Quality Pain Care for Older Adults:  
Current Status and Future Directions  
Debra Gordon Honorary Lecture

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Gerontological Excellence  
The University of Iowa  
Midwest Pain Society  
41st Annual Scientific Meeting  
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Chicago, Illinois

Conflict of Interest Disclosure

• No Conflict of Interest

• Funding in past 12 months
  • National Institutes for Health
  • The Mayday Fund

Objectives

• Discuss the state of pain assessment and management in older adults.

• Recognize key challenges, progress made and future directions for achieving quality pain care for older adults.
Pre-Test

Which of the following statements about the assessment of pain in older adults with dementia is false?

- a) People with dementia need extra time to process information in a pain rating scale.
- b) A large percentage of people with moderate dementia are able to use at least one pain rating scale.
- c) Pain in people with dementia is lower, because cognitive impairment reduces the ability to feel painful stimuli.
- d) Facial grimacing is one of the common behaviors indicating pain.

Which statement is correct regarding the use of non-pharmacological interventions for pain management in older adults?

- a) Music is rated as the most effective, non-pharmacological method for chronic pain.
- b) Cognitive methods, such as guided imagery are preferred by older adults.
- c) Choice of non-pharmacological method should consider the older adult’s past experiences.
- d) TENS (transcutaneous electrical nerve stimulation) is not effective in relieving post-op pain in older adults.

All of the following are barriers to pharmacological pain management in older adults EXCEPT:

- a) Fear of side effects by providers and patients
- b) Physiological changes and comorbidities
- c) Interdisciplinary evaluation and treatment planning
- d) Changes in cognition impacting administration and adherence
- e) Polypharmacy resulting in drug-drug adverse reactions

The Aging Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Male Population</th>
<th>Percentage of Female Population</th>
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<tbody>
<tr>
<td>1960</td>
<td>1/8 &gt; 65 in 2007 (13% of population)</td>
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<tr>
<td>1990</td>
<td>1/6 &gt; 65 in 2020 (20% of population)</td>
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Why do we care?

- Aging of Society
  - 65+ Population Will Reach 30% by 2050

- Increased presence in health care
  - 38% of emergency medical services responses
  - 46% of patients in critical care
  - 50% of hospital days
  - 50% of specialty ambulatory care visits
  - 60% of adult primary visits
  - 70% of home health services
  - 90% of residents in nursing facilities

(John A. Hartford Foundation, 2007; IOM 2008)
Effects of Unrelieved Persistent Pain in Older Patients

(Arai et al., 2015; Bonnoure et al., 2009; Landi et al., 2009; Leveille et al, 2009; Patel et al., 2013; van der Loos et al., 2015)

**CONSEQUENCES**

- Untreated Pain
- Increased Health Care Utilisation and Costs
- Sleep Disturbance; Malnutrition
- Decline in Social & Recreational Activities
- Physical Function Decline; Falls
- Depression; Anxiety; Impaired Cognition

### Pain Prevalence in Older Adults Across Care Setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Prevalence of pain</th>
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</table>
| Nursing Home (9952 OA/185 NHs) (Lapane et al., 2012) | 51.4% overall some pain  
78% mild cog impairment  
22% mod-severe cog impairment |
| Hospital (367 OA/8 hosp) (Gianni et al., Arch Geront & Geriatrics, 2010) | 67% pain present |
| Home/Community (Eggermont et al., 2014; Patel et al., 2013; 7601 OA) | 65% chronic pain present  
53% bothersome pain |
| Hospice (738 OA with cancer /16 hospices) (Herr et al., 2012) | 83% pain present  
40% pain at admission and  
40% uncontrolled pain |

51-83% Present Pain
Key Questions: Assessment

- Do we have reliable and valid pain assessment tools for cognitively intact and impaired older adults?

- Are tools integrated into practice to identify and monitor pain in older adults across care settings?

- What are key issues related to existing pain assessment tool use in older adults?

Domains of Comprehensive Pain Assessment in Older Adults

- Initial determination or ongoing monitoring of pain
  - Self-reports (uni and multidimensional) & behavioral observation

- Medical, pharmacologic, and functional assessment of pain-related concerns
  - Physical exam, pharm eval, age-related physical concerns, sensory impairment, functional assessment

- Assessment of psychosocial factors contributing to pain complaint
  - Psychosocial comorbidities and complicating factors, cognitive processes, coping, affective processes, interpersonal processes


Reliable & Valid Pain Intensity Tools for Older Adults?

An Interdisciplinary Expert Consensus Statement on Assessment of Pain in Older Persons

- Number of tools evaluated in older adults
- Further support in recent years
Selected Pain Intensity Scales for Older Adults
(Gagliese et al., 2005; Herr et al., 2007; Lukas et al., 2013; Personen et al., 2009; Wood et al., 2010)

- **Verbal Descriptor Scale (VDS)**
  - **Iowa Pain Thermometer**
  - **McGill Present Pain Inventory (PPI)**

- **Simple VDS**
  - **Faces Pain Scale-Revised**

- **Iowa Pain Thermometer-Revised**

- **Do we have reliable and valid pain intensity tools for use with cognitively impaired older adults?**
  - Geriatric hospital, 178 pts (Lukas et al., 2013)
    - Good cross tool correlations; Lower @ rest, than movement
    - Most stable tool with increasing CI: VRS
    - Level of impairment for inability to use (MMSE 10)
Can we improve our clinical assessment approach?

- Pain intensity—5th Vital Sign
- Backlash from patients related to repetitive assessments that don’t fully capture their experience
- More patient-centered approach?
- Pain impact scales—too time-consuming?
  - Brief Pain Inventory—SF and adapted
  - Pain Disability Index
  - Geriatric Pain Measure—Short Form (GPM-12)
- Interview—lack of consistency?
  - Informal questioning—underestimates pain (Lorenz et al., 2009; van Dijk et al., 2012)
  - Pain Question phrasing (McGuire et al., 2009)
- Emphasis on impact/tolerability/satisfaction with treatment plan?

Other Approaches

The Functional Pain Scale: Reliability, Validity, and Responsiveness in an Elderly Population

- No Pain
- Tolerable (and doesn’t prevent any activities)
- Tolerable (but does prevent some activities)
- Intolerable (but can use telephone, watch TV, or read)
- Intolerable (but can’t use telephone, watch TV, or read)
- Intolerable (and unable to verbally communicate because of pain)

Adapted Functional Pain Scale Used with permission P. Aronstein

Acute pain assessment tools: let us move beyond simple pain ratings

- Assessing pain & function using PES scale
  - PES score = average of 3 individual question scores
  - 0 = “no pain”, 10 = “worst you can imagine”
  - What number from 0–10 best describes your pain in the past week?
    0 = “no pain”, 10 = “worst you can imagine”
  - What number from 0–10 describes how, during the past week, pain has interfered with your emotional or social function?
    0 = “not at all”, 10 = “complete interference”
  - What number from 0–10 describes how, during the past week, pain has interfered with your usual activity?
    0 = “not at all”, 10 = “complete interference”
Patient’s Pain Experience–More than a Number

CAPA is a process of gathering specific assessment information during the course of natural conversation.

