

# Results from a randomized trial of collaborative care for chronic musculoskeletal pain in primary care

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# Background

- Chronic pain is common, especially in veterans
- Chronic pain is frequently treated in primary care
- Comorbid depression is common and associated with mortality, deficits in function and well-being, poor response to treatment, and costs
- Guidelines have been developed to help providers manage chronic pain

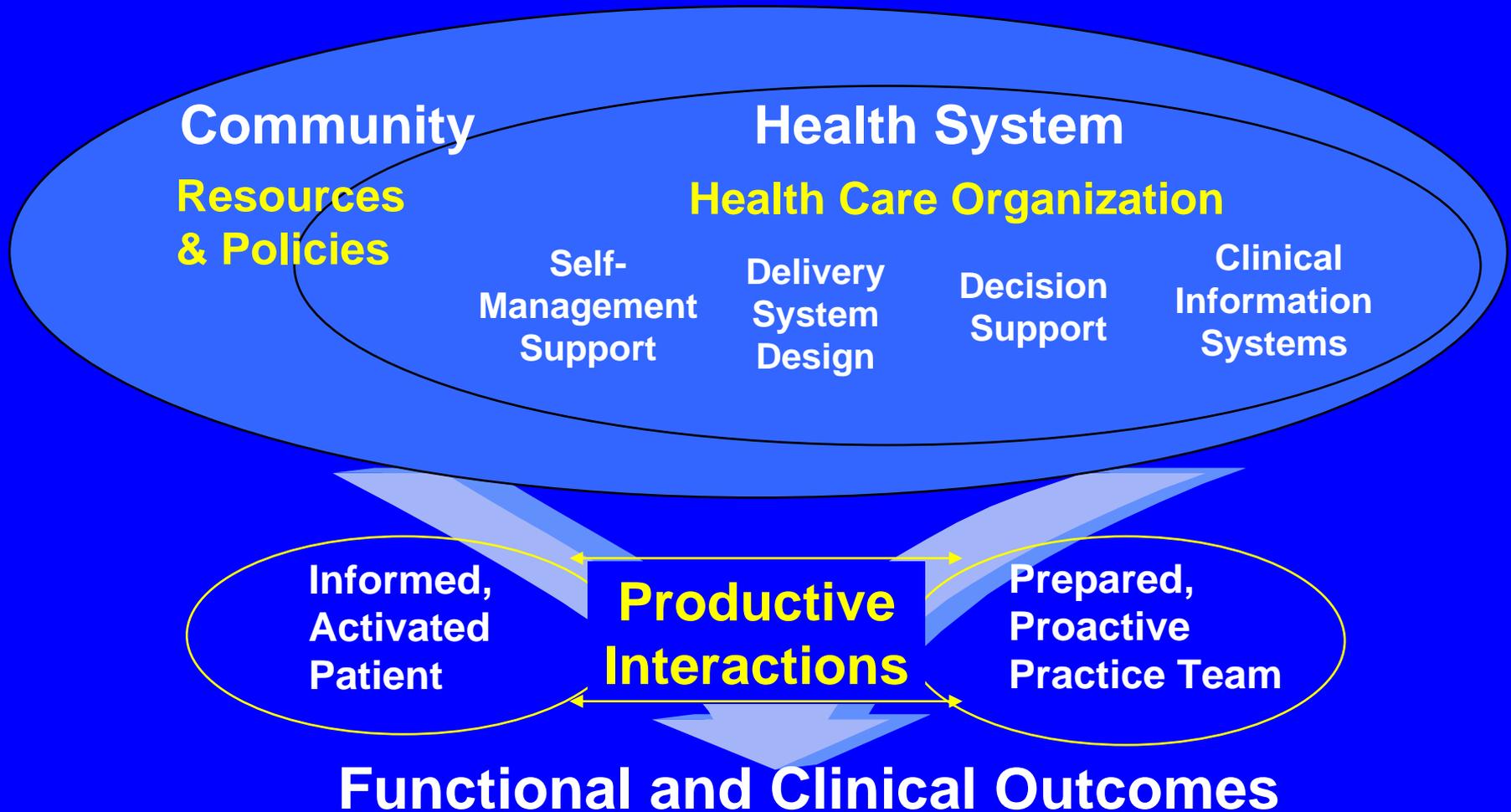
# Barriers

- Clinician deficits in knowledge and skills, reliance on biomedical model, uncertainty about best approaches
- Patient focus on biomedical approaches, unrealistic expectations, educational deficits including fear-avoidance
- Comorbid Depression: problems with recognition and attribution of symptoms
- Lack of time, system support, and access to resources

# Evidence-Based Chronic Disease Management

## Approaches for Treating Depression

*Ed Wagner & Institute for Healthcare Innovation (IHI)*



- Limited previous research on application of collaborative approaches to treatment of chronic pain in primary care
  - Lin et al (2003)
  - Ahles et al (2006)
  - Bair et al (2008)
  - Chelminski et al (2005)

# Study of the Effectiveness of A Collaborative Approach to Pain: (SEACAP)

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## Investigators:

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- Martha Gerrity MD (Co-PI)
- Kathryn Corson PhD

## Consultants:

- Mark Sullivan MD
- Kurt Kroenke MD
- Nancy Perrin PhD
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## Research Team:

- Kathryn Dickinson MPH
- Geoff Soleck PhD
- Megan Crutchfield BS

## Intervention Team:

- Ruth Leibowitz PhD
- Melanie Doak MD
