

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

REAL WARRIORS.



REAL BATTLES.



REAL STRENGTH.



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Resilience • Recovery • Reintegration

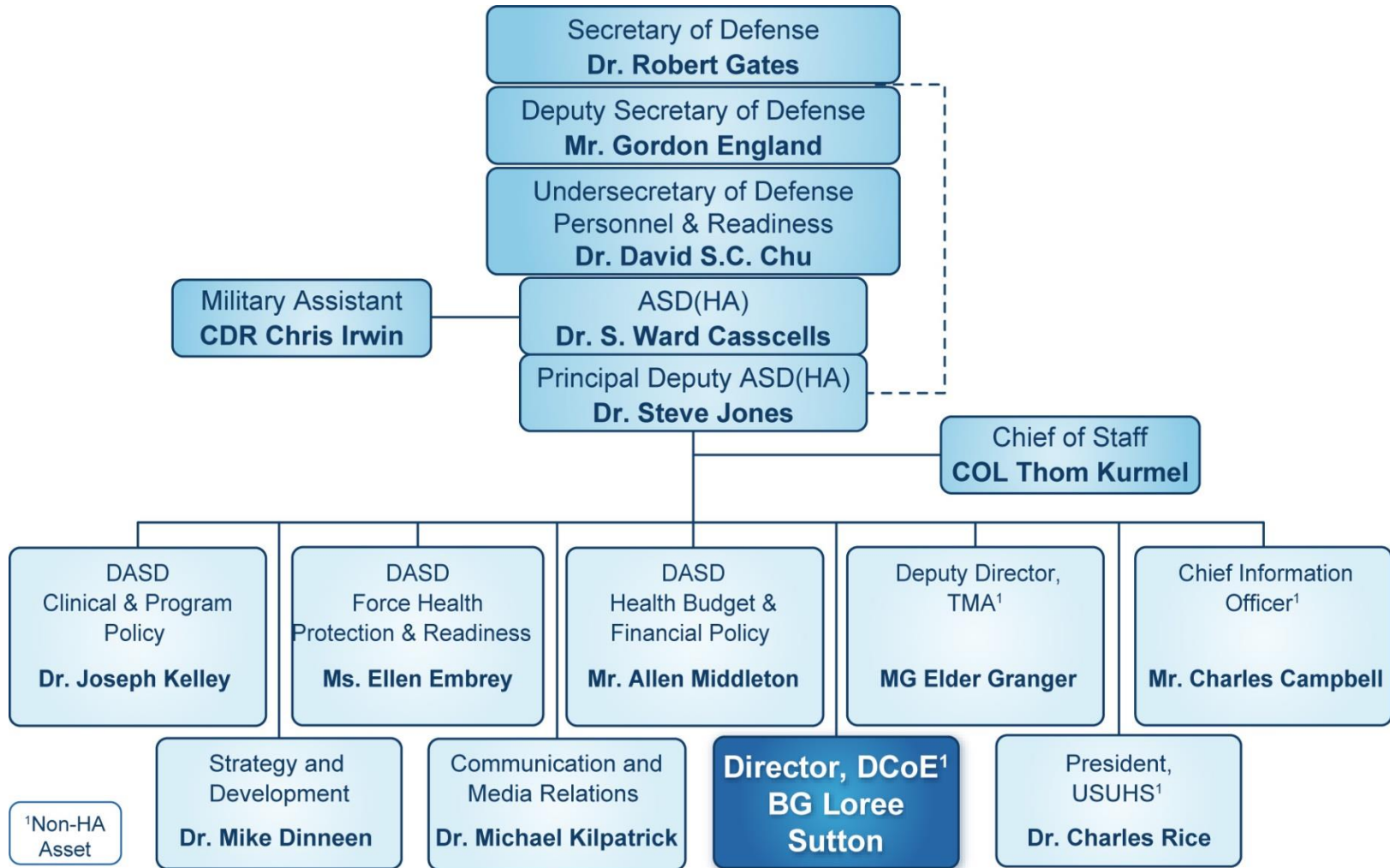
www.dcoe.health.mil



Governance and Authority



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury





DCoE Past, Present, and Future



DEFENSE CENTERS OF EXCELLENCE

	2007				2008				2009			
	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec
Operations	◆ Washington Post Article	◆ Commissions ◆ SOC ◆ DCoE Director		◆ DCoE Doors Open	◆ DCoE Summit I	◆ DCoE POM ◆ DCoE Summit II ◆ NICOE ConOps	◆ All DCoE Directors Onboard ◆ DCoE ConOps ◆ NICOE ConOps	◆ Report to Congress 1624 ◆ Establishment Memo	◆ Manhattan Project Proposal ◆ DCoE Summit III		◆ Megacommunities: Connecting the Dots	◆ NICOE Opens
Resilience				◆ DCoe Interim Website	◆ Helmet Protection	◆ First DCoe Newsletter ◆ DCoe Website Goes Live	◆ Sim Coach Approved ◆ Real Warriors Campaign ◆ Resilience Continuum Model		★ Manhattan Council Established	◆ Catalogue of PH/TBI Training	◆ Resilience Curriculum Incorporated into Service Schools	◆ VA/DoD Consensus Conference on PTSD/TBI Co-morbidity ◆ Guidelines for Delivery of Training
Recovery		◆ Global TBI Training		◆ DoDSER ◆ TBI Clinical Tools		◆ Definition for PH and PTSD Caseness ◆ Respect_Mil PH Site Visits ◆ Training Course for Providers on PH Deployment Issues	★ mTBI CPGs ◆ VA/DoD Depression CPG ★ HBOT Consensus Conference	◆ HBOT RCT	◆ Final Revision of VA/DoD PTSD CPG ◆ Final Revision of VA/DoD Substance Abuse CPG ◆ Clinical Consultation Services to MTFs ◆ Trauma Spectrum EBM Training	◆ Provider Wellness Program		
Reintegration			◆ Federal Partners Priority Working Group			◆ Afterdeployment.org ◆ Brainline.org ◆ Virtual "Psychological Health Island" ◆ America's Heroes at Work Campaign		★ 24/7 Call Center Goes Live ★ DCoe Global VTC - Family Issues ◆ Sim Coach Funding		★ Sesame Workshop DVD on Death and Loss ◆ Sesame Website for Injured Service Members		

