The Stepped Care Model of Pain Care: Integrating Pain Specialty and Primary Care Skills in Health Systems

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Disclosures

• Board of Directors of the American Academy of Pain Medicine (ex-officio)

• Editor-in-Chief Pain Medicine

• Board of Directors, Audubon Pennsylvania

• These are not official views of the Veterans Administration
Objectives

The learner will be able to:

1) Describe the behavioral neuroscience and social science underpinnings of pain chronification.

2) Describe how Health Systems are re-organizing pain care in the Stepped Care Model to achieve safe and effective pain management.

3) Describe challenges in implementing the Stepped Care Model

Epigenetic Rules

Tribalism is a fundamental human trait

People must have a tribe

• The instinct that binds them together is the biologic product of group selection.
  – It gives them a name, in addition to their own and social meaning in a chaotic world
  – It provides safety
  – It provides opportunities for sexual selection

E.O. Wilson, The Social Conquest of Earth 2012
The Phenomenology of Pain Management: A 21st Century SWOT Analysis: Strengths:

- Testimony: Derek McGinnis 2009; Phillip Pizzo 2013
- Evolution of Pain Science:
  - Epidemiology of painful diseases
  - Behavioral neuroscience of pain transmission and perpetuation
  - Chronification science: How acute becomes chronic and effective care
- Painiacs: a small, rapidly growing, inter-professional tribe
  - Pain medicine specialists and organizations (Pain Care Coalition)
  - Pain management psychologists, nurses & pharmacists
  - Addiction medicine and psychiatry
  - Primary care pain champions: VA, DoD
  - Organized medicine: NIH-IPRCC, AMA, SAMSHA, NINDS
- Patients and the Public: Pain Care Forum


The Pain Challenge: Veterans Health Administration

Gallagher, Polomano, Buckenmaier, Oslin, Guo, Farrar et al, IASP 2014
Pain IS a Public Health Problem

>50% in aging Veteran cohorts with old injuries or new painful diseases (cancer, arthritis, neuropathies, etc)

Incoming Veterans from recent OIF_OEF conflicts (2nd Quarter, 2014**)

- 61.8% with Disease of the Musculoskeletal System (all painful)
- 57.6% with Mental Disorders
- 50.7% with Diseases of Nervous System
  - TBI, Nerve injuries


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Figure 1. Brief Pain Inventory (BPI) Pain Intensity Mean Scores (95% CIs) by Months for Veterans after Battlefield Limb Injury (n= 358)

Gallagher, Polomano, Buckenmaier, Oslin, Guo, Farrar et al, IASP 2014
Why chronic pain in OEF-OIF troops?

Wear and tear of military duty during war
   a) Prolonged, repeated deployments
   b) Osteoarthritis and spinal / limb injuries
   c) Post-traumatic stress

90% survival, battlefield injuries:
   a) Physical wounds
   b) Blast injuries and TBI
   c) Psychological wounds

Chronification after injury
   a) Delayed stimulus control and inadequate pain management >> CNS sensitization
   b) Biologic and psychosocial augmenting factors (PTSD, TBI, role loss, social isolation)

TESTIMONY, Acute Recovery: *Exit Wounds (2009)*

“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 2009 (Corpsman, 2004)

In a clinical population, how do you deliver pain care driven by performance based, biopsychosocial outcomes?

A. You start by understanding the failures of existing models of care

B. You next learn:
   - the biopsychosocial, causal models of different pain conditions
   - the mechanisms underlying these models
   - how to generate a biopsychosocial formulation and prioritized goal-oriented management plan for each patient

C. You then learn integrated, function-oriented treatment approaches at a level appropriate to your clinical setting.

D. You finally learn how to implement chronic disease management for patients with chronic pain conditions in a health system:

**Challenge:** How to develop teams that can use these skills cost effectively in a performance based, integrated treatment network?