- Ron Blehm BS

# Main SEACAP Research Questions

- To what extent does a collaborative intervention improve chronic musculoskeletal pain outcomes?
- To what extent does the intervention improve depression outcomes?
- To what extent does the intervention improve adherence to treatment guidelines?

# Setting

- One VA Medical Center
- 5 primary care clinics (3 urban, 2 rural)
- About 55 staff providers and 42,000 pts
- Pain specialty consult clinic at main VAMC
- On-site mental health presence in all clinics

# Intervention: Assistance with Pain Treatment (APT)

## Team:

- Full-time Psychologist Care Manager/Pain Consultant
- Up to 1 day per week Physician Pain Specialist
- Neither had extensive training in chronic pain management

# Main conceptual components of intervention

- Chronic illness model and stepped care
- Biopsychosocial framework—highlight function
- Use evidence-based approaches
  - Multidisciplinary
  - Behavioral/Activating interventions
  - Educate in self-management
  - Monitor adherence and outcomes
- Brief activating models (Von Korff and Balderson 2005)
  - Identify and address fears of physical activity
  - Set individualized, functional goals
  - Support increases in activity

# Intervention clinician interactions

- Two 90-minute sessions
  - Intervention orientation
  - Shared decision making skills (Sullivan 2006)
  - Solicit communication preferences
- Ongoing communications with APT Team via medical record notes and alerts, email, phone, in-person

Assignment to APT Intervention

Telephone Call

Orientation to Intervention  
Mail Educational Materials

Appointment with APT Care Manager (CM)

Assess for Comorbid Psychiatric Conditions  
Additional Education  
Assess Barriers to Care and Preferences  
Establish Preliminary Goals

