Defense Centers of Excellence
for Psychological Health and Traumatic Brain Injury

REAL WARRIORS.

REAL BATTLES.

REAL STRENGTH.

Resilience • Recovery • Reintegration
www.dcoe.health.mil
Governance and Authority

Secretary of Defense
Dr. Robert Gates

Deputy Secretary of Defense
Mr. Gordon England

Undersecretary of Defense
Personnel & Readiness
Dr. David S.C. Chu

Military Assistant
CDR Chris Irwin

ASD(HA)
Dr. S. Ward Casscells

Principal Deputy ASD(HA)
Dr. Steve Jones

Chief of Staff
COL Thom Kurmel

DASD Clinical & Program Policy
Dr. Joseph Kelley

DASD Force Health Protection & Readiness
Ms. Ellen Embrey

DASD Health Budget & Financial Policy
Mr. Allen Middleton

Deputy Director, TMA¹
MG Elder Granger

Chief Information Officer¹
Mr. Charles Campbell

Strategy and Development
Dr. Mike Dinneen

Communication and Media Relations
Dr. Michael Kilpatrick

Director, DCoE¹
BG Loree Sutton

President, USUHS¹
Dr. Charles Rice

¹Non-HA Asset
## DCoE Past, Present, and Future

### 2007

**Jan - Mar**
- Washington Post Article
- Commissioning
- DCoE Director

**Apr - Jun**
- DCoE Summit I
- DCoE POM
- Helmet Protection
- DCoE Interim Website

**Jul - Sep**
- Talk Listen Connect
- Sesame DVD
- CAM BAA
- Six Pack for Life

**Oct - Dec**
- DCoE Doors Open
- First DCoE Newsletter

### 2008

**Jan - Mar**
- DCoE Summit II
- DCoE ConOps

**Apr - Jun**
- All DCoE Directors Onboard
- DCoE Summit II
- Sim Coach Approved

**Jul - Sep**
- Real Warriors Campaign

**Oct - Dec**
- Manhattan Project Proposal
- DCoE Summit III
- Resilience Continuum Model

### 2009

**Jan - Mar**
- Manhattan Council Established

**Apr - Jun**
- VA/DoD Consensus Conference on PTSD/TBI Co-morbidity

**Jul - Sep**
- Multi Site PH Pilot Studies

**Oct - Dec**
- Resilience Curriculum Incorporated into Service Schools
- Guidelines for Delivery of Training

### Milestones

- Helmet Protection
- First DCoE Newsletter
- Sim Coach Approved
- DCoE Summit I
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- Helmet Protection
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### Resilience

- Global TBI Training
- DoDSER
- TBI Clinical Tools
- Definition for PH and PTSD Caseness
- Respect_Mi PH Site Visits
- Training Course for Providers Deployment Issues
- mTBI CPGs
- VA/DoD Depression CPG

### Recovery

- Federal Partners Priority Working Group
- Afterdeployment.org
- Brainline.org
- Virtual “Psychological Health Island”
- America’s Heroes at Work Campaign

### Reintegration

- 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

### Megacommunities: Connecting the Dots
- Provider Wellness Program
- Final Revision of VA/DoD Substance Abuse CPG
- Clinical Consultation Services to MTFs
- Trauma Spectrum EBM Training

### State of the Knowledge PH/TBI Summit
- VA/DoD Consensus Conference on PTSD/TBI Co-morbidity
- Multi Site PH Pilot Studies
- Resilience Curriculum Incorporated into Service Schools
- Guidelines for Delivery of Training

### 2007 Milestone
- Washington Post Article
- Commissioning
- DCoE Director

### 2008 Milestone
- DCoE Summit II
- DCoE ConOps

### 2009 Milestone
- Manhattan Council Established
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### Legend

- ◆ Milestone
- ★ Request Leadership Involvement
Long-term Consequences of Traumatic Brain Injury
Institute of Medicine (IOM) Recommendations
Institute of Medicine Recommendations

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

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
Hyperbaric Oxygen Therapy (HBOT)
HBOT: DCoE Action

