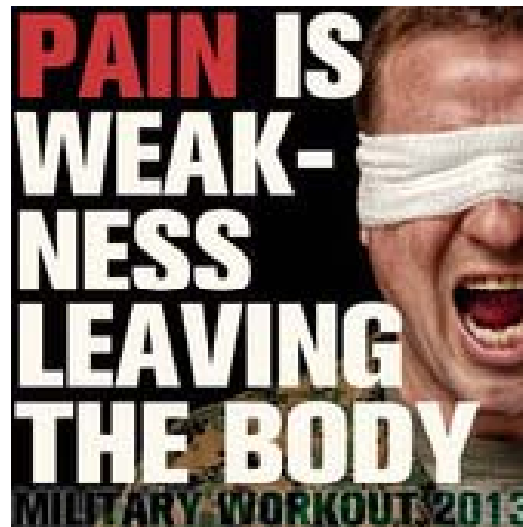# The PROMIS of Pain Assessment in the Military

Chester 'Trip' Buckenmaier III, MD
COL (ret), MC, USA

Financial Relationships

I have no financial relationships with any product or company discussed in this presentation

I have performed consulting services for Pacira Inc. and Teleflex Inc. in the last 12 months, nothing in this presentation relates to this work.

Disclaimer

The views expressed in this paper are those of the author and do not reflect the official policy or position of the Uniformed Services University, Department of Defense, or the U.S. Government.
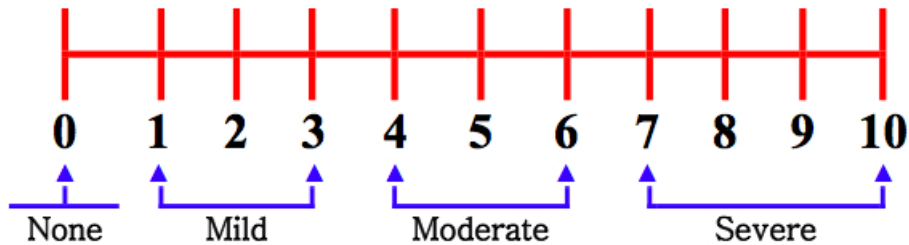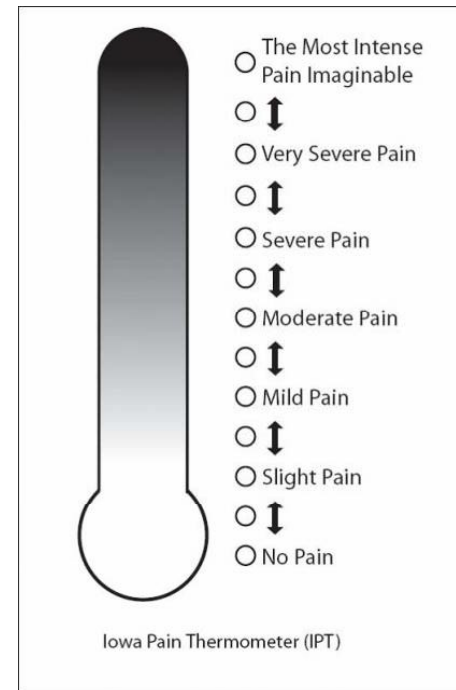
10 of 10 Pain

Many validated scales are available

NRS – Numeric Rating Scale

VDS - Verbal Descriptor Scale

IPT – Iowa Pain Thermometer

FPS-R - Faces Pain Scale Revised

Scale Comparisons

Pain intensity assessment in older adults: Use of experimental pain to compare psychometric properties and usability of selected pain scales with younger adults. Clinical Journal of Pain. 2004:20(4);207-219.

➢ 86 younger & 89 older volunteer subjects responding to experimental thermal pain.
➢ Response to pain then measured with: vertical visual analog scale (VAS), 21-point Numeric Rating Scale (NRS), Verbal Descriptor Scale (VDS), 11-point Verbal Numeric Rating Scale (VNS), and Faces Pain Scale (FPS).

Conclusions:

Scale preference was not related to cognitive status, educational level, age, race, or sex.

The scale most preferred to represent pain intensity in both cohorts of subjects was the NRS, followed by the VDS.

All 5 pain scales were effective in discriminating different levels of pain sensation; however the VDS was most sensitive and reliable.

Scale Comparisons

Evaluation of the revised faces pain scale, verbal descriptor scale, numeric rating scale, and Iowa pain thermometer in older minority adults.
Pain Management Nursing. 2006:7(3);117-125.

➢ 68 cognitively impaired participants exposed to the Faces Pain Scale Revised (FPS-R), Verbal Descriptor Scale (VDS), Numeric Rating Scale (NRS), and Iowa Pain Thermometer (IPT).

Conclusions:

When race and cognitive status were considered, African-Americans and Hispanics preferred the FPS-R. Severely, moderately, and mildly impaired participants also preferred the FPS-R. The findings of this study support the use of these scales with older cognitively impaired minority adults.

4.1.2 Standardized Pain Assessment Tool

Objective: Describe a common language DoD and VHA pain assessment tool with visual cues and a common set of measurement questions.

The most commonly used tool to measure pain in both civilian and military medicine settings is an 11-point, 0-10 Visual Analog Scale (VAS). During site visits, the TF received a great deal of negative feedback regarding the use and perceived value of the VAS Pain Scale. A majority of the doctors, nurses, physical therapists, medics and other clinicians who were interviewed reported similar negative feelings about the VAS Pain Scale, including:

• The VAS Pain Scale is inconsistently administered.
• The VAS Pain Scale is regarded as very subjective and had no functional anchors.
• The VAS Pain Scale assessments recorded in patient medical records are considered to have little value by clinicians at all levels.

Pain Management Task Force – Attributes for a new DoD and VHA Pain Assessment Tool
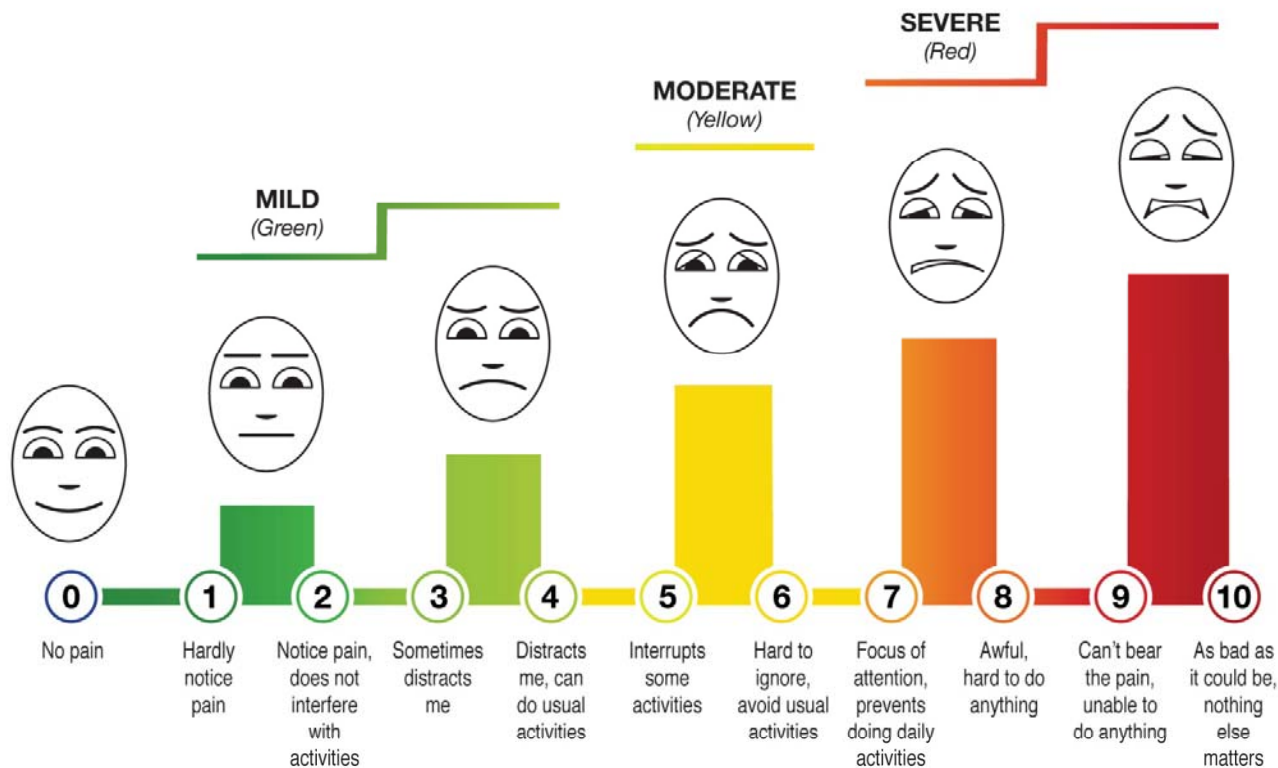
1. Validated:

   A. Able to measure pain intensity, mood, stress, biopsychosocial impact, and functional impact;

2. Objective and useful in evaluating treatment effectiveness:

   A. Practical and adaptable to multiple clinical settings and scenarios throughout the continuum of care (e.g. battlefield, transport, combat support hospital, primary care, medical center, pain medicine specialty services);

   B. Easily adapted and integrated into DoD and VHA computer medical databases;

   C. Standardized into all levels of medical training across all roles of care (e.g. useful for the medic, the ward nurse, the primary care provider, the pain researcher, and the pain management specialist); and

3. Consistent with current validated pain research tools.

Available at: www.DVCIPM.org/training.html
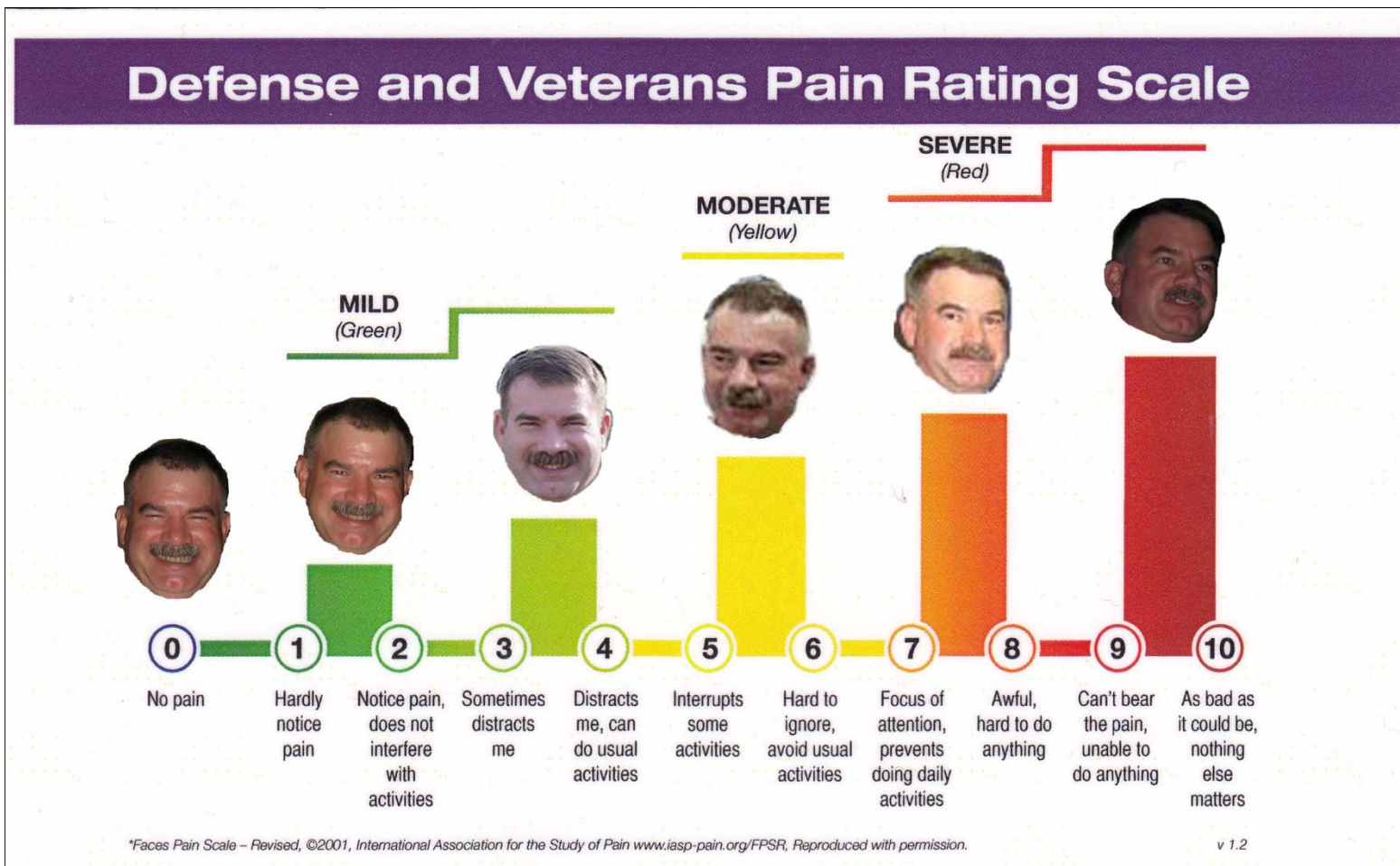
DoD/VA Pain Supplemental Questions

For clinicians to evaluate the biopsychosocial impact of pain

1. Circle the one number that describes how, during the past 24 hours, pain has interfered with your usual <u>ACTIVITY</u>:

0 — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Does not interfere   Completely interferes

2. Circle the one number that describes how, during the past 24 hours, pain has interfered with your <u>SLEEP</u>:

0 — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Does not interfere   Completely interferes

3. Circle the one number that describes how, during the past 24 hours, pain has affected your <u>MOOD</u>:

0 — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Does not affect   Completely affects

4. Circle the one number that describes how, during the past 24 hours, pain has contributed to your <u>STRESS</u>:

0 — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Does not contribute   Contributes a great deal

*Reference for pain interference: Cleeland CS, Ryan KM. Pain assessment: global use of the Brief Pain Inventory. Ann Acad Med Singapore 23(2): 129-138, 1994.   v 2.0

