



NATIONAL REGISTER  
OF HEALTH SERVICE PSYCHOLOGISTS

# CLINICAL WEBINARS

## FOR HEALTH SERVICE PSYCHOLOGISTS

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TRANSLATING RESEARCH TO PRACTICE

# Patient-Centered Opioid Reduction: A Toolkit for Psychologists

**Beth D. Darnall, PhD**

Associate Professor  
Stanford University School of Medicine  
Anesthesiology, Perioperative and Pain Medicine  
Psychiatry and Behavioral Sciences (by courtesy)

Principal Investigator, Stanford PCORI Project  
on Opioid and Pain Reduction (EMPOWER study)

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The National Register maintains responsibility for this program and its content.

# Beth Darnall, PhD



Beth Darnall, PhD, is Associate Professor at Stanford University School of Medicine, Department of Anesthesiology, Perioperative, and Pain Medicine. Dr. Darnall is principal investigator for NIH and PCORI-funded clinical trials that broadly investigate behavioral medicine and self-management strategies for acute and chronic pain, and voluntary patient-centered prescription opioid reduction.

She has authored/co-authored five books for patients and clinicians, including *The Opioid-Free Pain Relief Kit*, *Less Pain, Fewer Pills*, and *Psychological Treatment for Chronic Pain*. She develops and investigates digital interventions and virtual reality for perioperative and chronic pain and is the chief science advisor for appliedVR.

In 2018 she briefed the U.S. Congress on the opioid and pain crises, and in 2019 provided invited testimony to the FDA on iatrogenic harms from forced opioid tapering. Her work has been featured in *Scientific American*, NPR Radio, BBC Radio, *JAMA Internal Medicine*, and *Nature*. In 2018 she spoke on the psychology of pain relief at the World Economic Forum in Davos, Switzerland.

# Disclosures/Conflicts of Interest

- I have no additional disclosures or conflicts of interest.

# Learning Objectives

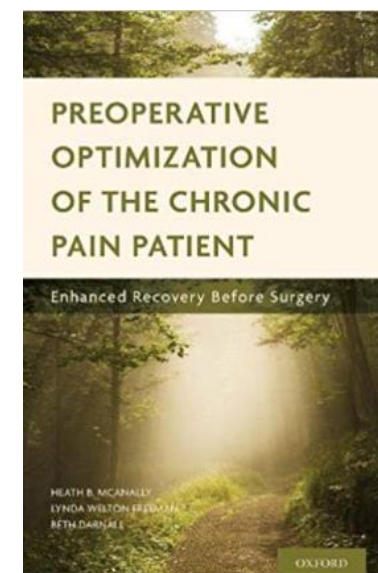
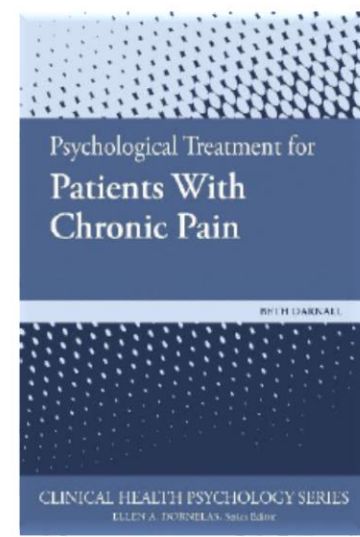
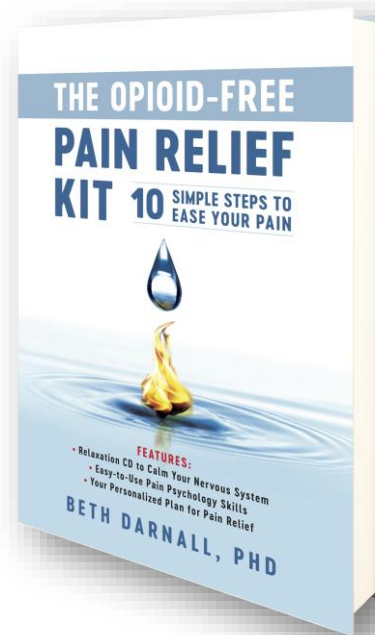
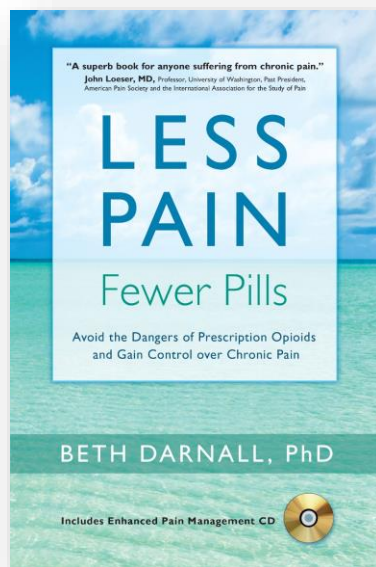
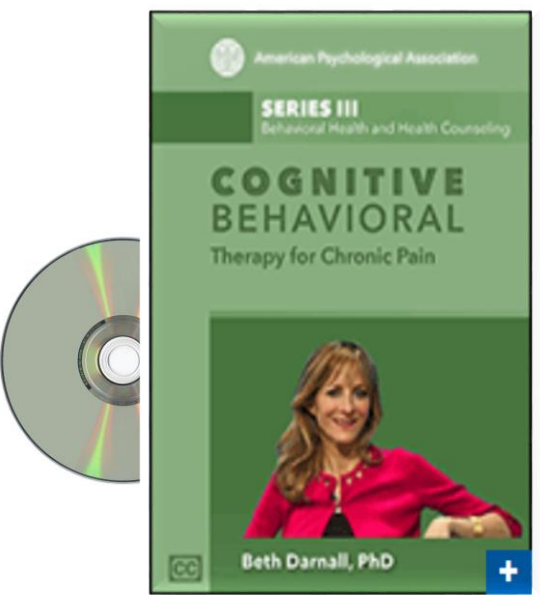
- Describe why placebo is a critical therapeutic target in the context of opioid reduction.
- List two pitfalls associated with forced opioid tapering.
- List two ways in which psychologists or psychology treatments can minimize placebo related to opioid tapering.

# Contracts and Grants

- PCORI (PI) Patient-Centered Opioid and Pain Reduction
- NIH / NCCIH: R01 (Co-PI) Mechanisms & Efficacy of Pain Catastrophizing Treatment for Chronic Pain



Chief Scientific Advisor: appliedVR

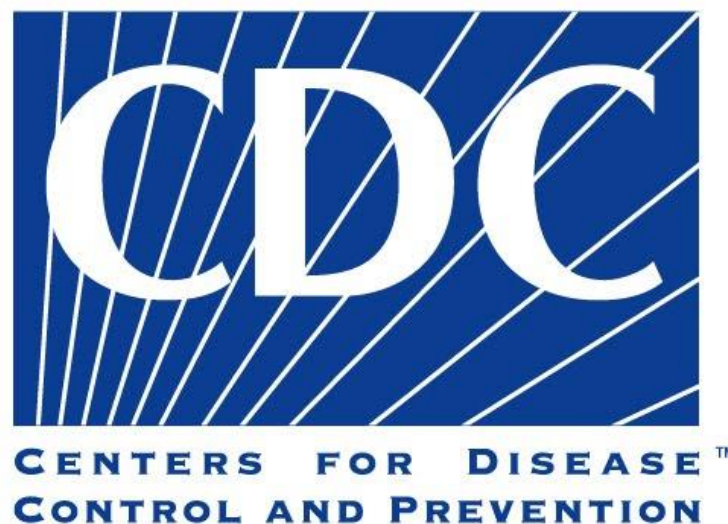
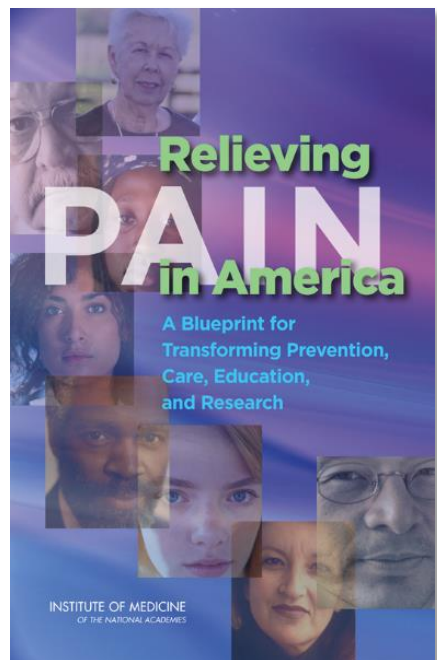




The background of the slide is a repeating pattern of blue silhouettes of human figures in various poses, creating a sense of a large crowd or population.

## 2011 IOM Report: *Relieving Pain in America*

- 100 million Americans have ongoing pain
- \$635 billion annually
- Erodes quality of life, confers suffering



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[www.cdc.gov](http://www.cdc.gov)

GUIDELINE FOR PRESCRIBING  
OPIOIDS FOR CHRONIC PAIN





# The biopsychosocial model of pain





International Association for the Study of Pain

**IASP**

*Working together for pain relief*

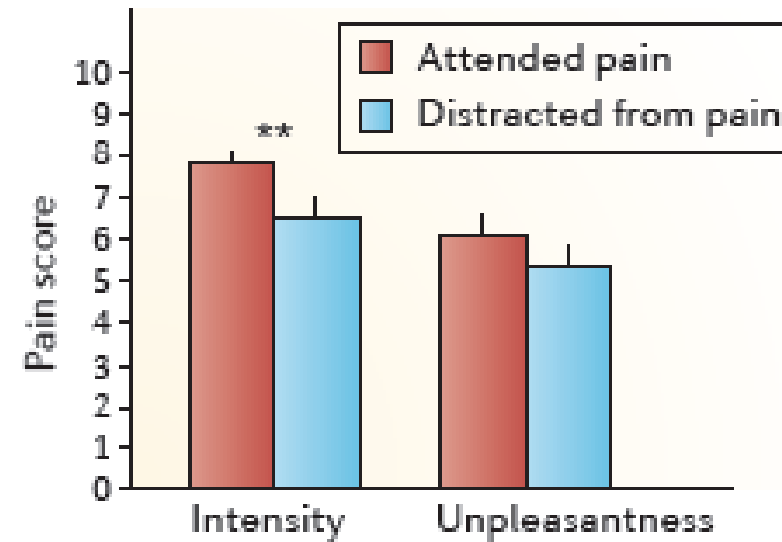
Pain Definition: A noxious sensory **and emotional experience**



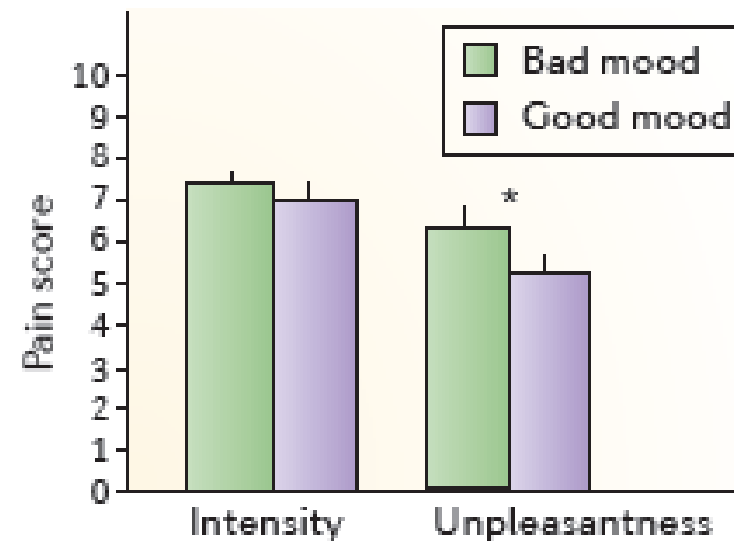
# Pain is Complex

- Context
- Meaning
- Cognition
- Emotion
- Affect
- Mood
- Attention
- Social factors

Attentional modulation



Emotional modulation



Villemure C & Bushnell MC. Cognitive modulation of pain: how do attention and emotion influence pain processing? *Pain* (2002).