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The derivation of a disabled population

D. Pre morbid risk factors:
   - osteoarthritis; scoliosis; job characteristics; sedentary lifestyle; external locus of control; obesity; depressive illness; low education

B. Population with onset of injury or disease

C. Injured at increased risk for pain disability:
   - initial injury severity and its management; job inflexibility; inadequate pain management; poor care access; inappropriate surgery

1. Factors increasing risk for eventual disability at injury onset:
   - initial injury severity and its management; job inflexibility; inadequate pain management; poor care access; inappropriate surgery

2. Factors perpetuating pain & disability:
   - poorly managed pain leading to toxicity &/or disability; untreated depression / poor coping; no access to rehab; inflexible workplace.

3. Factors reducing risks for chronicity:
   - Personal competency and coping skills; effective pain management; access to Pain rehab; early RTW; early Dx & Rx depression; better education; internal locus of control; family support.

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Prevention of Chronification: The Chronic Pain Cycle

**Pathophysiology of Maintenance:**
- Radiculopathy
- Neuroma traction
- Myofascial sensitization
- Brain, SC pathology (atrophy, reorganization)

**Psychopathology of maintenance:**
- Encoded anxiety dysregulation
- PTSD
- Emotional allodynia
- Mood disorder

**Acute injury and pain**
**Central Sensitization**
- Neurogenic Inflammation:
- Peripheral Sensitization:
- Neuroplastic changes

**Pathology:**
- Muscle atrophy, weakness;
- Bone loss;
- Immuno-compromise;
- Depression/suicide;
- Addiction/Overdose;
- Obesity-OA-CVD

**Disability**
Less active
Kinesophobia
Decreased motivation
Increased

**Pain powerfully conditions behavior**
**Pain relief is powerfully rewarding**

Preventing Pain Chronification: A Public Health Model

**Primary prevention:**
The focus is actively shifting attitudes towards health, through engagement in healthy activities and lifestyles that prevent pain-causing disease and injury.
- Protective devices against injuries such as body armor and seat-belts;
- Healthy behaviors: smoking avoidance and cessation; weight control; exercise; and forms of stress management (e.g., yoga, meditation) are conceptualized.
- A supportive community

Establishing a platform of sound health practices provides a self-management foundation for longitudinally effective pain care.

**Secondary prevention:**
The focus is on effective pain care after injury/disease onset. Care aims to:
- avoid unnecessary pain and secondary sensitization of the CNS through peripheral pain control with timely application of neuromodulation (e.g., ice, TENS, neuro-stimulators), medications, and neural blockade with regional anesthesia;
- reduce central pain perception and suffering through appropriate and safe use of medication and self-management techniques;
Preventing Pain Chronification: A Public Health Model

**Tertiary prevention:**
- The focus is functional restoration when a painful condition persists and becomes a chronic nociceptive or neuropathic stimulus leading to “pain chronification”.
- Treatments target pathophysiologic neuroplastic changes to the spinal cord and brain affecting pain perception, emotions, cognition and maladaptive behaviors.
- **Key objectives:** Prevention, early recognition, and management of factors increasing risk, such as inactivity, social isolation and mood, sleep, and substance use disorders.

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SECONDARY PREVENTION: BLOCKING THE STIMULUS TO PREVENT CENTRAL SENSITIZATION: Index Case, 7 October 2003, 21st CSH, Iraq

Courtesy of C. Buckenmaier, MD

Greater worry during transport (p<0.05) and higher worst pain (p<0.001):
- explained 72.3% (p<0.001) of the variance in average pain levels during transport
- *Is this a trait (worrying) worth exploring, similar to ‘trait anxiety’ and / or catastrophizing* that predict pain disability?
- *Does chronic activation, or low threshold for activation, of noradrenergic “stress centers” facilitate encoding of pain and fear memories, and central sensitization*
- *Should these traits be assessed, much like physical capacity, as part of fitness, and addressed proactively with resiliency training?*

Participants receiving continuous peripheral nerve blocks (CPNBs) at LRMC reported significantly better percent pain relief (p < 0.05) than those who did not, *despite higher worst pain intensity* in the CPNB group.
HAPPY CAMPERS !!