• 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

• 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

**January – December 09**

- **January**: IRB approvals and associate PI/staff selected and trained
- **February**: Conduct site selection (15 – 25 sites)
- **March – April**: Complete study design (power analysis, final cost determination) and identify PI
- **May**: Begin Phase I (initial 150-250 affected SMs; 40 treatments over 10 weeks)
- **June**: Complete Phase I and interim analysis
- **July – August**: Complete Phase 2 and interim analysis
- **September**: Complete Phase I and interim analysis
- **October – December**: Begin Phase 2 (150 – 250 SMs)
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://sesamewerkshop.org/tlc/](http://sesamewerkshop.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

- 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
Virtual Reality (VR) Therapy for PTSD

Naval Med Center SD/Camp Pendleton PTSD Checklist-Military (PCL-M) PreTreatment, PostTreatment & 3 Month Follow-up

16 Successful
4 Unsuccessful

Treatment Completers n=20
Average # of Sessions < 11

17 = No Symptoms Endorsed

Assessment over Time

Office of Naval Research Study Data
DCoE Strategic Framework
Our National Challenge

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

- Manhattan Council
- P&R / HA
- DCoE
- Manhattan Project
- CAPS / Requirements
Program / Schoolhouse Capabilities and Requirements (3 – 5 yrs)

Catalyst:
Grossman DVD
Philoctetes Project
Real Warriors Campaign
Cultural Fit Video
Rand Study
IOM Initiatives

Holistic Strategic 3R Framework

- Resilience
- Recovery
- Reintegration

Leadership:
Manhattan Council
SOC / CJCS
Research JPC
DCoE

T2 SimCoach / VR
NICoE

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

**JAN**
- Host DCoE Global VTC—“Family Issues”

**FEB**
- Convene Psychological Health Council
- Develop universal post-deployment PH screening pilot proposal

**MAR**
- Establish Manhattan Council

**APR**
- Release Sesame Workshop DVD on Death and Loss

**MAY**
- Coordinate with RAND on technical study of Resilience-Based Service Program

**JUN**
- Conduct Simulation Exercise / Megacommunity event: Future care for Current Warriors
- Broaden provider training in evidence based care from PTSD to other PH concerns

**JUL**
- Complete review of policies/directives to identify those which could contribute to stigma
- Conduct Sustaining Military Families conference

**AUG**
- Conduct Simulation Exercise / Megacommunity event: Future care for Current Warriors

**SEP**
- Develop universal post-deployment PH screening pilot proposal

**OCT**
- Host DCoE Global VTC—“Family Issues”

**NOV**
- Implement effective provider-wellness program

**DEC**
- Market and Distribute a set of practical / relevant tools for Line Leaders
- Participate in VA / DoD consensus conference on PTSD / TBI comorbidity
- Resilience curriculum incorporated into Service schools

- Resilience
- Recovery
- Reintegration
## Continuum of Care: Resilience, Recovery, Reintegration

### Objectives

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

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

#### Telehealth & Technology (T2)
- 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.

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

#### Research / Surveillance
- Close existing PH / TBI knowledge gaps, accelerate research outcomes, and establish proven prevention and treatment capabilities through research and surveillance.

#### Outreach / Transition
- Communicate relevant information to facilitate timely and effective transitions across the DoD / VA / community continuum of care.

### Leadership

### Current Actions

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

**Quality**
- 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)

**Telehealth & Technology (T2)**
- Developing catalog of PH / TBI training programs
- Developing guidelines for delivery of training
- Utilizing new technologies to enhance dissemination of training

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

**Research / Surveillance**
- Establishing 24/7, toll-free, outreach call center
- Developed DCoE website
- Published DCoE newsletter
LoA 2 Strategic Planning Process

Seven Resource Reports

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

Recommendations

Seven Strategic Goals
- Expand Access to Care
- Improve Quality of Care
- Support Transition
- Improve Screening & Surveillance
- Build Resilience
- Conduct Research

Build a strong culture of Leadership & Advocacy

28 Programs

128 New or Expanded Supporting Initiatives

• 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
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22
DCoE Vision / Mission

**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

DCoE Headquarters
www.dcoe.health.mil

Defense and Veterans Brain Injury Center (DVBI)(DVBI)
www.dvbic.org
- TBI-specific evaluation, treatment and follow-up care for all military personnel, their loved ones and veterans
- TBI clinical research, training and education
- Designated DoD Office of Responsibility for TBI surveillance for all the services

Center for Deployment Psychology (CDP)
www.deploymentpsych.org
- Deployment-related behavioral health training for military and civilian mental health professionals
- Research deployment-related needs of service members and families
- Efforts underway to extend training to primary care and other specialties