Invite  
4 Session Group  
Workshops

Review with APT Pain Specialist

Communicate recommendations to Primary Care Provider

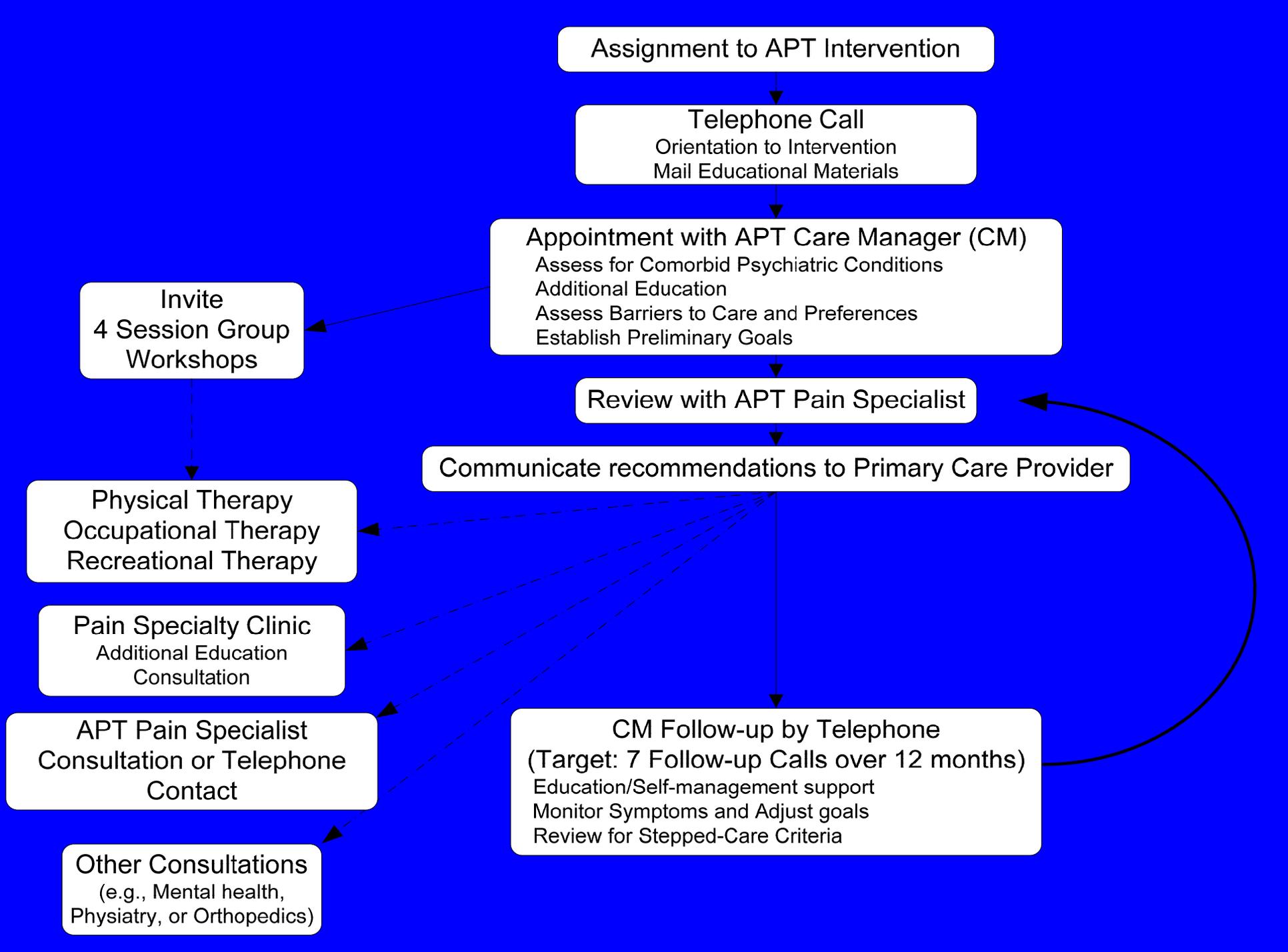
Physical Therapy  
Occupational Therapy  
Recreational Therapy

Pain Specialty Clinic  
Additional Education  
Consultation

APT Pain Specialist  
Consultation or Telephone  
Contact

Other Consultations  
(e.g., Mental health,  
Physiatry, or Orthopedics)

CM Follow-up by Telephone  
(Target: 7 Follow-up Calls over 12 months)  
Education/Self-management support  
Monitor Symptoms and Adjust goals  
Review for Stepped-Care Criteria