# EXPECTATIONS

- Analgesic (Pollo, Amanzio, et al 2001)
- Amplify pain (Benedetti, Lanotte, Lupiano, Colloca 2007)

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Published in final edited form as:

*Pain*. 2014 January ; 155(1): 129–136. doi:10.1016/j.pain.2013.09.014.

## **From cue to meaning: Brain mechanisms supporting the construction of expectations of pain**

**Oleg V. Lobanov<sup>1,2</sup>, Fadel Zeidan<sup>2</sup>, John G. McHaffie<sup>2</sup>, Robert A. Kraft<sup>3</sup>, and Robert C. Coghill<sup>1,2</sup>**

<sup>1</sup>Neuroscience Program, Wake Forest University School of Medicine, 1 Medical Center Boulevard, Winston-Salem, NC 27157-1010, USA

<sup>2</sup>Department of Neurobiology and Anatomy, Wake Forest University School of Medicine, 1 Medical Center Boulevard, Winston-Salem, NC 27157-1010, USA

<sup>3</sup>Department of Biomedical Engineering, Wake Forest University School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1022, USA

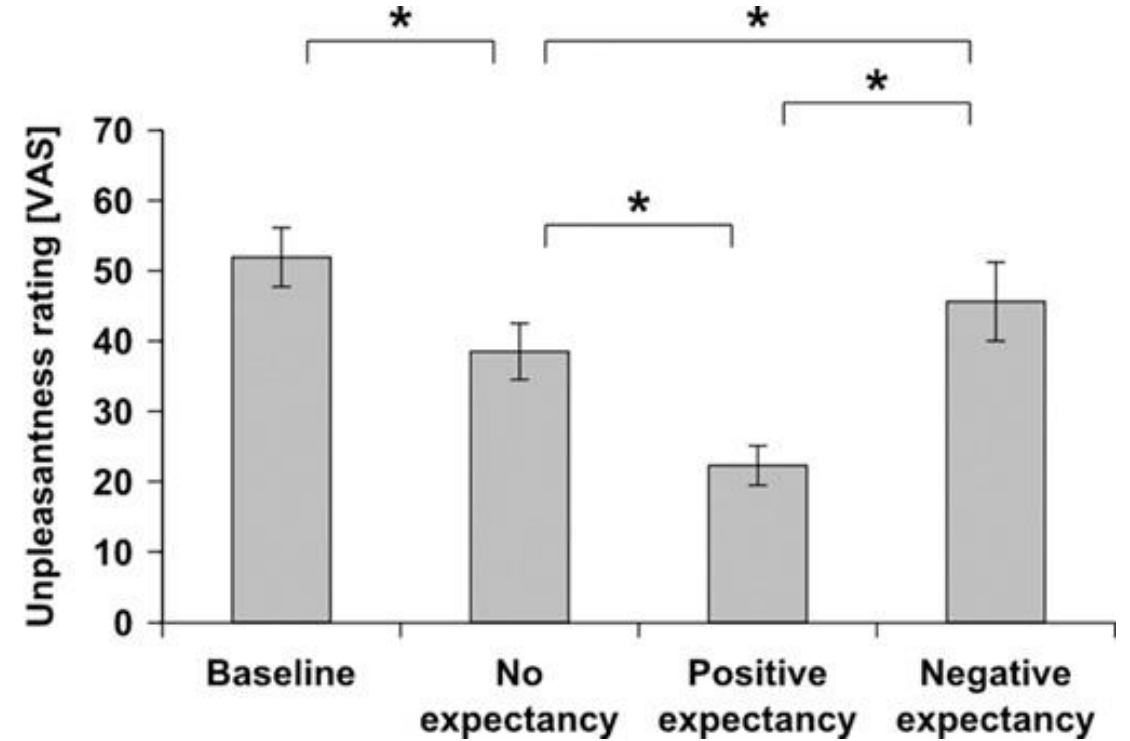
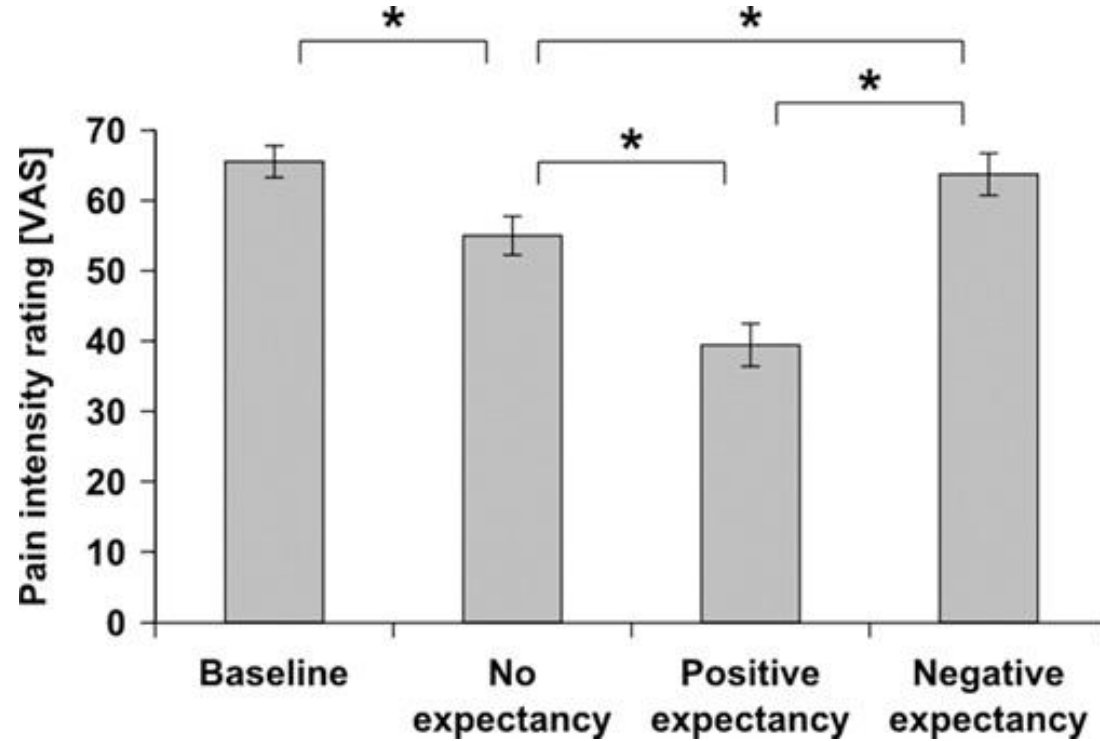
## DRUG EFFICACY

# The Effect of Treatment Expectation on Drug Efficacy: Imaging the Analgesic Benefit of the Opioid Remifentanil

Ulrike Bingel,<sup>1,2\*</sup> Vishvarani Wanigasekera,<sup>1</sup> Katja Wiech,<sup>1</sup> Roisin Ni Mhuirheartaigh,<sup>1</sup> Michael C. Lee,<sup>3</sup> Markus Ploner,<sup>4</sup> Irene Tracey<sup>1</sup>

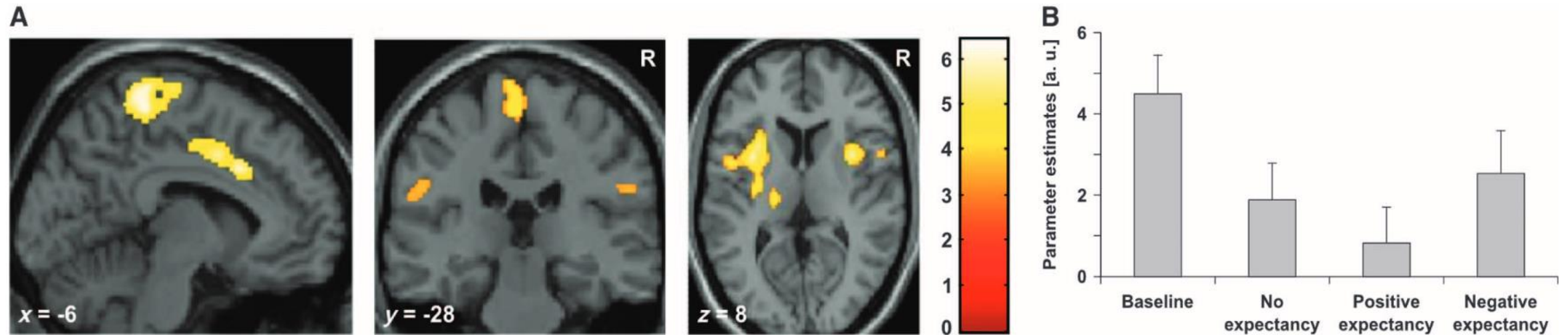
Evidence from behavioral and self-reported data suggests that the patients' beliefs and expectations can shape both therapeutic and adverse effects of any given drug. We investigated how divergent expectancies alter the analgesic efficacy of a potent opioid in healthy volunteers by using brain imaging. The effect of a fixed concentration of the  $\mu$ -opioid agonist remifentanil on constant heat pain was assessed under three experimental conditions using a within-subject design: with no expectation of analgesia, with expectancy of a positive analgesic effect, and with negative expectancy of analgesia (that is, expectation of hyperalgesia or exacerbation of pain). We used functional magnetic resonance imaging to record brain activity to corroborate the effects of expectations on the analgesic efficacy of the opioid and to elucidate the underlying neural mechanisms. Positive treatment expectancy substantially enhanced (doubled) the analgesic benefit of remifentanil. In contrast, negative treatment expectancy abolished remifentanil analgesia. These subjective effects were substantiated by significant changes in the neural activity in brain regions involved with the coding of pain intensity. The positive expectancy effects were associated

# Psychological modulation of opioid analgesia



Ulrike Bingel et al., Sci Transl Med 2011;3:70ra14





**Fig. 5.** Effect of expectancy modulation of opioid analgesia in the core regions of the pain neuromatrix. **(A)** Brain activity correlating with the changes in behavioral analgesia in the four experimental conditions. These correlations were identified with z-transformed mean ratings from the four experimental runs as contrast weights. The images are thresholded at

$P < 0.001$  uncorrected. **(B)** Parameter estimates of pain-related BOLD responses averaged across the above shown brain regions for each of the experimental runs plotted for visualization purposes (extracted from a 6-mm sphere around the peak voxels of activation; for details, see Table 1). a.u., arbitrary units. Color bar indicates  $t$  score.