- Patients preferred over NRS by 5:1
- Nurses preferred CAPA by 3:1
- Classifying clinical pain—42% to 81%
- Improved Press Ganey scores on how well pain was controlled from 18% to 95%

Used with permission, Gary Donaldson, PhD, University of Utah Hospital & Clinics/Department of Anesthesia 2017 online, Pain Management Nursing

Pain in Dementia: A Puzzle

Biomarkers—neuropeptides
(Sowa et al., 2014)

Clinical valid, physiological measure of pain for dementia?
Hierarchy of Pain Assessment Techniques

- Patient self-report
- Potential causes of pain (acute and chronic)
- Pain behaviors
- Surrogate report and behavior change
- Response to analgesic trial

Herr et al., Assessment of Pain in Nonverbal Patients, Pain Mgmt Nurs, 2011

Now over 25 nonverbal pain tools

RESEARCH ARTICLE
Pain assessment for people with dementia: a systematic review of systematic reviews of pain assessment tools

- No single best tool for all settings

REVIEW
Assessment and treatment of pain in people with dementia

Most Recommended
PACKSLAC
PAINAD
ABBREY
DOLOPLUS-2
MOBID
DS-DAT

Caregiver or informant rating
- Abbey Pain Scale (Abbey) (Abbey et al., 2004)
- Pain Assessment for the Dementing Elderly (PADE) (Villaneuva et al., 2003)
- Pain Assessment in Noncommunicative Elderly Patients (PAINE) (Cohen-Mansfield, 2006)
- Pain Assessment for the Communicatively Impaired Elderly (PACI) (Kaasalainen et al., 2011)

Observational rating
- Algoplus (Rat et al., 2011)
- Discomfort Scale for Dementia of Alzheimer's Type (DS-DAT) (Hurley et al., 1992)
- Checklist of Nonverbal Pain Indicators (CNPI) (Feldt, 2000)
- CNA Pain Assessment Tool (CPAT) (Cervo et al., 2012)
- Doloplus 2 (Wary, B. and the Doloplus Group, 2001)
- Elderly Caring Assessment 2 (EPCA-2) (Morello et al., 2007)
- Mobilization-Observation-Behavior-Intensity-Dementia Pain Scale (MOBID-2)(Husebo et al., 2011)
- Nursing Assistant-Administered Instrument to Assess Pain in Demented Individuals (NOPPAIN) (Snow et al., 2004)
- Pain Assessment Checklist for Seniors with Severe Dementia (PACSLAC) (Fuchs-Lacelle et al., 2004)
- Pain Assessment Checklist for Seniors with Severe Dementia-Dutch (PACSLAC-D)(Zwakhalen, Hamers & Bergen, 2007)
- Rotterdam Elderly Pain Observation Scale (REPOS) (van Herk et al., 2009)

Most Recommended
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No single best tool for all settings
Comprehensive Behavior Tool vs Brief Direct Observation?

- Tools range from 5 behavioral categories to 60 individual behaviors—
  - rating presence vs intensity
  - Variable use and definition of behaviors

- Are there key behaviors that will ID pain in most persons with dementia?

- Goal to identify most specific indicators of pain in nonverbal older persons without missing pain in those with less typical behaviors

Facial Grimace: Key Pain Behavior?

The use of facial expressions for pain assessment purposes in dementia: a narrative review

No sign relationship b/t self-report and observation measures

Behaviors NOT same as pain intensity

Facial Grimace: Key Pain Behavior?
Support of Atypical Pain Behaviors Growing

- Cluster RCT 18 NH-352 subjects
- Verbal agitation behaviors and restlessness and pacing responsive to treatment

Pain interventions effective in reducing pain and behavioral symptoms, such as depression, agitation/aggression, anxiety

Pain Assessment in Dementia

- Difficulty differentiating between pain and other causes of behavior
- Most scales not validated for determining pain severity
- Establishing cut-point for intervention
- Observational pain instruments rarely tested for responsiveness

Advances in Observation Tools for Dementia

- PIMD Pain Intensity Measure for Persons with Dementia (Ersek, Neradilek, Herr, Polissar, Cook, Snow and colleagues, in process)
Guidelines and Position Statements on Pain Assessment in Older Adults


Pain Assessment Practices Across Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Sample</th>
<th>Pain Assessment?</th>
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<tbody>
<tr>
<td>Hospital</td>
<td>Hospital (Motta et al., 2010) 100 pts mean age 86 62% hip fracture 33% no objective assessment by nursing</td>
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</tr>
<tr>
<td>Nursing Home</td>
<td>Nursing Home (Jablonski &amp; Ersek et al., 2009) 14 NH (8 not profit; 6 for profit) 291 residents with pain 32% Pain assessed weekly 25% Mild pain-2x/mo Mod pain-weekly</td>
<td></td>
</tr>
<tr>
<td>Hospice</td>
<td>Hospice (Herr et al., 2012) 738 from 16 hospices Mean age 78 83% pain 80-80% valid pain scale at adm 15-16% reassess with mod-severe pain Cog impaired—no validated pain behavior tool</td>
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Assessment of Pain with Valid & Reliable Pain Tools

NOT CONSISTENT

Treatment Considerations for Persistent Pain in Older Adults

Goal: Optimal Pain Relief

*Interdisciplinary
*Patient Centered
*Quality assessments
*Optimize nondrug approaches
*Balance risk/benefits and optimize use of tx
*Minimize ADR/misuse/abuse
*Monitor & document outcomes

Safety
Efficacy
Function/QOL

Risks
Tolerability
Patient Characteristics

Key Questions: Treatment

- Do we have evidence to support pharmacologic and nonpharmacologic intervention selection and tailoring for older adults?

- Are evidence-based pain management practices implemented consistently?

- Key issues to effective pain management?

Self-Management Options

Physical
- Exercise: therapeutic, physical therapy, general, yoga, Tai Chi
- Thermal treatments
- Assistive devices (splinting, orthotics, positioning)
- TENS, acupuncture
- Massage
- Other (e.g. aromatherapy, energy field therapy)

Cognitive Behavioral
- Cognitive and behavioral therapies (biofeedback)
- Mindfulness Meditation
- Self-management programs (education, acceptance/commitment to, coping)
- Distraction (music, humor)

Nonpharmacological Approaches to the Management of Chronic Pain in Community-Dwelling Older Adults: A Review of Empirical Evidence

Jaymeing Park, PhD, and Anne K. Maggio, PhD
Non-Drug Interventions

Gaps

Effectiveness in real world

Use in frail and cognitively impaired

Guidance in patient selection

Techniques and formats

Availability—access, technology, funding

Preference & Adherence

Sustaining effect
Willing, but access?

82% of 401 veterans
(mean age 61yr)
With prior use CAM
99% willing to try

National Health
Survey 2007
7735 baby boomers (1946-64)
4642 silent gen (1925-45)
Boomers higher rates of CAM,
fewer chronic diseases and
less pain

Drivers for Increased Interest in Self
Management Non-Drug Approaches

• Patient and provider concerns about drug adverse effects
  and drug-drug interactions

• Societal concerns regarding opioid misuse, addiction and
deaths
Guidelines and Position Statements on Pain in Older Adults

Pain Prevalence in Older Adults and Gaps in Treatment Across Care Setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Prevalence of pain</th>
<th>No or inadequate Pain Treatment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Home (580 OA/187 NHs)</td>
<td>23% no scheduled meds</td>
<td>Age and cog impairment</td>
</tr>
<tr>
<td>Hospital (367 OA/8 hosp)</td>
<td>67% pain present, 51% no treatment or inadequate for intensity</td>
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</tr>
<tr>
<td>Emerg Dept (7,585 ED visits 75 or older)</td>
<td>51% no analgesics</td>
<td>compared to 32% 35-54 yrs</td>
</tr>
<tr>
<td>Community (652 knees and/or hip OA)</td>
<td>All with OA pain</td>
<td>19% inadequate pain control, 51% taking non-opioid</td>
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</table>
Barriers to Pharmacologic Pain Management in Older Adults: Patient Issues

- Multidrug Regimens
  - Drug-drug Interactions
  - Adverse reactions
  - Compliance issues

- Cognitive Impairment
  - Ability to request
  - Administration
  - Adherence

- Opiophobia
  - Fear of addiction
  - Side effects

- Physiologic Changes
  - Frailty
  - System declines
  - Comorbidities
  - Effect on analgesia

