

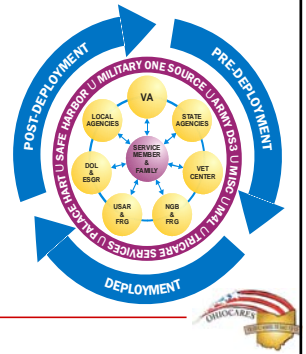
## Deployment Mental Health During the Global War on Terror

Center for Health Care Research and Policy  
March 16, 2007

Joseph R. Calabrese, MD  
University Hospitals Case Medical Center  
Case Western Reserve University  
Joseph.calabrese@UHhospitals.org

## Birth of a New Mental Health Subspecialty

- **Past Focus** = PTSD as a reaction to combat/deployment
- **Current Focus** = mental health needs during the full deployment cycle



## This presentation will address:

- ♦ Epidemiology and health services relevant to deployment mental health
- ♦ Structure, function, and history of the Department of Defense
- ♦ Risk and resilience to PTSD
- ♦ The mental health coverage for the Ohio National Guard and Reserve

## Psychiatric Costs of War

- ♦ Sending men and women to war results in increased rates of PTSD.
  - ♦ What's unclear is why the majority of soldiers who experience combat do not develop PTSD.
- ♦ Whether or not rates of other serious mental illnesses increase in response to combat is unclear.

Friedman M. NEJM. 2005. Wolfe et al. J Consult Clin Psychol. 1999.

## Risk and Resilience Factors

- ♦ Although 90% of citizens in the US are exposed to at least one traumatic event during their lives, the lifetime prevalence of PTSD is only 6.8%.
  - ♦ Torture and sexual assault result in the highest rates of chronic PTSD.
- ♦ Factors can be personal attributes and environmental factors, and both can be biological and psychosocial.

Kessler et al. Arch Gen Psychiatry. NCS-R 2005.

## Gender and PTSD

- ♦ Men are more likely to be physically assaulted, women sexually assaulted.
- ♦ Compared to men, women are at twice the risk for PTSD following exposure to trauma.
  - ♦ 13% of women vs. 6% of men
  - ♦ Higher rates not due to more frequent exposure to rape

Breslau et al. Vulnerability to Assaultive Violence: Further Specification of Sex Differences in PTSD. Psychol Med 1999;29:813-21.

### PTSD Rates in General Population, Vietnam, and Iraq

	<u>Lifetime</u>	<u>12-Mo</u>	
NCS-R 2005	6.8	3.5	} General Population
CDC VES 1988	14.7	2.2	
NVRS 1990	30.9	15.2	} Vietnam War
AVVHS 1998		11.4	
Dohrenwend 2006	18.7	9.1	
Hoge Iraq 2004		17	} Iraq & Afghanistan
Afghanistan 2004		11	
Iraq 2006		19	
Afghanistan 2006		11	

CDC-Center for Dis. Control Vietnam Exper. Study; NVRS- Vietnam Veterans Readj. Study; AVVHS-Australian Health Survey. Kessler et al 2005, Hoge et al 2004, 2005, 2006.

### Occupational Burden of Mental Disorders in the Active Duty

- ◆ Among 1.4 million active duty service members, 6-10% receive mental health treatment.
- ◆ Mental disorders are the leading cause of hospitalization, accounting for more than injuries or musculoskeletal disorders\*.

Hoge et al AJP. 2002;159:1576-1583.

\*Hospitalizations due to pregnancy not included.

### Mediators of the Impact of Mental Disorders in the Military

- ◆ Primary Mediators:
  - ◆ Severity and chronicity
- ◆ Secondary Mediators:
  - ◆ Legal complications
  - ◆ Alcohol/drug related problems
  - ◆ Going AWOL

Hoge et al AJP. 2005;162:585-591.

### Effect of Mental Disorders on 'Preserving the Force'

- ◆ Mental disorders are strongly correlated with attrition from the US military.
- ◆ Retirements after medical vs. psychiatric hospitalizations: **8.6%** vs. **13%**
- ◆ **50%** of service members hospitalized for a mental disorder retire from the military within 6 months, compared to only **12%** for other illness categories.