DVPRS Validation Study

Preliminary validation of the defense and veterans pain rating scale (DVPRS) with a military population.
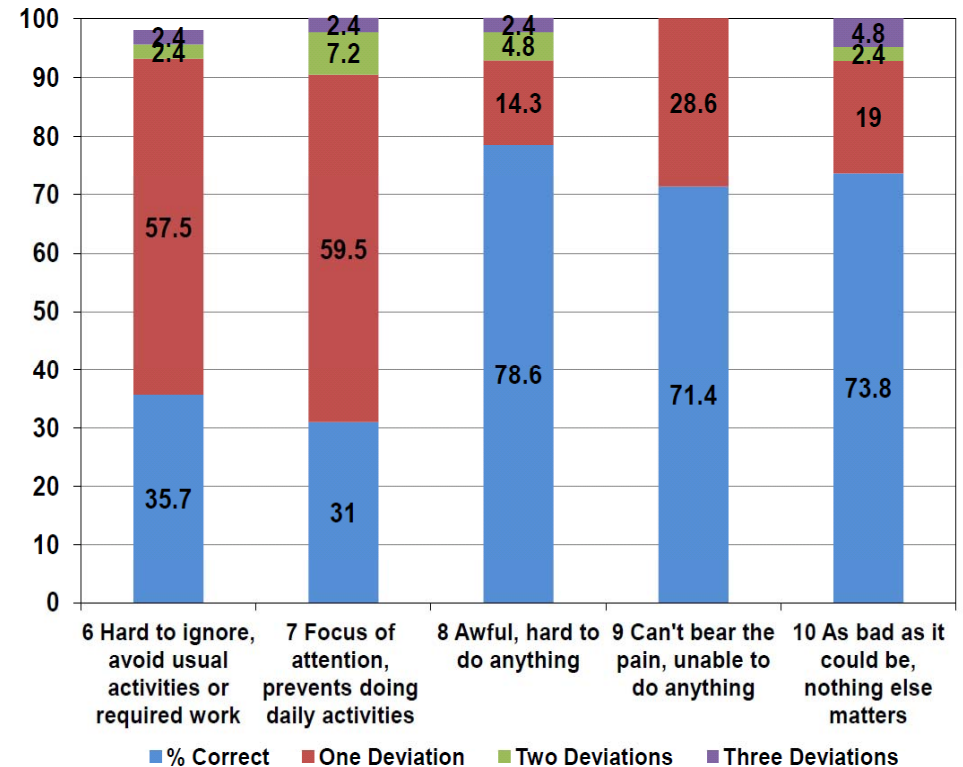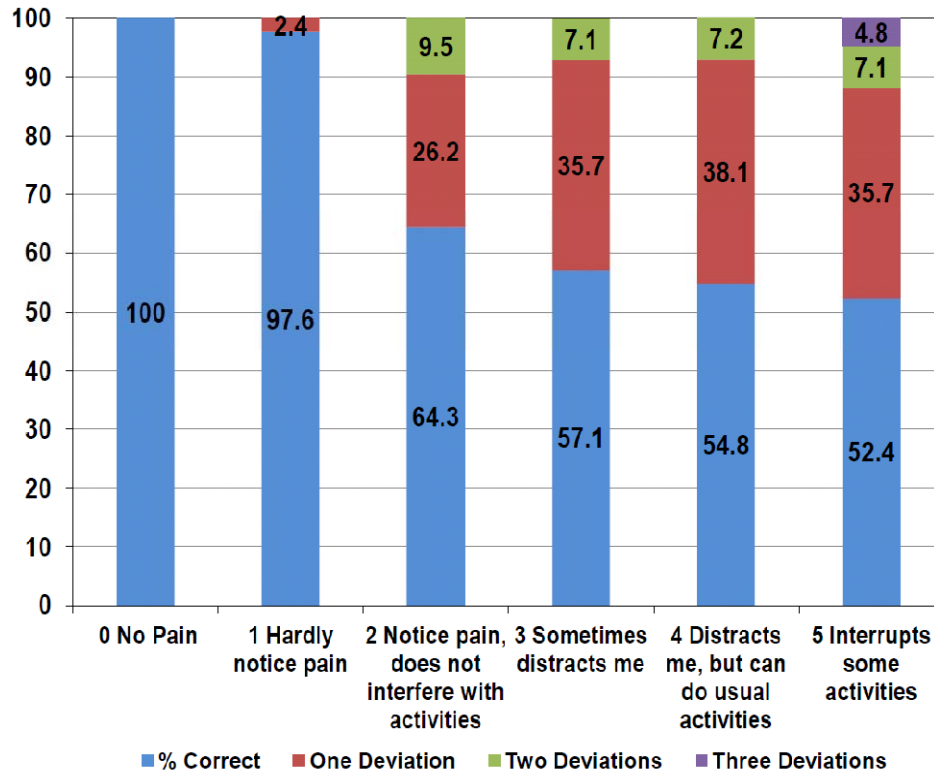Pain Medicine. 2012:14;110-123

➤ A convenience sample of 350 inpatient and outpatient active duty or retired service members at WRAMC. Participants completed the 5 item DVPRS; 1 pain intensity numeric rating scale (NRS) with and without word descriptors presented in random order and 4 supplemental items measuring general activity, mood, level of stress and sleep, and the Brief Pain Inventory (BPI) 7 interference items.

➤ When the DVPRS was presented with the word descriptors first, the correlation between the two ratings was slightly higher, r=0.929 (n=171; P<0.001), than ordering first without the descriptors, r=0.882 (n=177; P<0.001). Intraclass correlation coefficient (ICC) was 0.943 showing excellent alignment of word descriptors by respondents (n=42) matching them correctly with pain level.

Pain Assessment Scales

DVPRS Validation Study
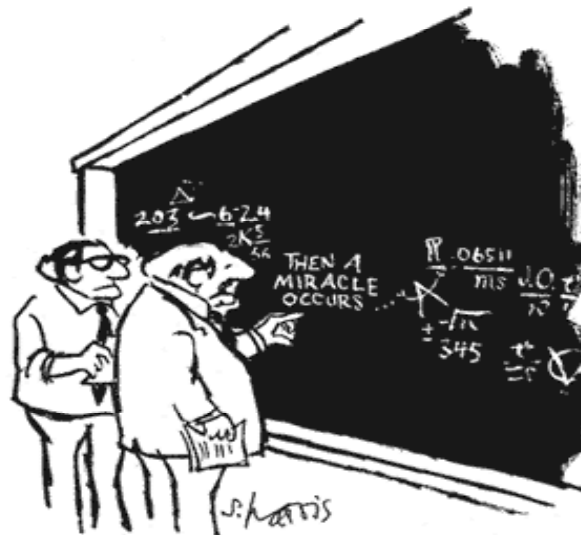
DVPRS Validation Study

• In this preliminary phase of validation, the DVPRS tool demonstrated acceptable psychometric properties in a single assessment point in time.

• Thus far, a subset of respondents indicated excellent alignment of word descriptors denoting pain severity showing promising initial findings for validating the meaningfulness of words and phrases.