Barriers to Pharmacologic Pain Management in Older Adults:

- Provider Knowledge Gaps
  - No consistent training on geriatrics and/or pain
  - Knowledge to balance benefits/risk for best treatment plan

- Knowledge Gaps Re: Pain Interventions in Older Adults
  - Strength of evidence in existing pain guidelines for older adults
  - Limited research in older adults
    - Specifically the complex including cognition impaired

- Political/Regulatory Climate
  - National Public Health Concerns Re Opioid Misuse/Abuse (CDC)
  - Federal concern re: safe and effective analgesic use (FDA; NIA; NIH Pain Consortium)

Analgesic Safety in Older Adults

Adverse Effects of Analgesics Commonly Used by Older Adults With Osteoarthritis: Focus on Non-Opioid and Opioid Analgesics

Review Article
Pain Management in the Elderly: An FDA Safe Use Initiative Expert Panel’s View on Preventable Harm Associated with NSAID Therapy

Robert Taylor Jr., Sala Lantosnow, Karen V; and Joseph V. Pergolizzi Jr.
Analgesic Safety in Older Adults

Safer Opioid Use/Potential Impact on Older Adults with Chronic Pain

Panel Conclusion: “Evidence is insufficient to determine the evidence for long-term opioid therapy for improving chronic pain and function. Evidence supports a dose-dependent risk for serious harms.”

Panel Recommendation: “In the absence of definitive evidence, clinicians and health systems should follow current guidelines by professional societies about which patients and which types of pain should be treated with opioids and about how best to monitor patients and mitigate risk for harm.”

CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016
24 health care advocacy groups, patient organizations, industry representatives and other stakeholders

Advances in Geriatric Pain Mgt

- Greater awareness of the impact of pain
- Implementation of Best Practices
- Growing evidence base to support analgesic therapy and nonpharmacologic approaches

CHALLENGE:

As views change on opioids, patients and providers find few other options for managing pain

http://www.modernhealthcare.com/article/20180126/MAGAZINE/501020659

As views change on opioids, patients and providers find few other options for managing pain

By: Nancy D. Evans, January 3, 2018

Perspective & Commentary

Commentary

The Opioid Pendulum and the Need for Better Pain Care

(Jan 18, 2018) By: Nancy D. Evans

Journal of Pain Research

As views change on opioids, patients and providers find few other options for managing pain

By: Nancy D. Evans, January 3, 2018

A Call for Understanding and Greater Access to Balanced Pain Management

May 17, 2018

Balanced Pain Management

www.balancedpm.org

Greater awareness of the impact of pain

Validation of pain assessment scales and approaches to assessment in cognitively impaired

Determining and monitoring effect of pain on function and quality of life and individualizing pain care plan

Recognition of the importance of multimodal therapy

Growing evidence base to support analgesic therapy and nonpharmacologic approaches

Advances in Geriatric Pain Mgt

- Greater awareness of the impact of pain
- Implementation of Best Practices
- Growing evidence base to support analgesic therapy and nonpharmacologic approaches
Improving Use of Pain Best Practices

- **Evidenced Based Practice**: Use best available research in combination with clinician’s expertise/judgment, patient’s preferences/values. (Windle, 2006)
- Tools not perfect, but good evidence to improve current practices
- Treatment evidence low to moderate, but “best” available
- Practice must be valued by clinicians to be adopted

IOM “Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education & Research” 2011

- Education central part of transformation
- Research to translate advances into effective treatments

Education is a Key Step

**IAST Interprofessional Pain Curriculum**

Lead by Dr. Judy Watt-Watson

*Core Competencies for Pain Management: Results of an Interprofessional Consensus Summit*

Funded by The Mayday Fund
Resources to Enhance Education

- NIH Pain Consortium partnership with 11 schools
- Centers of Excellence in Pain Education (CoEPE)
- Develop, evaluate and distribute pain management curriculum resources for health professional schools
- Includes older adult content

The 11 CoEPE awardees are:
- University of Alabama-Birmingham
- University of California-San Francisco
- Harvard University
- University of Connecticut
- University of Iowa
- Johns Hopkins University
- University of Pennsylvania
- University of Pittsburgh
- University of Rochester
- Southern Illinois University Edwardsville
- University of Washington

Centers of Excellence in Pain Education (CoEPEs)

Check out our pain education modules! We will be revising and adding more education modules on a continuing basis. Please check back as our learning resource library grows.

Through the case study, you follow Edna, a seventy-year-old woman with chronic low back pain. You’ll learn questions for health history, and physical exams to perform. You’ll discover obstacles commonly found with chronic pain patients. View interactive modules here and here for 508 compliant test version (pdf. 6mb 46mb).

COMING SOON: Mr. Frank is a 73 year old nursing home resident. Recent years have been marked by progressive cognitive decline attributed to Alzheimer’s disease. Over the past 12 months he has become non-ambulatory, requiring assistance in all activities of daily living. He no longer eats solid food - he is tube fed. He no longer drinks fluids and urinates without difficulty. He is typically “pleasantly confused” and compliant with staff guidance and care.

CoEPE Older Adult Cases: U Iowa

Betty Miller: An Older Female with Right Shoulder Pain

Instructor Guide

Donald Williams: An Older Adult with Total Knee Arthroplasty

Instructor Guide
Current funding support from The Mayday Fund, Csomay Center for Gerontological Excellence

University of Iowa
College of Nursing

www.IowaNursingGuidelines.com

Pain Medicine

Deconstructing Chronic Low Back Pain in the Older Adult: Shifting the Paradigm from the Spine to the Person

Debka K. Heinz MD

Published: 3 April 2014

Part I. Hip osteoarthritis
Part II. Myofascial
Part III. Fibromyalgia
Part IV. Depression
Part V. Maladaptive Coping
Part VI. Lumbar Spinal Stenosis
Part VII. Insomnia
Part VIII. Lateral Hip and Thigh Pain
Part IX. Anxiety
Part X. Sacroiliac Joint Syndrome
Part XI. Dementia
Part XII. Leg Length Discrepancy
Research Priorities

• Refined Assessment Approaches
• Selecting and Adapting Complementary and Alternative Treatment
• Safety & Efficacy & Effectiveness of Analgesics
• Implementation Strategies to Promote EBP Use

Rate of publication growth on pain and aging between 2006-2015.

Replication of Gagliese (2009) search strategy, with limitations by article type, time frame, age 65+ older

Total number increase from 6808 to 12,383

IASP Global Year Against Pain in Older Persons

Annual Number of Publications, 2006-2015

National Pain Strategy

A Comprehensive Population Health-Level Strategy for Pain

Interagency Pain Research Coordinating Committee

Collaborative research partners—Practice/research Interdisciplinary

Released March 2016
Post-Test

Which of the following statements about the assessment of pain in older adults with dementia is false?

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- d) Facial grimacing is one of the common behaviors indicating pain.

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All of the following are barriers to pharmacological pain management in older adults EXCEPT:

- a) Fear of opioid use by providers and patients
- b) Physiological changes and comorbidities
- c) Interdisciplinary evaluation and treatment planning
- d) Changes in cognition impacting administration and adherence
- e) Polypharmacy resulting in drug-drug adverse reactions
DISCLOSURES

- We have no conflicts of interest

Pre-Assessment Questions

1. The US National Pain Strategy places a key emphasis on which of the following components:

- a) opioid prescriptions for pain,
- b) patient self-management,
- c) multimodal treatment,
- d) inpatient hospital care?
Pre-Assessment Questions

2. What is the key feature of a medical neighborhood:
   a) reduced workforce,
   b) opportunities for promotion,
   c) coordination of care across different settings and disciplines,
   d) less time for research?