LEGEND



Milestone



Request Leadership Involvement





Back Up



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Long-term Consequences of Traumatic Brain Injury Institute of Medicine (IOM) Recommendations



Institute of Medicine Recommendations



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

1. Use the Brief Traumatic Brain Injury Screen and the Military Acute Concussion Evaluation for every soldier who has a history of blast exposure
 - DoD adopted the BTBIS with modifications for TBI screening in PDHA
 - MACE has been deployed to theater and is a key clinical tool recommended in the TBI CPGs
2. Support prospective, longitudinal studies to confirm reports of long-term or latent effects of exposure to blasts
 - DVBIC named as the executive agency for the Congressionally-mandated DoD 15 Year Longitudinal Study of TBI currently underway
3. Support research on animal models of blast-induced neurotrauma
 - DoD animal model studies of the interaction between IED blasts and the neurologic system are being conducted through various programs



Institute of Medicine Recommendations



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

4. Include in the development of the TBI Veterans Health Registry other service members who could provide a valid comparison for the analysis of outcomes
 - DVBIC named as a collaborator on the DVA Registry and is contributing to its development
5. All deployed military personnel undergo predeployment neurocognitive testing, in addition to postdeployment neurocognitive testing of representative samples of military personnel
 - Pre-deployment Neurocognitive Testing utilizing the Automated Neurocognitive Assessment Metric (ANAM) initiated in 2008 per OSD/HA policy
 - A study comparing 5 commercially available computerized neurocognitive test batteries is underway
 - DVBIC completed a post-deployment ANAM study at Ft Bragg on 956 returning service members



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Hyperbaric Oxygen Therapy (HBOT)



HBOT: DCoE Action



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

- HBOT in TBI Consensus Conference, Alexandria, VA, 5-6 Dec 2008
- 60 SMEs from 3 services, VA, academia
- LSU off-label experience, 2 pilot studies underway, 1 beginning soon (SAMMC)—safety and feasibility determined
- Reviewed science, case reports, designed RCT to determine efficacy



HBOT: Study Design



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

- Multi-center, randomized, double blind clinical trial of HBOT in TBI (full spectrum, but power to determine efficacy in chronic, mTBI and PTSD)
- Open label cross-over of sham to treatment after initial evaluation
- Estimate need to enroll 500 subjects
- Evaluate benefit through functional, neurocognitive, and neuroimaging modalities
- Inclusion criteria—screened positive and evaluated by provider/determined to have had TBI and persistent symptoms for 6 months or greater (high specificity)



HBOT: Timeline

Jan – Dec 09



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

Complete study design
(power analysis, final cost
determination) and identify PI

Begin Phase I (initial 150-250
affected SMs; 40 treatments
over 10 weeks)

Complete Phase 2 and
interim analysis

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

IRB approvals and
associate PI/staff
selected and trained

Complete Phase I and
interim analysis

Conduct site selection
(15 – 25 sites)

Begin Phase 2
(150 – 250 SMs)



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

Sesame Street and Virtual Reality



Sesame Workshop: Talk, Listen, Connect



- **Sesame Street: Talk, Listen, Connect**
 - Phase I: Deployments
 - Phase II: Injured Parents / Return Home (April 2008)
 - Phase III: Loss of a Parent (expected May 2009)
- **Purchased 700,000 Two-DVD Kits**
 - Over 300,000 kits distributed
 - Available as free download on iTunes
 - Low-Tech Website: <http://sesameworkshop.org/tlc/>
- **PBS Prime-Time Special in April 2009**
 - Injured Parent (Changes)
- **Advanced flash-based website (Spring 2009)**
 - Activities & Games for Children



POC: CDR Russell Shilling, russell.shilling@tma.osd.mil

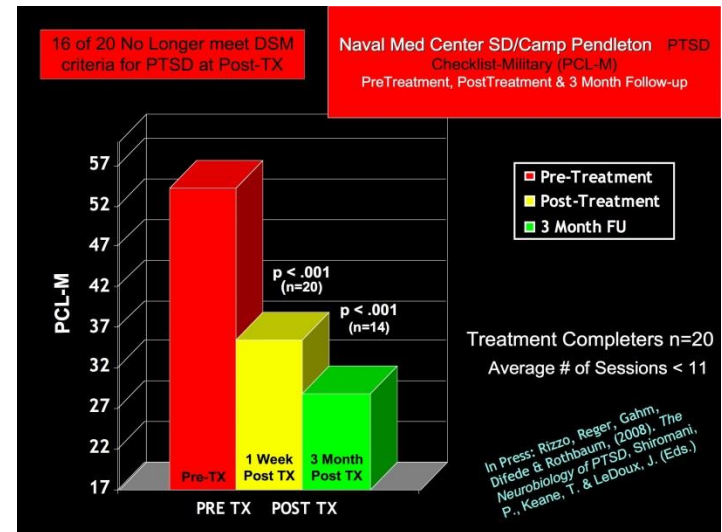


Virtual Reality (VR) Therapy for PTSD



DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

- **Program Initiated By Office of Naval Research (ONR) in 2005**
 - Test sites at Naval Medical Center San Diego & Camp Pendleton Hospital
- **Systems are being purchased by Navy, Air Force, and VA**
 - Positive Transition of Technology
 - Military System Purchased Via Red Cell
- **Additional studies being funded by DCoE, Army, and NIH**
- **Provider Training Being Offered By DCoE Telehealth and Technology Center (T2)**
 - Madigan Army Medical Center