DVPRS Clinical Use

| Description	Date				Scheduled/PRN Medications		Vitals	Labs	Notes
Dismounted IED Blast: LLE BKA, RLE massive STI, R pneumothorax, R scrotal injury/FB and hematoma of L testicle, R volar wrist wound, open R knee arthrotomy, L knee multiligamentous injury; ligamentously laxity on L knee DOI: 8/22/2012 ketamine start date: 8/29/12@10mg/hr Max dose: Indication: neuropathic pain Side effects: Discontinuation:	8/26/12	Med management	9/5/12	Lovenox 30mg BID (0600, 1800)	Scheduled: Pamelor 25mg po qhs (8/28), Neurontin 600mg po tid(8/31), Tylenol 1000mg IV TID, Ketamine 10mg/h(8/29) PRN: dilaudid po 0.2mg q10min, Ativan 1-2mg IV q4h	PCA- 2 IR 0	3/8 M:OR T: W:OR T:3-2-1-1	5	OR today 8/31 LLE amp revision, poss DPC, poss abx beads, poss WVE. Anticipate neurontin to ↑ to 600mg TID today. Will reserve placement of PNC when cultures are clear. Neurontin increased.
IED Blast: Comminuted R proximal fibular fx w/STI, -occlusion of distal R popliteal artery DOI: 8/21/2012	8/27/2022 Day (4)	R Sciatic 0.2% Rop 5/5/30	9/3/12	Lovenox 30mg q12 (0600, 1800)	Scheduled: Asa 81mg po qd, Celebrex 100mg po BID, morphine SR 15mg BID (8/30) Prn: Morphine IR 15-30mg po q4 morphine po q10min	PCA 11 IR 30	2/3 M: 5-3-3-3 T: 5-4-4-4 W: 2-3-0-0 Th:2-2-1-1	99.4 WBC: 7.9	
bil le amputations, R brachial STI DOI: 8/23/12	8/27/2012 (day 4)	R Sciatic 0.2% Rop 8/5/30 L Sciatic 0.2% Rop 8/5/10	9/3/12	Lovenox 30mg BID (0600, 1800)	Scheduled: PRN: Tylenol 650mg po q6h, Dilaudid 1mg iv q4hr, Valium 5mg po TID, Dilaudid PCA 0.6mg q10min, OxyIR 5-10mg q6h	PCA 22.8 IR 40	2/3 M: 5-4-3-3 T: 3-3-3-3 W: 3-2-3-2 Th:1-0-0-0	101.6 WBC 0.4→10.3 →11.5→ 17.5	turn off PNC, pull if possible for concern of
IED Blast, Closed head injury, Severe TBI, R Scalp hematoma, RUE amputation, L periorbital Swelling, I&D Abdominal Wound Closure DOI: 8/15/2012 Ketamine start date: 8/24/2012 @10mg/hr Indication: neuropathic Max dose: 10 Side effects: Discontinuation	8/22/2012 Day(9)	R Infra 0.25% Bup+Clonidine 1mcg/ml 12/5/30	8/29/12	Lovenox 30mg bid (0600,1800)	Scheduled: OxySR 10mg po bid(8/24), Tylenol 975mg po q8H, Celebrex 100mg po bid, Neurontin 300MG po q8h](8/27), Memantine 10mg po bid, ativan IV 0.25mg q6, ketamine 10mg/h(8/28) PRN: Dilaudid PCA 0.4mg q10min, OxyIR 5-10 po q4h (8/23).	PCA 3.6 IR 40	2/8 M: 5-0-4-5 T: 5-2-3-3 W: 0-0-0-0 Th: 3-4-7-7	100.5 WBC 7.0	ativan due to drowsiness
S/P Dismounted IED Blast, Distal Ulna Fx, LLE BKA, R Tib/Fib Fx, TBI (+) DOI: 7/11/2012 Ketamine Start: 8/26/12@10mg/hr Max dose: 80 Indication: neuropathic Side Effects: Discontinuation: 8/23 (third time on ketamine)	8/13/2012	Med Mgt	n/a	Lovenox 30mg BID (0600, 1800)	Scheduled: Lyrica 300mg po BID(7/31) Tylenol 1000mg iv q8h,]Methadone 10mg qd@1400, Methadone 15mg po 06, 12](8/31), Pamelor 75mg po qhs(8/30), Celebrex 200mg po qd, morphine IR 15-30mg qday before PT, lido patch Morphine IR 15mg po q4h (pt may refuse) Prn: ativan 0.5mg IV q4, Dilaudid PCA 0.4mg q10m	PCA 9.2 15	3/3 M: 3-3-3-3 T: 3-3-3-3 W: 3-3-3-3 Th:3-3-2-3	99.4	Pt c/o of burning pain to his Right hand. Methadone increased 8/31. QTC=446

DVPRS Clinical Use

Patient name	Dates of the week		Activity	Sleep	Mood	Stress		Pain now	Pain o/v 24h
TB	8/6-8/17	day 1	3	2	3	2		3	4
		day 2	3	2	2	2		3	3
		day 3	5	3	2	4		3	5
		day 4	6	3	3	4		7	5
		day 5	6	2	2	3		4	5
		day 6	3	2	2	2		5	5
		day 7	0	0	1	0		4	5
		day 8	0	0	1	0		5	5
		day 9	0	0	1	0		3	3
		day 10	0	0	0	0		0	0

mCare - TATRC

Week 1 pain trends
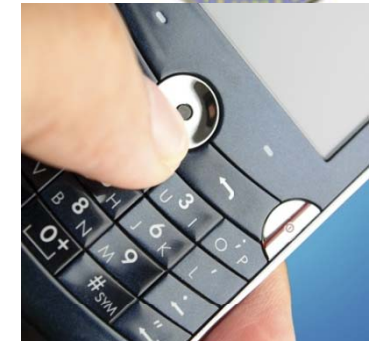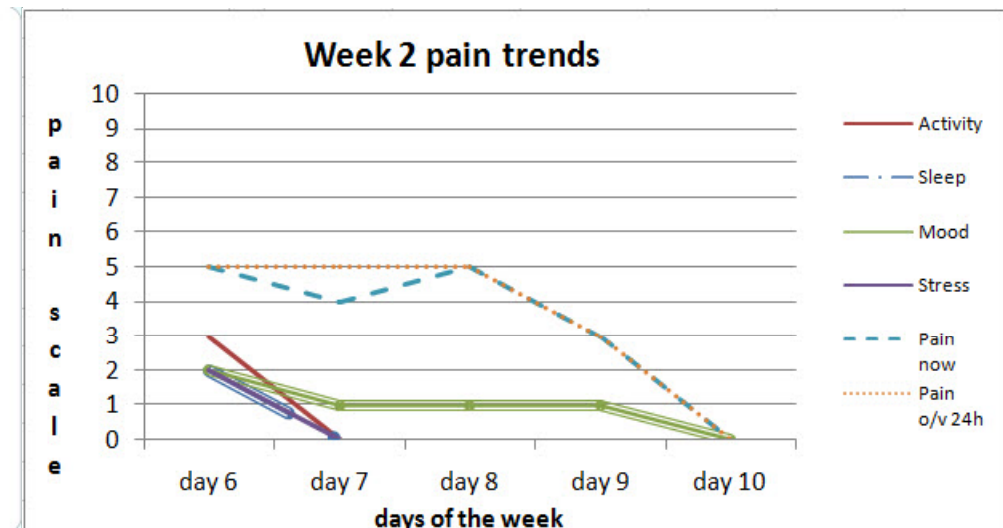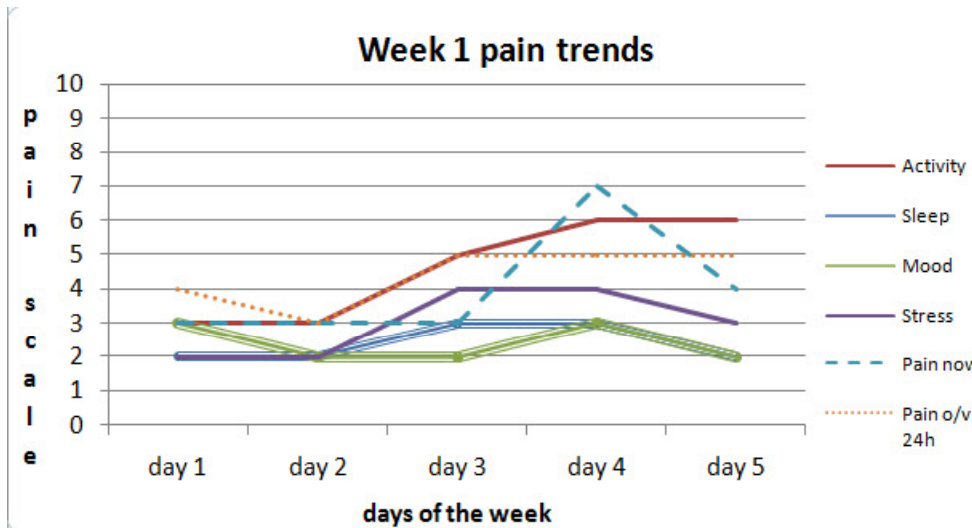
Week 2 pain trends

Why is this important?