Pre-Assessment Questions

3. Which of the following is a good reason to individually-tailor treatment of chronic pain for patients in a medical neighborhood:
   a) most patients will fail treatment of chronic pain,
   b) it is too costly to provide comprehensive care,
   c) patient’s with higher-impact conditions will require more comprehensive care than patients with lower-impact conditions,
   d) all patients respond equally well to most treatments for chronic pain?

Learning Objectives

1. Explain why the U.S. National Pain Strategy provides a blueprint for the translation of evidence-based care for the comprehensive treatment of chronic pain
2. List the key features of a chronic pain medical neighborhood within a health system
3. Describe how primary care physicians, pharmacists, and other chronic pain providers can work together to provide patient- and family-centered care
4. Identify the key strategies that kept the pain-care innovation effort alive at Beaumont Health and how you can apply these in your professional setting.
Significant Healthcare Costs

US National Pain Strategy
- Deconstruct U.S. model of chronic pain care
- Increase access to biopsychosocial care
- Empower primary care physicians
- Improve physician, provider, staff, patient and family-member pain literacy
- Align reimbursement with evidence
- Personalize care based on evidence for potential impact
- Strengthen patient registry data and associated pathway improvements

Health System Timeline
- 2015: Three Health Systems Combine
- 2015: Beaumont Health Chronic Pain Consortium Organized
- 2016: Chronic Pain Medical Neighborhood Model Developed
- 2017: Pain Management Services Organized to Promote Health-System Best Practice
Beaumont Health Chronic Pain Consortium (BHCPC)

- Three health systems (Beaumont Health, Oakwood, Botsford) formed Beaumont Health
- Beaumont Health includes 8 hospitals, 165 health centers and 5,000 physicians
- Clinical-integration was a high priority
- Challenges associated with chronic pain and opioid use were on the radar screen
- Chief Medical Officer requested formation of a clinical operations team to address chronic pain across the system
- Beaumont Health Chronic Pain Consortium formed

BHCPC Action Steps

- Interdisciplinary Advisory Council formed
- Primary care physician survey completed
- Meetings with Pain Clinic Providers, Emergency Department Directors, Chief Nursing Officers, Hospital Chief Medical Officers, Chiefs of Anesthesiology and Physical Medicine and Rehabilitation, Rehabilitation (PT/OT) Directors, Behavioral Health Advisory Group, and Directors of Primary Care Network and Residency Programs
- Patient and physician focus groups conducted
- Benchmark with US National Pain Strategy, CDC Primary Care Guidelines, and Clinical Research Literature

BHCPC Initial Summary

- Empower scope of practice for primary care physicians
- Increase provider education on pain science, safe prescribing and evidence-based care for chronic pain
- Focus on early intervention (i.e., starting patients on the right treatment path, post-surgical discharge prescriptions, opioid guidelines in emergency departments)
- Form Chronic Pain Medical Neighborhoods by integrating patient-centered medical homes with coordination of care agreements with pain provider specialists (e.g., pain and behavioral medicine, PT/OT, Integrative Medicine, Addiction Medicine, Pharmacy, Nursing) in the surrounding region
- Build more capacity for interdisciplinary team-based care
Primary Care Study

- Beaumont Health Patient-Safety Grant for Safe Prescribing and Evidence-Based Treatment Planning in Primary Care
- Family Medicine Center and Residency Training Program in Sterling Heights, Michigan
- Developed Intervention: Comprehensive Chronic Pain Assessment Visits
- Formed Oversight Team: pain and addiction medicine, family medicine, nursing, pharmacy, pain psychology, and physical and occupational therapy

Primary Care Study

- Conducted 3-1 hour training program on safe prescribing and evidence-based assessment and treatment planning
  - Multidisciplinary team present
  - Targeted all office staff
- Reviewed protocol, physician visits templates in EMR, and questionnaires
Comprehensive Chronic Pain Assessment

Visit 1: Primary care physician
Visit 2: PT/OT/Pain Psychology
Visit 3: Physician follow-up

Patient Impact Profile

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Score</th>
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<tbody>
<tr>
<td>PEG (intensity, mood, function)</td>
<td></td>
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<tr>
<td>PHQ4</td>
<td></td>
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<tr>
<td>PHQ9</td>
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<tr>
<td>GAD7</td>
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<td>ID-Pain</td>
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<td>SOAP-R-14</td>
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<td>Pain Impact</td>
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<td>MME</td>
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<td>Pain Goal</td>
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Results

- August through December
- Patients evaluated: 46
- Mean age: 45

### Gender Distribution

- 63% Females
- 37% Males

### Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<td>Physician used template</td>
<td>71%</td>
</tr>
<tr>
<td>All questionnaires completed</td>
<td>86%</td>
</tr>
<tr>
<td>Physician documented complexity</td>
<td>100%</td>
</tr>
<tr>
<td>Physician complexity matched psychologist</td>
<td>52%</td>
</tr>
</tbody>
</table>

### MED Distribution

<table>
<thead>
<tr>
<th>MED (mg)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>330</td>
<td>40.3</td>
<td>30</td>
</tr>
</tbody>
</table>
Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Severity Score</td>
<td>8.3/10</td>
</tr>
<tr>
<td>Sleep Impact Score</td>
<td>8.2/10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PEG Question</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Pain interfered Average (past week)</td>
<td>7.4/10</td>
</tr>
<tr>
<td>2 – Pain interfered with Enjoyment of Life (past week)</td>
<td>7.2/10</td>
</tr>
<tr>
<td>3 – Pain interfered General Activity (past week)</td>
<td>7.5/10</td>
</tr>
</tbody>
</table>

Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated GAD-7</td>
<td>23%</td>
</tr>
<tr>
<td>(score ≥5)</td>
<td></td>
</tr>
<tr>
<td>Elevated PHQ-9</td>
<td>29%</td>
</tr>
<tr>
<td>(score ≥5)</td>
<td></td>
</tr>
<tr>
<td>Elevated SOAPP-R</td>
<td>29%</td>
</tr>
<tr>
<td>(score ≥7)</td>
<td></td>
</tr>
<tr>
<td>Elevated ID-Pain</td>
<td>89%</td>
</tr>
<tr>
<td>(score ≥2)</td>
<td></td>
</tr>
</tbody>
</table>

Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient completed Visit 1, 2, and 3</td>
<td>76%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended</th>
<th>Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Therapy</td>
<td>49%</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>49%</td>
</tr>
<tr>
<td>Psychological Services</td>
<td>31%</td>
</tr>
</tbody>
</table>
Strengths/Weaknesses of Intervention

**STRENGTHS**
- Empowered primary care physicians
- Shifted patient expectations
- Most patients attended all 3 visits
- Translated evidence-based guidelines into primary care practice
- Removed silos and brought needed resources to primary care centers
- Educated patients and family members

**WEAKNESSES**
- Difficulty capturing patients for behavioral medicine, physical and occupational therapy
- Competing demands on primary care physicians
- Interdisciplinary team on site only one morning a week
- Residency transition period led to physician attrition from process
- Convenient sample

Core Themes for Pain Management Initiatives

Pain Management Services – Health System Structure
Midwest Pain Society                           Chicago, IL                         October 27-28, 2017

Patient and Family Pain Education Subcommittee

Patient and Family Pain Education Subcommittee

Patient-and-Family Pain Education Workshop - August 23rd, Troy Hospital

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Patient’s Story</td>
<td>6:30 to 6:45 PM</td>
</tr>
<tr>
<td>Pain Science and Self-Management Lecture</td>
<td>6:45 – 7:10 PM</td>
</tr>
<tr>
<td>Panel discussion including physical and occupational therapy, integrative medicine, behavioral health and medical providers</td>
<td>7:10 to 7:40 PM</td>
</tr>
<tr>
<td>Pain Education Resources – wander among tables representing different self-management options and the patient experience</td>
<td>7:40 to 8:00 PM</td>
</tr>
<tr>
<td>Identify 2 things you can start doing today and sharing of common ideas</td>
<td>8:00 to 8:30 PM</td>
</tr>
</tbody>
</table>
Satisfaction with Workshop
(1 = very unsatisfied .......... 5 = very satisfied)