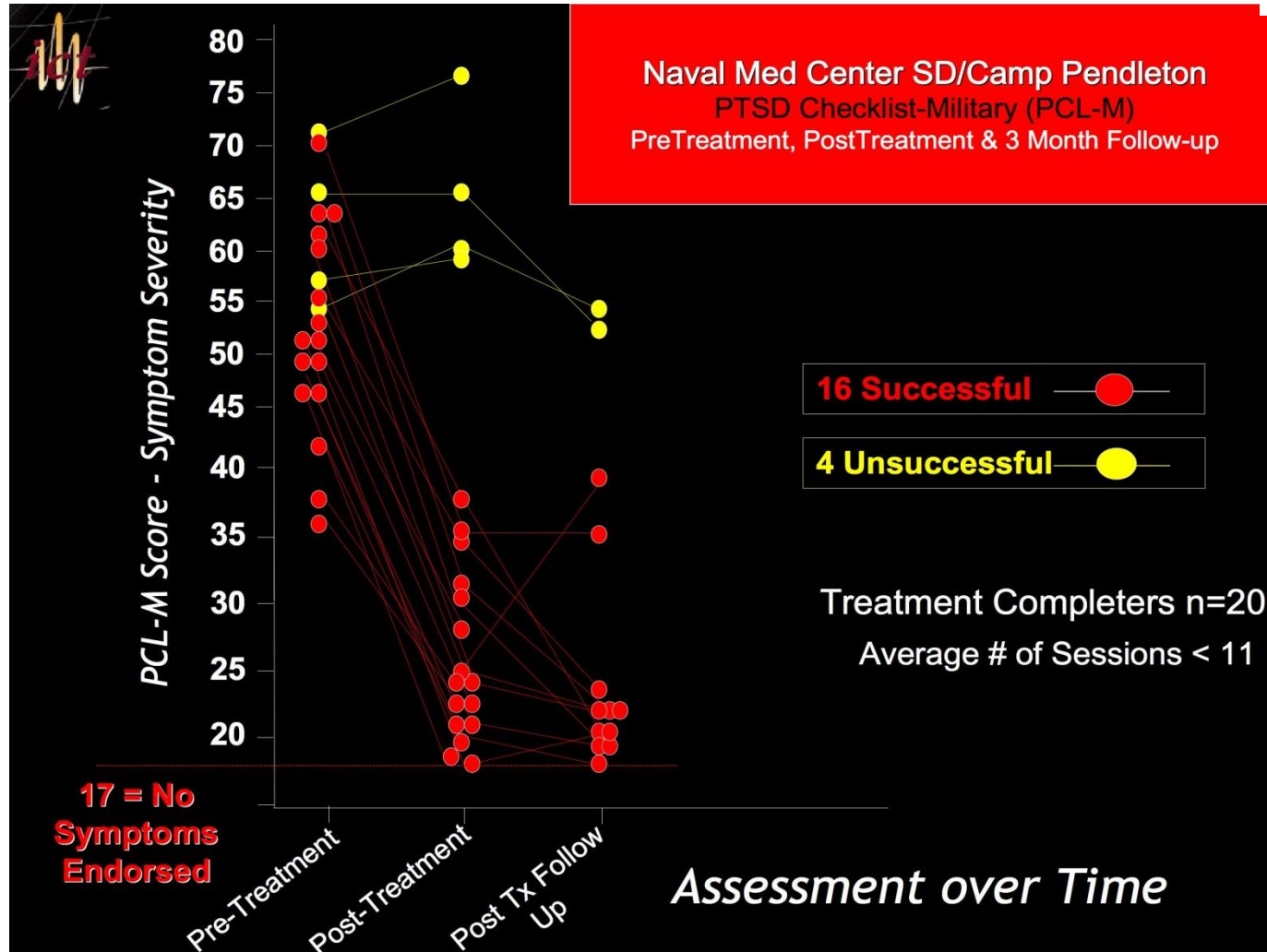
Office of Naval Research Study Data



Virtual Reality (VR) Therapy for PTSD



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury



Office of Naval Research Study Data



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

DCoE Strategic Framework



Our National Challenge



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

DoD's Open
Front Door
for PH / TBI

Next Generation
Solutions for
Today



Cultural
Transformation
through Leadership

Strategy for
Sustainable
