

Research-Operations Partnership to Define and Improve VHA TBI Care

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Poll QUESTIONS

What is your job? (check all that apply)

- Clinician
- Program Manager
- Researcher
- Central Office – policy maker
- Other

Poll QUESTIONS

How familiar you are with diagnosis and treatment of TBI?

- Not at all
- A little
- moderately
- Very familiar

POLL QUESTIONS

On average, how long does it take for research evidence to influence practice?

- 1 to 2 years
- 2 to 5 years
- 5 to 10 years
- More than 10 years

Organization of Today's Presentation

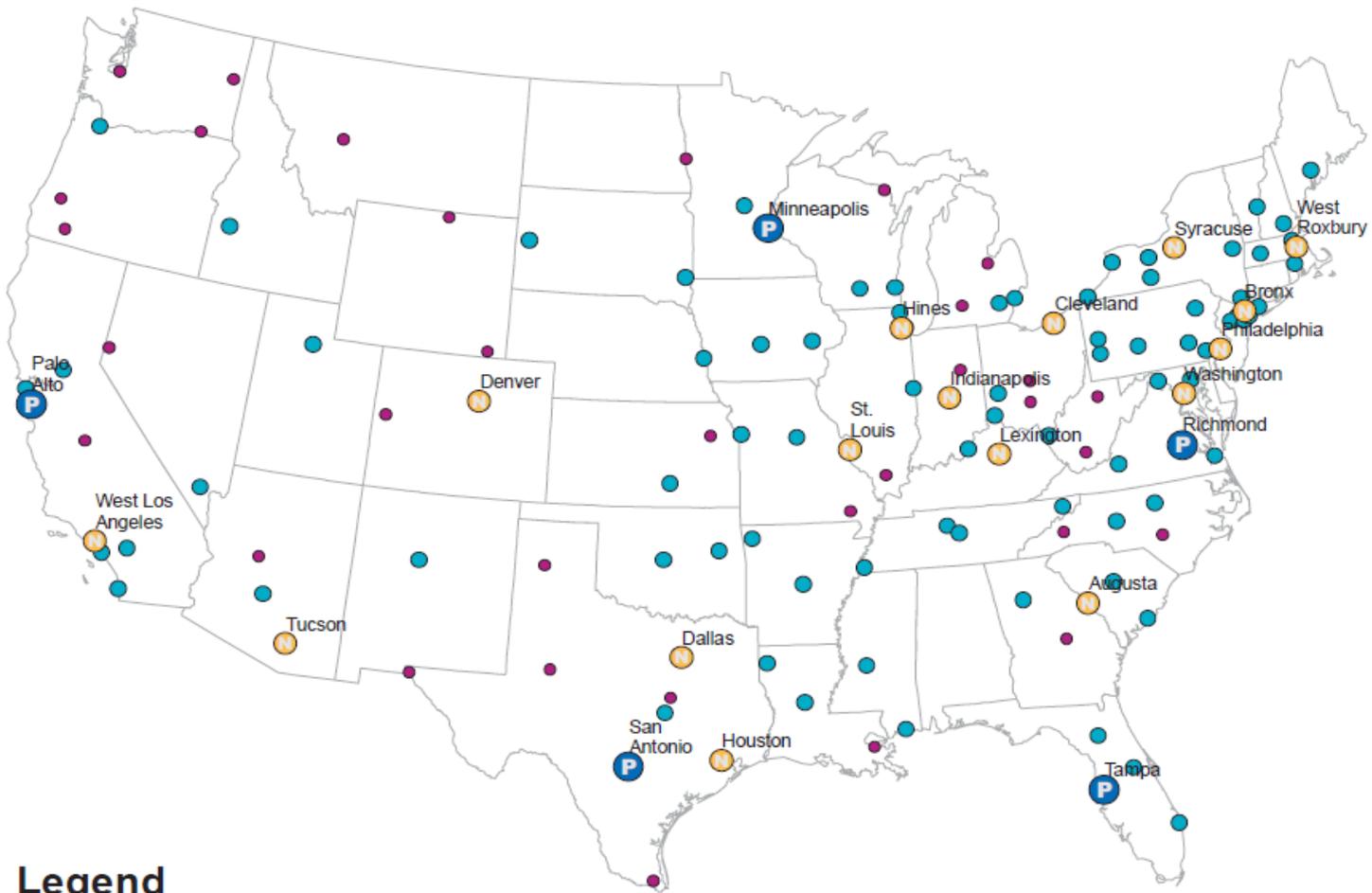
1. TBI care within VHA – Scholten
2. PT/BRI QUERI research to support TBI care – Sayer
3. Program Office-research partnership: lessons learned – Scholten
4. Q&A