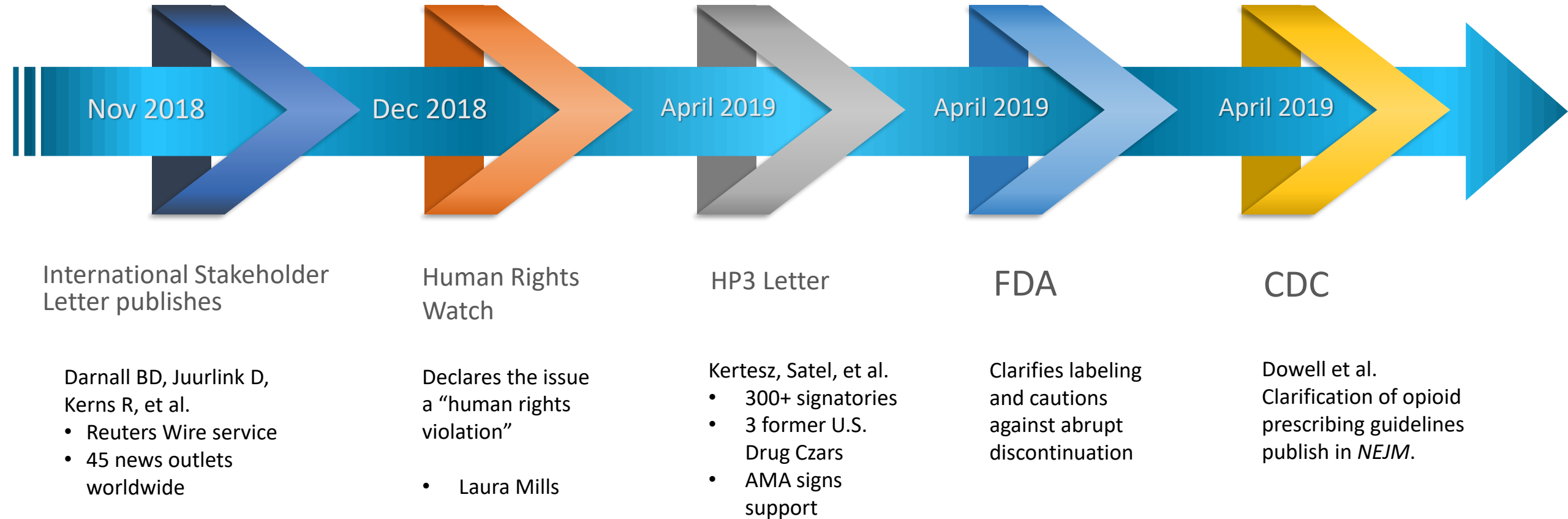
# Long-Term Use of Daily Prescription Opioids

- 
- **3.4 % of US adults**
  - **11 million individuals**





# Growing Outcry Against Iatrogenic Opioid Reduction Risks and Harms



# Addressing the dual crises of pain and opioids — a case for patient-centeredness

BY BETH DARNALL, OPINION CONTRIBUTOR — 10/31/18 06:00 PM EDT

THE VIEWS EXPRESSED BY CONTRIBUTORS ARE THEIR OWN AND NOT THE VIEW OF THE HILL

23 (



HEALTHCARE

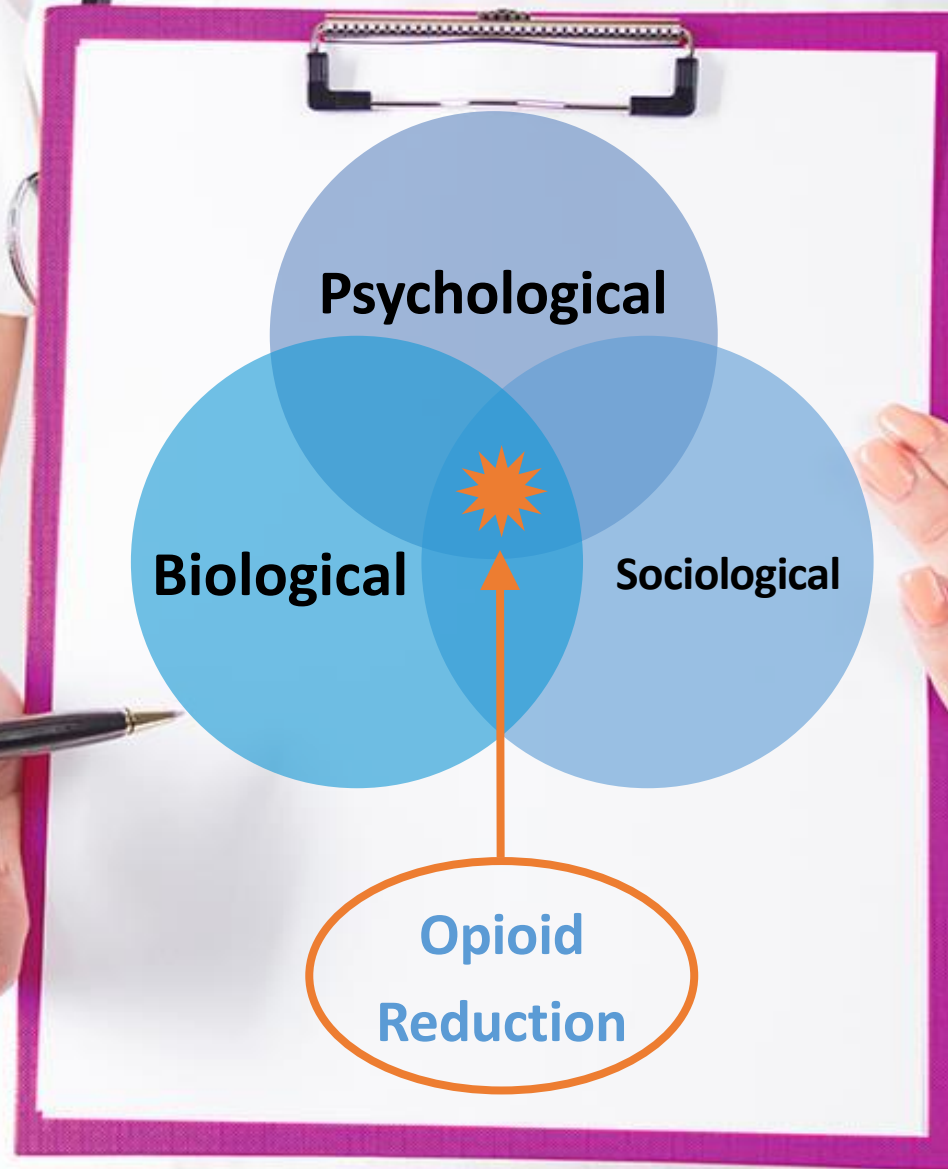
# Tapering methods matter greatly

- The health of the patient is paramount
- Rigid dose-based policies violates patient-centeredness, exposes patients to health risks and is unsupported by the CDC and the AMA
- Dose changes are associated with health risks
- Patient-centered methods enhance patient engagement, safety and outcomes
- Imperative to screen prior to tapering, emphasize voluntary tapering, carefully monitor patient response during the taper and adjust accordingly
- Provide psychological support





# The biopsychosocial model of **tapering**





Darnall BD. *Pain Med.* 2019

# Applause for the CDC opioid guideline authors

BY BETH DARNALL, OPINION CONTRIBUTOR — 04/26/19 01:30 PM EDT

THE VIEWS EXPRESSED BY CONTRIBUTORS ARE THEIR OWN AND NOT THE VIEW OF THE HILL



# EMPOWER

EFFECTIVE MANAGEMENT OF PAIN AND OPIOID-FREE WAYS TO ENHANCE RELIEF



# Tapering methods matter greatly

- Patient-centered methods enhance patient engagement, safety and outcomes
- Learning health systems can facilitate research as well as point of care supports to characterize, screen, monitor, and provide safety measures to patients, clinicians, and healthcare organizations.
- Iatrogenic harms from opioid tapering practices must be appreciated, mitigated, and better studied.
- Patient choice and supports are vitally important.

# Comparative Effectiveness of Pain Cognitive Behavioral Therapy and Chronic Pain Self-Management Within the Context of Voluntary Opioid Reduction

Darnall BD (PI)

<https://empower.stanford.edu/>



## EMPOWER

EFFECTIVE MANAGEMENT OF PAIN AND OPIOID-FREE WAYS TO ENHANCE RELIEF

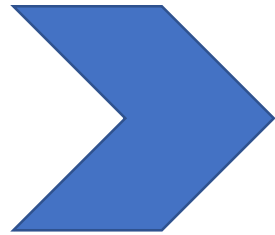
Funded by the Patient-Centered Outcomes Research Institute®





# Tapering the wrong way

Aggressive  
Taper



Forced  
Taper

- Withdrawal Symptoms
- Discomfort
- Distress
- Failed tapers
- False belief that outpatient tapering is impossible
- Remaining on high doses
- Overdose (in SUD)
- Suicidal ideation
- Suicide

# Tapering Opioids

Patients' number one concern/fear?



Not Interested!



# Opioid Cessation and Multidimensional Outcomes After Interdisciplinary Chronic Pain Treatment

*Jennifer L. Murphy, PhD,\* Michael E. Clark, PhD,\*† and Evangelia Banou, PhD\**

*Clin J Pain* • Volume 29, Number 2, February 2013

<b>Outcome Variables</b>	<b>OP (n = 221) Mean (SD)</b>	<b>NOP (n = 379) Mean (SD)</b>
Pain intensity		
Admission	7.01 (1.77)	6.91 (1.58)
Discharge	6.46 (1.74)	6.14 (1.79)



# Community-Based Solutions are Needed

- Low-cost
- Low-risk
- Scalable
- Effectively reduce health risks
- Provide education and support
- Structured
- Address anxiety of patients and prescribers alike
- Promote patient trust and a good doctor-patient bond
- **Enhance patient willingness to try a gentle opioid taper**

New Online

Views **31,655** | Citations **10** | Altmetric **365**



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## Research Letter

February 19, 2018

ONLINE FIRST



# Patient-Centered Prescription Opioid Tapering in Community Outpatients With Chronic Pain

Beth D. Darnall, PhD<sup>1</sup>; Maisa S. Ziadni, PhD<sup>1</sup>; Richard L. Stieg, MD, MPH<sup>2</sup>; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

*JAMA Intern Med.* Published online February 19, 2018. doi:10.1001/jamainternmed.2017.8709

The risks associated with prescription opioids are well described.<sup>1,2</sup> Although reducing opioid use is a national priority, existing opioid tapering models use costly interdisciplinary teams that are largely inaccessible to patients and their physicians.<sup>3,4</sup> Patients and physicians need solutions to successfully reduce long-term prescription opioid dosages in settings without behavioral services. We conducted a study of voluntary, patient-centered opioid tapering in outpatients with chronic pain without behavioral treatment.

JAMA Network<sup>®</sup>

JAMA Internal Medicine



MOST VIEWED  
(30 DAYS)



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(3 YEARS)



19,764 Views Opioid Tapering in Community Outpatients With Chronic Pain

18,616 Views State Firearm Laws and Interstate Firearm Deaths

7,177 Views Overtreatment of Asymptomatic Hypertension

6,828 Views Mortality Risks for US Cigarette, Cigar, and Pipe Users

6,503 Views Meditation for Psychological Stress and Well-being

# Opioid Cessation vs. Opioid Reduction



VS.