# Study Design

- Plan: Recruit 384 patients and up to 50 staff clinicians
- Randomize by clinician; patients nested within clinician
- (Blinded) research assistants collected data at 3, 6 and 12 months separately from APT team

# Recruitment and eligibility

- Recruit using mass mailings to primary care patients and flyers
- Inclusion criteria
  - Musculoskeletal pain diagnosis in chart
  - 12 weeks of more of pain duration
  - RMDQ score  $\geq 6$
- Exclusion criteria
  - Fibromyalgia, chronic fatigue, somatization disorder
  - Cognitive deficits, psychosis, terminal illness
  - Drug seeking or disruptive behavior flags

# Measures

- Primary outcome: Roland-Morris Pain Disability (RMDQ) score
- Other Main Outcomes:
  - Pain intensity (Chronic Pain Grade [CPG])
  - Depression severity [PHQ-9]
- Secondary outcomes
  - CPG Pain Interference
  - Global impression of change
  - Satisfaction and pain treatment effectiveness
  - Process outcomes (including guideline adherence)

# Statistical Analyses

- Hierarchical Linear Modeling
  - Takes into account repeated measures and clustering within provider
  - No excluded cases
  - Adjusted for age, sex, baseline depression severity, medical morbidity (RxRiskV), and opioid prescription status at baseline

# Results—Baseline

# Recruitment results

- Of 6,781 primary care patients mailed study advertisement letters, 987 (15%) responded by calling or sending a return mailing.
- Flyers posted around the Medical Center and clinics drew another 177 respondents.
- 841 patients completed phone screening
- Intervention: 20 providers, 187 patients
- TAU: 22 providers, 214 patients

## Participating Clinician Characteristics—baseline\*

Characteristic	Overall (N=42)
Physicians	71%
Nurse Practitioners/Physician Assistants	29%
Female	50%
Mean years since training	17 yrs
Mean number of patients in panel	668 (sd 393)
Mean % pts. in panel on opioids	16%
Mean job satisfaction (range 1-6)	4.3
Mean satisfaction with pain resources (1-6)	2.5

\*No significant differences between intervention and TAU clinicians for any variable

## Selected Baseline Patient Characteristics\*

Characteristic	Overall (N=401)
Mean age, years (sd)	61.7
Male	92%
Self-reported race/ethnicity—Caucasian/white	89%
Married	59%
Worked during past 12 months	32%
Currently receiving disability payment	65%
Musculoskeletal pain diagnoses	
Back pain	67%
Neck/joint pain	65%
Rheumatism/Osteoarthritis/Arthritis	49%
Years duration of pain	
Mean, (sd)	14.8 (12.7)
Median	10

\*No significant differences between intervention and TAU patients for any variable

Mean Pain Disability (RMDQ) score	14.7
Mean Current pain intensity (range 1-10)	5.2
PHQ-9 Major Depression diagnosis (DSM-IV)	18%
Posttraumatic stress disorder	17%
Positive alcohol misuse screen (AUDIT-C $\geq$ 4)	16%
Endorses drug misuse past 6 mos.	6.5%
Reports previous substance use disorder treatment	16%
Prescribed opioid in 6 months prior to study entry	43%
Mean global care satisfaction (range 0-4)	2.9
Reports received VA treatment for chronic pain (ever)	55%
Reports good/better pain treatment effectiveness	30%

# Baseline patient attitudes

- 39% felt (very true) pain is a sign of damage<sup>1</sup>
- 60% avoid activities causing pain<sup>2</sup> (very true)
- 65% reported taking recent steps to manage pain that don't rely on doctors

<sup>1</sup>from Survey of Pain Attitudes (Tait 1997)

<sup>2</sup>from Chronic Pain Acceptance Questionnaire (McCracken 2004)