Excellence

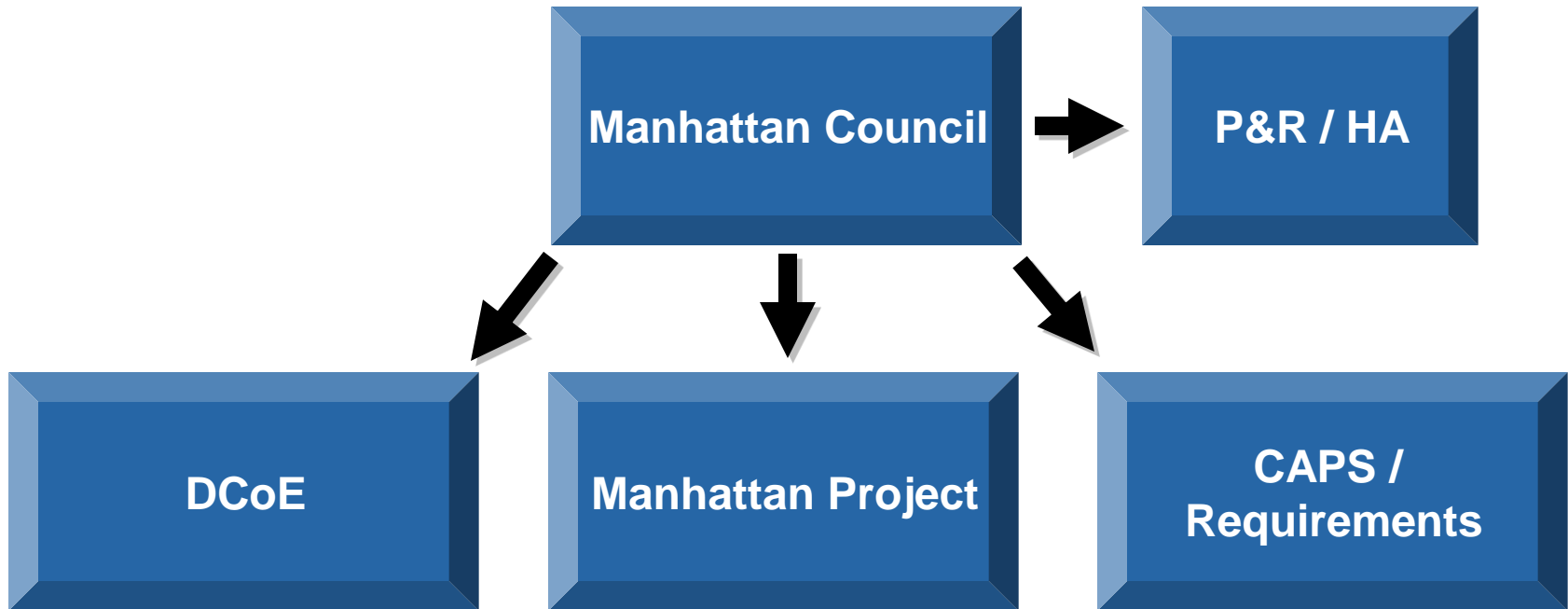
MRAP / Skunkworks / Manhattan Project

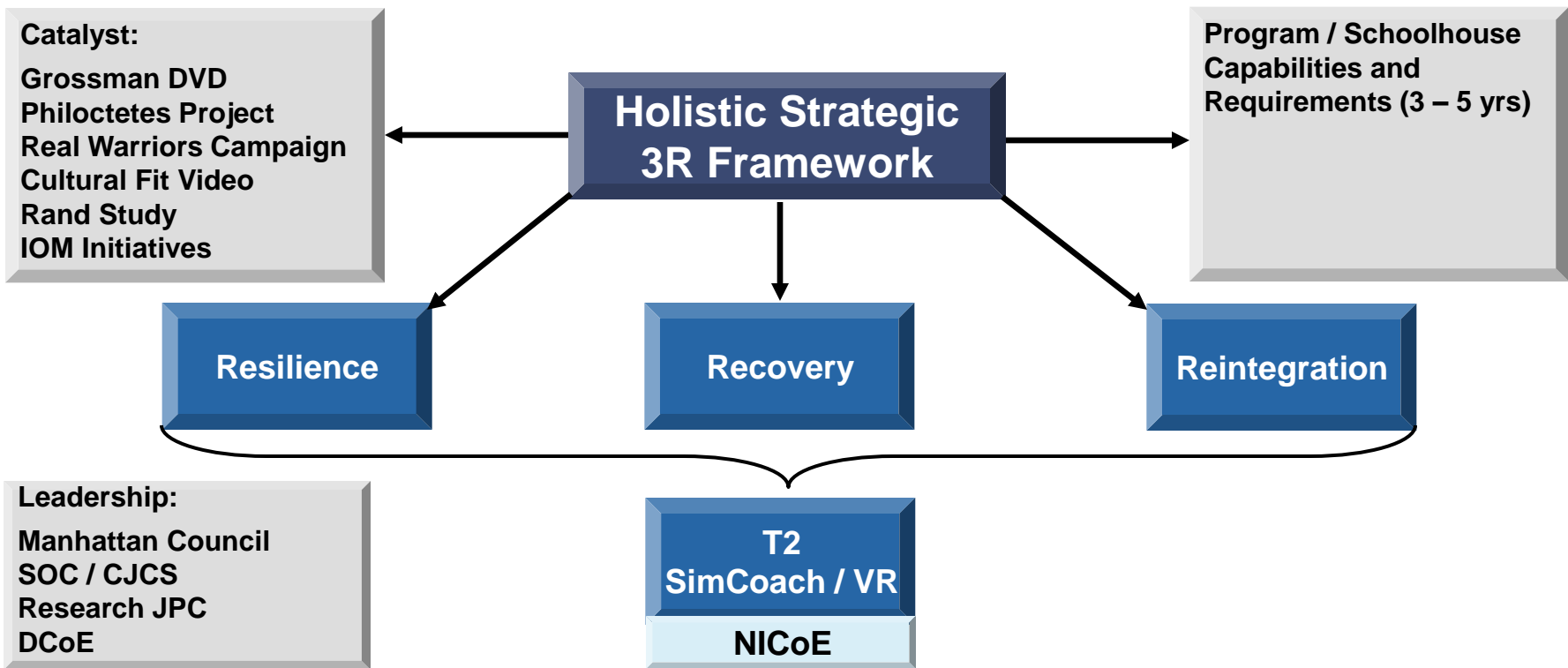


Authority / Governance / Strategy



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury





Promising Practices (i.e. Acupuncture, Meditation, HBOT, etc)	
PH (i.e. Evidence Based Medicine, Trauma Spectrum, etc)	0 3 yrs
TBI (i.e. CPGs, Diagnosis, Exposure, etc)	0 3 yrs
Programs in Progress (i.e. BHOP, R-MIL, DHC, AHBC)	0 3 yrs
RDT&E	2 12 yrs
Leadership, Authority and Community Partnerships	