# We Optimized Patient Choice and Control in Their Taper

- Participation was VOLUNTARY
- Patients could control the pace of their taper
- Patients could pause their taper
- Patients were free to drop out of the study at any time
- The taper goal was not zero unless the patient chose that goal
- The taper was NOT to a pre-defined opioid dose
- Patients partnered with their doctor to achieve their *lowest comfortable dose* over 4 months
- The taper was NOT unidirectional



# Study Variables

- Demographics (Gender, Age)
- Pain Treatment History (Pain Dx, Duration of Opioid Use)
- Opioid Dose (MEDD)
- Average Pain Intensity (0-10)
- Pain Catastrophizing Scale
- PROMIS Measures
- Marijuana use (Y/N)



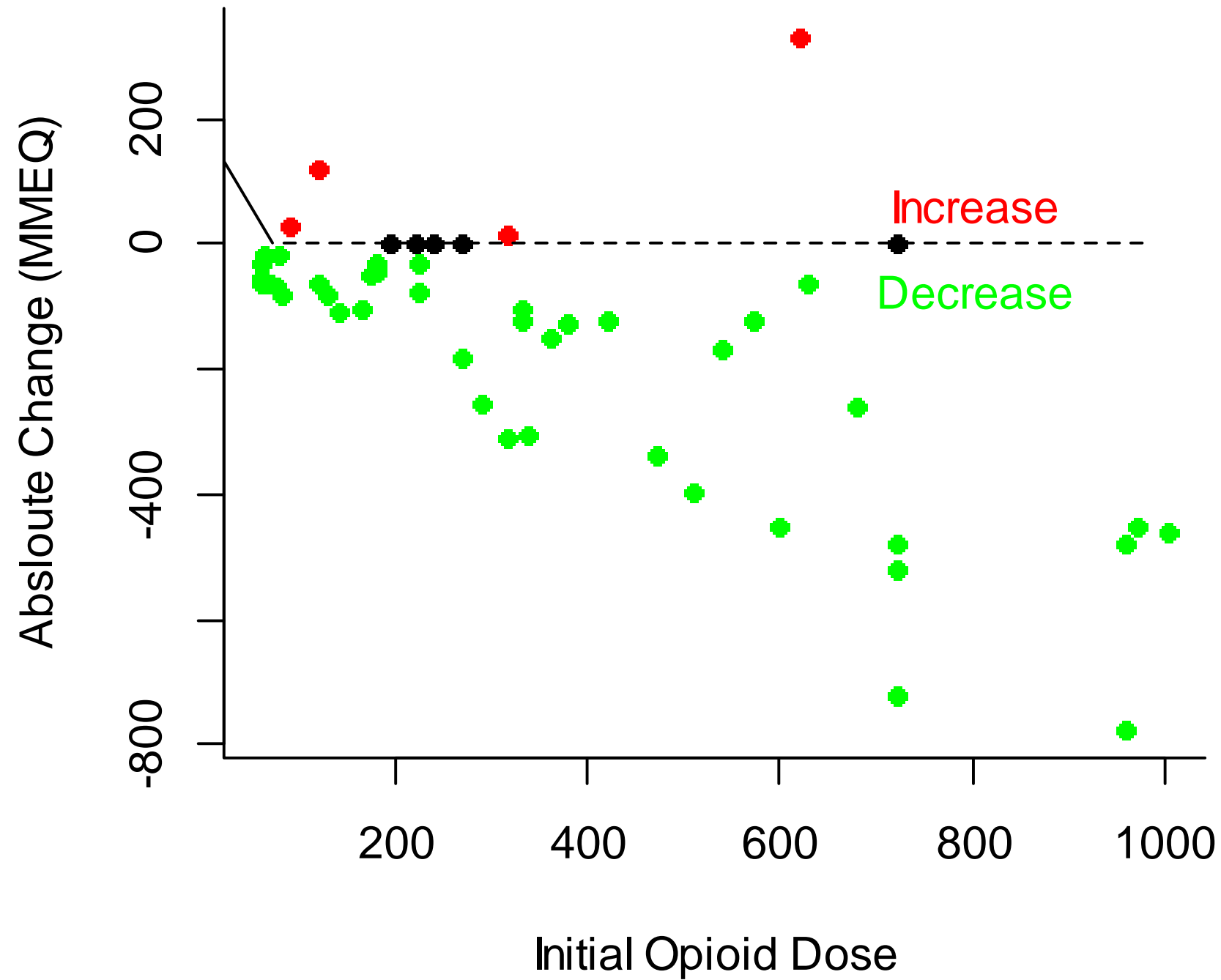
# Sample Characteristics (N=51)

- 55% female
- 52 years of age (range = 25 – 72)
- 6 years on opioids (range = 1 – 38)
- Moderate pain intensity
- Marijuana: 37% (18)
- Opioid MEDD = 288 (60, 1005)

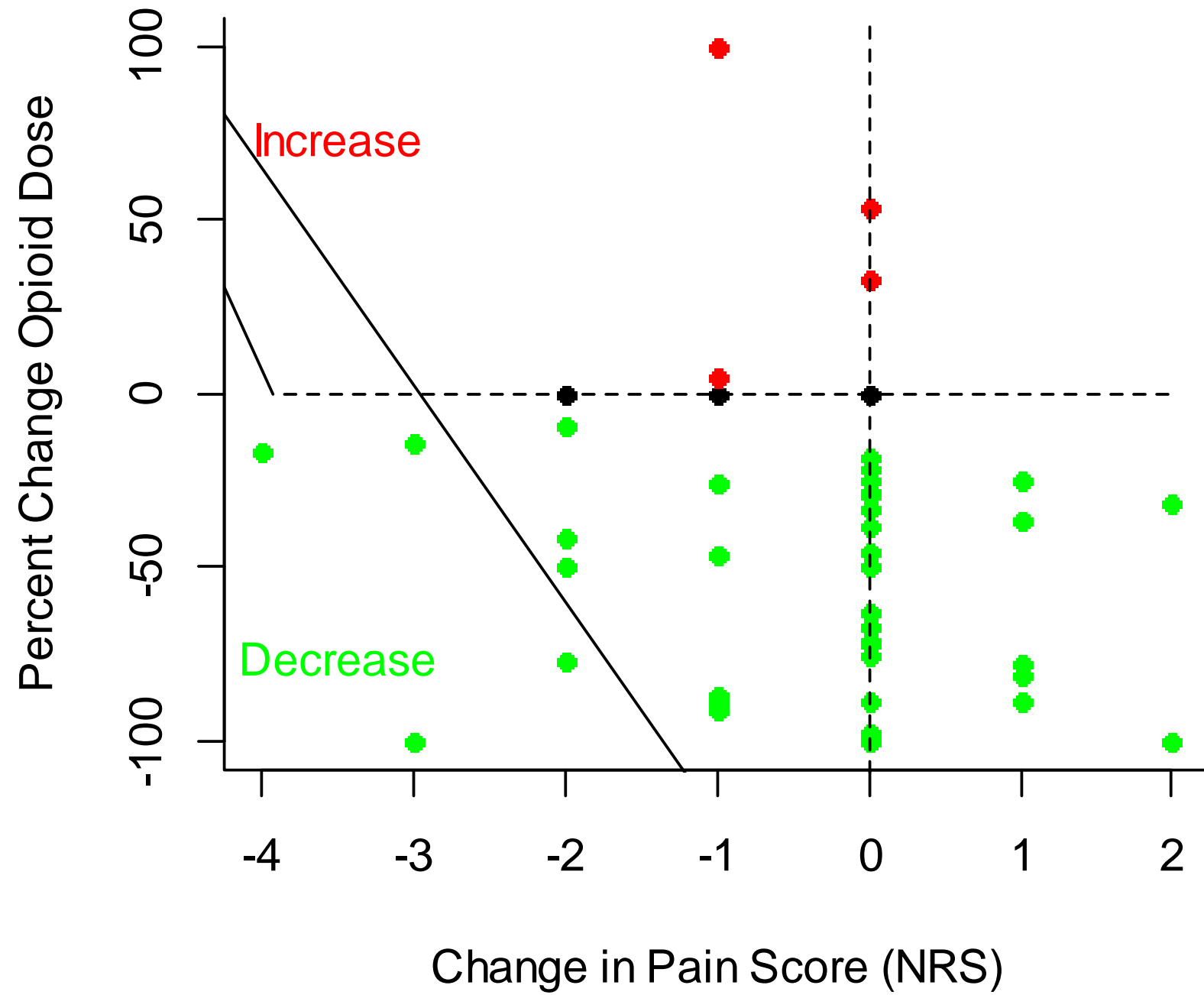
Darnall BD, Ziadni MS, Mackey IG, Kao MC, Flood P (FEB 2018; *JAMA Int Med*)

	Baseline	16 weeks	
Variable	Median (IQR)		P-val
Opioid Dose (MEDD)	288 (153, 587)	150 (54, 248)	0.002
Pain Intensity (NRS)	5.0 (3.0, 7.0)	4.5 (3.0, 7.0)	0.29
PCS (catastrophizing)	22 (10, 30)	15 (7, 23)	0.04
Fatigue	61 (54, 65)	59 (51, 65)	0.64
Anxiety	60 (53, 64)	54 (46, 62)	0.06
Depression	56 (49, 64)	55 (48, 61)	0.31
Sleep Disturbance	59 (54, 70)	56 (50, 64)	0.13
Pain Interference	63 (58, 67)	63 (57, 67)	0.44
Pain Behavior	60 (57, 63)	59 (56, 64)	0.47
Physical Function	39 (34, 41)	39 (34, 43)	0.78

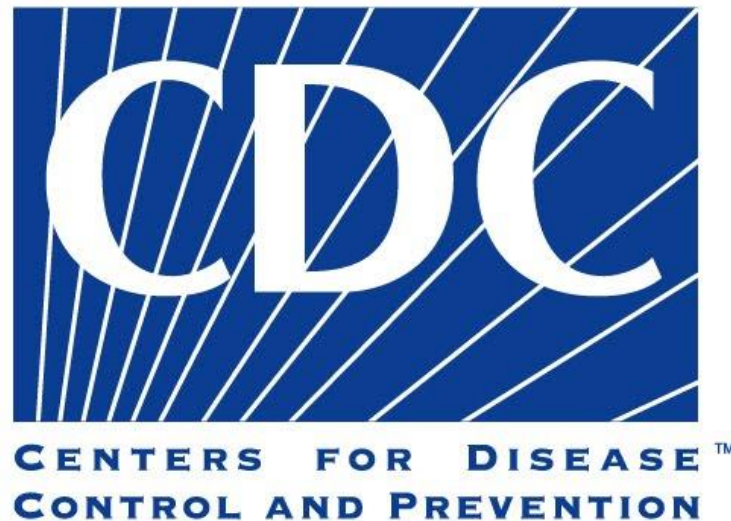
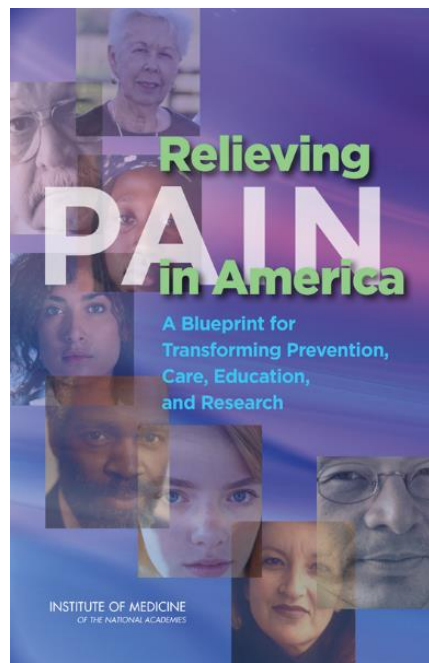
Kruskal-Wallis rank sum test