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>How satisfied are you with the lecture?</td>
<td>4.50</td>
<td>64</td>
</tr>
<tr>
<td>How satisfied are you with the interactive fair?</td>
<td>4.41</td>
<td>64</td>
</tr>
<tr>
<td>How satisfied are you with the panel?</td>
<td>4.63</td>
<td>64</td>
</tr>
<tr>
<td>How satisfied are you with the wrap-up session?</td>
<td>4.42</td>
<td>53</td>
</tr>
<tr>
<td>Overall, how satisfied are you with the workshop?</td>
<td>4.48</td>
<td>59</td>
</tr>
</tbody>
</table>

Pre/Post Change in Confidence
(1 = very unconfident ......... 5 = very confident)

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre</th>
<th>Post</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Workshop: How confident are you in coping with your pain, or helping your significant other cope with his or her pain?</td>
<td>3.08</td>
<td>3.82</td>
<td>1.88</td>
<td>56</td>
</tr>
<tr>
<td>Post-Workshop: How confident are you in coping with your pain, or helping your significant other cope with his or her pain?</td>
<td>3.08</td>
<td>3.82</td>
<td>1.88</td>
<td>60</td>
</tr>
</tbody>
</table>

Primary Care Subcommittee
### PCP Scope of Practice (N = 105)

<table>
<thead>
<tr>
<th>How comfortable are you managing chronic pain?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very uncomfortable</td>
<td>6%</td>
</tr>
<tr>
<td>Uncomfortable</td>
<td>30%</td>
</tr>
<tr>
<td>Neutral</td>
<td>38%</td>
</tr>
<tr>
<td>Comfortable</td>
<td>22%</td>
</tr>
<tr>
<td>Very Comfortable</td>
<td>4%</td>
</tr>
</tbody>
</table>

---

### Survey Questions:

- **Are you aware that starting December 1, 2017, all physicians in Michigan will be required to complete 3 continuing education credits in pain management every 3 years for re-licensure?**
  - Yes: 39%
  - No: 61%

- **Have you completed chronic pain/opioid CME this year?**
  - Yes: 15%
  - No: 85%

- **Do you have adequate resources to help in the management of chronic pain in your practice?**
  - Yes: 24%
  - No: 76%

- **Does Beaumont Health have adequate resources to manage chronic pain?**
  - Yes: 22%
  - No: 78%

- **Should Beaumont Health develop a Department of Addiction Medicine to address guidelines and resources for substance use disorders?**
  - Yes: 93%
  - No: 7%

- **Would it be helpful to have a behavioral health provider in your clinic to assist in treating patients with chronic pain?**
  - Yes: 88%
  - No: 12%

- **Are you currently collecting patient-reported pain scores covering severity, and interference with quality of life and functioning as recommended in the CDC guidelines?**
  - Yes: 46%
  - No: 54%

- **Are you aware of the recent policy related to controlled substance prescribing?**
  - Yes: 55%
  - No: 45%
Strategy to evaluate hospital pain readiness: Joint Commission Mock Survey

- Evaluation tool developed in conjunction with Director of Accreditation
- Aligned with the new Joint Commission Standards on Pain Assessment and Management to begin January 1, 2018

Areas evaluated include:

a) Pain management leadership
b) Blending of multimodal pharmacological and nonpharmacological strategies
c) Access to comprehensive and interdisciplinary pain consultation
d) Education for providers, staff, patients and family members
e) Policies for best practice in pain care from admission, to discharge, and transition of care
f) Best practice for high-risk patients and those with opioid-related problems
g) Patient/family engagement in pain care and discharge
h) Pain-related CQI
Patient Safety

PCP Patient-Safety Audit

<table>
<thead>
<tr>
<th>Hydrocodone patients with MME &gt; 50 mg; 79 total patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>UDS within 12 months</td>
</tr>
<tr>
<td>Controlled Substance Agreement Signed</td>
</tr>
<tr>
<td>MAPS Reviewed</td>
</tr>
<tr>
<td>Benzodiazepine concomitant use with Opioid</td>
</tr>
<tr>
<td>Narcotic concomitant use with Opioid</td>
</tr>
<tr>
<td>Marijuana use</td>
</tr>
<tr>
<td>Morphine equivalent dose (MED) 90 mg and above</td>
</tr>
</tbody>
</table>

PCP Patient-Safety Audit

<table>
<thead>
<tr>
<th>Oxycodone patients with MME &gt; 50 mg; 48 total patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>UDS within 12 months</td>
</tr>
<tr>
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</tr>
<tr>
<td>Marijuana use</td>
</tr>
<tr>
<td>Morphine equivalent dose (MED) 90 mg and above</td>
</tr>
</tbody>
</table>
Opioid Prescribing on Discharge from Surgery
(Mean Number of Pills per Prescription, N = 7000)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Hospital 1</th>
<th>Hospital 2</th>
<th>Hospital 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discectomy</td>
<td>92</td>
<td>60</td>
<td>42</td>
</tr>
<tr>
<td>Hip/Knee Replacement</td>
<td>106</td>
<td>75</td>
<td>42</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>28</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>34</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Opioid Prescribing on Discharge from Surgery – (% of RX with > 90 pills)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Hospital 1</th>
<th>Hospital 2</th>
<th>Hospital 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discectomy</td>
<td>80%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Hip/Knee Replacement</td>
<td>87%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>Oxycodone Rx &gt; 90 pills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>23%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Hydrocodone Rx &gt; 90 pills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td>Hospital 1</td>
<td>Hospital 2</td>
<td>Hospital 3</td>
</tr>
<tr>
<td>Discectomy</td>
<td>41%</td>
<td>1%</td>
<td>9%</td>
</tr>
<tr>
<td>Hip/Knee Replacement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Looking Forward to 2018
PMS 2018 Initiatives

- Establish Pain Team and complete strength/gap analysis of adherence to 2018 Joint Commission Pain Standards at Beaumont Health-Farmington Hills Hospital
- Build out capacity to address any gaps at Farmington Hills
- Train Pain Teams from all 8 hospitals using Farmington Hills case study at January 2018 retreat.
- Sponsor Annual Inter-Professional Pain Conference
- Develop Beaumont Health guidelines for safe prescribing of opiates on discharge from surgery.

PMS Initiatives

- Develop value-based model for centralized interdisciplinary pain rehabilitation programs for adolescents and adults.
- Champion on-line education program for PCP’s using Scope of Pain module.
- Establish patient-and-family education protocols and resources.
- Expand engagement in Resident Pain Education Program.

Take Aways

- Pain care for population health requires health system ownership
- Integrate patient-centered medical home and pain specialty care
- Assess and treat impact early in primary care from a multidimensional perspective
- Getting to interdisciplinary care in a large health system makes all the difference
- Educate and guide patient towards self-management
- Safe prescribing is essential and hard work
Post-Assessment Questions

1. The US National Pain Strategy places a key emphasis on which of the two following components:

- a) opioid prescriptions for pain,
- b) patient self-management,
- c) multimodal treatment,
- d) inpatient hospital care?

Post-Assessment Questions

2. What is the key feature of a medical neighborhood:

- a) reduced workforce,
- b) opportunities for promotion,
- c) coordination of care across different settings and disciplines,
- d) less time for research?