VA Polytrauma System of Care: Clinical

- 110 specialized rehabilitation sites across VA:
 - 5 Polytrauma Rehabilitation Centers
 - All inpatient, residential, outpatient and telehealth care
 - 23 Polytrauma Network Sites
 - Outpatient TBI and telehealth care, inpatient rehabilitation
 - 87 Polytrauma Support Clinic Teams
 - Outpatient TBI care
- 39 Polytrauma Points of Contact
 - Polytrauma social worker to facilitate referrals
- Range of Specialty Programs across system

www.polytrauma.va.gov

VHA Polytrauma/TBI System of Care



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



VA Screening for Mild Traumatic Brain Injury for OEF/OIF/OND Veterans

From April 2007 to September 30, 2014:

- 883,883 have been screened for possible mild TBI
- 166,049 screened positive and consented to follow-up comprehensive evaluation
 - 124,751 completed comprehensive evaluation
 - 73,469 received confirmed diagnosis of mild TBI

Mandatory TBI Screening Results

14 April 2007 – 30 September 2014

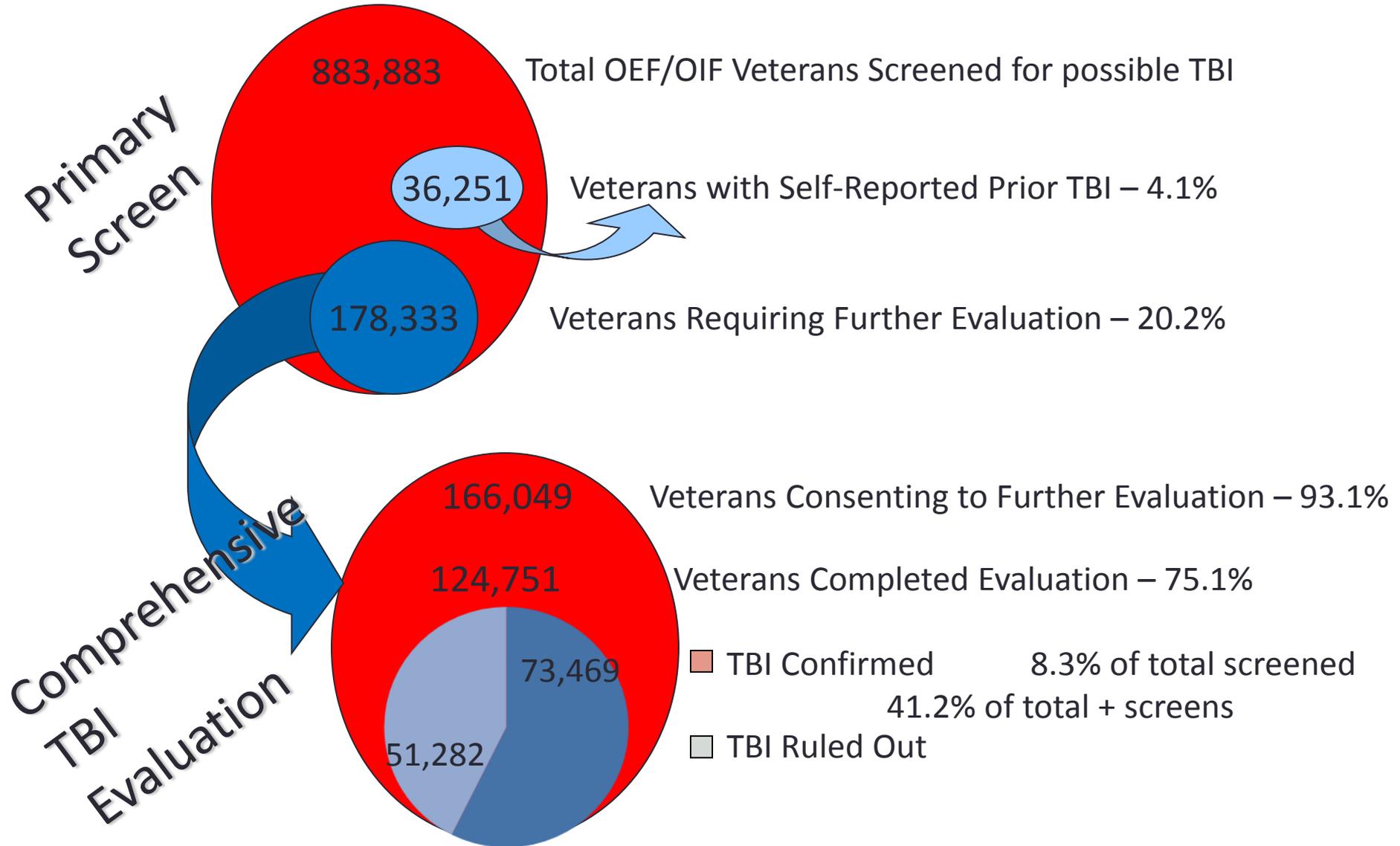


Table 2. Postconcussive Symptoms by Severity in the N = 55,070 Veterans Evaluated for TBI*