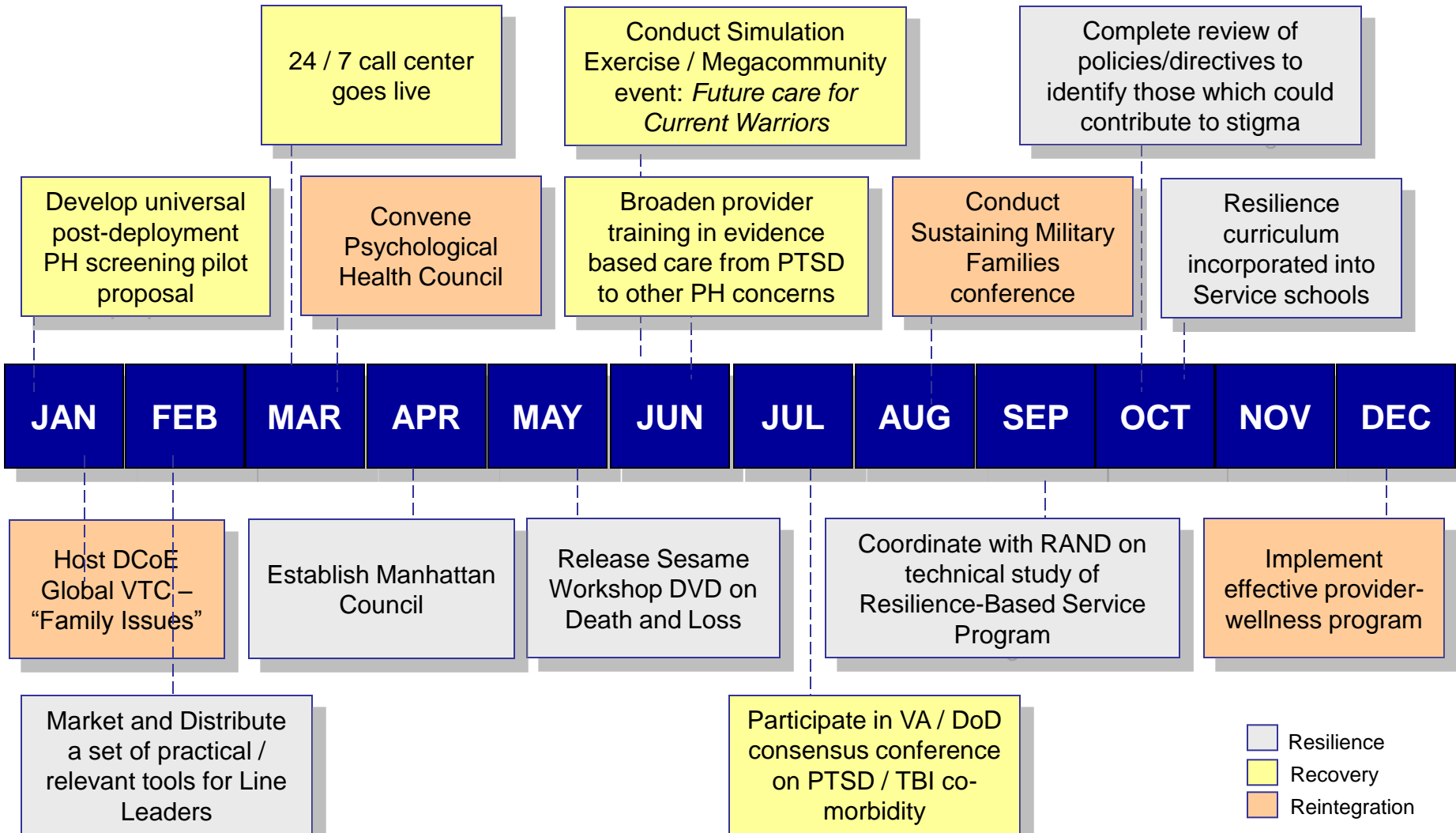
DCoE Way Ahead

Jan – Dec 09



DEFENSE CENTERS OF EXCELLENCE

For Psychological Health & Traumatic Brain Injury



- Resilience
- Recovery
- Reintegration

Continuum of Care: Resilience, Recovery, Reintegration

Objectives

Access

Quality

Telehealth & Technology (T2)

Training

Research / Surveillance

Outreach / Transition

Leadership

Ensure Warriors and Families gain timely access to resources that build resilience, maximize recovery, and foster effective reintegration

Facilitate consistent quality care for Warrior and Family PH / TBI concerns through the use of Clinical Practice Guidelines and evidence based care

Leverage high-tech and high-touch approaches for Warriors and Families with PH / TBI concerns, yielding tools and programs that develop, validate, and deploy promising and proven technologies

Develop and disseminate effective training and education programs to promote and improve PH / TBI outcomes for Warriors and Families

Close existing PH / TBI knowledge gaps, accelerate research outcomes, and establish proven prevention and treatment capabilities through research and surveillance

Communicate relevant information to facilitate timely and effective transitions across the DoD / VA / community continuum of care

Current Actions

- Continuing distribution of Sesame Street DVD kits
- Leveraging innovative technologies and programs (i.e. Sim Coach, virtual reality, etc) to reduce stigma

- Developed mild TBI/concussion clinical guidelines (deployed and non-deployed settings)
- Provided consultation to MTFs for implementation of PH evidence based care

- Coordinating telehealth services
- Developing and maximizing technology to streamline PH tools (DoDSER, ABHC)

- Developing catalog of PH / TBI training programs
- Developing guidelines for delivery of training
- Utilizing new technologies to enhance dissemination of training

- Developed definition of PH and PTSD caseness
- Establishing Joint IRB on PH / TBI research
- Obligated \$45M for 49 funded research proposals

- Establishing 24/7, toll-free, outreach call center
- Developed DCoE website
- Published DCoE newsletter



