents.

- Look for an unusually large number of motor vehicle accidents with head injuries in recently returned Iraq/Afghanistan returnees- within 1 month of discharge and return home.

- The army reports a 70% increase in motor vehicle accidents.

Characteristics of Mild Brain Injury that Your Departments Will Have To Deal With.

Inefficient memory- especially for appointments, episodic events

1. 3 missed appointments, clinics drop them,
2. Need for memory prostheses and training (often too slow)
3. Can't come back later- they will disappear, solve the issue now
4. Allow tape recording of information
5. If possible allow sessions twice as long to cover half the material.

Characteristics of Mild Brain Injury that Your Departments Will Have To Deal With.

Slowed information processing-

1. They need written back-up,
2. Repetition,
3. Allow tape recording of information-
4. Someone guiding them through the process.
5. More dependence on case managers, PCP
6. Strongly consider a Point of Contact Person in your department to handle OIF/OEF Pts with TBI

Systemic Changes

- Loss of “I just do windows” mentality- staff needs cross training- becomes not multidisciplinary but transdisciplinary (more interesting for staff, more challenges for admin).
- Greater number of competencies required- increases educational needs for staff.

Training of Staff

Not just clinical staff- all staff needs training in:

- Polytrauma
- TBI (Traumatic Brain Injury)
- Issues of late Adolescence
- Changed Mission of the VA around polytrauma- that we treat patients and their families

Systemic Changes

- Development of two tier-system
- Not of treatments, but of priority for treatment, equipment and support of family systems
- Subversive nature of this re-organization-potential to change the entire American health care system