	Symptom Severity					
	Moderate to Very Severe		Mild		None	
	N	%	N	%	N	%
Symptoms in last 30 days						
Irritability, easily annoyed	45,389	82	6,282	11	2,299	6
Sleep disturbance	44,920	82	5,233	10	4,917	9
Forgetfulness	42,441	77	8,071	15	4,558	8
Anxious or tense	42,284	77	7,502	14	5,284	10
Headaches	39,762	72	9,914	18	5,394	10
Poor concentration	38,851	71	9,472	17	6,747	12
Poor frustration tolerance, easily overwhelmed	39,251	71	8,737	16	7,082	13
Fatigue	35,952	62	10,181	18	8,937	16
Hearing difficulty	33,522	61	11,537	21	10,011	18
Depressed or sad	33,223	60	10,750	20	11,097	20
Slowed thinking, difficulty organizing, difficulty finishing things	32,289	59	11,381	21	11,400	21
Sensitivity to noise	30,034	55	10,983	20	14,053	26
Sensitivity to light	27,867	51	12,298	22	14,905	27
Difficulty making decisions	27,877	51	11,615	21	15,578	29
Numbness of tingling in parts of body	25,921	47	11,922	22	17,227	31

*Scholten J, Sayer N, Vanderploeg R, Bidelsbach D, Cifu D. "Analysis of US Veterans Health Administration Comprehensive Evaluations for TBI in OEF/OIF Veterans" Brain Injury September 2012; 26(10): 1177–1184.

Clinical Practice Guidelines

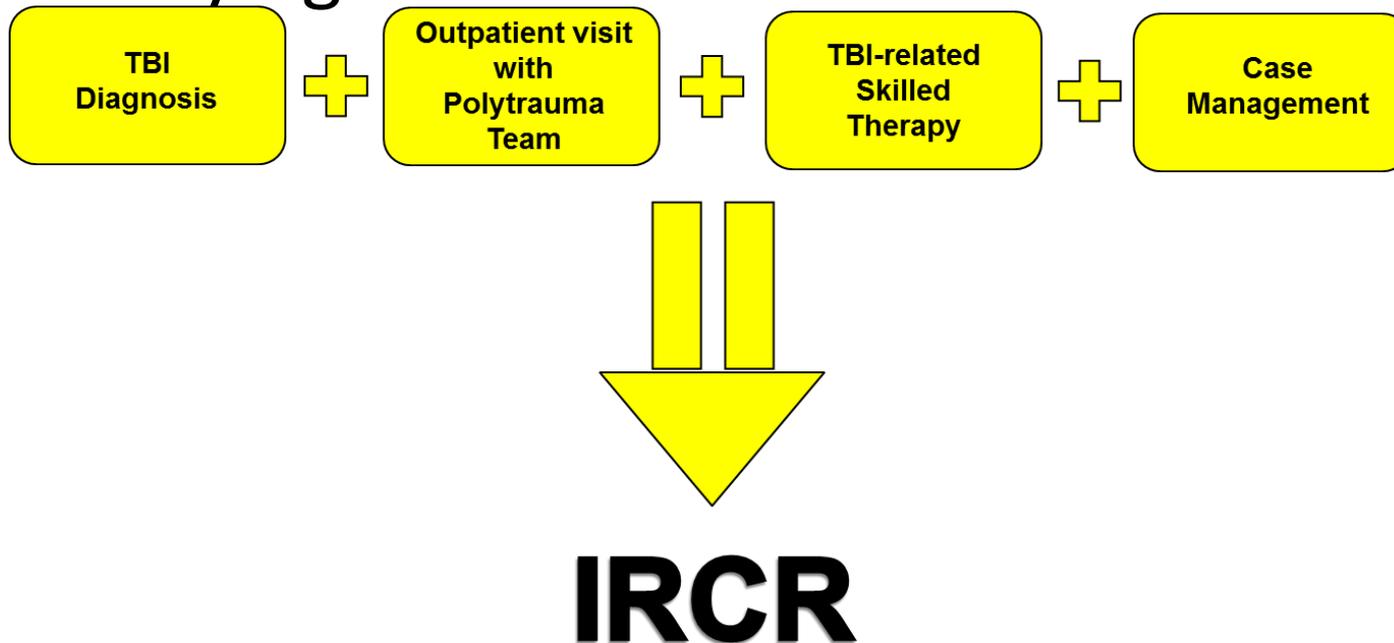
- Developed from best available evidence and consensus opinion for treatment of symptoms following mild TBI