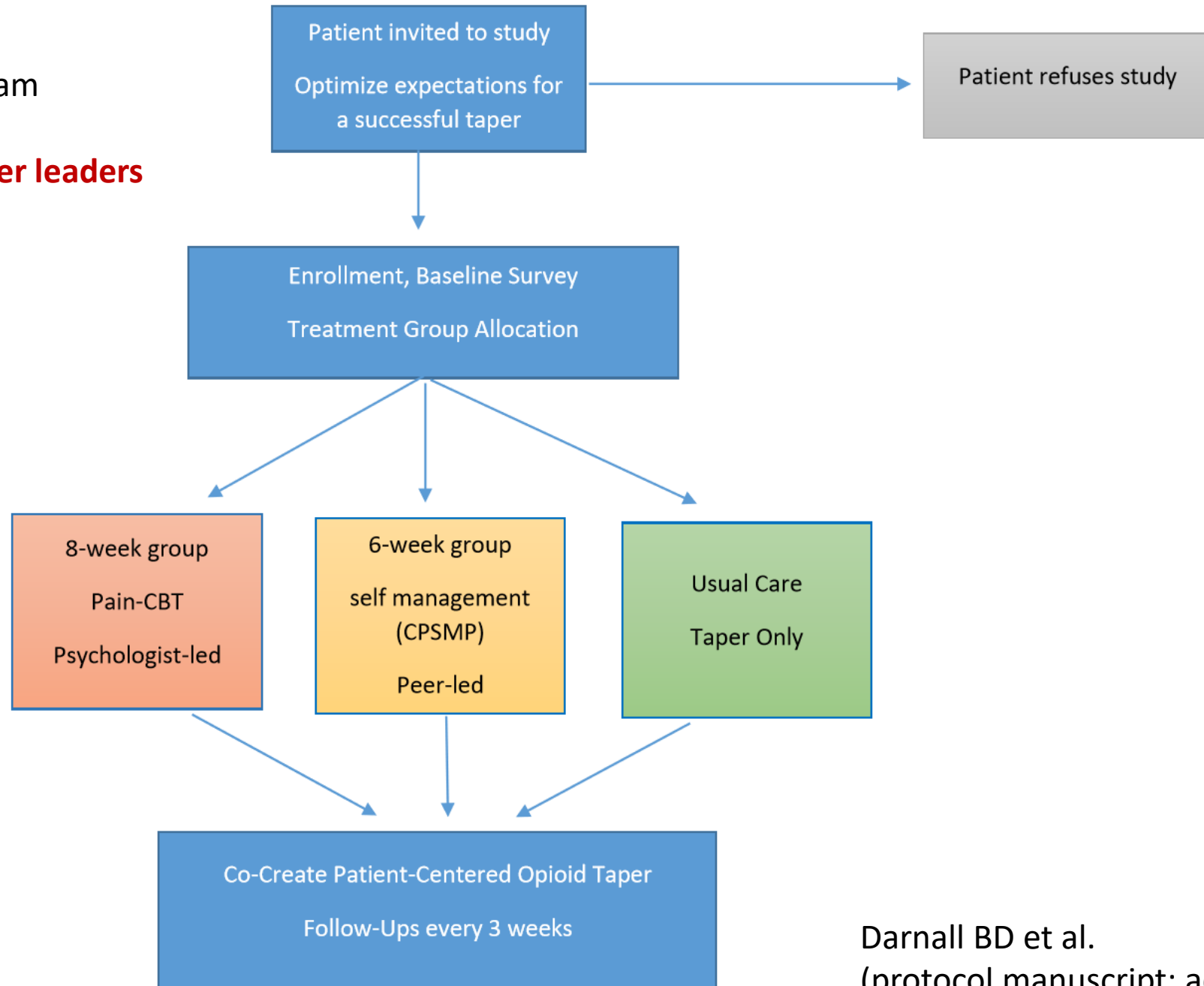
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[www.cdc.gov](http://www.cdc.gov)

**GUIDELINE FOR PRESCRIBING  
OPIOIDS FOR CHRONIC PAIN**

Chronic Pain  
Self-Management Program

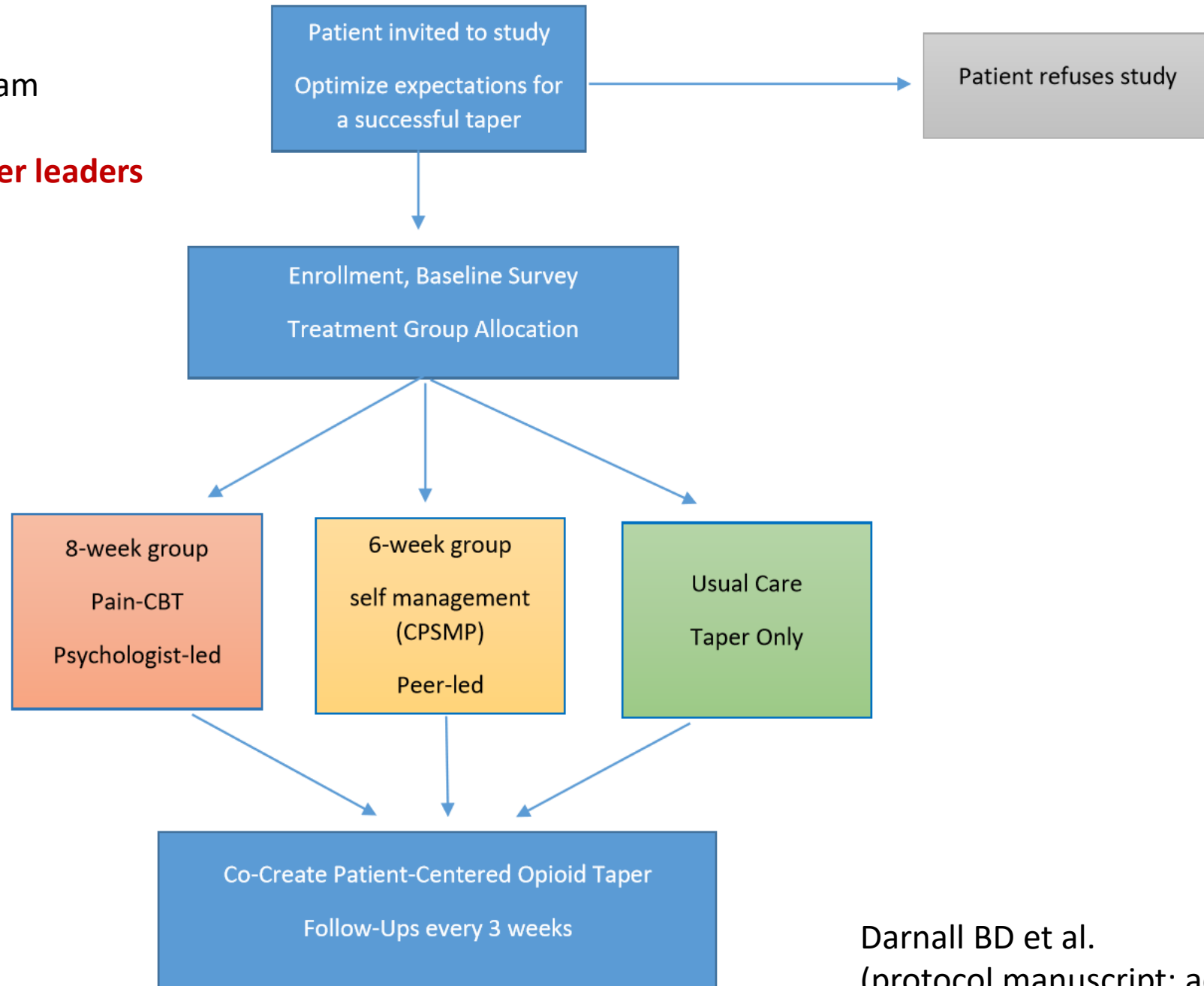
Two certified trained **peer leaders**



Darnall BD et al.  
(protocol manuscript; accepted, *Pain Med*)

Chronic Pain  
Self-Management Program

Two certified trained **peer leaders**



Darnall BD et al.  
(protocol manuscript; accepted, *Pain Med*)



# 1365 patients taking long-term opioids for chronic pain

- Stanford Pain Management Center (CA)
- Stanford Primary Care (CA)
- Intermountain Health (Salt Lake City)
- Veterans Affairs (Phoenix)
- MedNOW Clinics (Denver, CO)



# Eligibility

- $\geq 10$  MEDD daily for 3 months
- Pain for 6 months

## Exclusions:

- Active suicidality
- Unable to participate in behavioral groups
- Moderate to severe Opioid Use Disorder is exclusionary

Screening: 3 items from the TAPS + DSM-V OUD



# EMPOWER Guiding Principles



We must create a caring and safe system that makes patients want to join and remain in EMPOWER