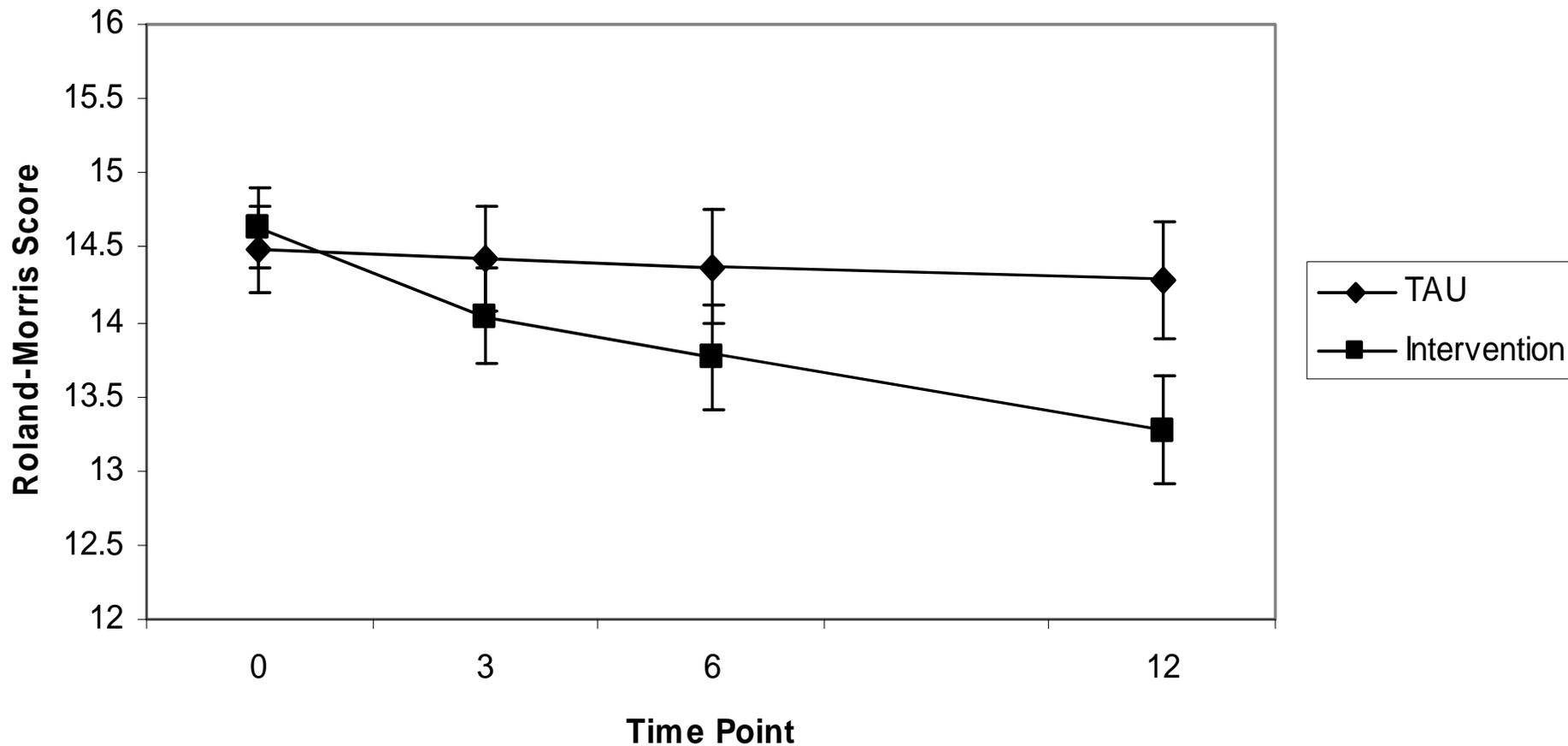
# Results—Outcomes

# Follow-up rates

- 389 (97%) at 3 months
- 366 (91%) at 6 months
- 362 (90%) at 12 months

# Roland-Morris Score Change over Time (Primary Outcome), n=401

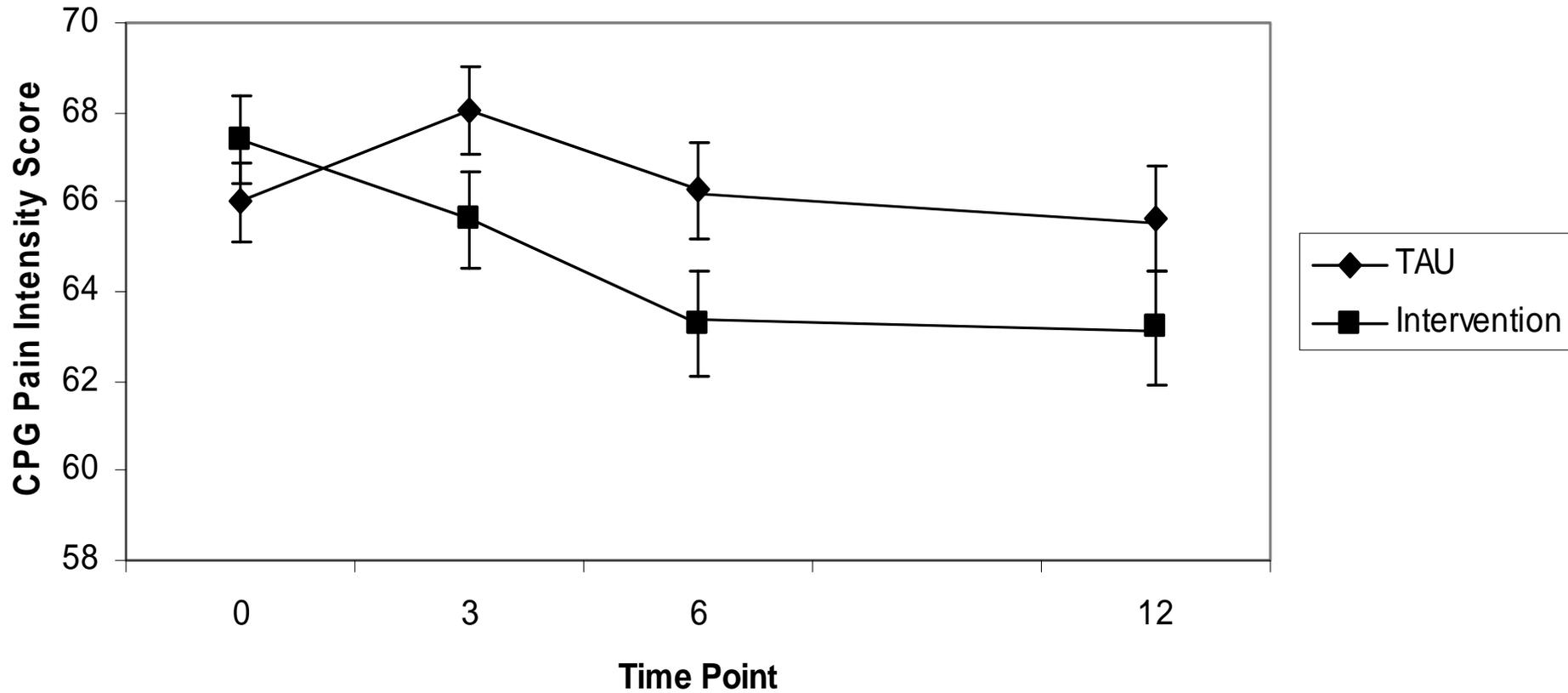
## Roland-Morris Score Change Over Time



$p=.004$