The Individualized Rehabilitation and Community Reintegration (IRCR) Care Plan

- Mandated by Congress in 2010 (38 U.S.C. 1710C, 2010).
 - Required for all Veterans and Service Members receiving inpatient or outpatient rehabilitation for TBI at a VA facility.
 - Encourages collaboration amongst Veterans , their families, and providers from diverse disciplines
 - Plan must be communicated to the Veteran in writing, containing:
 - Comprehensive Evaluation
 - Goals focused on physical, cognitive, and vocational functioning to ultimately facilitate community reintegration
 - Details means to access care
 - Type, frequency, duration, and location of all rehabilitative treatments
 - Name of case manager
 - Dates when plan will be reviewed
- VHA Handbook 1172.04

IRCR Algorithm

- Developed by the Physical Medicine & Rehabilitation Program Office to assist clinicians in identifying Veterans in need of an IRCR

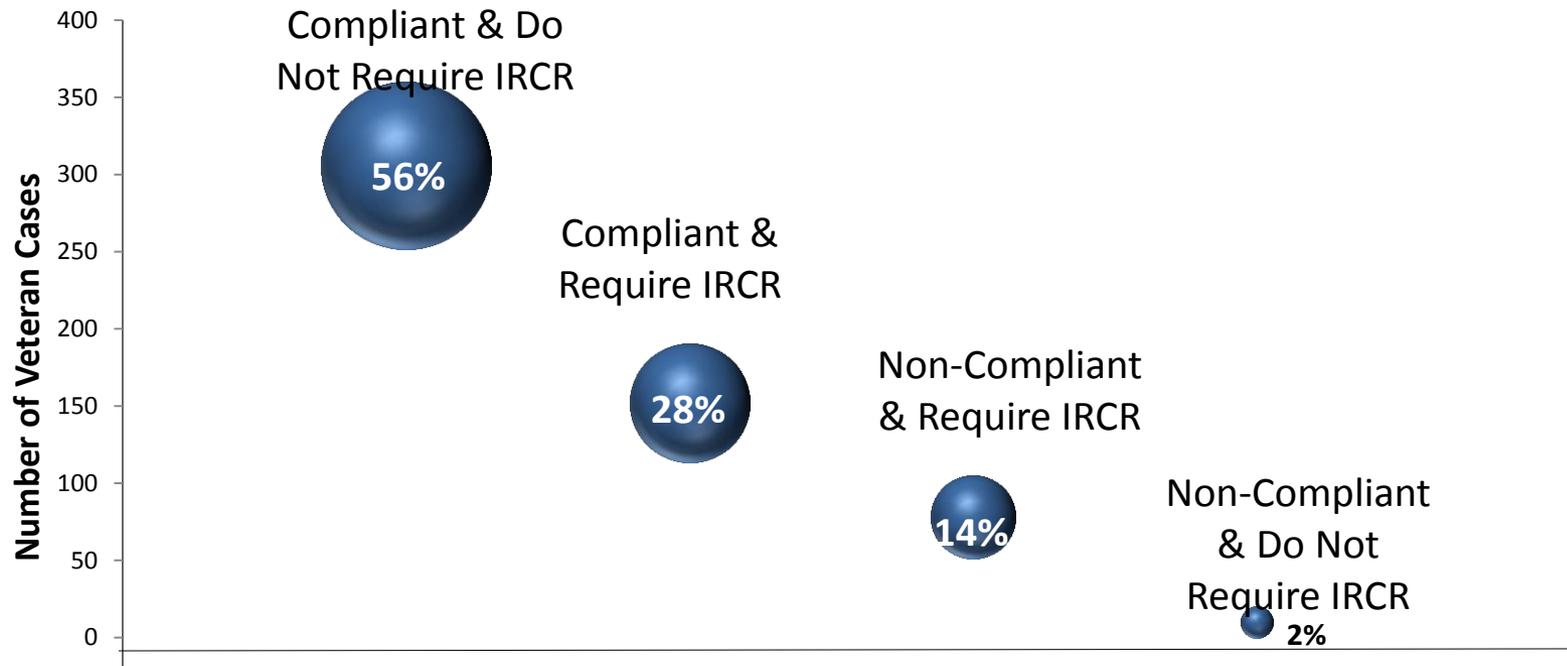


Also required for every patient discharged from Polytrauma Rehabilitation Centers (PRC) or Polytrauma Transitional Rehabilitation Program (PTRP).

Compliance with the IRCR Algorithm at a single Polytrauma Network Site

- Retrospective Chart Review of 546 Veterans with a TBI diagnosis in 2013 seen at the DC VAMC PNS.