About 20 percent of active duty personnel reported having engaged in heavy drinking in 2008, the latest year for which data are available, and binge drinking increased from 35 percent in 1998 to 47 percent in 2008. While rates of both illicit and prescription drug abuse are low, the rate of medication misuse is rising. Just 2 percent of active duty personnel reported misusing prescription drugs in 2002 compared with 11 percent in 2008. The armed forces' programs and policies have not evolved to effectively address medication misuse and abuse, the committee noted.
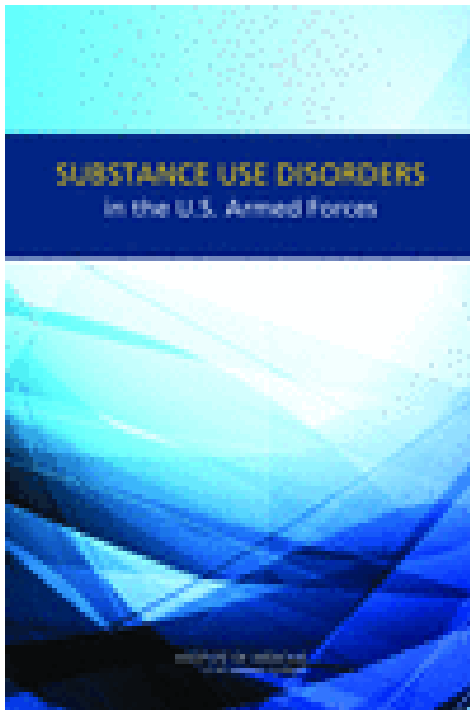
SUBSTANCE USE DISORDERS
in the U.S. Armed Forces

"It's now four years since I lay in the dirt, near death, on the side of the road in Fallujah. I'm grateful for all I have, and proud of the things I've accomplished.

In the end though, I don't measure how far I've come by goals achieved, or academic degrees earned, or running trophies won. For me, what counts is that pain no longer rules my life."

–Derek McGinnis

Exit Wounds: A Survival Guide to Pain Management for Returning Veterans and Their Families
www.exitwoundsforveterans.org **American Pain Foundation**

Prevalence of Chronic Pain, PTSD and TBI in a sample of 340 OEF/OIF veterans with polytrauma

Chronic Pain
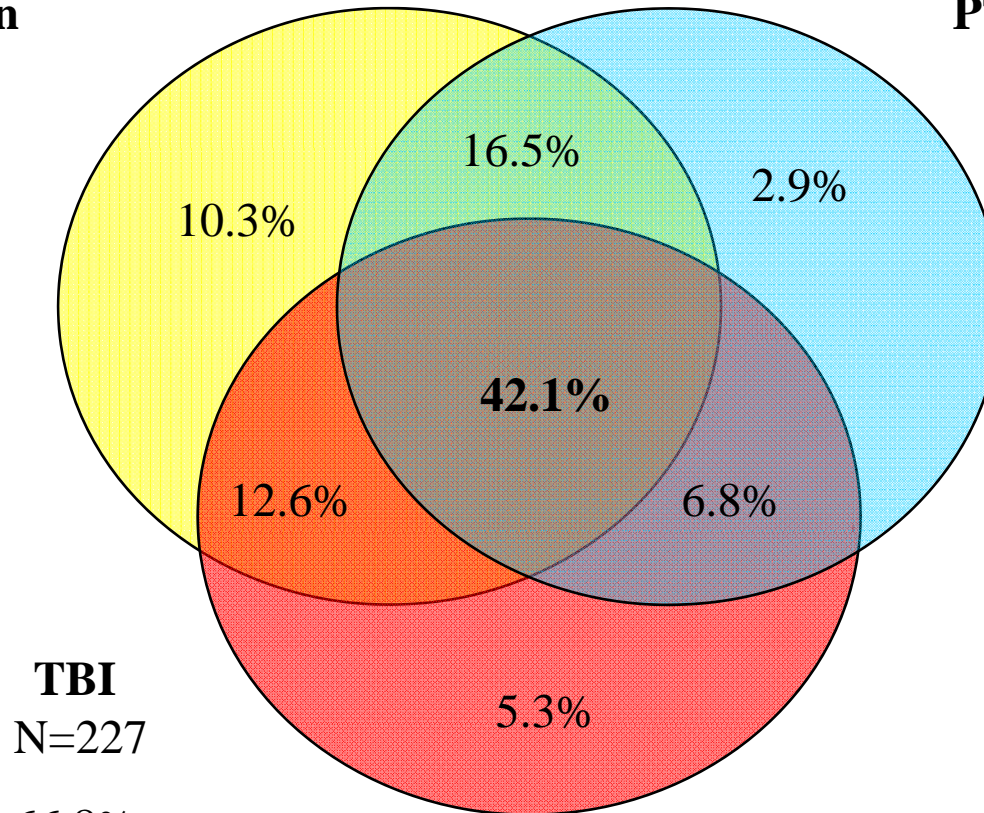N=277

81.5%

PTSD N=232

68.2%

TBI
N=227

66.8%

16.5%

2.9%

10.3%

42.1%

12.6%

6.8%

5.3%

Lew, Otis, Tun et al., (2009). Prevalence of Chronic Pain, Post-traumatic Stress Disorder and Post-concussive Symptoms in OEF/OIF Veterans: The Polytrauma Clinical Triad. *JRRD.*
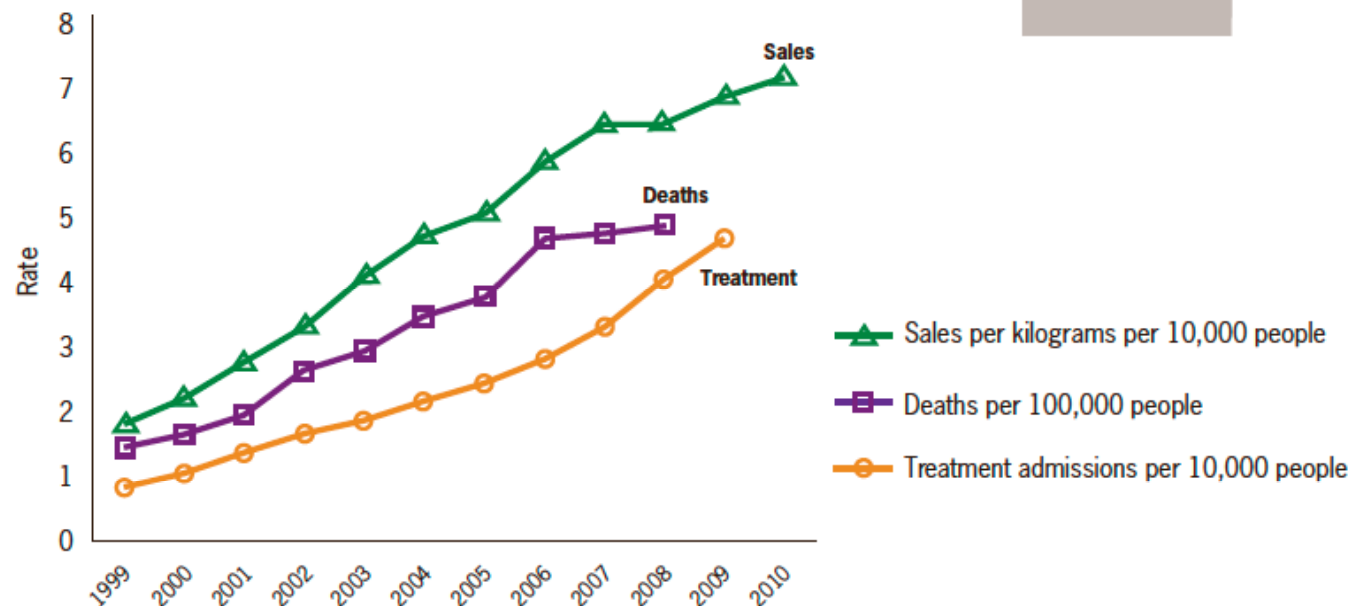
Why do we need the data?