# CPG Pain Intensity Score Change over Time, n=401

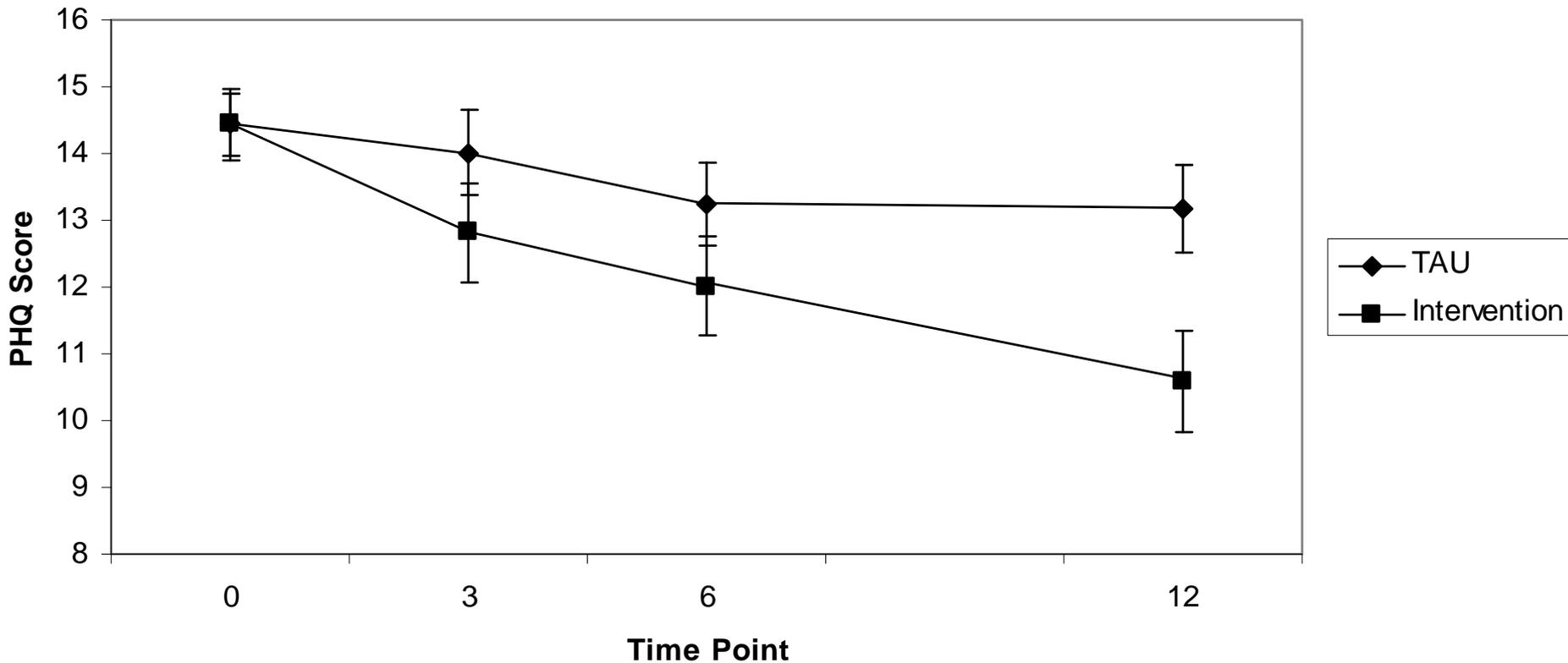
## CPG Pain Intensity Score Change Over Time



$p=.014$

# PHQ-9 Score Change over Time (Among Those with baseline PHQ $\geq 10$ ), n=148

## PHQ Score Among Those With PHQ $\geq 10$ at Baseline



$p=.003$

## Secondary Outcomes

Measure	Intervention vs. TAU	Baseline (se)	6 mo (se)	12 mo. (se)	$\Delta$	p value
Chronic Pain Grade—Interference	Intervent. TAU	49.3 48.7	44.8 50.0	44.6 51.1	-4.7 +2.4	.03
Global Treatment Satisfaction	Intervent. TAU	2.9 2.9	2.7 2.5	2.7 2.6	-.2 -.3	.44
Effectiveness of pain treatment	Intervent. TAU	1.6 1.8	1.8 1.7	1.9 1.9	+3 +1	.64
Global impression of change (past 6 mo.)	Intervent. TAU	-- --	3.6 4.5	3.7 4.4	-- --	<.001