Post-Assessment Questions

3. Which of the following is a good reason to individually-tailor treatment of chronic pain for patients in a medical neighborhood:

- a) most patients will fail treatment of chronic pain,
- b) it is too costly to provide comprehensive care,
- c) patient’s with higher-impact conditions will require more comprehensive care than patients with lower-impact conditions,
- d) all patients respond equally well to most treatments for chronic pain?
Examining the Effectiveness of Interdisciplinary Pain Rehabilitation Across the Age Spectrum

Wesley Gilliam, Ph.D.
Jeannie Sperry, Ph.D., ABPP
Mayo Clinic Department of Psychiatry and Psychology

Disclosure

- No Conflicts of interest to disclose

Objectives

- Describe interdisciplinary pain rehabilitation treatment approaches and the unique psychosocial and functional targets for two cohorts: adult and young adult (ages 18-29).
- State the outcomes of the Mayo Clinic Adult and Young Adult pain rehabilitation programs.
Pre-Assessment Questions

• What are some of the important factors that led to the development of different pain rehabilitation tracks for adult and young adult patients with high impact chronic pain conditions?

A. Need for programming that addresses the specific developmental needs of the young adult cohort.  
B. Need to more aggressively involve parents and modify how they respond to their young adults pain behaviors via targeted intervention.  
C. Young adults experience poor outcomes in both traditional adult and pediatric pain rehabilitation programs  
D. All of the above  
E. Only A & B

Pre-Assessment Questions

• Identify the most important outcomes of pain rehabilitation programs.

A. Improvements in functional capacity and reductions in pain behaviors, pain catastrophizing, kinesiophobia, depressive symptomatology and anxiety.  
B. Elimination of pain symptoms  
C. Additional medical work-up to determine etiology of symptoms  
D. Increased utilization of healthcare resources for symptom management

Chronic Pain is a Public Health Dilemma

• Institute of Medicine Report – Relieving Pain in America, 2011  
  • 100 million Americans suffer with at least one chronic pain condition.  
  • 2/3 returning veterans report persistent pain  
  • Prevalence rates of pain exceed heart disease, cancer and diabetes combined  
  • Associated with approximately $600 billion in medical treatment and lost productivity.
National Pain Strategy

- High Impact chronic pain
  - Substantial decrement in occupational, social, and self-care activities

- Psychosocial variables highly relevant
  - Mood
  - Anxiety
  - Maladaptive pain appraisals (catastrophizing)
  - Passive Coping

Opioid Use Has Exploded

- 2009 USA, 5% of the world’s population
- 56% of global morphine
- 81% of global oxycodone
- 99% of global hydrocodone

![National Overdose Deaths](image)
**Interdisciplinary Pain Rehabilitation Program Components**

- Intensive daily program 3 weeks in duration
- Physical Restoration
  - Strength training
  - Aerobic conditioning
- Work/ADL simulation
- Education
- Psychological Coping Skills
- Medical Management

*No passive modalities/Only EBT*

---

**Study Aims**

- This study sought to examine subjective and objective treatment outcomes among two cohorts of patients enrolled in a three-week interdisciplinary pain rehabilitation program:
  - Patients engaged in interdisciplinary pain treatment + physician supervised opioid taper vs. nonopioid users engaged in interdisciplinary treatment.

---

**Hypotheses**

- Individuals tapered off opioids during tx would exhibit equivalent or enhanced treatment-related improvements when compared with those not taking opioids at admission.
- Equivalent improvements reflected in both self-report and observer-rated outcomes.
- Improvements maintained at 6 month follow-up.
Measures

- **Self-Report**
  - PS & PI subscale of the WHYMPI
  - Center for Epidemiologic Studies Depression Scale
  - SF-36: Mental & Physical Health Related QOL
  - Pain Catastrophizing Scale

- **Observer-Rated Outcome**
  - Simmonds Physical Performance Test Battery (PPT)
  - 5-minute walk test
  - 50-foot walk
  - repeated sit to stand test
  - repeated trunk flexion test
  - loaded reach test

Data Analyses

- Mixed model ANOVAs 2 (Group: opioid use, no opioid use) x 2 (Time: admission, discharge) were used to compare groups on pre- to post-treatment changes on self-report and observer-rated outcomes.
- To assess durability of treatment gains, mixed model ANOVAs 2 (Group: opioid use, no opioid use) x 2 (Time: admission, 6-month follow-up) were used to compare groups on maintenance of treatment gains.

Study Participants

- Patients taking opioids (N = 165)
  - Completed Treatment (n = 142)
  - Not Complete Treatment (n = 23)
  - Reasons: discrepant tx expectations (14), Intensity of tx (3), med taper (2), Medical (2), Psych (1), Social stress (1)

- Patients Not taking opioids (N = 179)
  - Completed Treatment (n = 143)
  - No Completed Treatment (n = 36)
  - Reasons: discrepant tx expectations (28), medical (3), social stressor (2), asked to leave (2), Intensity of tx (1)

Chronic Pain Pain Rehabilitation Study Participants

- Study Participants (N = 344)
  - 3-week Interdisciplinary Pain Rehabilitation
    - Completed Treatment (n = 265)
    - Lost to follow-up (n = 63)
    - Analyzed (n = 263)

- Patients Not taking opioids
  - N = 179
  - Completed Treatment (n = 143)
  - No Completed Treatment (n = 36)
  - Reasons: discrepant tx expectations (10), medical (3), social stressor (5), asked to leave (3), Intensity of tx (1)
Final Sample

- N = 285 participants
  - Pain Duration: M = 10.83 (range 6 months to 60 years)
  - Gender: Female 181 (63.2%)
  - Age: 49.2 (SD = 14.34) (range 20-86 years)
  - Ethnic/Racial composition
    - 93.0% Caucasian, 2.5% Other, 1.7% Asian, 2.3% African American, .5% Native American
  - 49% (N = 143) reported analgesic medication use (MME = 66.2; range: 25 – 330)
  - 33.3% reported pain at 2 or more sites

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Admission</th>
<th>Discharge</th>
<th>White subjects effect P value</th>
<th>Effect Size η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Severity</td>
<td>4.31</td>
<td>3.62</td>
<td>3.86</td>
<td>240.35</td>
</tr>
<tr>
<td>Pain Interference</td>
<td>4.61*</td>
<td>3.40*</td>
<td>3.12</td>
<td>280.35</td>
</tr>
<tr>
<td>Depressive</td>
<td>25.28</td>
<td>22.39</td>
<td>13.39</td>
<td>332.22</td>
</tr>
<tr>
<td>PCS</td>
<td>25.17</td>
<td>24.22</td>
<td>12.06</td>
<td>349.65</td>
</tr>
<tr>
<td>Physical Health GDL</td>
<td>34.47</td>
<td>30.69</td>
<td>20.74</td>
<td>555.65</td>
</tr>
<tr>
<td>Mental Health GDL</td>
<td>21.47</td>
<td>19.68</td>
<td>19.75</td>
<td>611.08</td>
</tr>
</tbody>
</table>
### Depressive Symptoms and Catastrophizing

#### Objective Outcomes

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Admission</th>
<th>Discharge</th>
<th>Within Subjects effect F value</th>
<th>Effect Size $d^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opioids</td>
<td>No Opioids</td>
<td>Opioids</td>
<td>No Opioids</td>
</tr>
<tr>
<td>5-minute Walk</td>
<td>1391.81</td>
<td>1354.62</td>
<td>1803.13</td>
<td>1991.15</td>
</tr>
<tr>
<td></td>
<td>(970.82)</td>
<td>(392.55)</td>
<td>(392.98)</td>
<td>(288.18)</td>
</tr>
<tr>
<td>Sit-to-Stand</td>
<td>12.67*</td>
<td>10.99*</td>
<td>9.26</td>
<td>9.50</td>
</tr>
<tr>
<td></td>
<td>(4.45)</td>
<td>(2.74)</td>
<td>(2.50)</td>
<td>(.54)</td>
</tr>
<tr>
<td>Sit-to-Stand</td>
<td>17.25</td>
<td>15.76</td>
<td>12.03</td>
<td>11.40</td>
</tr>
<tr>
<td></td>
<td>(8.33)</td>
<td>(5.84)</td>
<td>(5.94)</td>
<td>(5.91)</td>
</tr>
<tr>
<td>Repeat Treadmill</td>
<td>13.62</td>
<td>13.93</td>
<td>9.95</td>
<td>9.55</td>
</tr>
<tr>
<td></td>
<td>(6.53)</td>
<td>(7.33)</td>
<td>(5.22)</td>
<td>(5.27)</td>
</tr>
<tr>
<td>Loaded Reach</td>
<td>55.58</td>
<td>56.10</td>
<td>63.12</td>
<td>64.37</td>
</tr>
<tr>
<td></td>
<td>(12.27)</td>
<td>(11.28)</td>
<td>(11.64)</td>
<td>(.35)</td>
</tr>
</tbody>
</table>