Hoge et al AJP. 2002;159:1576-1583.

### Causes of Retirement Among 13,802 Active Duty Army After Hospitalization

- ◆ Most common reasons for hospitalization
  - ◆ Personality dis.: **OR: 55** [36-84]
  - ◆ Alcohol/Drug Rehabilitation Failure
    - ◆ **OR: 38** [20-75]
  - ◆ Medical condition prior to service
    - ◆ **OR: 20** [14-28]

Hoge et al AJP. 2002;159:1576-1583. Med hosp – 8.6%. Psych hosp – 13%

### “Structure, Function, and History of the US Military”

## Total Armed Service Strength Approved by Congress 12/31/03

- ◆ 4 military branches, each with Regular (1.4 million) and Reserve Components (1 million)
    - ◆ Army 1,070,000 (Guard & Reserve)
    - ◆ Navy 553,000 (Reserve only)
    - ◆ Marine Corps 465,000 (Reserves only)
    - ◆ Air Force 217,000 (Guard and Reserve)
- TOTAL 2,355,800**

[www.defenselink.mil](http://www.defenselink.mil). End strengths set by the US Congress.  
 Military = Regular Duty + Reserve component (Guard and Reserve)

## Dates and Durations of US Military Operations

- ◆ **Global War on Terror (15 operations so far)**
  - ◆ OEF: 2001 – ongoing; OIF: 2003 - ongoing
- ◆ **Post Cold War - 58 Operations**
  - ◆ Desert Storm (Persian Gulf War): 90'–92'
- ◆ **Cold War Era (46'-91') - 60 Operations**
  - ◆ Cuban Missile Crisis: 62'–63'
  - ◆ Vietnam War: 62'–73'
  - ◆ Korean War: 50'–53'
- ◆ **Early 20<sup>th</sup> Century - 54 Operations**
  - ◆ WW II: 41' – 45'
  - ◆ WW I: 17'–18'

Global Security.org. Accessed Sept. 2006.

## Differences Between the Global War on Terror (GWOT) and Past Conventional Wars

- ◆ GWOT has numerous theaters.
- ◆ GWOT is heavily reliant on ground forces (Army & Marines).

## Changes in the Military Since Vietnam War

- ◆ With the end of the Vietnam War in 1973, the Selective Service Act of 1948 was repealed.
- ◆ The size of the military had decreased to only 750,000 at the time of Desert Storm.
  - ◆ The military totaled 8.3 million during World War II
- ◆ With the exception of the Korean War and the Vietnam War, the US Military has relied on voluntary enlistment.

## Trends in Reserve Component Deployment - 1,772 more deployed last week -

	<u>June 2005</u>	<u>Sept. 06</u>	<u>Jan 07</u>
◆ Army Reserve	<b>135,968</b>	<b>88,323</b>	<b>76,486</b>
◆ Army Guard	<b>219,266</b>		
◆ Air Reserve	30,743	7,136	5,459
◆ Air Guard	36,970		
◆ Marine Corps Res	<b>35,127</b>	<b>7,363</b>	<b>5,548</b>
◆ Navy Reserve	26,461	6,981	4,907
◆ Coast Guard Res	8,869	317	358
<b>TOTAL ACTIVE DUTY</b>	<b>493,404</b>	<b>110,120</b>	<b>92,758</b>

Reserve Components = 2 Guard and 5 Reserve Branches  
 Orange - ground forces. A roster of all activated Guard and Reserve can be found at <http://www.defenselink.mil/news/Jan2007/d20070110ngr.pdf>

## Increasing Diversity in the Guard and Reserve and Relationship to PTSD

- ◆ Greater ethnic diversity
  - ◆ 24% in Air Force to 40% in the Army
- ◆ Great gender diversity (females 16%)
  - ◆ Persian Gulf War (~1991) constituted the first military deployment of women
- ◆ More married soldiers - 50%
- ◆ Greater educational diversity
  - ◆ 95% of soldiers have HS diplomas or GEDs

Iraqi War Clinician Guide, 2004.