THE END: A 21\textsuperscript{th} century pain image

Col. Chester “Trip” Buckenmaier and Index Regional Anesthesia Patient Brian at the opening of the Acute Pain Research Unit Walter Reed Army Medical Center
Managing the *Pain of Fear, Fear of Pain and Fear of Social Isolation*, in a health care system

**Stepped Pain Care Begins at Home:**
We adopt you, and we will TEAM UP with you to prepare you:

– To use our skills and support together with your own resources: your body, mind/brain, relationships, community and goal-directed activities

– To reduce the impact of your pain on your life, and restore your hope for a meaningful quality of life

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**BEHAVIORAL NEUROSCIENCE of PAIN**
The need for a strong social bond is hard wired

**Pain network**
- PAG
- dACC
- Thal
- SCC
- Ins

**Reward network**
- VTA
- VS
- Amyg
- VMPFC

Physical pains
- Social exclusion
- Bereavement
- Being treated unfairly
- Negative social comparison

Physical pleasures
- Having a good reputation
- Being treated fairly
- Cooperating, Giving to charity
- Helping others
- Schadenfreude

**Transition to Community Care:**

- MILITARY HOSPITAL, USA
- MILITARY BASE CLINIC, USA
- COMMUNITY HEALTH SYSTEM
- VETERANS HEALTH SYSTEM
- COMMUNITY SUPPORT SYSTEM

**Chronification and Health Services**

- Chronification is determined by a person’s somatic pain condition interacting with their emotions and interpersonal and physical environments, *including the health care system*.
- The behavioral neuroscience of this interaction underpins the principles of designing and assembling a health system that provides *safe and effective pain care* to a population.
- Once the pain-causing disease process or injury is effectively managed, and pain treatment commences, the salience of emotions and the social environment to pain perception and behavior becomes apparent and predictive.
- Pain is powerfully conditioning:
  - its relief is highly rewarding
  - whomever and whatever is associate with that *relief is greatly appreciated* by the organism.

Gallagher Anesth Clin N Am 2016;
Pain is powerfully conditioning. Simply put:

- Actions that bring relief are highly reinforced.
  - When a movement hurts, the brain automatically says "don’t move again", or "move in a way that doesn’t hurt", and the pain is relieved.
  - The pain ceases, and is avoided when the organism moves differently. This sequence activates the reward centers in the brain and is remembered. 
  - Hence a limp is learned unconsciously, with musculoskeletal consequences.

- Instruction in healthy movement may not be enough; if fearful, reinforcement helps patients learn to overcome the fear of healthy movement, even if it activates residual nociception:
  - “I know it hurts, but remember, it won’t damage you – use your relaxation skills and try again. You are really getting there!”
  - “Try icing. You’ll do even more if you keep doing these exercises. Nice going!”

- Similarly when an opioid reliably relieves the pain, that rewarding experience motivates its re-use when:
  - the stimulus recurs, activating the pain;
  - the opioid level drops, unmasking the nociceptive pain signal.

*Gallagher Anesth Clin N Am 2016;*
Pain medicine and primary care community rehabilitation model

INJURY/SYMPOTOM

1. Primary Care: Clinical Algorithms

2. Recurrent or persistent pain impairing function

3. Treatment Failure

4. Multidisciplinary Pain Center

5. Sub-specialty Eval. & mgmt.

6. Community Support & Services (PT, OT, Voc, Behavioral, pharmacy)


Pain medicine and primary care community rehabilitation model - OUTCOMES

- Guidelines-based care algorithms for Primary Care Physicians (PCPs) – based upon known phenomenology of pain diseases/disorders and outcomes of their treatments.
- Easy access to pain medicine physicians who support care algorithms and coordinate treatment.
- Early interventions when appropriate to reduce risks.
- Capacity to monitor patient outcomes through PCPs.
- Use of PCP, PT, behavioral, mental health and other community supports and resources for longitudinal care of a chronic illness.
- Lower total costs, less hidden costs.