* $p < .001$
5 Minute Walk  50 Foot Walk

Repeated Sit-to-Stand  Repeated Trunk Flex

Loaded Reach
6 Month Psychosocial Outcomes

| Outcome Variable | Pre-treatment | 6-month Follow-up | White’s Subj. Effect | Effect Size
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Intensity</td>
<td>4.07 (1.08)</td>
<td>4.06 (1.02)</td>
<td>3.25 (1.35)</td>
<td>3.09 (1.42)</td>
</tr>
<tr>
<td>Pain Interference</td>
<td>6.51 (1.64)</td>
<td>6.53 (1.90)</td>
<td>3.93 (1.67)</td>
<td>2.92 (1.45)</td>
</tr>
<tr>
<td>Depression</td>
<td>23.54 (12.65)</td>
<td>24.18 (12.68)</td>
<td>15.79 (11.08)</td>
<td>17.16 (11.45)</td>
</tr>
<tr>
<td>PCS</td>
<td>2.45 (0.94)</td>
<td>2.56 (1.06)</td>
<td>1.79 (1.08)</td>
<td>1.49 (1.21)</td>
</tr>
<tr>
<td>Physical Health</td>
<td>31.13 (14.37)</td>
<td>31.65 (14.83)</td>
<td>43.73 (23.13)</td>
<td>48.81 (24.59)</td>
</tr>
<tr>
<td>Mental Health</td>
<td>41.16 (15.45)</td>
<td>38.71 (19.74)</td>
<td>61.83 (30.78)</td>
<td>57.95 (30.78)</td>
</tr>
</tbody>
</table>

* p < .001

Midwest Pain Society
Chicago, IL
October 27-28, 2017
Discussion

- Results support hypothesis that patients participating in pain rehabilitation + opioid withdrawal improve on psychosocial and functional outcome.
- Improvements occur irrespective of opioid use status at admission.
- Continued opioid use not necessary for rehabilitative success.
- Withdrawal did not prohibit gains.
Study Limitations

- Lack of control group
- Selection bias
- Subject attrition at 6-month follow-up

Young Adult Program (YAP)

- Developmental needs:
  - Legal adults yet dependent on parental beneficence
  - Loss of peer group
  - Fallen off career trajectory
  - Resumed role of younger age / Regressed
  - Parents vacillate between concerns for young adult child’s health vs strain on emotional/financial/own life stage
  - Impact on other family members complicates parent/YA
  - Needs straddle adult age and peds issues + parent involvement

Young Adult Screening Requirements

Patients meeting 3 out of the 4 of these criteria MUST have a parent/guardian participate in the PRC program

- Age 29 or younger
- Living with parents/guardians for more than 3 months out of the year
- Parents/guardians are financially responsible for more than 3 months out of the year
- One of parents/guardians routinely assist with daily activities (grocery shopping, housekeeping, errands, personal hygiene)
Final Sample

- N = 44 participants (5 non-completers)
- Pain Duration: M = 6.41 (range 6 months to 15 years)
- Gender: Female 39 (89.8%)
- Age: 21.43 (SD = 2.48) (range 18-28 years)
- Ethnic/Racial composition
  - 93.9% Caucasian, 4.1% Asian, 2.0% Other
- Diagnostic category
  - 24.5% reported pain at 2 or more sites

YAP Curriculum Alterations

- Cognitive testing (IQ, Memory, Achievement, Attention)
- Vocational testing; Career and Life Planning groups
- Weekly group with parents:
  - Weekly Summary/Program Concepts/Week End Planning
  - Attend evening and weekend social activities with PRC peers
- Additional group topics
  - Sexual Health
  - Dysfunctions of the Autonomic Nervous System,
  - Meal Planning and Shopping
  - Financial Management
  - Life Map; Activities Toward Independence
  - Intimacy & Relationships

Required: parent/guardian present at admission and the entire 3 week program

- Classes held Monday, Wednesday and Fridays 1-3 p.m. for all three weeks.
- Be available to participate in rounds 2 mornings a week
- Be available for appointments with the RN Care Coordinator
- Attend the Occupational Therapy Weekend Planning Session the first Friday of programming at 2 p.m.
- Attend at least one family program session offered every Thursday 8:00-4:00 and Friday 8:00-12:00
### Parent Group Topics
- Consequences
- Central Sensitization
- CBT Model
- Communication
- Parent Self-Care
- Difficult Day Planning
- Depression
- Home-Going Planning
- Program Concepts and Expectations

### Psychosocial Outcomes

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Admission Mean (SD)</th>
<th>Discharge Mean (SD)</th>
<th>Within subjects effect f value</th>
<th>Effect size η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Control</td>
<td>46.02 (6.88)</td>
<td>59.19 (7.21)</td>
<td>111.07*</td>
<td>.72</td>
</tr>
<tr>
<td>Pain Interference</td>
<td>51.79 (7.39)</td>
<td>41.81 (8.42)</td>
<td>65.64*</td>
<td>.60</td>
</tr>
<tr>
<td>Depressive Sympt</td>
<td>26.93 (12.98)</td>
<td>14.57 (10.95)</td>
<td>76.06*</td>
<td>.64</td>
</tr>
<tr>
<td>PCS</td>
<td>25.34 (11.26)</td>
<td>14.37 (8.19)</td>
<td>71.75*</td>
<td>.63</td>
</tr>
</tbody>
</table>

p < .001

### Life Control vs. Pain Interference

![Graph showing Life Control and Pain Interference](image-url)
### Objective Outcomes

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Admission Mean (SD)</th>
<th>Discharge Mean (SD)</th>
<th>Between Subjects Effect Size</th>
<th>Effect Size $r^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-minute Walk</td>
<td>1400.00 (275.15)</td>
<td>1895.24 (338.65)</td>
<td>112.33*</td>
<td>.79</td>
</tr>
<tr>
<td>50-foot Walk</td>
<td>8.83 (5.30)</td>
<td>7.85 (1.20)</td>
<td>26.42*</td>
<td>.50</td>
</tr>
<tr>
<td>Sit-to-Stand</td>
<td>11.75 (2.74)</td>
<td>9.09 (2.83)</td>
<td>51.40*</td>
<td>.63</td>
</tr>
<tr>
<td>Repeated Trunk Pk</td>
<td>11.35 (2.48)</td>
<td>8.18 (1.90)</td>
<td>58.42*</td>
<td>.65</td>
</tr>
<tr>
<td>Loaded Reach</td>
<td>66.60 (8.88)</td>
<td>76.48 (7.72)</td>
<td>26.12*</td>
<td>.47</td>
</tr>
</tbody>
</table>