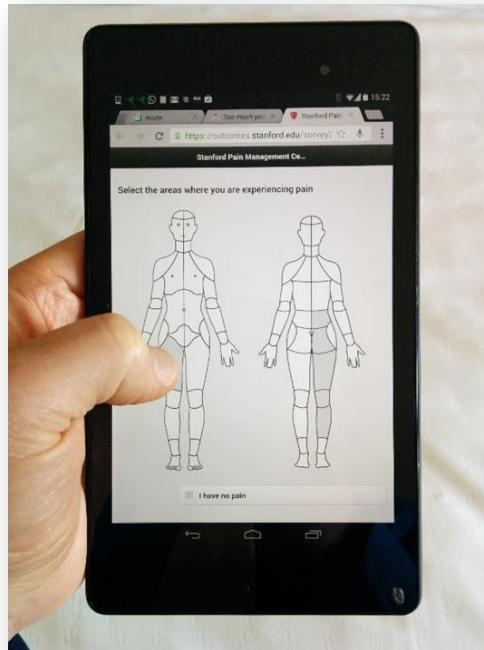
# EMPOWER Guiding Principles



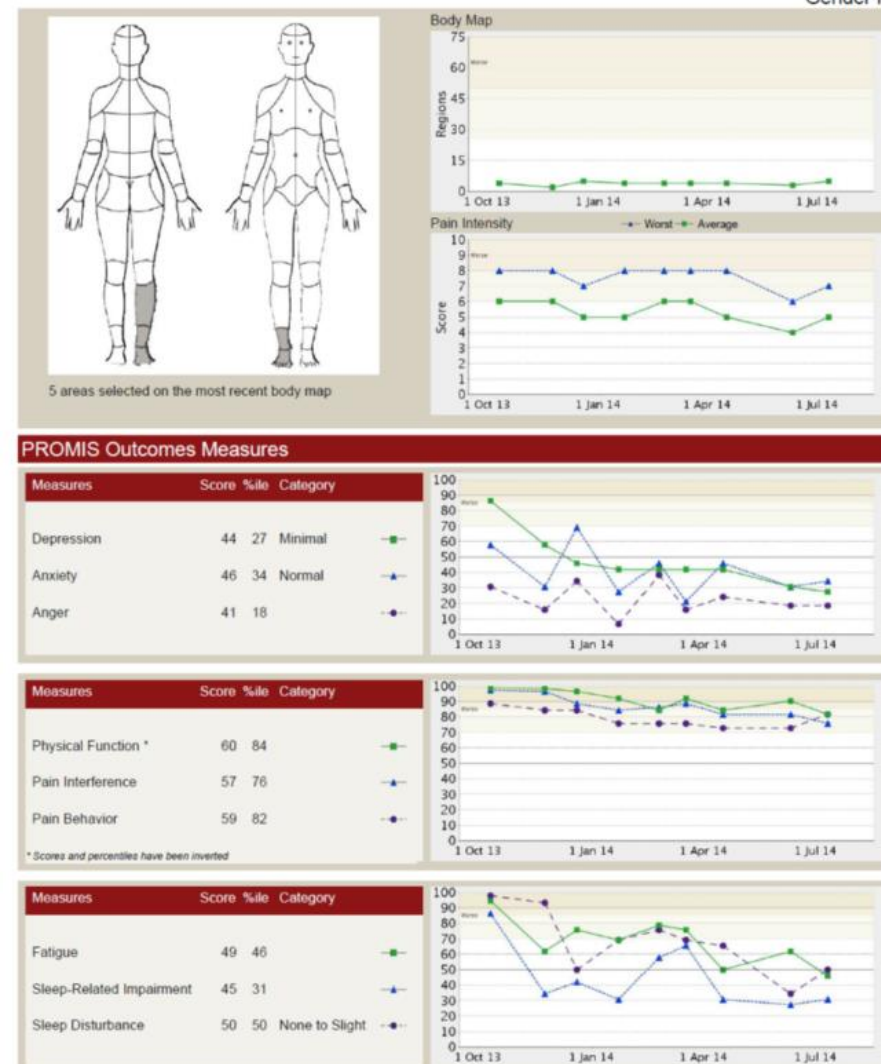
We must create a caring and safe system that makes patients want to join and remain in EMPOWER



- Easy data entry
- Point of care reporting
- Over 30,000 patients and 100,000 longitudinal data assessments
- NIH PROMIS CAT for comparative metrics and computer adaptive testing to reduce patient burden
- Insights from real-world patients
- Open-source (free) licensing with minimal restrictions
- Comprehensive assessment of:
  - Physical, psychological and social functioning and health



Stanford Pain Management Center Outcomes



<http://choir.stanford.edu>

# Assessments & Monitoring

**Baseline, 6- and 12-month:** comprehensive battery

Psychosocial factors (PROMIS)

Opioids

Substance use

Degree of choice

Readiness to taper

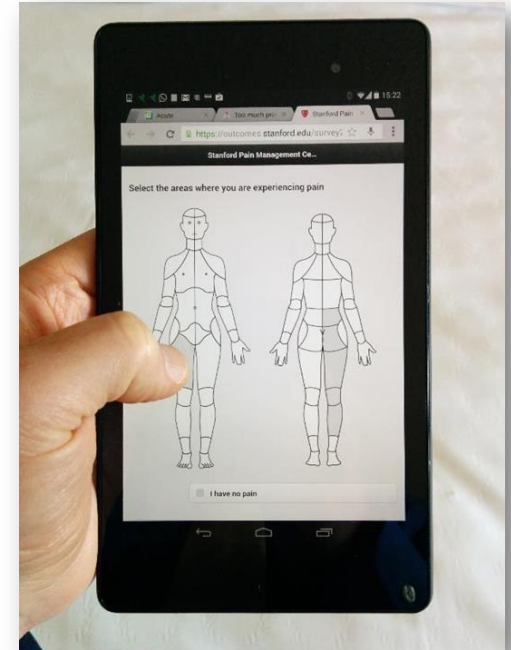
Taper beliefs

Satisfaction with clinician relationship

Comments

**WEEKLY surveys** for withdrawal symptoms, mood, comments

**MONTHLY surveys** for mood, suicidality, opioid dose, satisfaction, comments



# Close Monitoring of Patient Response to Opioid Reduction

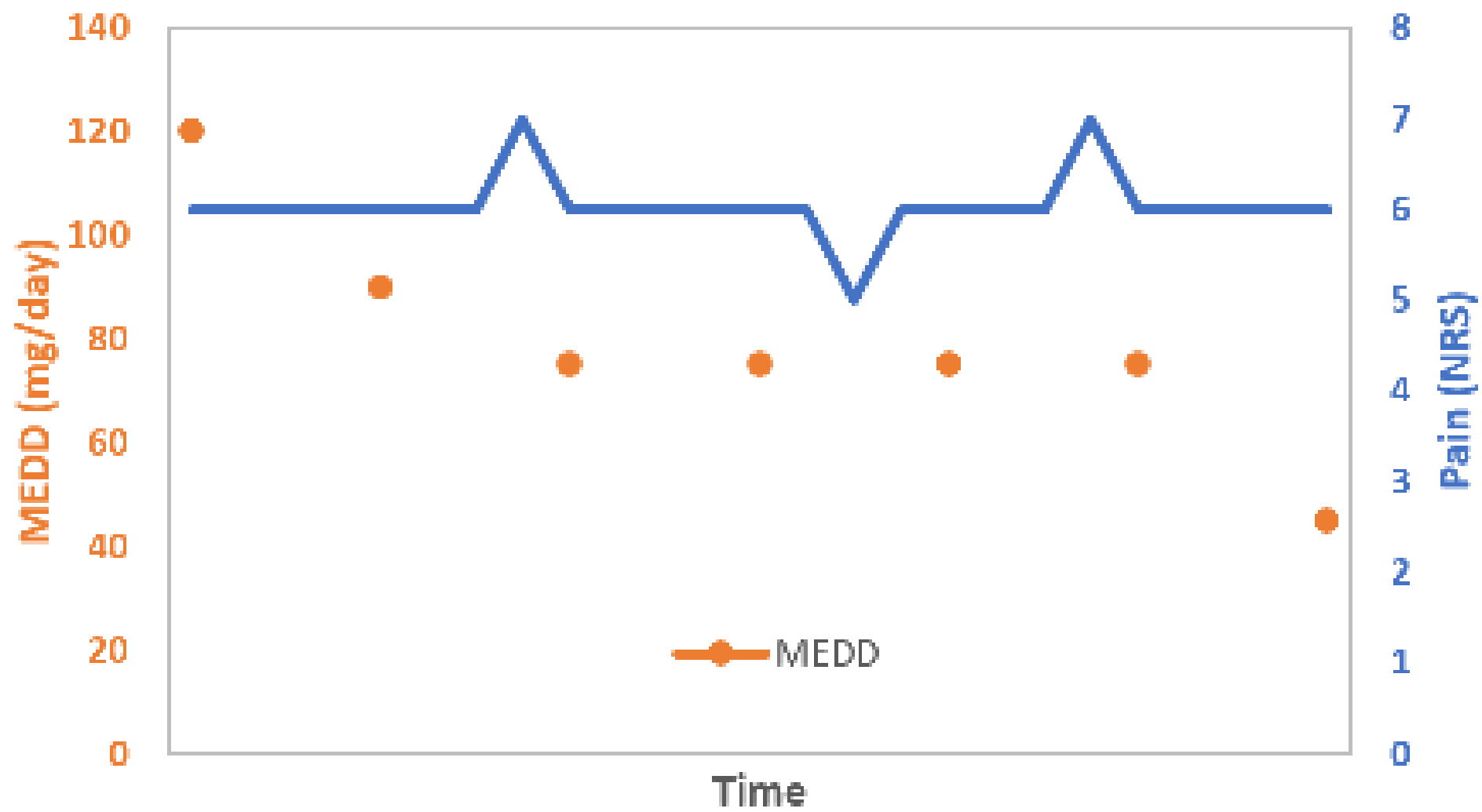
**WEEKLY surveys** for withdrawal symptoms, mood, comments

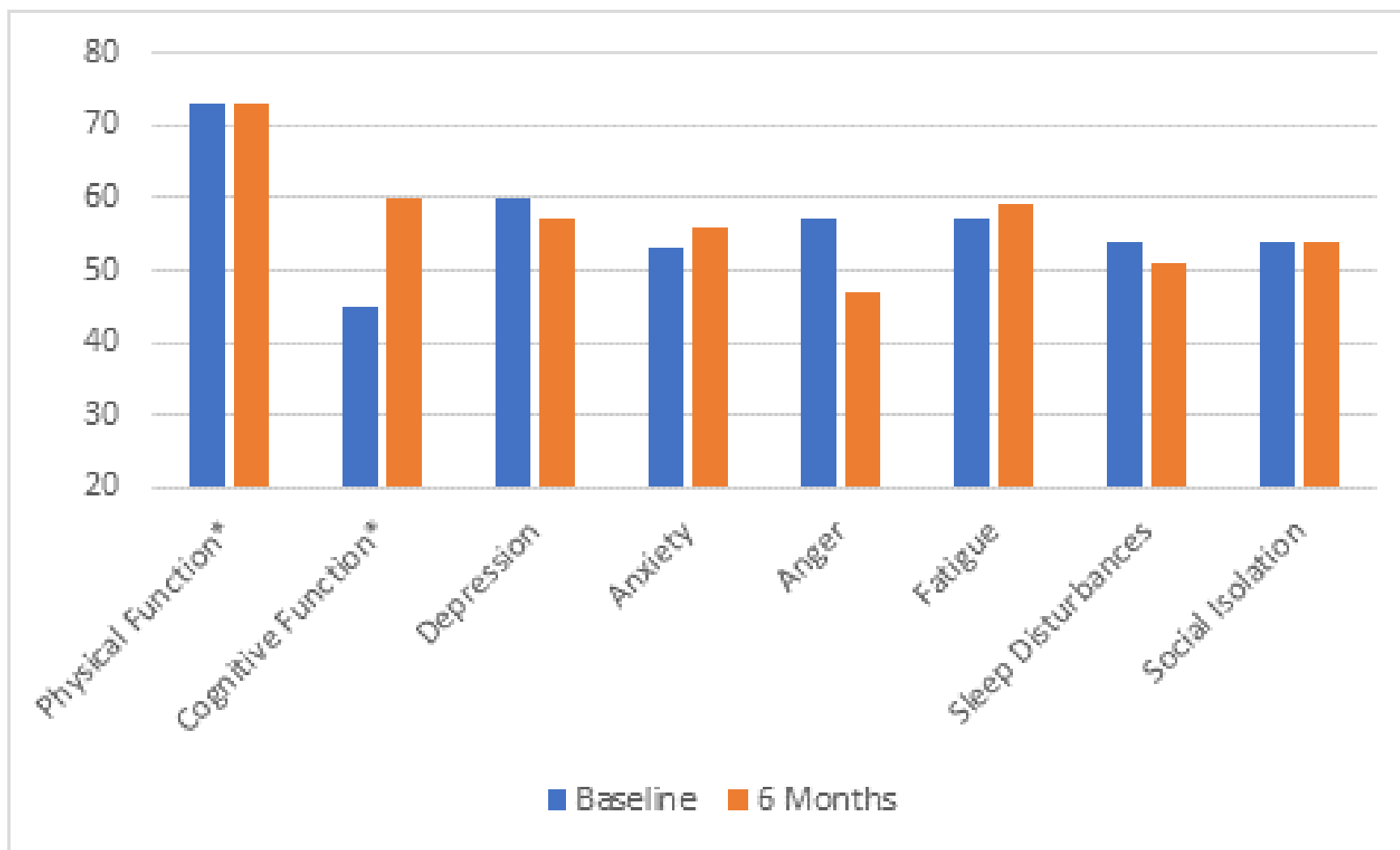
**MONTHLY surveys** for mood, suicidality, opioid dose, satisfaction, comments