VHA’s advantages over private health systems*

- Less reinforcement of models of pain care that focus on (reward) profit, perpetuating fragmented, ineffective care
  - The specialty/sub-specialty sequential care model
  - The multi-disciplinary pain center model
  - The managed care model

- Ability to adopt new models of care delivery that address these structural, socioeconomic, and clinical process issues in a health system caring for a defined population of patients.
  - The Pain Medicine and Primary Care Community Rehabilitation Model**, designed to emphasize the critical role of a community, anchored by competent primary care providers/teams with access to pain medicine specialty teams who in turn have access to Interdisciplinary pain rehabilitation centers
  - The Stepped Care Model

- Generation of large, complete sample administrative databases that support clinical trials and facilitate implementation research


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Steps to Support for Complexity: The Opioid Renewal Clinic *
One year follow-up data on patients (N= 366) consecutively referred for aberrant behavior 1/2/02 – 12/6/06

<table>
<thead>
<tr>
<th>Resolution of aberrant behavior</th>
<th>147 (40.2%)</th>
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<tbody>
<tr>
<td>Discharge from ORC</td>
<td></td>
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<tr>
<td>n=101 (28 %) self-discharged</td>
<td></td>
</tr>
<tr>
<td>n= 86 (23 %) ORC discharged</td>
<td>187 (51 %)</td>
</tr>
<tr>
<td>Referred to addiction tx.</td>
<td>24 (6.6 %)</td>
</tr>
<tr>
<td>Consistently negative UDT</td>
<td>7 (1.9 %)</td>
</tr>
<tr>
<td>weaned from opioids</td>
<td></td>
</tr>
<tr>
<td>Undeclared – still monitoring</td>
<td>1 (0.3%)</td>
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* Wiedemer et al Pain Medicine 2007
Resource Utilization

N = 60 (out of 200 ORC patients)

Number of visits per month during the period before enrolling in the ORC (12 months)

As compared with the number of visits per month after enrollment (mean=10.9 months).

ORC enrollees demonstrate a substantial decline in overall rates of resource utilization:

- **Consults:** 46.6% lower
- **ER visits:** 80.0% lower
- **Unscheduled PCP visits:** 53.9% lower


- Assistance with Pain Treatment (APT) vs Treatment as Usual (TAU)
- 42 primary care clinicians/401 patients
- **Measures:**
  - Roland Morris Disability Questionnaire
  - Chronic Pain Grade – Pain Intensity
  - Patient Health Questionnaire - 9
- **APT:**
  - Clinician education
  - Pt assessment, education & activation
  - Symptom monitoring
  - Feedback and recommendations
  - Facilitation of specialty care

Change from baseline to 12 mo f.u.
<table>
<thead>
<tr>
<th><strong>VA Stepped Pain Care.</strong></th>
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<tbody>
<tr>
<td><strong>RISK</strong></td>
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<tr>
<td><strong>Comorbidities</strong></td>
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<tr>
<td><strong>Treatment Refractory</strong></td>
</tr>
<tr>
<td><strong>Complexity</strong></td>
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### Tertiary, Interdisciplinary Pain Centers
- Advanced pain medicine diagnostics & interventions;
- CARF accredited pain rehabilitation

### Secondary Consultation
- Multidisciplinary Pain Medicine Specialty Teams;
- Rehabilitation Medicine;
- Behavioral Pain Management;
- Mental Health/SUD Programs

### Patient Aligned Care Team (PACT) in Primary Care
- Routine screening for presence & severity of pain;
- Assessment/management of common pain conditions;
- Support from MH-PC Integration; OEF/OIF Post-Deployment Teams; PT; BFA; CIH; Expanded care management; Opioid Re-assessment Clinics

### Self Management
- Health promotion/disease prevention; Pain Schools;
- Adoption of adaptive pain coping skills; Participation in normal daily activities; Exercise/conditioning; Sleep management; Family & social support; Safe environment/surroundings