LoA 2 Strategic Planning Process



DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

Seven Resource Reports



Recommendations

Six Guiding Principles

- Ensure Timely Access to Comprehensive Healthcare
- Facilitate Clinical Practice Guidelines Across the Healthcare Systems
- Strengthen Individual Resilience and Reduce Stigma
- Improve Continuity/Coordination of Care and Support across DoD, VA and Civilian Networks
- Establish Effective Surveillance Tools, Technologies, Techniques and Protocols
- Fill Gaps In Research, Linking Laboratory Research to Battlefield-Relevant Issues

Seven Strategic Goals



28 Programs

128 New or Expanded Supporting Initiatives



DCoE Vision / Mission



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Vision: Fulfilling America's commitment to all who support and defend our Nation's freedom

Mission: To maximize opportunities for Warriors and Families to thrive by leading a collaborative global network promoting resilience, recovery, and reintegration for Psychological Health and Traumatic Brain Injury

Our Commitment to the Services: To respect unique Service cultures and disseminate best practices while exercising urgency, unity of effort, transparency and accountability to achieve our common strategic goals



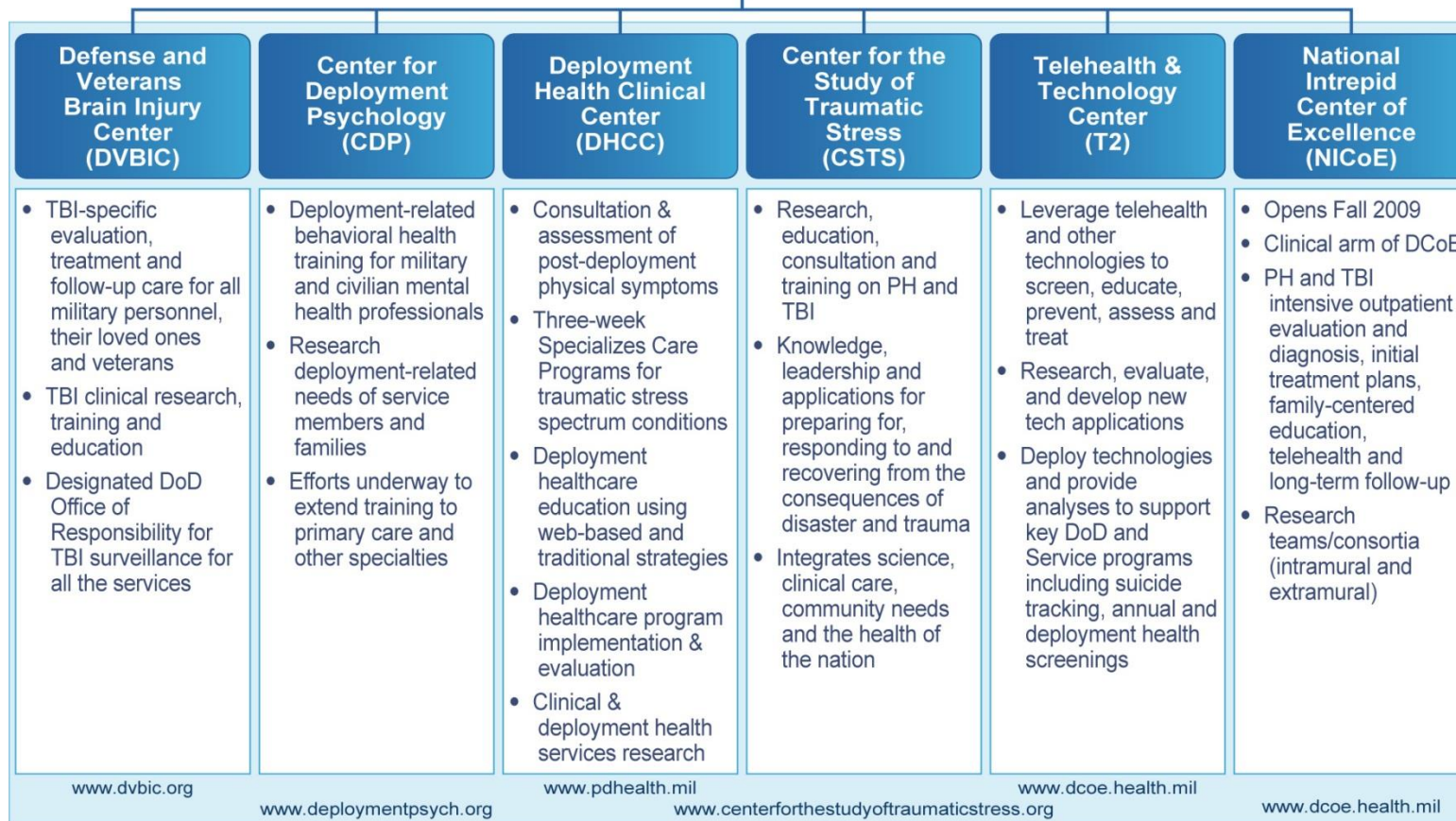
Center of Centers



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

**DCoE
Headquarters**
www.dcoe.health.mil





Resilience



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

- Utilizing new technologies to enhance dissemination of necessary PH and TBI training and education
- Developing "Sim Coach" program to provide next-generation online outreach to educate and support the Psychological Health of Warriors and their Families
- Initiating Small Business Innovative Research (SBIR) program to create and evaluate a "Virtual Parent" using interactive computer technology to allow children to have simple conversations with a parent who may be deployed



Treatment



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

- Initiating Small Business Innovative Research (SBIR) program to use videogame consoles (i.e. Wii, Xbox or PS3) to provide neurocognitive rehabilitation and training
- Hosting first-ever scientific consensus conference on use of Hyperbaric Oxygen Therapy (HBOT) in TBI (Dec 08)
- Providing clinical guidance to all services as it relates to clinical challenges faced with current patient population:
 - PTSD/TBI overlay
 - Cumulative concussion
 - Brain injury following blast
 - Cognitive rehabilitation in TBI
- Training mental health providers in evidence-based treatment for PTSD