- Alerts are sent to prescribers in real time
- Patients receive tailored messages

We track patients over 12 months











# EMPOWER Study

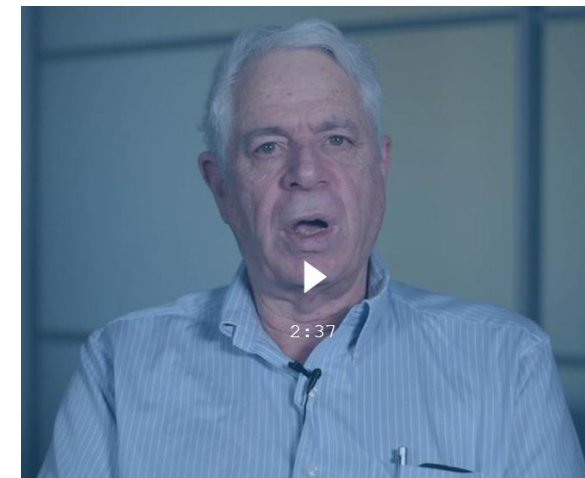
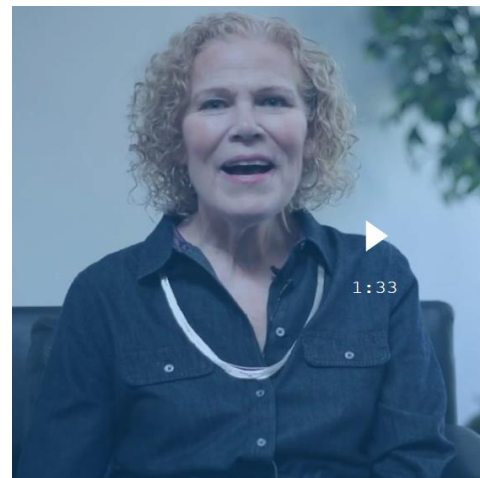
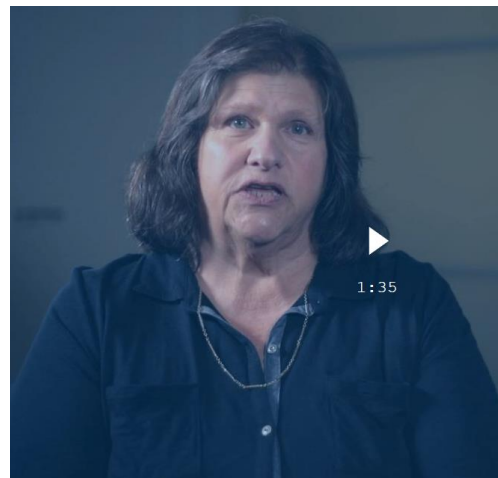
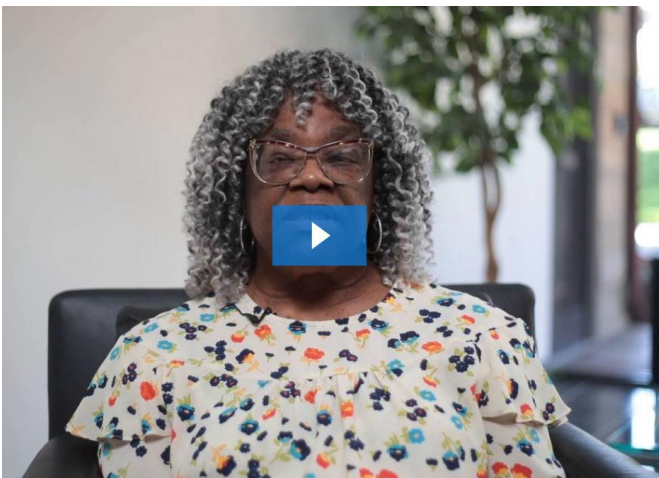
*Effective Management of Pain and Opioid-Free Ways to Enhance Relief*

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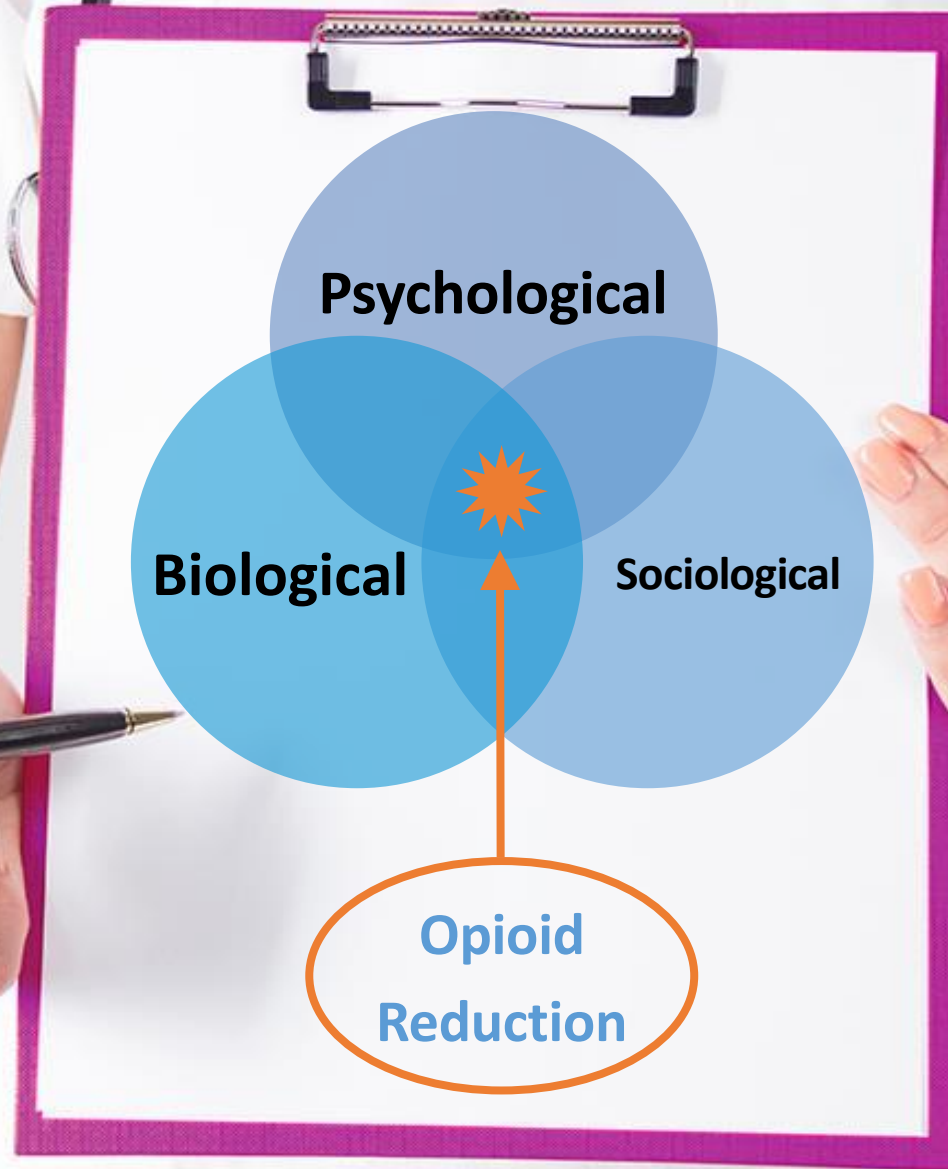


[Home](#) [About the Study](#) [Patient Stories](#) [Frequently Asked Questions](#) [Contact](#)

## Patient Stories



# The biopsychosocial model of **tapering**



# Practical Tips for Psychologists

1. Assess for OUD
2. Assess patient interest in opioid reduction
3. Assess patient concerns for opioid reduction
4. Validate fears, provide education
5. Support team-based opioid reduction plans that minimize NOCEBO and optimize positive expectation (PLACEBO) and patient engagement
6. Zero is not the goal
7. Closely monitor patient response to opioid tapering, especially mood and suicidality
8. Recognize that opioid tapering is not right for everyone
9. Provide patients with treatment and resources
10. Consider rapid access to a brief treatment class





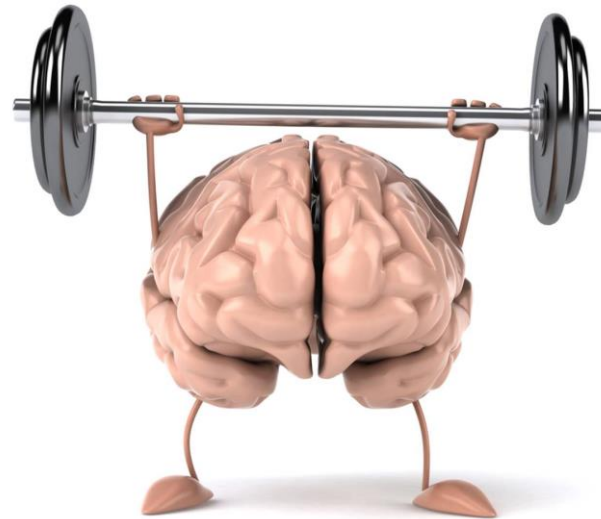




# Cognitive Behavioral Therapy for Chronic Pain

## Topics and Skills

- Pain and the brain
- Mood and pain
- Sleep and pain
- Pleasant activities
- Goal setting
- Problem solving
- Movement
- Social connection
- Diaphragmatic Breathing
- Relaxation Response
- Cognitive Restructuring
- Mindfulness
- Meditation





# HHS Public Access

Author manuscript

*Pain*. Author manuscript; available in PMC 2017 November 01.

Published in final edited form as:

*Pain*. 2016 November ; 157(11): 2434–2444. doi:10.1097/j.pain.0000000000000635.