— Work supported by Polytrauma/Blast Related Injury QUERI QLP 56-012



PT/BRI QUERI Research to Support TBI care

PT/BRI Mission Statement

To promote the successful rehabilitation, psychological adjustment and community re-integration of individuals who have experienced polytrauma and blast-related injuries

-- FY 2006 through FY 2015

Partners and Collaborators

➤ **Rehabilitation and Prosthetic Services**

➤ **PM&R**

- Care Management and Social Work
- OMHS, NCPTSD
- Pain Management
- Post-Deployment Integrated Care
- Office of Telehealth
- Therapeutic and Supported Employment Services (TSES)
- Office of Care Coordination
- Office Seamless Transition
- DoD (DVBIC; Walter Reed)
- Amputation Coalition of America
- EES
- Veterans
- Family members and caregivers
- Providers (Polytrauma System of Care)

Partnered Research to Improve and Define TBI Care

Partnered Research = Joint investment and ownership of the research projects

Three examples of partnered research:

- Family Care Map (QI)
- TBI screening and evaluation
- TBI Utilization Reports

Areas of high need and little prior research

Family Care Map

Context: Family members of war injured played a significant role in rehabilitation and had their own support and instrumental needs (Friedemann-Sanchez et al., 2008)



- New approaches and tools needed to support families (OIG Report 05-01818-165)

Partnered Activities: Carmen Hall, PhD, facilitated a research-operations-clinician collaborative to develop the Family Care Map. The Family Care Map is a web-based tool to help staff guide families through inpatient rehabilitation and to standardize and enhance “family-centered care”.

- Program Office connected staff to researchers, protected staff time for participation, participated in workshops

Family Care Map Homepage

[FAQs](#)
[Glossary \(PDF-33KB\)](#)
[Logistics](#)
[Looking Ahead](#)
[Philosophy of Care](#)
[Polytrauma System of Care](#)
[Resources](#)

FAMILY CARE MAP

- [Looking Ahead](#)
- **STEP 1:**
[First Contact and Introduction](#)
- **STEP 2:**
[Welcome and Settling in to PRC](#)
- **STEP 3:**
[Developing a Treatment Plan](#)
- **STEP 4:**
[Rehabilitation: Working Toward Goals](#)
- **STEP 5:**
[Moving Forward](#)
- **STEP 6:**
[Staying Connected](#)



Family Care Map
Polytrauma Rehabilitation Centers (PRCs)
Polytrauma System of Care

Created by the Polytrauma Blast-Related Injuries (QUIE) Family Care Map collaborative

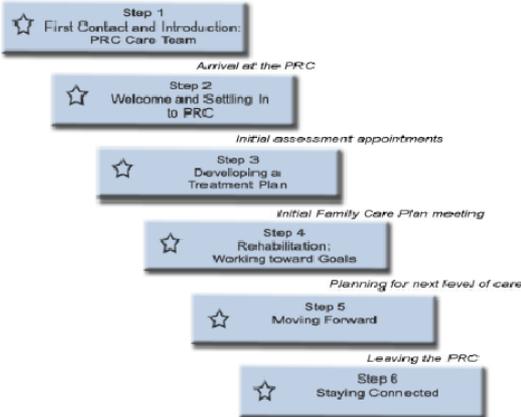
Department of Veterans Affairs

Family members are those individuals, related or unrelated, who actively provide emotional, physical and/or economic support to the patient.

The members of the "family" are determined by the patient or by those individuals who include themselves in the patient's support system.

Polytrauma Rehabilitation Centers (PRCs)
FAMILY-CENTERED CARE MAP

Click ☆s to see "Looking Ahead" Information



Step 1
☆ First Contact and Introduction:
PRC Care Team

Arrival at the PRC

Step 2
☆ Welcome and Settling in
to PRC

Initial assessment appointments

Step 3
☆ Developing a
Treatment Plan

Initial Family Care Plan meeting

Step 4
☆ Rehabilitation:
Working toward Goals

Planning for next level of care

Step 5
☆ Moving Forward

Leaving the PRC

Step 6
☆ Staying Connected

If you have questions or concerns relating to medical care, please contact the medical staff at your facility.

<http://www.polytrauma.va.gov/FCM/>



Family Care Map Polytrauma Rehabilitation Centers (PRCs) Polytrauma System of Care

Created by the Polytrauma Blast-Related Injuries QUERI
Family Care Map collaborative

PHILOSOPHY OF CARE

The Department of Veteran's Affairs Polytrauma Rehabilitation Centers (PRC) are committed to comprehensive patient and family-centered care. Our skilled PRC teams are dedicated to providing state-of-the-art compassionate care to our patients and their families. We strive to create a treatment environment based on respect and collaboration.