Research



DEFENSE CENTERS
OF EXCELLENCE
For Psychological Health
& Traumatic Brain Injury

- Obligated \$45M for 49 funded proposals in PH/TBI research in 2008
 - \$5M for complementary and alternative medicine (CAM) therapies
- Developed definition for Psychological Health and PTSD caseness
- Ongoing initiatives:
 - Establishment of Joint IRB focused on PH/TBI research
 - Evaluation of pilot programs
 - Supporting 15 Year Longitudinal study in TBI conducted by DVBIC
 - Evaluation of databases for PH/TBI longitudinal use



Assay for Traumatic Brain Injury

Biomedical Research to Diagnose Traumatic Brain Injury



Schedule & Cost

MILESTONES	FY09	FY10
•Complete feasibility study for detection of mild, moderate, and severe TBI	3	4
•Confirm biomarkers are specific for TBI	3	4
•Complete ROC Analysis of optimized assay specificity and sensitivity		4
		5
Total Army \$2.3M	1.9	0.4
Army		
FY07 DHP Suppl	2.0	2.9
FY08 DHP Suppl	2.2	2.2

**\$11.6M
Total
Program**

Purpose

Perform a clinical feasibility study to validate an assay to diagnose the presence and severity of traumatic brain injury (TBI).

Results

- Documentation of the ability of the assay to detect that a TBI has occurred.
- Demonstration that the assay is specific for TBI biomarkers and not other potentially-interfering proteins.
- A quality assured feasibility study to be submitted to the FDA for an investigational device exemption (IDE).

Payoff

- The diagnosis of TBI near the point of wounding will improve triage and treatment decisions and thereby reduce the mortality, morbidity and duration of aftereffects for soldiers experiencing such injury.
- Diagnosis is accomplished far forward without relying on expensive and often unavailable technology such as CT scanners.

Drug for the Treatment of Traumatic Brain Injury (TBI)



Biomedical Research to Treat Traumatic Brain Injury

<i>Schedule & Cost</i>			
MILESTONES		<i>FY09</i>	<i>FY10</i>
Complete drug safety and efficacy studies on 200 patients with moderate to severe traumatic brain injury		5	6
Total Army \$3.9M	Army	1.6	2.3
	FY 07 DHP Suppl	2.0	2.0
	FY08 DHP Suppl	2.7	2.8

**\$13.4 M
Total
Program**

Purpose

- Test the safety and efficacy of a candidate drug for treatment of TBI in far forward medical facilities.

Products

- A drug that can be administered as an intravenous infusion (20 mg/kg loading dose over 10 minutes, followed by 6 mg/kg infusion over 3 days) for the treatment of TBI in far forward medical facilities.

Payoff

- Quicker return to duty by mild to moderate TBI casualties
- Reduced morbidity and possibly mortality in severe trauma casualties.



Advanced Battlemind

State-of-the-Art Soldier and Leader Mental Health Training

Battlemind is the Soldier's inner strength to face fear and adversity in combat, with courage.



Purpose

Based on original Battlemind Training program designed to help small groups of Soldiers and their families prepare to deploy to combat, transition home and deploy again, develop and validate advanced group-level Battlemind Training to reduce combat-related psychological problems, including symptoms related to PTSD and mild traumatic brain injury (mTBI)

Results

- Validated Advanced Battlemind Training
- Identified impediments to healthcare access
- Ongoing improvements in existing mental health risk reduction programs

Payoff

- Improved psychological resetting and unit readiness for follow-on combat deployments
- Integration into Army-mandated Battlemind training system
- Modules being transitioned to the AMEDD Center and School Battlemind Training office
- Multimedia information available 24/7 – www.battlemind.army.mil

Schedule & Cost

MILESTONES	FY09	FY10	FY11	FY12
Complete validation of original Battlemind Benchmark rates		4		
Identify impediments to care			4	
Develop Advanced Battlemind		4		
Develop Prototype Advanced Battlemind			4	
Validate Advanced Battlemind				4
Deliver Training Modules				5
Total Army: \$16.1M	4.0	4.2	4.0	3.9



Enhanced Treatment for Posttraumatic Stress Disorder (PTSD)



Schedule & Cost

MILESTONES	FY08	FY09	FY10	FY11	FY12
Develop a primate model prototype				3	
Establish preclinical candidate compound safety				4	
Phase I clinical trial					6
Transition to phase II clinical trial					6
Develop and validate psychotherapies to treat PTSD					6
Transition effective therapies to clinical care					6
Total Army: \$15.9M	0	1.5	4.6	4.8	5.0
Army Other	20.5				

Purpose

Develop effective psychotherapies and pharmacotherapies to treat and manage Soldiers diagnosed with combat-related PTSD

Results

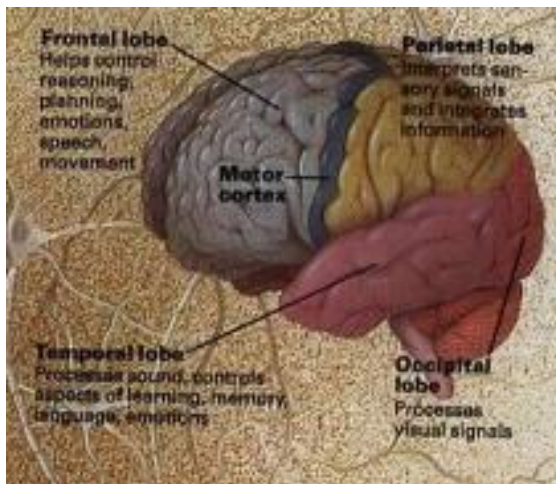
- Effective treatments for combat-related PTSD
- Improved treatment retention, reduced stigma
- Clinical guidelines for the evaluation and treatment of combat-related PTSD
- FDA approved pharmacological treatment for combat-related PTSD in a military population