Deployment Health Clinical Center (DHCC)
www_pdhealth.mil
- Consultation & assessment of post-deployment physical symptoms
- Three-week Specializes Care Programs for traumatic stress spectrum conditions
- Deployment healthcare education using web-based and traditional strategies
- Deployment healthcare program implementation & evaluation
- Clinical & deployment health services research

Center for the Study of Traumatic Stress (CSTS)
www.centerforthestudyoftraumastress.org
- Research, education, consultation and training on PH and TBI
- Knowledge, leadership and applications for preparing for, responding to and recovering from the consequences of disaster and trauma
- Integrates science, clinical care, community needs and the health of the nation

Telehealth & Technology Center (T2)
www.dcoe.health.mil
- Leverage telehealth and other technologies to screen, educate, prevent, assess and treat
- Research, evaluate, and develop new tech applications
- Deploy technologies and provide analyses to support key DoD and Service programs including suicide tracking, annual and deployment health screenings

National Intrepid Center of Excellence (NICoE)
www.dcoe.health.mil
- Opens Fall 2009
- Clinical arm of DCoE
- PH and TBI intensive outpatient evaluation and diagnosis, initial treatment plans, family-centered education, telehealth and long-term follow-up
- Research teams/consortia (intramural and extramural)
Resilience

- 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

• 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
• 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
**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)**

**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.

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**Biomedical Research to Treat Traumatic Brain Injury**

<table>
<thead>
<tr>
<th>MILESTONES</th>
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<tbody>
<tr>
<td>$13.4 M Total Program</td>
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<tr>
<td>Complete drug safety and efficacy studies on 200 patients with moderate to severe traumatic brain injury</td>
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<tr>
<td><strong>Total Army</strong> $3.9M</td>
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<table>
<thead>
<tr>
<th>Army</th>
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**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.

**Schedule & Cost**

<table>
<thead>
<tr>
<th>MILESTONES</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
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<tbody>
<tr>
<td>Complete validation of original Battlemind</td>
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<tr>
<td>Benchmark rates</td>
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<tr>
<td>Identify impediments to care</td>
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<tr>
<td>Develop Advanced Battlemind</td>
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<td>Develop Prototype Advanced Battlemind</td>
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<tr>
<td>Validate Advanced Battlemind</td>
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<tr>
<td>Deliver Training Modules</td>
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</table>

Total Army: $16.1M

**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
Enhanced Treatment for Posttraumatic Stress Disorder (PTSD)

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

Schedule & Cost

<table>
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<tr>
<th>MILESTONES</th>
<th>FY08</th>
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<tr>
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<td>Phase I clinical trial</td>
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<td>Transition to phase II clinical trial</td>
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<tr>
<td>Develop and validate psychotherapies to treat PTSD</td>
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<td>1.5</td>
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<td>Transition effective therapies to clinical care</td>
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</table>

Total Army: $15.9M

Army Other

MG George Weightman/MCMR-ZA (301-619-7613) (DSN 343)/George.Weightman@us.army.mil

UNCLASSIFIED

Slide 31 of (46) 11/04/08
Neuropsychological Assessment Tool (NPAT)

**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

**Schedule & Cost**

<table>
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<th>FY11</th>
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<tbody>
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<td>Develop Composite Cognitive Efficiency Score parameters</td>
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<td>Develop Diagnostic Criteria for PCS</td>
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**Total Army $14.9M**

- Army ($M)
  - 1.2
  - 1.2
  - 3.1
  - 3.6
  - 4.0

- Other
  - 1.8
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

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

Schedule & Cost

<table>
<thead>
<tr>
<th>FY08</th>
<th>2009</th>
<th>FY10</th>
</tr>
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<tbody>
<tr>
<td>4th Quarter</td>
<td>1st Quarter</td>
<td>2nd Quarter</td>
</tr>
</tbody>
</table>

$2.4 M Total Program

CBWTU staff member enters query and/or information into web-based interface

1. CBWTU staff accesses response & trend reports via secure website

2. Web server sends scheduled messages to personal cell phones

3. Soldier receives information

4. Soldier responds

5. Response returned to web server

6. CBWTU staff accesses web-based interface
Real Warriors Campaign

Defense Centers of Excellence
for Psychological Health and Traumatic Brain Injury

Real Warriors.

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