*p < .001

---

### Depressive Sxs

- Admission: 30
- Discharge: 10

### Catastrophizing

- Admission: 30
- Discharge: 10

---

### 5 Minute Walk

- Admission: 1800
- Discharge: 2000

### 50 Foot Walk

- Admission: 10
- Discharge: 8
3 Month Follow-Up

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Admission Mean (SD)</th>
<th>Discharge Mean (SD)</th>
<th>3 month follow-up Mean (SD)</th>
<th>Within subjects effect size</th>
<th>Effect size n²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Control</td>
<td>47.30 (6.70)</td>
<td>59.70 (5.83)</td>
<td>55.41 (12.01)</td>
<td>12.51**</td>
<td>.46</td>
</tr>
<tr>
<td>Pain Interference</td>
<td>52.44 (6.68)</td>
<td>43.94 (7.31)</td>
<td>40.53 (11.56)</td>
<td>12.18**</td>
<td>.45</td>
</tr>
<tr>
<td>Depressive Sym</td>
<td>24.75 (15.0)</td>
<td>15.00 (11.20)</td>
<td>20.06 (14.51)</td>
<td>9.21*</td>
<td>.38</td>
</tr>
<tr>
<td>PCS</td>
<td>26.25 (10.48)</td>
<td>13.08 (7.85)</td>
<td>13.18 (9.60)</td>
<td>26.41**</td>
<td>.64</td>
</tr>
</tbody>
</table>

* p < .05
** p < .001

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Midwest Pain Society                           Chicago, IL                         October 27-28, 2017

Catastrophizing

School/Work & Living Status

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pretreatment</th>
<th>Posttreatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Schooling/Working</td>
<td>8(47)</td>
<td>9(53)</td>
</tr>
<tr>
<td>Living with parents</td>
<td>13(88)</td>
<td>2 (12)</td>
</tr>
</tbody>
</table>

Lessons learned/Future Directions

- Young adults benefit from adapted programming
- Patients have high co-morbidity with complicated family dynamics
- Staffing more intense than adult program
- Develop developmentally-appropriate models of care
- Aftercare for all patients? Format TBD
- Develop less intense models of treatment for implementation in primary care and other settings
Post-Assessment Questions
- What are some of the important factors that led to the development of different pain rehabilitation tracks for adult and young adult patients with high impact chronic pain conditions?
  
  A. Need for programming that addresses the specific developmental needs of the young adult cohort.
  B. Need to more aggressively involve parents and modify how they respond to their young adults pain behaviors via targeted intervention.
  C. Young adults experience poor outcomes in both traditional adult and pediatric pain rehabilitation programs
  D. All of the above
  E. Only A & B

Post-Assessment Questions
- Identify the most important outcomes of pain rehabilitation programs.
  
  A. Improvements in functional capacity and reductions in pain behaviors, pain catastrophizing, kinesiophobia, depressive symptomatology and anxiety.
  B. Elimination of pain symptoms
  C. Additional medical work-up to determine etiology of symptoms
  D. Increased utilization of healthcare resources for symptom management
There is an App for That!
Innovative Techniques for Providing Support

Emily G. Lattie, Ph.D.
Center for Behavioral Intervention Technologies, Feinberg
School of Medicine, Northwestern University

Midwest Pain Society
41st Annual Scientific Meeting
October 27-28, 2017
Chicago, Illinois

Disclosure

• No conflicts of interest to report

Objectives

1. To evaluate components of mental health apps for use with patients and their family members
2. To choose appropriate mobile apps focused on common mental health concerns
3. To teach patients how to navigate common mental health apps
Pre-Assessment Question #1
What are 3 components often found in mental health apps?
   a) interactive tools, games, emergency contact
   b) education, assessment, interactive tools
   c) assessment, analysis, contact information

Pre-Assessment Question #2
What should be done to guide selection of an appropriate mental health apps?
   a) Assessment of patient mood symptoms
   b) Referral to a mental health provider
   c) Assessment of barriers to care

Pre-Assessment Question #3
What should be done to guide selection of an appropriate mental health apps?
   a) Assessment of patient mood symptoms
   b) Referral to a mental health provider
   c) Assessment of barriers to care
Challenges in providing psychosocial support for patients and their families

Support Topics
- Stress
- Anxiety and Worry
- Sadness and Depression
- Disrupted sleep
- Loss of sense of self worth

The state of mobile mental health and wellness
Why should I care about this topic?

- 77% of Americans now own a smartphone
- 92% of 18-29 year olds
- 74% of 50-64 year olds
- 42% of those age 65+ years
- 64% of Americans in households earning less than $30,000/yr

Smith, 2017 Pew Research Center

Public interest in mobile mental health

Approximately 3/4 people interested in using mobile apps for mental health management
(Proudfoot et al, 2010; Torous et al., 2014)

Advantages of mobile mental health tools

- Circumvent many barriers to face-to-face services including:
  - Appointment costs (and related transportation costs)
  - Perceived stigma
  - Time for travel and attendance
Remaining barriers

- Concerns about:
  - Effectiveness
  - Lack of guidance
  - Misfit of features to needs
  - Lack of human interaction

IntelliCare field trial results

- Collection of 12 skill-based apps
- Program included lightweight coaching
- Patients picked an app per week
- At end of 8 weeks:
  - 77% met criteria for depression recovery or remission
  - 87% met criteria for anxiety recovery or remission

What makes a “good” mental health/behavioral health app?

- Research support
- Engagement factors
- Functionality
- Aesthetics
What else makes a “good” mental health/behavioral health app?

This depends on the person!

How to choose mental/behavioral health apps

- Determining needs:
  - Education
  - Assessment
  - Interactive tools

Resources for finding mental health/behavioral health apps

- PsyberGuide: [https://psyberguide.org/](https://psyberguide.org/)
- APA, Div 56 on Trauma Psychology: [http://www.apatramadivision.org/files/47.pdf](http://www.apatramadivision.org/files/47.pdf)
- Anxiety and Depression Association of America: [https://adaa.org/finding-help/mobile-apps](https://adaa.org/finding-help/mobile-apps)
Breathe2Relax

Headspace

Pacifica
1. Thought Challenger … practice cognitive restructuring
2. Move Me …………. link exercise & mood, schedule exercise
3. Aspire ………….. identify values, track value-driven activities
4. Day to Day ………… daily tips to practice CBT & positive thinking skills
5. Worry Knot ……….. decrease responsiveness to worry w/exposure
6. Daily Beans ……….. check off instrumental
   /activities of daily living
7. Purple Chill ……….. audio and visual exercise for relaxation
8. Shimmer Time ……….. resistant shop, track sleep
9. Boost Me ………….. link activity & mood, schedule positive activities
10. iCope ……………… create and schedule coping cards
11. My Mantra ………….. create positive self-statements
12. Social Force ………. identify support & increase connectedness
Slumber Time

Habitica

Lower back pain-focused apps

- Machado et al. 2017 review
- Top rated:
  - Lower Back Pain App
  - 3 Steps to Cure Back Pain
  - Backache
Pain tracking mobile apps

- Chaudhry, 2016
  - Manage My Pain Pro
  - My Pain Diary

Manage My Pain Pro

My Pain Diary
How to navigate mental health/behavioral health apps

- To get oriented:
  - Look for a “Help” or “FAQ” section
  - Read any available onboarding information
  - Check website (if there is one)
- To engage in continued practice:
  - Take time to explore features during initial uses
  - If navigation doesn’t become easier, a different app may be a better fit

Post-Assessment Question #1
What are 3 components often found in mental health apps?

a) interactive tools, games, emergency contact
b) education, assessment, interactive tools
c) assessment, analysis, contact information

Post-Assessment Question #2
What should be done to guide selection of an appropriate mental health apps?

a) Assessment of patient mood symptoms
b) Referral to a mental health provider
c) Assessment of barriers to care
Post-Assessment Question #3

What is the first tip for navigating mental health apps?
   a) Look for a Help or FAQ section
   b) Contact the developer
   c) Complete an internet search for the app title

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Questions?

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Twitter: @EGLattie