Payoff

- Effectively treat PTSD
- Mitigate suicide risks and other co-occurring psychiatric problems
- Return to Duty Standards guided by science
- Improve Soldier/Family well-being and quality of life
- Improve military public health and Army readiness



Neuropsychological Assessment Tool (NPAT)



Schedule & Cost

MILESTONES		FY08	FY09	FY10	FY11	FY12
Complete study of current technology - IsoBalance	Validate ANAM4 metrics		2			
	Develop Composite Cognitive Efficiency Score parameters				4	
Develop Diagnostic Criteria for PCS	Validate PCS Clinical Management Guidelines				4	
						5
Total Army	Army (\$M)	1.2	1.2	3.1	3.6	4.0
\$14.9M	Other	1.8				

Purpose

Develop and validate a computerized test battery that will be used to aid in the assessment or diagnosis and management of Soldiers with suspected mTBI/post-concussive symptoms

Results

- Validated diagnostic criteria for Post-Concussive Syndrome (PCS)
- Validated neuropsychological baseline measurement of cognitive and behavioral functioning in Soldiers
- Clinical Management Guidelines for persistent Post-Concussive Symptoms

Payoff

- Early detection, treatment, and RTD for Soldiers suffering from PCS
- Validated rapid automated screening method for mild TBI

Virtual Iraq: A Virtual Reality PTSD Research and Treatment Program



Purpose

- Evaluate efficacy of a virtual reality (VR) game-based simulation for exposure therapy for PTSD

Products

- Summarize clinical tests of the Virtual Iraq PTSD treatment system at Ft. Lewis
- Validate effectiveness of VR to treat PTSD

Payoff

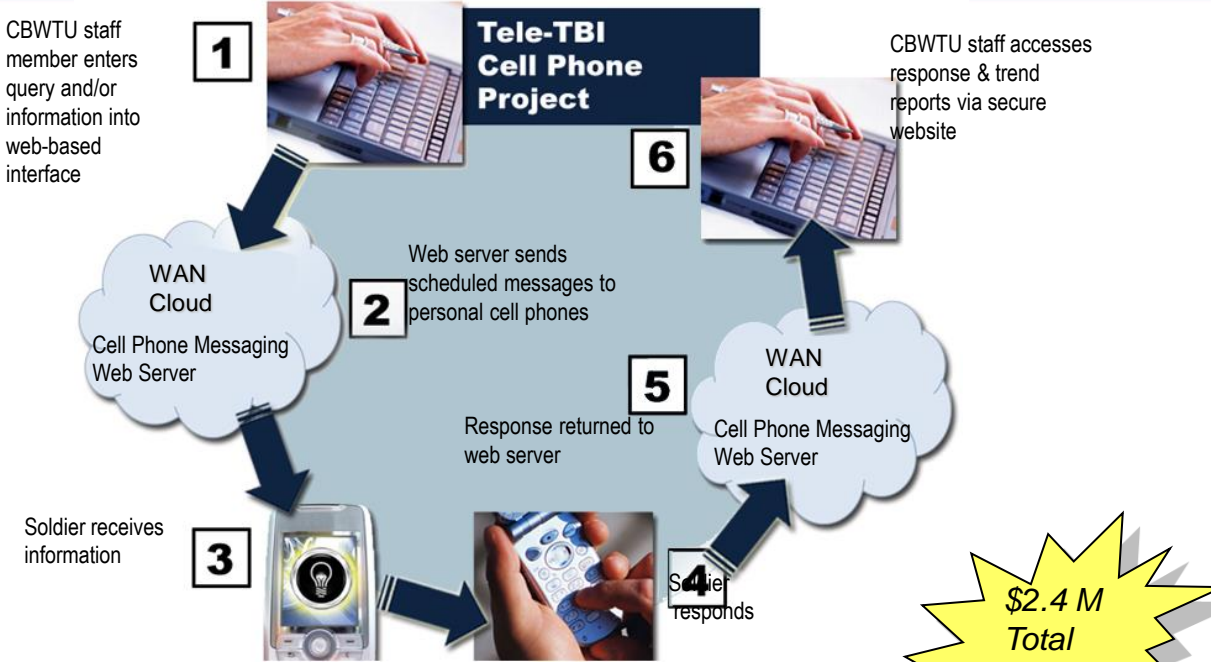
- Delivery of a comprehensive tool for assessing the needs of Soldiers diagnosed with PTSD
- Decreased burden on the healthcare system
- Improved morale with knowledge that a tool for treatment for PTSD exists

Endorsement/Customer:

Center for Deployment Psychology

Completed

Army Telemedicine TBI Initiatives: Cell Phone Project



Schedule & Cost

**\$2.4 M
Total
Program**

FY09				FY10			
2008	2009			2010			
4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
PHASE 1: PERFORMANCE IMPROVEMENT							
PHASE 2: RESEARCH STUDY							
PHASE 3: EXPANSION TO ADDITIONAL SITES							
PHASE 4: ARMY WIDE DISSEMINATION							➔

Purpose

- Synchronization over distance of:
 - TBI patients
 - Family members
 - CBWTU team members
- Uses patients' EXISTING cell phones
- Secure, SMS communication
- Simple patient responses

Products

- Cell Phone messaging technology platform for exchange of data between patients and providers, as well as family members.

Payoff

- Meet required Patient/Case Manager/Platoon Sergeant contact rates
- Evaluate Service Member goal achievement
- Triage patient load
- Early assessment of medical issues (Medical Board)
- Final phase to include up to 10,000 service members



Real Warriors Campaign



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

REAL WARRIORS.



REAL BATTLES.



REAL STRENGTH.



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

Resilience • Recovery • Reintegration

www.dcoe.health.mil



National Intrepid Center of Excellence



DEFENSE CENTERS
OF EXCELLENCE

For Psychological Health
& Traumatic Brain Injury