Families are valued members of our interdisciplinary treatment team. They provide a unique perspective on the history, values, and goals of the patient. Family participation in the rehabilitation process is a critical element in the development of an effective rehabilitation plan.

[Family Rights and Responsibilities](#) (PDF, 22 KB)

Several documents on this website are in PDF format, readable with the Adobe Acrobat Reader version 4.0 and above.

You may download a free copy of this [reader](#) from the Adobe Web site. Please make sure you download the appropriate reader for your operating system.

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Practice Changes Associated with the Family Care Map

- Increase and spread of family-centered practices. Promoted “culture change” to family-centered care (Hall et al., 2009)
- Recent study (Ford et al., 2014) found:
 - Sustainability of practice changes
 - Staff continued to see the benefit of the Family Care Map as a communication tool and catalyst for family-centered care

TBI Screening and Evaluation: Context

TBI screen implemented in 2007

- Timeline for implementation precluded research on the TBI screen before implementation or an implementation trial
- Unlike the mental health screens, lack of evidence on psychometrics prior to implementation
 - GAO noted this gap in 2008 (GAO-08-276)

Research to support and improve VHA's TBI screening/evaluation program became PT/BRI QUERI's highest priority

Research on psychometric properties of TBI screen

Evaluation of implementation

Partnership Activities

- Researchers helped develop TBI evaluation template and involved in national workgroups to monitor and make recommendations for improvement
- PM&R consultation to researchers
 - critical to understanding VHA's screening/evaluation data
- Researchers shared findings regarding data quality and gaps in program with PM&R
 - provider training on TBI evaluation
 - changes to TBI evaluation template to improve data quality
- Consensus conference involving multiple Program Offices to review screening and evaluation processes in light of research and fact that the wars in Afghanistan and Iraq are winding down

TBI Screening and Evaluation Research: Brief Summary

- Almost all eligible Veterans screened for TBI
 - \approx 20% positive screen for TBI
 - Negative Predictive Value strong; Positive Predictive Value weak
- TBI Screening and Evaluation Research Fact Sheet (<http://www.queri.research.va.gov/ptbri/docs/vha-tbi-screening-eval.pdf>)
- More work to be done...
 - Articles still being published
 - Important questions remain
- Ongoing challenges: research vs. operations timeline; difficult to modify tools and procedures after implementation

TBI Utilization Reports

- Led by Brent Taylor, PhD, in close collaboration with PM&R
 - PM&R part of research team
- Leverage VHA administrative data to address the following questions:
 1. What is the prevalence of clinician-diagnosed TBI in Afghanistan and Iraq war Veterans who used VHA?
 2. Among those with clinician-diagnosed TBI, what is the rate of co-occurring mental health and pain-related conditions?
 3. What is the cost of providing VHA care to Veterans with TBI?

TBI Utilization Reports by fiscal year available online:

http://www.queri.research.va.gov/ptbri/utilization_reports.cfm

First Publication from Utilization Reports

Prevalence and Costs of Co-occurring Traumatic Brain Injury With and Without Psychiatric Disturbance and Pain Among Afghanistan and Iraq War Veteran VA Users

Brent C. Taylor, PhD, MPH,†‡ Emily M. Hagel, MS,* Kathleen F. Carlson, PhD,§||
David X. Cifu, MD,¶# Andrea Cutting, MA,* Douglas E. Bidelspach, MPT,**
and Nina A. Sayer, PhD*† ††*

- Medical Care 2012.

Prevalence of Diagnoses by TBI (FY 2009)

Diagnoses	TBI (n=22,053) 6.7%	No TBI (n=305,335) 93.3 %	Total (n= 327,388) 100%
Mental Health dx	89%	39%	42%
PTSD	73%	24%	28%
Depression	45%	20%	21%
Anxiety	22%	10%	11%
Substance Abuse	20%	8%	9%
Head/Back/Neck Pain	70%	30%	33%
Headache	47%	9%	12%
Back Pain	45%	23%	25%
Neck Pain	15%	5%	6%
PTSD and Pain	54%	11%	14%

Average 2009 VHA Medical Costs for Afghanistan and Iraq War Veterans by Diagnosis Group

ICD 9 Diagnoses	Proportion of OEF/OIF Veterans Seen in VHA 2009 (%)	2009 VHA Median Costs (IQR)
No TBI, pain, or PTSD	52.7	\$978 (\$439–\$2074)
Pain	17.9	\$1974 (\$953–\$3890)
PTSD	12.2	\$2763 (\$1345–\$5426)
Pain + PTSD	10.5	\$4978 (\$2655–\$9283)
TBI	0.7	\$2391 (\$1112–\$4770)
TBI + pain	1.1	\$3931 (\$2139–\$6899)
TBI + PTSD	1.3	\$5053 (\$2770–\$9075)
TBI, pain, and PTSD	3.6	\$7974 (\$4559–\$14,332)