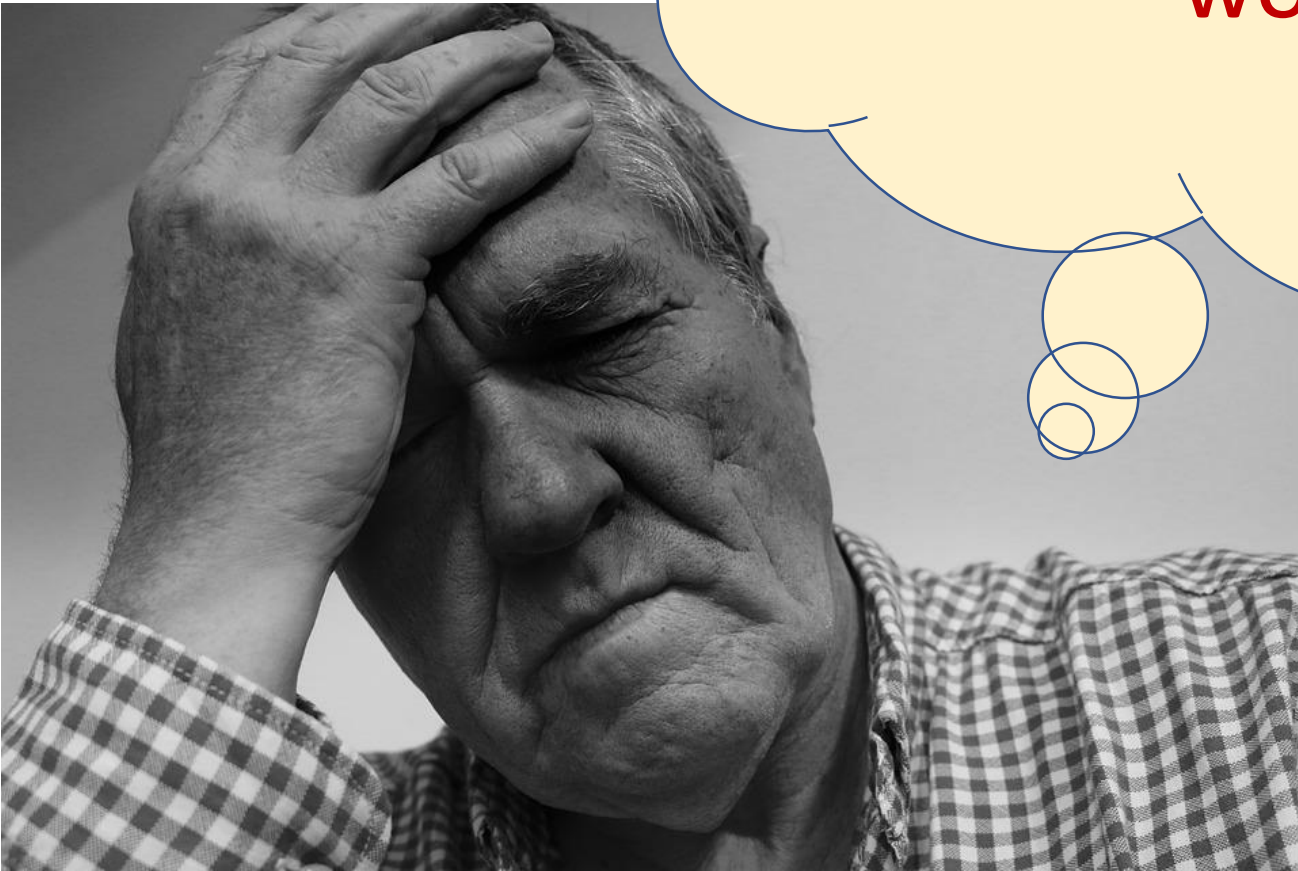
## **Mindfulness-based stress reduction and cognitive-behavioral therapy for chronic low back pain: similar effects on mindfulness, catastrophizing, self-efficacy, and acceptance in a randomized controlled trial**

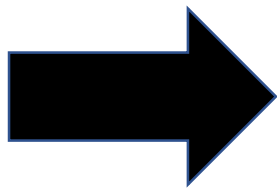
**Judith A. Turner<sup>a,\*</sup>, Melissa L. Anderson<sup>b</sup>, Benjamin H. Balderson<sup>b</sup>, Andrea J. Cook<sup>b</sup>, Karen J. Sherman<sup>b</sup>, and Daniel C. Cherkin<sup>b</sup>**

<sup>a</sup> Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, Washington, USA

<sup>b</sup> Group Health Research Institute, Seattle, Washington, USA

There's nothing I can  
do about my pain. It  
is only going to get  
worse!



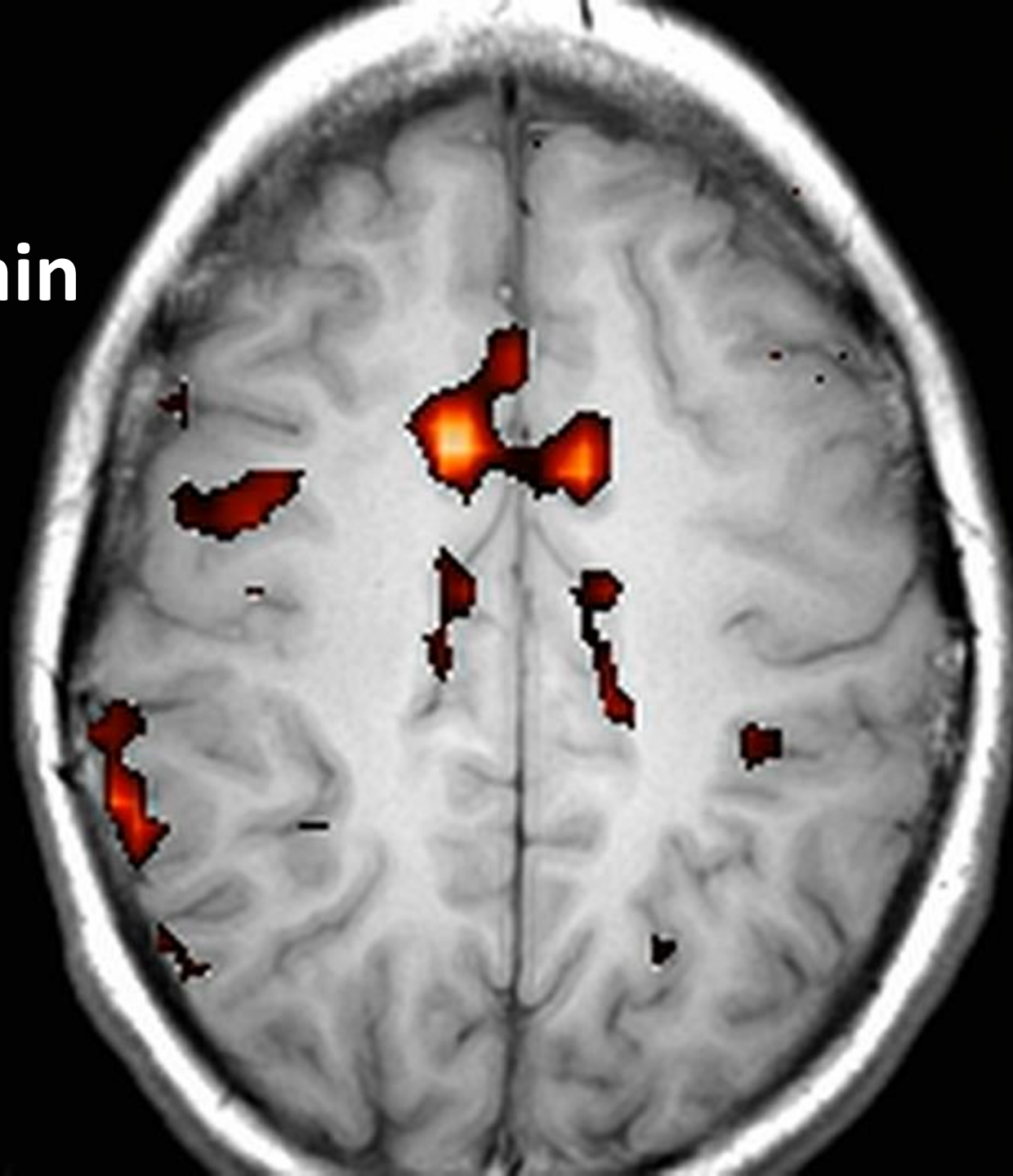


There are several things I can do right now to soothe myself and feel better.





**Negative Pain  
Mindset**



**Pain Relief  
Mindset Skills**

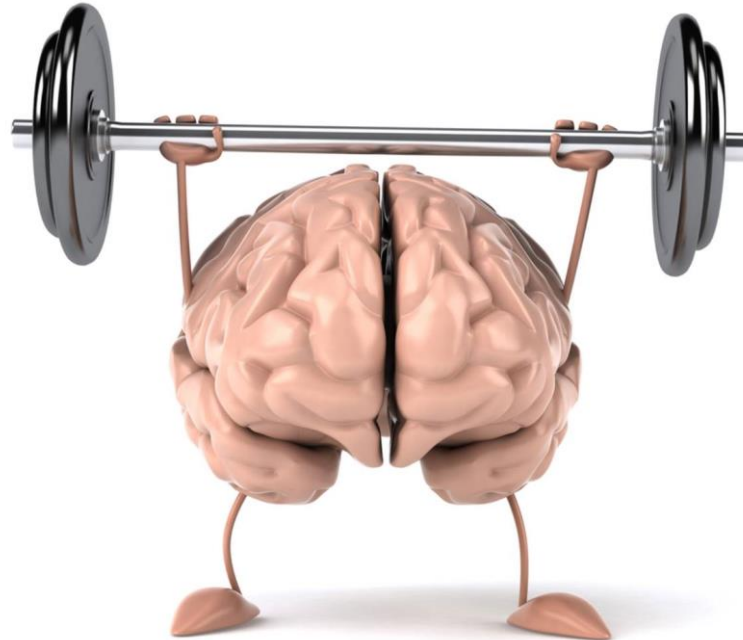
# Regular skills use:

- Dampens pain processing
- Reduces physiological hyperarousal
- Reduces cognitive and emotional responses that amplify pain
- Entrain positive neural patterns
- Facilitates movement, activation
- Increases self-efficacy, internal locus of control

# Pain Catastrophizing and Efficacy of Cognitive Behavioral Therapy

- Increases prefrontal gray matter in patients with chronic pain

Seminowicz DA, Shpaner M, Keaser ML, Krauthamer MG, Mantegna J, Dumas JA, Newhouse PA, Filippi C, Keefe FJ, Naylor MR. *J Pain*. 2013 Dec; 14(12):1573-84





- Insurance coverage
- Time
- Co-pays
- Travel
- Work / family obligations
- Pain / health
- Proximity (rural settings)
- No psychologists nearby who are trained to treat pain

Darnall BD et al. *Pain Med* 2016



# Single Session Pain Catastrophizing Treatment for Chronic Low Back Pain: Comparative Efficacy & Mechanisms

**NCCIH R01**

**Darnall / Mackey**



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# Webinar Resources

- 11-page resource PDF
- Article:

Darnall BD and Colloca L. Optimizing Placebo and Minimizing Nocebo to Reduce Pain, Catastrophizing, and Opioid Use: A Review of the Science and an Evidence-Informed Clinical Toolkit. *Int Rev Neurobiol*. 2018;139:129-157. PMID: 30146045



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# Selected References/Citations

- Goerlitz D, Heirich M, Sinjary L, Asika Ram J, Lorig K, **Darnall BD**. Development and Engagement of a National Patient Advisory Panel Informing Patient-Centered Materials for a Multi-Site Chronic Pain and Prescription Opioid Reduction Study (in review).\*
- **Darnall BD**, Juurlink D, Kerns R, et al. International Stakeholder Community of Pain Experts, Leaders, Clinicians, and Patient Advocates Call for an Urgent Action on Forced Opioid Tapering. *Pain Medicine*, Volume 20, Issue 3, 1 March 2019, Pages 429–433. <https://doi.org/10.1093/pm/pny228>
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- **Darnall BD**, Ziadni MS, Stieg RL, Mackey IG, Kao MC, Flood P. Patient-Centered Prescription Opioid Tapering in Community Outpatients with Chronic Pain. *JAMA Internal Medicine*, 2018 May 1;178(5):707-708. PMID: 29459978.\* Open Access: <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2672574>
- **Darnall BD**, Mackey SC, Stieg RL, et al. Comparative Effectiveness of Pain Cognitive Behavioral Therapy and Chronic Pain Self-Management within the Context of Voluntary Patient-Centered Prescription Opioid Tapering: The EMPOWER Study Protocol. (in press, *Pain Med*)



# Q&A



- Dr. Sammons will select questions that were submitted via the Q&A feature throughout the presentation.
- Due to time constraints, we will not be able to address every question asked.