## Differences in Deployments

### Regular Duty

- They leave with people they trained with.
- They leave families behind on well-established military bases.
- As a result, the psychosocial impact of deployment may be lessened.

### Guard & Reserve

- Disruption in civilian employment with decreased salary.
- Can be assigned to units in which they know no personnel.
- Families left the support of a military base.

Iraq War Clinician Guide, 2004.

## Enhanced Tactical Awareness Associated with Guerilla Warfare

- Constant risk of self harm (IEDs) requires enhanced situational awareness.
  - the normal template upon which PTSD is layered?
- Premature use of force results in the death of civilians, but delay can result in your own demise.
  - There have been 655,000 excess Iraqi deaths since 2003, 2-5% of the population.

Jones FD. Psychiatric Principles of Future Warfare. 1995, pages 113-132.  
Burnham G, Lafta R, Doocy S, Roberts L: Lancet 2006;368:1421-28.

## "Risk and Resilience To PTSD"

### Risk Factors for PTSD from the North Vietnam Veterans Study n = 1198 male Vietnam veterans

1. Lack of support from family and friends
2. Combat experience
3. Hispanic ethnicity
4. Societal rejection at homecoming
5. Childhood abuse (Bremner JD et al 1993)
6. Participation in abusive violence
7. Family Instability

Fontana & Rosenheck. VA Northeast Program Evaluation Center. Nat'l Center for PTSD. West Haven VA. J Nerv Ment Dis. 1994.

## Ethnocultural Risk Factors for PTSD

1. Higher rates of PTSD in Hispanics and African Americans, and lower rates in the Japanese.
2. Racial stereotyping and unfair treatment
3. Fighting a non-white enemy on behalf of a country they consider racist.
4. The Vietnamese often reminded soldiers of color of their own non-white status.

NVRS. Marsella et al NCP Clin Quart. 1(2):9-10 (Fall 1990). Friedman et al. Hawaii VV Project 2004;192:42-50. Ortega & Rosenheck. Am J Psychiatry 2000;157:615-9. Ruef et al. Cultur Divers Ethnic Minor Psychol 2000;6:235-51.

## Landmark NEJM Paper from Walter Reed by Hoge et al. NEJM 2004.

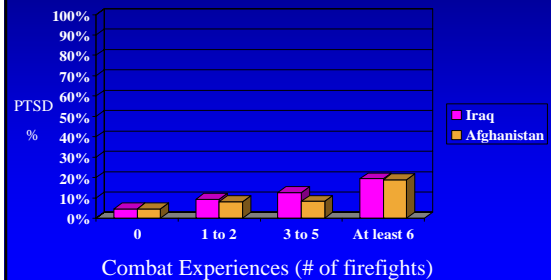
- The first early, screening assessment of the prevalence of war-related psychiatric disorders conducted during a war.
- There were baseline pre-deployment data (5% rates of PTSD) against which to evaluate psychiatric problems that developed after deployment.
- Col. Hoge showed that the perception of stigma deterred active duty personnel from seeking mental health.

### PTSD Rates and Combat - the "dose response curve" -

PTSD (%)		Combat Experience
<u>Iraq</u>	<u>Afghanistan</u>	<u>(# firefights)</u>
4.5	4.5	0
9.3	8.2	1-2
12.7	8.3	3-5
19.3	18.9	at least 6

Hoge et al. New Engl. J. Med 2004;351(1):13-22.  
5%=baseline point prevalence in 2,414 Army service members prior to deployment to Iraq. \* P<.05

### Majority of Those Experiencing Combat Did Not Develop PTSD in the Short-term



### Types of Combat Experiences Leading to High Degrees of Tactical Awareness

- ♦ The majority have:
  - ♦ received small arms fire (94%)
  - ♦ known someone injured or killed (86%)
  - ♦ directed fire at the enemy (77%)
  - ♦ seen dead or seriously injured Americans (77%)
  - ♦ handled or uncovered human remains (51%)
  - ♦ been responsible for the death of an enemy combatant (48%)

Hoge et al. New Engl. J. Med 2004;351(1):13-22.