Three Years of Utilization Reports Pooled Together

JRRD

Volume 50, Number 9, 2013

Pages 1169-1176

Traumatic brain injury, posttraumatic stress disorder, and pain diagnoses in OIF/OEF/OND Veterans

David X. Cifu, MD;^{1-3*} Brent C. Taylor, PhD;⁴⁻⁵ William F. Carne, PhD;^{2-3,6} Douglas Bidelspach, MPT;^{1,7} Nina A. Sayer, PhD;^{4-5,8} Joel Scholten, MD;^{1,9} Emily Hagel Campbell, MS⁴

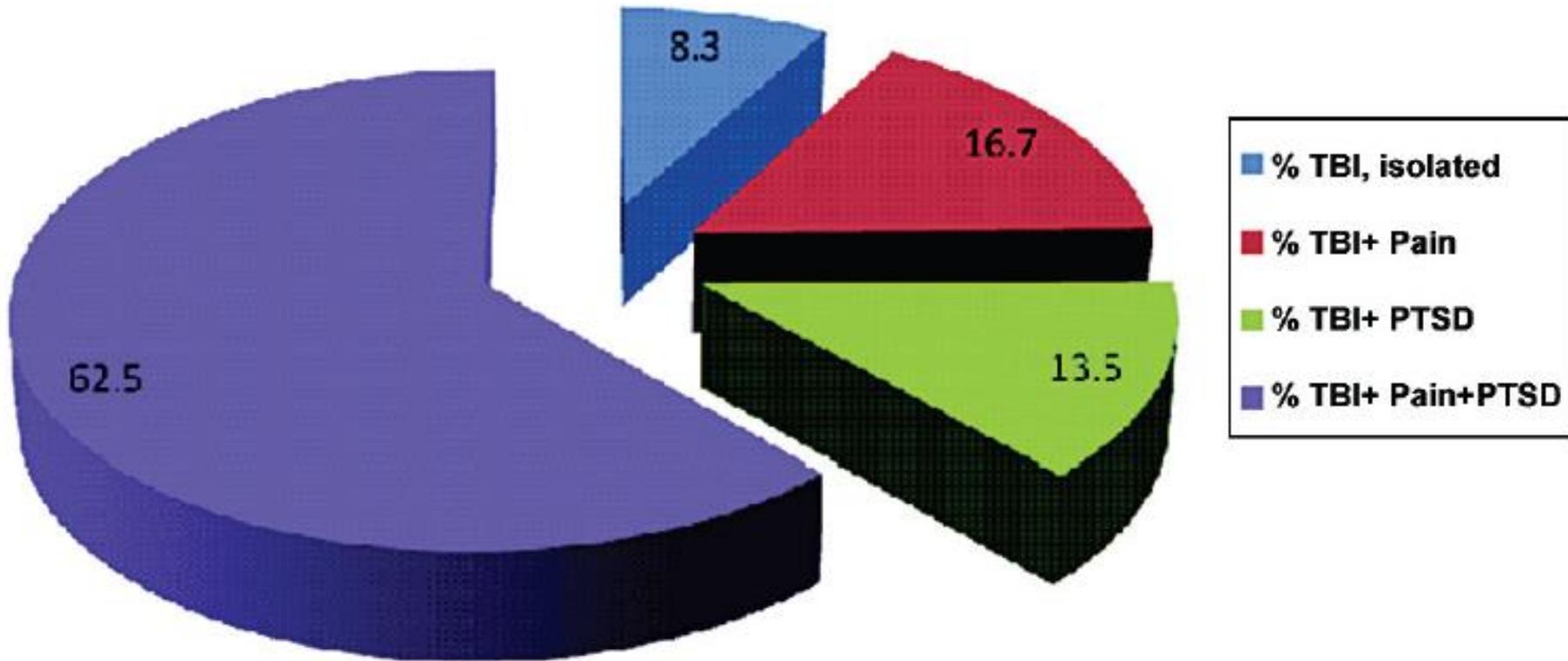
¹Physical Medicine and Rehabilitation Program Office, Department of Veterans Affairs (VA), Washington, DC;