More opioids, more addiction, more deaths

Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)

SOURCES: National Vital Statistics System, 1999-2008; Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 1999-2010; Treatment Episode Data Set, 1999-2009
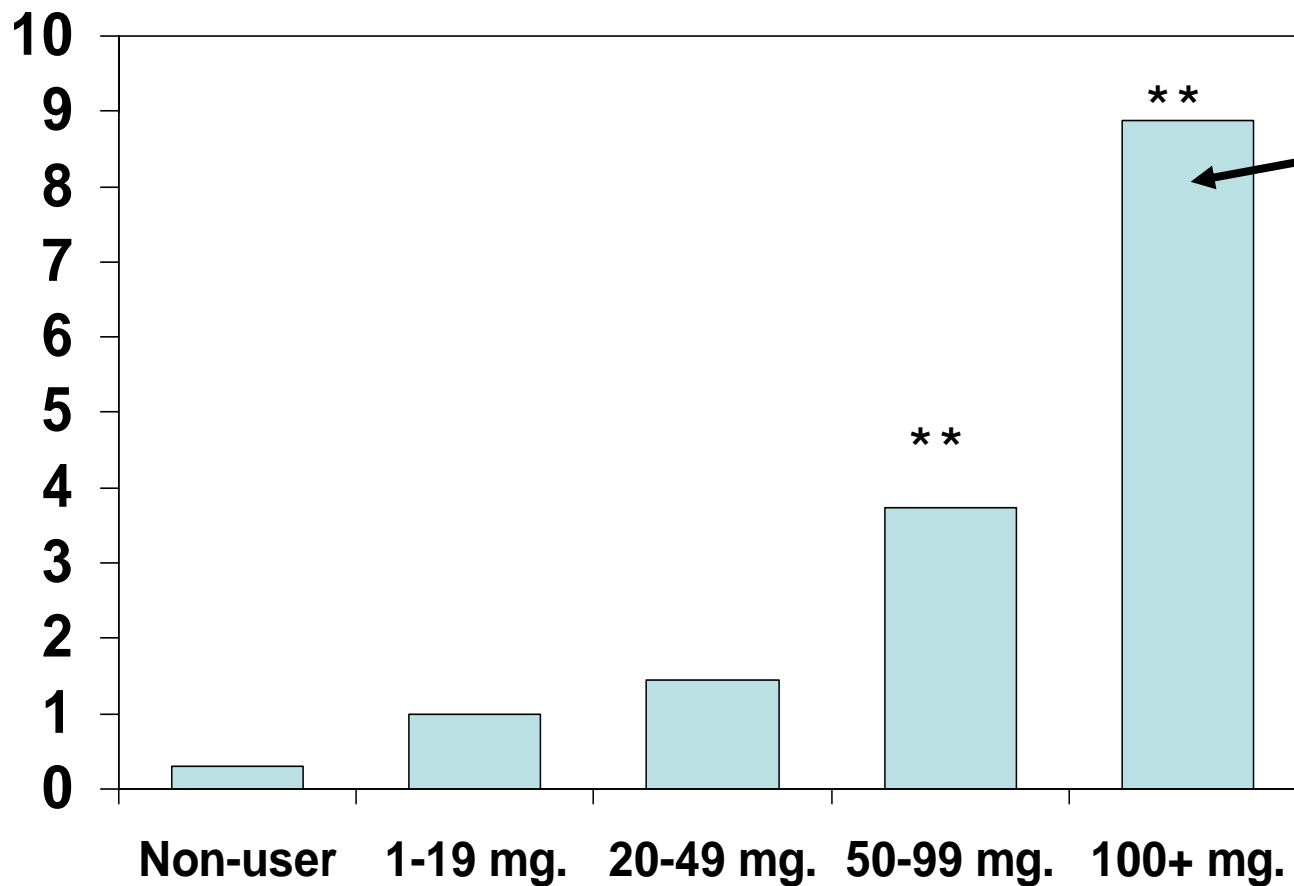
Why do we need the data?

Opioid overdose/death ratio

9-fold increase in risk relative to low-dose patients

** Significant increment in risk $p < 0.05$

Why do we need the data?
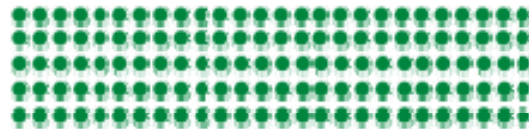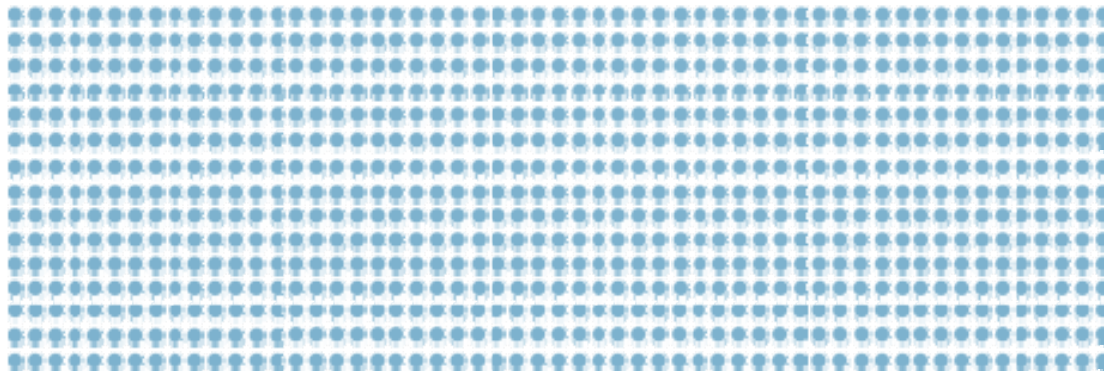

For every 1 death there are…

10 treatment admissions for abuse*

32 emergency dept visits for misuse or abuse⁶

130 people who abuse or are dependent⁷

825 nonmedical users⁷

What to do?

- If you want something to happen- make it easy

- If you want an evidence based decision – create the evidence

- "I'm neither for or against opioids."

Alex Cahana, M.D.

Pain Management Task Force

Provide recommendations for MEDCOM for a comprehensive pain management strategy

- that is *holistic*, *multidisciplinary*, and *multimodal*

- utilizes *state of the art/science* modalities and technologies, and

- provides *optimal quality of life* for *Soldiers and other patients* with acute and chronic pain.

  --Army Pain Management Task Force Charter; signed 21 Aug 2009
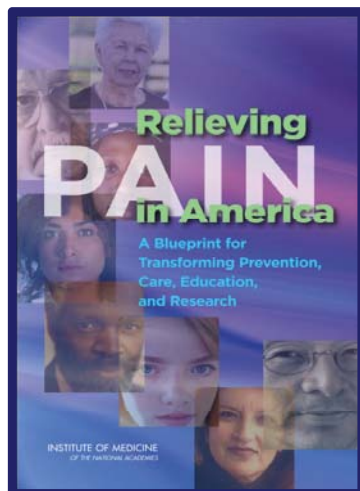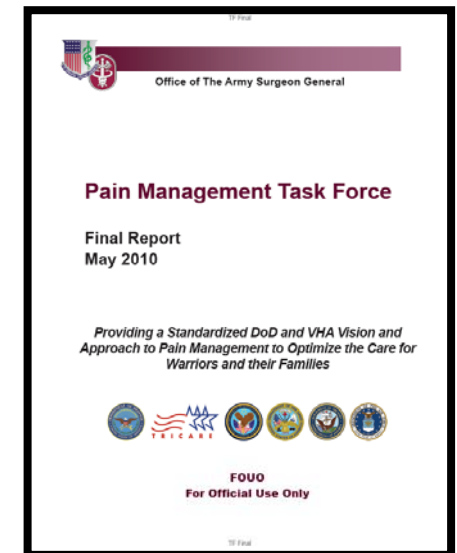
Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research, June 2011

- **Recommendation 4.1.9.1**

  Jointly fund development of a Pain Assessment Screening Tool and Outcome Registry under the direction of a central pain management advisory board.