## 30% Reduction in RMDQ (unadjusted)

	TAU	Intervention	p	NNT
6 months	13.8%	21.3%	.058	13
12 months	<b>14.0%</b>	<b>21.9%</b>	.049	<b>13</b>

# Process outcomes—meds (adjusted values)

Characteristic	TAU	Intervention	p
Opioids			
Any opioid prescribed	61%	65%	.56
If opioid prescribed, any long acting	18%	31%	.03
Highest morphine equiv. dose > 30mg/day	31%	39%	.26
If opioids, ≥1 urine toxicology tests	8%	12%	.27
Antidepressant, any prescribed	39%	53%	.04
NSAID/acetaminophen, any prescribed	39%	62%	.001
Capsaicin, any prescribed,	5%	44%	<.001

# Process outcomes—utilization (adjusted values)

Characteristic	TAU	Intervention	p
Mean number of primary care appointments	2.2	2.0	.60
Mean number of total ambulatory visits	13.8	13.7	.94
Any physical therapy appointment	16%	48%	<.001
Any mental health appointment	28%	45%	.05
Any substance use disorder appointment	0.3%	0.5%	.20
Any Specialty Pain Service appointments	3%	7%	.07
Any orthopedics or neurosurgery appts.	13%	16%	.32

# Pre-planned moderator analyses

- Group by time changes for RMDQ, CPG-intensity, and CPG-interference did not significantly vary by:
  - baseline depression status
  - distance from nearest VA facility
  - total number of intervention team contacts

# Intervention implementation

Mean time between study enrollment and completed initial phone contact	27 days
Participants who completed subsequent assessment visit	98%
Participants whose assessment visits were in-person	96%
Mean length of assessment visit	65 min.
Mean number of completed care manager phone calls after assessment visit	5.4

Proportion of participants who met in-person with APT physician Of these participants, mean number of visits	21% 1.23
Proportion of participants with phone contact with APT physician Of these participants, mean number of phone contacts	64% 2.7
Proportion of participants who attended $\leq 1$ group workshop Of these participants, mean number of workshops attended	40% 2.8
Mean number of total contacts with intervention team (sd)	10.6
Mean total hours spent per patient in direct contact with APT team	2.7
Mean # hrs/wk spent by APT physician during 6 months of peak enrollment	3.3

# Clinician satisfaction with intervention

- 95% reported using feedback from the APT intervention team half or more of the time
- 90% reported APT affected ease of providing high quality care somewhat positively or highly positively
- 80% reported that APT had somewhat positive or highly positive impact on patient outcomes.

# Patient ratings of intervention\* (at 4 mo.)

Item	% who reported receiving the service/element	% who agreed/strongly agreed element helpful
Initial assessment	97%	87%
Written educational materials	93%	82%
Educational Video/DVD	65%	59%
Group workshop sessions	46%	78%
Follow-up contacts with CM	86%	82%
Additional assistance from APT	75%	73%
Contacts with APT Physician	66%	84%
Contacts with Physical Therapist	52%	77%
Working with their PCP on pain	76%	67%
APT program overall	95%	76%

\*Evaluations received from 149/187 (80%) intervention patients.

# Summary of Findings

- Many veterans treated in primary care with chronic pain want to participate in research
- Comorbid conditions are common
- Collaborative intervention resulted in improvements in a number of measures:
  - Pain disability
  - Pain intensity
  - Depression severity
  - Indicators of guideline recommended care
- Clinicians and patients satisfied with intervention

# Limitations

- Recruitment of volunteers
- Specific intervention components not studied
- Attention bias
- Reliance on self-report measures
- Would a more intensive intervention have had have stronger effects?
- Challenges translating to community/private settings