### Clinical Course of Combat PTSD and Substance Use

- ♦ Symptoms occur at time of combat and increase rapidly during the first few years.
  - ♦ **Hyperarousal starts 1<sup>st</sup>** (~tactical or situational awareness)
    - ♦ *Difficulty with sleep, anger, concentrating, hypervigilance, and startle response*
  - ♦ **Avoidant/numbing appears 2<sup>nd</sup>**
    - ♦ Avoids things associated with trauma, difficulty with recall, generally avoidant, unable to have loving feelings, sense of doom regarding future
  - ♦ **Trauma re-experienced - occurs last**
    - ♦ *Intrusive recollections, flashbacks, dreams, etc*

Bremner JD, et al. Am J Psychiatry. 1996;153:369-75.

### Clinical Course (continued)

- ♦ Onset of substance use is early, associated with the onset of hyperarousal, and parallels symptom-severity
  - ♦ ETOH, THC, heroin, and BZPs make symptoms better, cocaine worsens hyperarousal
- ♦ Symptoms plateau within a few years, then disorder becomes chronic and unremitting.

Bremner et al. Am J Psychiatry. 1996;153:369-75.

### PTSD and Excess Mortality Among Vietnam Veterans 30 Years After Service

- ♦ **All cause mortality HR 2.2** (p<.001)
  - Cardiovascular mortality HR 1.7 (p=.034)
  - Cancer mortality HR 1.9 (p=.018)
  - External mortality HR 2.3 (p=.001)
    - ♦ Motor vehicle accidents, accidental poisoning, suicides, homicides, etc.

Boscarino JA. Ann Epidemiol. 2006 Apr;16(4):248-56.

## “Ohio National Guard and Reserve and Their Mental Health Needs.”

## Health Plans for the US Military

- ♦ **Tricare:** DoD managed health care program for active duty service members, retirees, and their families.
- ♦ **Military OneSource:** 1) A call in social service resource, which includes up to 6 private in-person non-medical counseling sessions with a licensed counselor in local communities. 2) Provided at no cost to all Active Guard and Reserve soldiers regardless of deployment status, as well as dependent family members.

[www.militaryonesource.com](http://www.militaryonesource.com), [www.tricare.com](http://www.tricare.com)

## Summary of DoD Risk and Resilience Project

## Risk and Resilience Factors...

### General Objective

- To create a research infrastructure capable of supporting a series of projects that evaluate the relationships between resilience and risk factors, both cross-sectionally and longitudinally, associated with the development of PTSD and other mental disorders following combat-experience in both VA treatment seekers and non-treatment seekers.

### Project #1: Assessment and Long-term Follow-Up of Service Members in the Ohio National Guard and Reserves - Specific Aims -

1. To study the protective impact of resilience on combat-related posttraumatic psychopathology.
2. To study the effect of combat exposure on the mental health of service members.
3. To study functional outcomes, both-short- and long-term, associated with combat experience.
4. To study the effect of a family psychiatric history of mental illness or substance use disorder on posttraumatic psychopathology.

## Study Procedures

### Enrollment Goal of 3,500

- Assessments administered anytime after enlistment, 90-180 days after each deployment, and then every 12 months for a period approximating 10 years.
- Telephone Survey Primary Sample = 3,000
- In-Person Validation Sub-Sample = 500

## Study Comparison Groups

- Those deployed to OIF (Iraq, Kuwait, or Qatar)
- Those deployed to OEF (Afghanistan)
- Those deployed to other theaters (Bosnia, Turkey, Uzbekistan, Kosovo, on a ship, or other)
- Those deployed domestically
- Those not deployed

## Sites and Investigators

- Department of Psychiatry, University of Toledo (Marijo Tamburrino, MD)
- Department of Epidemiology, University of Michigan (Sandro Galea, MD, PhD)
- Department of Psychiatry, University of Michigan, Ann Arbor VA (Israel Liberzon, MD, PhD)

## Take Home Messages

- ♦ The primary risk factor for PTSD is the # of firefights.
- ♦ Mental illness is probably under-diagnosed in the military.
- ♦ The vast majority of service members experiencing combat don't develop PTSD.
- ♦ The resilience factors that protect against the development of PTSD are largely unknown.