Problem Statement

- **Military Health System (MHS) does not possess an enterprise pain outcome evaluation capability that would provide needed evidence to**:
  - Standardize pain management process
  - Propagate evidence-based best practices
  - Establish a registry for comparative effectiveness research

- **Pain management in it's current state *adversely impacts* the entire care continuum.**
  - Physicians cannot guide treatment decisions,
  - Patient involvement is limited
  - Efforts of military and civilian researchers to identify the most effective pain management strategies are impeded
  - Pain is number one reason veterans seek care

Back Pain -'Barroom Discussion'

Acupuncture for Chronic Pain: Individual Patient Data Meta-analysis

Arch Intern Med. 2012;172(19):1444-1453.

- Individual patient data meta-analyses were conducted using data from 29 of 31 eligible RCTs for chronic LBP, with a total of 17,922 patients analyzed.
- **Conclusions:** Acupuncture is effective for the treatment of chronic pain and is therefore a reasonable referral option
- **Cost: $100/visit x 10 visits ~ $1000**

Spinal Cord Stimulation for Patients with Failed Back Syndrome or Complex Regional Pain Syndrome: A Systematic Review of Effectiveness and Complications

Pain 2004:108;137-147

- **Seven out of 583 articles met criteria for SCS effectiveness, 15 for complications.**
- **Conclusions**: Effective at reducing pain although the effect decreases over time. Adverse events occur in 34% of patients.
- **Cost:** Journal of Neurosurgery: Spine finds the costs per patient to be **$32,882** under Medicare and **$57,896** under Blue Cross Blue Shield , with annual maintenance per patient of **$5,071**- **$21,390,** depending on whether complications are present.

"I am neither for or against acupuncture or SCS for chronic back pain, I am for whatever will cost-effectively treat the patient in front of me. How to choose is the rub…"

PASTOR/PROMIS

Relieving PAIN in America

A Blueprint for Transforming Prevention, Care, Education, and Research

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES
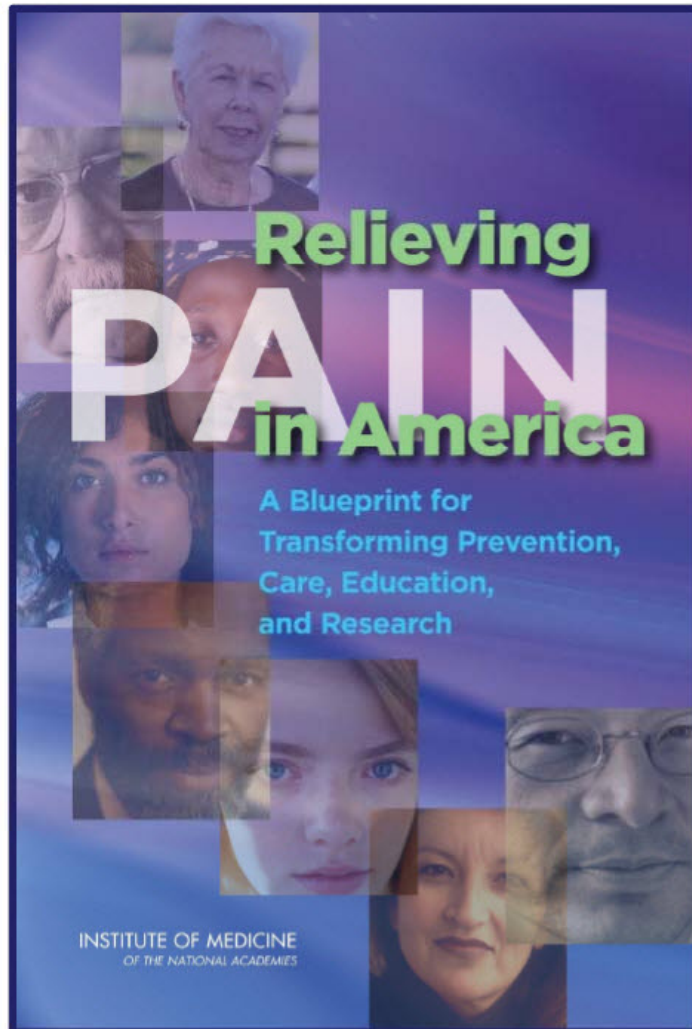
- Released in June 2011
- Referenced/Acknowledged Pain Management Task Force
- Validated PMTF Analysis, Findings, and Recommendations

- Coordinated Care
- Collaborative Care
- Outcomes Based Care
- Value Based Care

PASTOR/PROMIS

PASTOR - **Name of the DoD program**

PROMIS- **Engine that drives PASTOR**

PASTOR	PROMIS
Patient	**Patient**
Assessment	**Reported**
Screening	**Outcomes**
Tool	**Measurement**
&	**Information**
Outcomes	**System**
Registry	

PASTOR/PROMIS

*RESEARCH * OUTCOMES REGISTRY * CLINICAL DECISION TOOL*
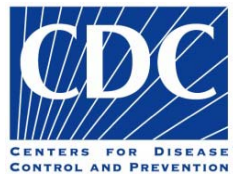
- Center for Disease Control and Prevention: (Health People 2020 will include PROMIS Global Measure)

- Bravewell Collaborative Integrative Medicine Outcomes Study

- DVCIPM Research
  - Pain Management
  - Rx Med Abuse
  - Interdisciplinary Care

RESEARCH ● OUTCOMES REGISTRY ● CLINICAL DECISION TOOL

Web application served from MAMC

- **Clinical Assessment**
  - Using validated computer adaptive testing (CAT) PROMIS instruments
- **Clinical Report/Decision Tool**
  - Longitudinal pt pain/function/alert data in concise format
- **Patients Enter Information Prior to Appointments**
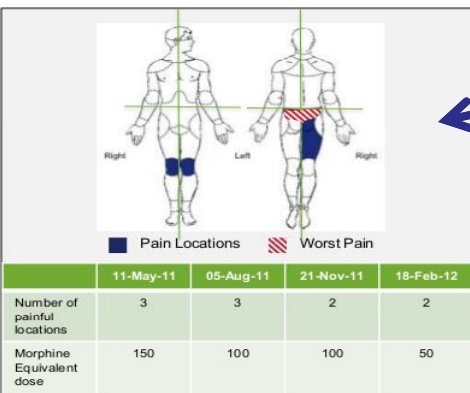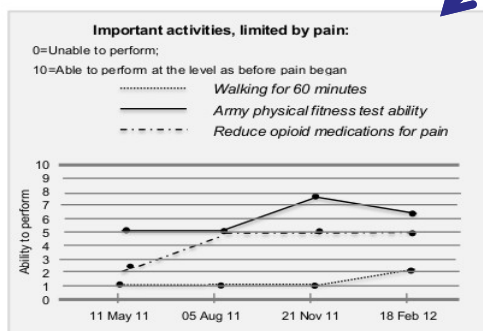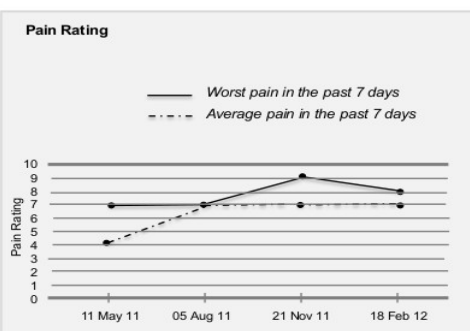 - Using the web capable device of their choice