²Department of Physical Medicine and Rehabilitation, Virginia Commonwealth University, Richmond, VA; ³Hunter Holmes McGuire VA Medical Center (VAMC), Richmond, VA; ⁴Center for Chronic Disease Outcomes Research, Minneapolis VA Health Care System, Minneapolis, MN; ⁵Department of Medicine, University of Minnesota, Minneapolis, MN; ⁶Defense and Veterans Brain Injury Center, Richmond, VA; ⁷Rehabilitation and Prosthetics Services, Lebanon VAMC, Lebanon, PA; ⁸Department of Psychiatry, University of Minnesota, Minneapolis, MN; ⁹Department of Physical Medicine and Rehabilitation, Washington VAMC, Washington, DC; and Department of Physical Medicine and Rehabilitation, Georgetown University Medical Center, Washington, DC

Proportion of Iraq and Afghanistan War Veterans with Diagnoses of TBI, Pain of the Head, Neck or Back, and/or PTSD Over Time

Diagnosis	VHA User FY2009	VHA User FY2010	VHA User FY2011	VHA User FY2009 to FY2011
	N=327,388	N=398,453	N=471,383	N=613,391
TBI	6.7%	6.8%	6.5%	9.6%
Pain	33.6%	34.1%	33.7%	40.2%
PTSD	27.6%	27.9%	28.2%	29.3%

PTSD & Pain Comorbidities in Veterans with TBI over Three Years



Next Steps

- Because of the value of this work to Program Office partners, we plan to continue it beyond the end of disease-specific QUERIs in FY 2016
 - Incorporate additional diagnoses in response to IOM and Program Office recommendations
 - Longitudinal study to track utilization and costs over 3 to 5 years following TBI screening in a defined cohort
 - Focus on *mild TBI*

Program Office-research partnership:

Lesson Learned

Benefits

- Build expertise in *emerging* areas
- Focus research and QI where need greatest
- Ensure research appropriate to the field and frontline clinician investment
- Provide decision makers with evidence-based information to guide policy and provider training
- Research products disseminated to the field and integrated into the TBI/polytrauma system of care

Key Ingredients to Successful Partnership

- Our research-operations partnership:
 - Motivated by shared goal to define and improve TBI Care
 - Involved multiple representatives from key partners
 - Involved multiple Program Offices with related goals
 - Interdisciplinary effort
 - Structured into PT/BRI QUERI leadership
 - Valued by external stakeholders
- Partnership takes time, motivation, effort, internal and external reinforcement

References and Resources

Cifu DX, Taylor B, Carne WF, Bidelspach D, Sayer NA, Scholten J, Hagel C. Traumatic brain injury, posttraumatic stress disorder and pain diagnoses in OEF/OIF/OND Veterans. J Rehabil Res Dev. 2013;50:1169–76.

Ford JH, Wise M, Krahn D, Oliver KA, Hall C, Sayer NA. Family Care Map: Sustaining Patient and Family Centered Care in Polytrauma Rehabilitation Centers. J Rehabil Res Dev. 2014; 51(8): 1311-1324.

Friedemann-Sanchez G, Sayer NA, Pickett T. Provider perspectives on rehabilitation of patients with polytrauma. Arch Phys Med Rehab 2008; 89(1): 171-178.

Hall C, Sigford B, Sayer NA. Practice changes associated with the Department of Veterans Affairs Family Care Collaborative. J Gen Intern Med Supplement 1 2010; 25: 18-26.

Scholten J, Sayer NA, Bidelspach D, Vanderploeg R, Cifu DX. Analysis of U.S Veterans Health Administration Comprehensive Evaluations for Traumatic Brain Injury in Operation Enduring Freedom and Operation Iraqi Freedom Veterans. Brain Injury. 2012; 26 (10): 1177-1184

Taylor BC, Hagel EM, Carlson KF, Cifu DX, Cutting A, Bidelspach DE, Sayer NA. Prevalence and Costs of Co-Occurring Traumatic Brain Injury with and without Psychiatric Disturbance and Pain among Iraq and Afghanistan Veteran VA Users. Medical Care. 2012; 50: 342-346

Taylor B, Sayer NA. Guest Editorial: Annual Reports on VHA Healthcare Utilization among Iraq and Afghanistan War Veterans with TBI and Co-morbidities to Inform Policy, Research and Practice. J Rehabil Res Dev. 2014; 51(7): VII-VIII.

Websites:

- Clinical Practice Guideline for management of concussion/mild TBI available at http://www.healthquality.va.gov/guidelines/Rehab/mtbi/concussion_mtbi_full_1_0.pdf
- Family Care Map available at <http://www.polytrauma.va.gov/FCM/>
- PT/BRI QUERI Utilization Reports for OEF/OIF Veterans diagnosed with TBI available at http://www.queri.research.va.gov/ptbri/utilization_reports.cfm
- PT/BRI QUERI TBI Screening and Evaluation Fact Sheet available at <http://www.queri.research.va.gov/ptbri/docs/vha-tbi-screening-eval.pdf>.

Thank You!

Comments and Question?

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