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### REQUIRES COMPETENCY

- **System competency**
  - Redesign system elements to support the *chronic care model*:
    - PASTOR – PROMIS; CHOIR
      - Adequate workforce numbers, organization and rewards
      - Measurement-based, continuous quality improvement
      - Reinforcement of positive, health-oriented relationships

- **Clinician and patient competency**
  - Adequate training at all levels:
    - Self-management, primary care, pain medicine, rehabilitation
  - Integrated teams for disease management
    - Relationship building with patients and family
  - Continuing education, monitored outcomes

**Dorflinger et al. Providers' roles in enhancing patients' adherence to pain self management. TBM 2013**

**Fishman et al. Core Competencies for Pain Management: Results of an Interprofessional Consensus Summit, Pain Medicine 2013**
Combined Treatments for Pain: Do They Work?

Evaluation of Stepped Care for Chronic Pain (ESCAPE) in Veterans of the Iraq and Afghanistan Conflicts.
A Randomized Clinical Trial

- Randomized Veterans with musculoskeletal pain to Usual Care (N=120) and Stepped Care (N=121)

- Stepped Care Intervention included:
  - Step 1, optimizing analgesics coupled with learning self-management strategies, and
  - Step 2, modified cognitive behavioral therapy

- Care delivered by trained nurse care managers
RESULTS FROM THE ESCAPE TRIAL

A Trained Nursing Intervention:
Medication Optimization, Self-management, Modified CBT

Outcomes were assessed at baseline and at months 3, 6, and 9 follow-up. A. Pain-related disability was measured by the Roland Morris Disability Scale. Scores range from 0 to 24, with higher scores representing more severe pain-related disability. B. Pain interference was measured by the Pain Interference subscale total score of the Brief Pain Inventory (BPI). Seven items are scored with a range from 0 to 10, with the mean calculated for the total score and a decrease considered improvement. C. Pain severity was measured by the Graded Chronic Pain Scale (GCPS). Scores range from 0 to 100, with higher scores representing more severe pain. Because we used the intention-to-treat principle, all randomized patients were included in the analysis. Substantial reduction was seen in all 3 measures during the 9-month trial among patients in the intervention group. A total of 11 patients withdrew from the intervention arm and 6 patients from the usual care arm. Error bars indicate 90% CIs.

doi:10.1001/jamainternmed.2015.97
Published online March 9, 2015.

Outlining the Challenge: Transforming VA Pain Care

The Six Steps to Good Chronic Pain Care

1. Educate Veterans/families and promote self-efficacy
2. Educate/train all team members
3. Develop non-pharmacological modalities
4. Institute safe medication prescribing including safe opioid use (universal precautions)
5. Develop approaches to bringing the Veteran’s expanded team together (virtual pain consulting and education as well as ongoing communication between team members)
6. Establish metrics to monitor pain care
STEPS 1 & 6: Promoting access to pain self-management

- Mental Health Service Evidence-Based Psychotherapy (CBT-CP) Initiative
- National Telemental Health Center (CBT via videoconferencing)
- Home telehealth/care coordination
- Pain Schools
- VA Pain Coach (Personal goals)
- Veteran Pain Management Resource Center for MyHealtheVet
- Patient Generated Data
- VA Pain Management Website

http://www.va.gov/painmanagement/

Are Veterans getting to Specialty Pain Care in the Stepped Care Model?

- Through the end of FY 2015, VHA provided Pain Clinic services to 166,570 unique Veterans (including both inpatient and outpatient pain clinic services).
  - Compared to the same time period in FY 2014, this represents a 18.5 percent increase in the number of Veterans served in these specialty clinics.

- Total Pain Clinic encounters increased to 567,404 through the end of FY 2015.
  - Compared to the same time period in FY 2014, this represents a 18.85 percent increase in the number of pain specialty clinic encounters for Veterans.
Adding Steps in PACT: A VA-DoD Project
“Tiered Acupuncture Training Across Clinical Setting” (ATACS)

Established a training and credentialing working group to develop consensus-based guidance for training, credentialing and privileging across DoD and VA for both BFA and Medical Acupuncture.