PASTOR Clinical Report

Date: 17-04 -13
Name: Smith, Snuffy Q.
Family Preference Code/SSN: 20/1111
DOB: 16-04-44
AGE: 72
RANK: CPT

Home Phone Number: 555-555-5555
Primary Care Manager: Dr. XYZ
Gender: M
Home Address: 123 Sesame Street, Beverly Hills, CA 90210
Case Managed: Yes

- **Pain Mapped by Region**

Right   Left   Right

■ Pain Locations   ▨ Worst Pain

	11-May-11	05-Aug-11	21-Nov-11	18-Feb-12
Number of painful locations	3	3	2	2
Morphine Equivalent dose	150	100	100	50

!	Suicide Ideation	"In the past 2 weeks, how often have you been bothered by thoughts that you would be better off dead?" ANSWER: "Nearly every day."
	Opioid Misuse/ Abuse	Negative Screen; Score did not indicate problem.
	PTSD	Negative Screen; 0 items were endorsed.
!	Alcohol Misuse/ Abuse	Today's score: 4 / Previous score: 3
	Depression	Negative Screen.
	Anxiety	Negative Screen.

- **Clinical Alerts**

DVPRS

Pain Rating · · · Impact of pain on SLEEP · · · Impact of pain on ACTIVITIES

HIGH ↑ LOW

Pain Rating · · · Impact of pain on MOOD · · · Impact of pain on STRESS

11 May 11   05 Aug 11   21 Nov 11   18 Feb 12
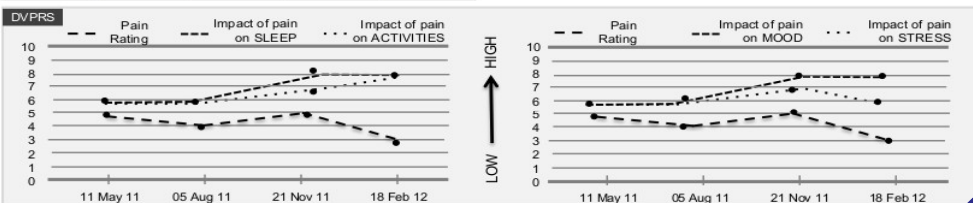
- **Patient Defined Goals**

Pain Rating

—— Worst pain in the past 7 days
—·—·— Average pain in the past 7 days

11 May 11   05 Aug 11   21 Nov 11   18 Feb 12

Important activities, limited by pain:
0=Unable to perform;
10=Able to perform at the level as before pain began

· · · · · · Walking for 60 minutes
—— Army physical fitness test ability
—·—·— Reduce opioid medications for pain

11 May 11   05 Aug 11   21 Nov 11   18 Feb 12

Page 1 of 3

Date: 17-04 -13
Name: Smith, Snuffy Q.
Family Preference Code/SSN: 20/1111
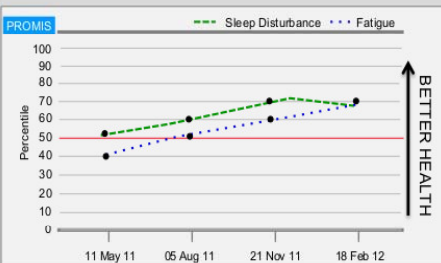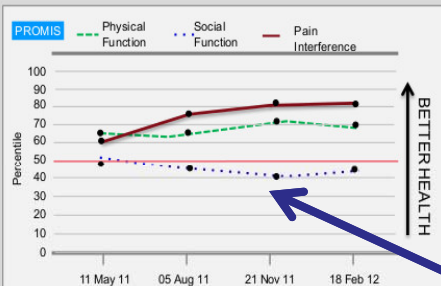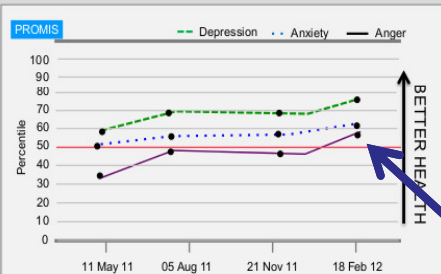**DOB**: 16-04-44
AGE: 72
RANK: CPT
Home Phone Number: 555-555-5555
Primary Care Manager: Dr. XYZ
Gender: M
Home Address: 123 Sesame Street, Beverly Hills, CA 90210
Case Managed: Yes

PROMIS Scores

Scores are reported in PERCENTILES and compared to a sample matched to the US 2000 Census on age, race/ethnicity, and sex. Higher scores indicate BETTER HEALTH.

Treatment History

Healthcare providers seen in the past 6 months:	
General Practice	1
Medical Specialists	4
Psychologists, Psychiatrists, other mental health professionals	2
Allied health professionals	1
Complementary and alternative healthcare professionals	0

Treatment modalities and effectiveness, in the past 6 months		
Exercise, physical therapy or occupational therapy.		Yes
	Effective?	Moderately
Physical modalities such as heat, massage, or TENS		No
Behavioral treatment (CBT, relaxation, distraction, etc.)		Yes
	Effective?	Not at all
Non-opioid, non-steroidal anti-inflammatory medications		Yes
	Effective?	Very
Non-opioid, non-steroidal, neuropathic pain medications		Yes
	Effective?	Moderately
Alternative therapies such as acupuncture, hypnosis, yoga or meditation		No

Opioid Utilization Screener	
Currently taking opiates/opioids/narcotics?	Yes
How long:	≥6 months
Pain relief:	Good
"Bad days" in past month:	3-5

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Date: 17-04 -13
Name: Smith, Snuffy Q.
Family Preference Code/SSN: 20/1111
DOB: 16-04-44
AGE: 72
RANK: CPT
Home Phone Number: 555-555-5555
Primary Care Manager: Dr. XYZ
Gender: M
Home Address: 123 Sesame Street, Beverly Hills, CA 90210
Case Managed: Yes

Depression (Percentile:55)		Sleep (Percentile: 72)	
In the past 7 days:	Response	In the past 7 days:	Response
I felt sad.	Very Much	I tried to sleep whenever I could	Rarely
I felt that I was not needed.	A little bit	I had problems during the day because of poor sleep.	A little bit
I felt lonely.	Somewhat	I felt irritable because of poor sleep.	Often
I felt that nothing was interesting.	Somewhat	I still felt sleepy when I woke up.	Often

Pain Interference (Percentile: 63)		Physical Function (Percentile: 76)	
In the past 7 days:	Response		Response
How much did pain interfere with your ability to concentrate?	Somewhat	Does your health now limit you in doing vigorous activities, such as running, lifting heavy objects, participating in strenuous sports?	Somewhat
How much did pain interfere with your day to day activities?	Very much	Does your health now limit you in lifting or carrying groceries?	Very much
How much did pain interfere with your enjoyment of recreational activities?	Not at all	How much do physical health problems now limit your usual physical activities (such as walking or climbing stairs)?	Quite a bit
How much did pain interfere with the things you usually do for fun?	A little bit	Are you able to move a chair from one room to another?	Very much

- **Gen population percentile indicator**

- **Color Coding on each graph**

Questions?

www.DVCIPM.org

http://www.dvcipm.org/clinical-resources/pain-assessment-screening-tool-and-outcomes-registry-pastor