From R. Niemtzow

Acupuncture Training Across Clinical Settings (ATACS) Project
Number of VA Providers Trained By State

More than 2,000 providers have been trained in BFA through the ATACS project since 2014, over 700 of these are VHA providers.

VA PROVIDERS TRAINED IN BATTLEFIELD ACUPUNCTURE (BFA)
- 1 – 9
- 10 – 25
- 26 – 50
- 51 – 99
- 100+

MEDICAL ACUPUNCTURE TRAINING
- VA Provider Recently Completed (n = 36)
- VA Provider Currently Enrolled (n = 32)
Does adding resources help?
High Risk Pain Clinic with Bridging Therapies
North Florida, South Georgia VA, Gainesville, FL (135,000 Uniques)
Steve Mudra, MD (with Michael Saenger, MD, Atlanta VAMC)

PC & MH FTEs Invested / Re-allocated

OSI Results in Reducing Highest Risk Tx

MD provided acupuncture for many Veterans

Technology for support, efficiency, education, & academic detailing to improve access and Provider and Veteran outcomes in the Stepped Care Model

SCAN ECHO consults and continuing supervision to competency
E-Consults using EMR
Telehealth consults and CBT
Telephone consults
Consult / treatment options to meet Veteran and provider needs
Face-to-face consults

FY15 >3500 Buprenorphine prescriptions in for Opioid Use Disorder (Opioid "Addiction")

STEPS 1 & 6: Educate and Measure!

http://www.va.gov/painmanagement/
SUMMARY:
Stepped, integrated pain care

• Educate, empower, and engage patient
• Develop universal and systematic clinical measurement of outcomes
• Run sequential N-of-1 clinical trials of integrated treatments based on level of complexity, biological and psychosocial mechanisms, evidence for efficacy, Side Effect / Safety burden, comorbidities, ease of use, and patient preference/ adherence.
• If partial effects, maintain effective and safe dose of a treatment while pursuing additional treatment trials targeting pain mechanisms, one at a time, while monitoring outcomes.

Keeping the Tribe Together

The Community: Resources and Policies

**National Pain Program:**
VHA Directive 2009-053: Stepped Care Policy

**Monthly Meetings, Working Groups:**
PACT, Nursing, Pain Medicine, Rehab, Pharmacy

22 VISN (Regional) Pain POCs, Committees
141 Facility Pain POCs, Committees

National Pain Management Strategy Coordinating Committee

Self Management National Tools: Pain Coach, My Healthy Vet, Virtual Hospital, VA Internet site

Delivery System Design Stepped Care / PACT, SCAN-ECHO, MH Integration, Telehealth, **PACT Roadmap; OSI Toolkit**

Decision Support VA/DoD COT CPG, Opioid Safety Initiative Profiles; Point of Care Info: STORM, OTTR

Clinical Info Systems Cohort/Condition Management Tools, Templates, Trainings, Academic Detailing

Pain Research Working Group

Functional & Clinical Outcomes

Prepared and Proactive Team

Informed, Secure and Activated Patient

Keeping the Tribe Together
Monthly Pain Leadership meetings, VHA

- **NPMSCC** for advice and support from the other VA clinical and operational offices monthly
- The **National Pain Leadership Group** consisting of 22 VISN (regional) and 142 facility Pain Points of Contact with whom new VACO programs and policies are shared and who provide feedback to VACO from the field
- The **Primary Care Task Force** that supports the PACT Pain Champions in facilities
- The **Interdisciplinary Pain Medicine Specialty Team Work Group**: to standardize accessible, effective, pain specialty consultation/collaboration/referrals to Step 2
- The **CARF Pain Rehabilitation Task Force** that provides training and standardization of CARF functions
- The **Pharmacy Pain Management Work Group**: Implementing Academic Detailing
References:

- Dorflinger et al. Providers’ roles in enhancing patients’ adherence to pain self management. TBM 2013
- Fishman et al. Core Competencies for Pain Management: Results of an Interprofessional Consensus Summit, Pain Medicine 2013

References: