Innovations Across the Continuum of Pain Care

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Conflic of Interest Disclosure
Paul Arnstein 2012 - 2014

• Scientific & Nurse Practitioner Advisory Panels:
  – Sterling Labs;
  – Zogenix; Janssen: Purdue, Mallinckrodt

• Author & editorial honoraria/royalties:
  – Gannet publications
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  – Nurse Practitioner Healthcare Foundation
  – American Pain Society: (FDA-REMS content)
Pain & its Treatments in Context

• Pain as Punishment
  – Greek = Poine (penalty)
  – Latin = Poena (punishment)
• Pain as an Emotion
• Pain as Physical Sensation
• Sociocultural Learned Response
• Pain in a Post-modern Era of Science
  – Pain as a multifaceted subjective experience
  – Pain Perception as a “Drive”
Gate Control Theory of Pain

How can a “shot” hurt worse than being shot?

Pain fiber activity “opens gate”

Activity of larger fibers “closes gate”

Thoughts, feelings, motivation

Think, feel and respond to pain

Addresses simple acute pain physiology; not complex chronic pain
WHO* 3-Step Approach to Relief

Non-opioids for mild to moderate pain
± Adjuvant

Opioids for moderate pain
(Weak or mixed opioids)
± Non-opioid
± Adjuvant

Opioids for severe pain.
(Strong opioids)
± Non-opioid
± Adjuvant

Adjuvant examples
Drugs
• Gabapentin
• Duloxetine

Interventions
• Nerve blocks
• Neuroablation

Non-drug
• Heat or cold
• Distraction
• Coping
• Acupuncture

(e.g. Non-drug &/or Interventional Rx)

*Originally published by the World Health Organization (1986) for cancer pain
Gain Control Model of Pain

Dampeners

- Spiritual
- Mind
- Spinal
- Tissue
- Social

Turn down the pain signal “volume,” facilitating activity, healing & Quality of Life

Amplifiers

- Spiritual
- Mind
- Spinal
- Tissue
- Social

Turn up the pain signal “volume,” inhibiting activity, healing & Quality of Life

Adapted from Arnstein PM (2010) Clinical Coach for Effective Pain Management. Philadelphia; FA Davis
Pain & Amplifiers Uncontrolled: A Costly Public Health Problem

- Impaired Sleep
- Emotional Distress

CV stress, DVT / PE
- Atelectasis, PNA
- Catabolism, Immunologic suppression

Pain

Longer LOS ICU/Hospital
- Impaired or Delayed Rehabilitation
- Chronic Pain
- Dissatisfaction, Readmissions, Complications

Higher Costs

Lower payment rate

Drug-related ADEs

References:
- National Center for Health Statistics (2006), Special Feature on Pain
- Jha et al. (2008) [HCAHPS] NEJM, 359 (18):1921-31
PROGRESSION OF UNRELIEVED PAIN

- Milliseconds
- Seconds
- Minutes
- Hours
- Days
- Weeks
- Months
- Years

Pathophysiology of Pain

• Peripheral sensitization
  • Build up of Substance P and “Inflammatory soup”
    – WDR cells wind-up
      – 2nd order neurons “wake up” silent nociceptors lowers pain threshold,
      – Sprouts SNS axons, & up regulates ion channels
• Central sensitization from buildup of Excitatory Amino Acids and positive ions
  – Glial cell activated changing the structure/function of nerves
    – CNS may become hyper-responsive to peripheral input
  – Neuroplastic changes in nervous system
    – Gray matter death in some centers, growth in others
    – Changes the way patients think, feel and respond to pain

Net effect of sensitization, windup & neuroplasticity:
  - Intensified Pain
  - Hyperalgesia, Alloodynia
  - Expanded pain distribution
  - Prolonged duration of pain
Undesirable Effects of Chronic Pain

- Leading burden of illness & disability worldwide
- Chronic exposure to potential dangerous drugs
- Health care expenditures $10,000/pt. year
- Burden (illness & disability) > cancer, heart disease, diabetes & stroke combined
- 5–10% loss of gray matter (~= 20 years aging)
- 30-50% higher all-cause mortality in 10 years

IOM 2011. Relieving Pain in America…Washington DC:
Potential Harm from Pain Medications

• Leading cause of drug-related hospitalization
  – 25% involving older adults related NSAID toxicity
  – >1 million opioid (70% Medicare, 30% Medicaid) hospitalizations

• 1 million older adults/yr go to ED for ADEs
  – 9% involve opioids and 8% nonopioid analgesics

• Opioids leading cause of overdose deaths
  – 77% Benzodiazepine deaths – also had opioids
  – 65% antiepileptic/anti-parkinson deaths w/ opioid

Samhsa.gov/data/2k10/TDR013AdverseReactionsOlderAdults/AdverseReactionsOlderAdults.HTML.pdf
Young (2014) CQ Healthbeat. Medicare Sees Most Growth in Opioid-Related Hospitalizations
Comparative Effectiveness & Risks of Chronic Opioid Therapy (AHRQ, 2014)

- 39 of 4,209 studies met quality standards
  - Differences in definitions & measures preclude the ability to deduce comparative effectiveness & risks
  - Strength of evidence was rated no higher than low
- Lack evidence to know benefits & harms
- Most patients do not develop drug problems
  - Opioid abuse 0.6% to 8%
  - Rates of dependence were 3.1% to 26%
  - Aberrant drug-related behaviors 5.7% to 37.1%

Education on Pain in Medical Schools

Veterinarian schools:
87 hours on pain*

25% ≤ 5hrs pain content

Both Students and Faculty lack knowledge

This Gap may be From a Lack of Effective Interprofessional Education in Pain

>60% of hospitalized patients receive opioids

Current State of Pain

• Costly, prevalent public health crisis
• Plethora of guidelines & position papers
  • No standard entry-level competencies
• Health professionals unprepared to treat pain
  • <4% Medical schools have course on pain

“..the unreasonable failure to treat pain is viewed worldwide as poor medicine, unethical practice, and an abrogation of a fundamental human right.”

1.1. To achieve vital improvements in the assessment and treatment of pain will require a cultural transformation.
Cultural Transformation Needs

• Interprofessional synchrony for team-based care
  • Effective interprofessional communication & teamwork

• Disseminate unbiased interprofessional standards
  • Shared language & basic understanding of pain & roles

• Administration & curriculum committee cooperation
  – National testing for licensure

• Learn from best practices (other institutions/disciplines)
  • Unified by focus on patient comfort & safety
  • Remove “silo-ism” between professionals & institutions
Interprofessional Pain Competencies

• All professionals must be able to:
  – Articulate the multidimensional nature of pain
  – Assess pain in a consistent measurable way
  – Approach pain Rx in a collaborative way
  – Apply competencies across lifespan ...
    • in different settings
    • with different resources (care teams) available
    • aligned with the needs of the population served

NICH Pain Consortium

Centers of Excellence in Pain Education
Organizations Respond to Financial Penalty for Uncontrolled Pain*

**Value-based Purchasing**
*Process of care & Patient experience (HCAHPS)*
- Begins FY2013, full 2% annual payment update at risk by FY2017

**30-Day Readmissions**
*Up to 8 conditions targeted including AMI, HF, PNA*
- 1% DRG payment penalty beginning FY2013, rising to 3% by FY2015

**Hospital-Acquired Conditions**
*Up to 8 conditions targeted*
- 1% DRG payment penalty for hospitals in worst quartile beginning FY2015

By FY2017, $6 out of every $100 Medicare DRG reimbursement potentially is at risk

*Initiated by CMS, adopted by other payors*
Growing Pattern of Opioid Tolerant Population Served at MGH

- Examined 25,836 admissions
- 8% opioid tolerant @ time of admission
- 16% opioid tolerant @ time of discharge
- Opioid-tolerant population
  - Stayed 1.7 days longer than non-tolerant patients
  - Unplanned readmissions in 1 month twice as high
  - 20 Point lower HCAHPS Scores on pain measures

Opioids: Villain or Vindicator?

- Quadrupling of opioids used
- No better patient satisfaction
- No better pain relief
- Increased over-treatment
  - Overdose
  - Substance Misuse
  - Addiction Disorder
  - Opioid induced Hyperalgesia
Innovate; using best available Allopathic & Naturopathic Methods

- Pharmacotherapy (Disease + Symptom modifying)
- Prudent use of Interventional & Surgical approaches
- Alternative Medical Systems
- Mind-Body Interventions
- Biologically-based treatments
- Manipulative therapies
- Energy Therapies
Optimal Analgesic Selection

• Personalized medicine for the individual
  – Pain Intensity
  – Pharmacogenomics
  – Side-effect burden/toxicity
  – Individual vulnerabilities

• Best for psychosocial circumstance
  – Role functioning
  – Issues around environmental security
  – History of substance abuse (patient or family)
Treat Pain Source: Nondrug options (passive)

- Physical Therapy (modalities)
- Electric stimulation (TENS)
- Specialized massage techniques
  - Chiropractic Care
  - ? Acupuncture?
- Trigger Point / Tissue Injections
- Laser therapy
- Surgery
Non-drug Control of Tissue Amplification

- Remove source of irritation near pain
- Good nutrition, hydration, oxygenation
- Self-massage, rubbing, acupressure
- Moist heat or application of ice
- Positioning, orthotics, compression
- Rest, Positioning (~ RICE; orthotics...)
  - Graded exercise, paced activities
- Sleep hygiene & stress management
Dampen Mind Amplification of Pain

• Promote
  – Relaxation techniques
  – Knowledge about condition/sensations
  – Distraction (music, reading, writing)
  – Change thinking, attitudes
  – Reduce sadness, helplessness
  – Reduce fear, anxiety, stress

• Consider
  – Biofeedback, Counseling
  – CBT, Coping skills training
Dampen Spiritual Amplification of Pain

• Promote
  – Prayer, Meditation, Spiritual Healing
  – Self-reflection, re: life / pain
  – Meaningful rituals

• Consider
  – Energy work (e.g. TT, reiki)
  – Magnetic Therapy
  – Homeopathic remedies
Dampen Social Amplification of Pain

• Promote
  – Improved communication
  – Caring presence
    • Avoid “punishing” or “Over-solicitous” responses
  – “Healer effect”

• Consider
  – Psychosocial Counseling, Family therapy
  – Pet therapy
  – Support groups
  – Vocational training, Volunteering
Set Realistic Comfort/Function Goal

• Eliminate or control cause of pain

• Analgesics provide partial, temporary relief
  – 50% < pain considered “good” for acute / cancer pain
  – 30% < pain considered “good” for chronic pain

• Balance desire for pain reduction with:
  – Improved functioning (self care, participate in therapy)
  – Avoidance of drug-related side effects
  – Developing nondrug skills to better cope with pain

• Goals should be SMART*, both daily & long-term

* SMART = Specific, Measurable, Attainable, Relevant & Time-bound
Stick to the Plan; Adapt Over Time

- Consistent adherence to therapeutic plan
  - Review every shift; every outpatient visit

- Adjustments based on response  (now & sustainable)

- Explore / develop latent & new skills
  - Problem solving ... practice ...

- Periodic review
  - Diagnosis
  - Opportunity to taper medications
Examples of Relaxation Techniques

• Diaphragmatic breathing
  – "Mini" – "Breath-focus"
• Body-scan (progressive or autogenic)
• Meditation (e.g. TM, Benson, Mindfulness)
• Pleasant imagery
• Guided imagery
• Self hypnosis

Then Innovate!
From Quality Improvement to Innovation
“UP” Innovation
Improved Medicines
In a Class:

Less Toxic NSAIDS
ER/LA opioids
ADF opioids

Goal – Improved Outcomes

“OVER” Innovation

* Major Advancements in Therapy, e.g. New Approach to Tx:

Opioids > gabapentinoids > TNF blockers > NGF blockers > ....

Goal – Improved Outcomes

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Patient-Centered Team-Based Care

• Pain’s intricacy demands expertise of >1 discipline
• All disciplines need to improve education
  – Know own and others’ responsibilities
  – Shared Interprofessional treatment plan
    • Mutually developed, consistently followed
  – Coordinated development & implementation
• Improved access & interprofessional dialog
• Collaboration, refinement & team-building

Leveraging Technology to Improve Self-management of Pain

• Internet based
  – Informational Resources
  – Support groups
  – Chat rooms
  – Self-directed; professionally coached CBT

• Smart phone & Tablet computer Apps
  – Pharmacologic Management
  – Non-drug interventions

• Implanted technologies
Changing Organizational behaviors:
New Dashboards needed

• Gather information about problem
  – Link to facts, standards & codes of conduct

• Garner input & administrative support
  – Individuals, committee & community resources
  – May need material resources & data management

• Align with key stakeholders
  – Policy Makers
  – Those who will do work or be affected

• Change Practice and Culture of Care Delivery
Automation to better identify, manage & mobilize resources for patients with uncontrolled pain

• Safety report trends (pain & opioids)
• Electronic data (e.g. Specific drugs / routes)
• Prevalence of pain > midpoint of pain scale for >1 day
• Delayed or cancelled treatments/therapy due to pain
• Prolonged length of stay due to pain
• Develops complications due to pain or its treatments
• Unplanned readmissions due to pain or its treatment
Go into eMAR (any patient), hover over reports, drop cursor down to select other reports, then draw cursor down to select Severe Pain Report.
Select Unit Date, and how you want the data organized. The report is difficult to navigate now. Send me any suggestions to make it more user friendly.

Triggers:
- CNS Consult
- Pharmacy consult
- Treatment planning @ Rounds
The TLC sensor mat is placed under the mattress of any type of bed.

Person rests on their bed, with nothing attached to them.

Caregivers receive timely information on their PC or mobile device to improve efficiency of care.

Available on the App Store
Innovations in Care Delivery
“Patient Journey” Framework: Initial 15 Interventions

**Before**
- Pre-admission care

**During**
- Admission process: ED, direct admits, transfers
- Patient stay; direct patient care; tests; treatments; procedures; clinical support; operational support

**After**
- Discharge process
- Post-discharge care

Goal: High-performing, inter-disciplinary teams that deliver safe, effective, timely, efficient, and equitable care that is patient- and family-centered

Discharge Planning:
- Est. discharge date
- Discharge disposition

Welcome Packet (notebook and discharge envelope)

Domains of Practice
- Daily Interdisciplinary Team Rounds
- Electronic Unit Whiteboards
- In-Room Whiteboards
- Smart Phones
- Wireless laptop computers/tablets
- Business cards
- Hourly rounding
- Quiet hours

Relationship-based care
- The Attending Nurse role
- Hand-Over Rounding Checklist

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Identify expediently manage pain problems in a just culture

• Ease access & care of vulnerable population
• Identify Chronic Pain / Opioid Patients
  – Admission through ED, PATA, Direct Admit
  – At risk patients treated >60mg OME x7 Days
• Identify patients with problematic pain
  – Severe Pain Reports
  – Higher Risk Opioids / Technologies
  – Rapid (>25% / day) Opioid Dose Escalation
• Specific Discharge & Follow-up Plan
HCAHPS Drill-Down to target change

Example #1

Example #2
“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

- Charles Darwin
  1809 - 1882
Developing a National Pain Strategy

• Cultural transformation to change the way pain is perceived, judged and treated (need to change)

• Need a National Pain Strategy (need a map)
  – Population-based, disease management approach
  – Support PCPs, facilitate access to pain specialists
  – Care delivery by integrated, interprofessional, patient-centered teams
Fulfill IOM (2011) recommendation 2.2

• Develop a comprehensive, population health-level strategy to
  – Establish public/private partnerships
    • Coordinate research, education, communication & care
  – Reduce pain and its consequences
  – Prevent development / worsening of chronic pain
  – Eliminate disparities in the experience of pain
  – Use standard (physical, psychological, therapeutic) outcome measures
  – Improve reimbursement for pain assessment & management

• Enhance public awareness about the nature of chronic pain
  – Including the role of self-care in its management.
Global Action Plan to be submitted Fall 2014 to Congress for appropriations, dissemination and delegation to multiple Agencies.
Service Delivery & Reimbursement
Problem Statement

• Wide variation in practice & patients’ responses
• Repeated use of ineffective, risky treatments
  – Result in poor outcomes & high costs of chronic pain
  – Fee-for-service approach perpetuates this pattern.
• When treatment fails, patients need
  – Consistent and complete pain assessments,
  – Coordinated and evidence-based pain care plan
  – An integrated, multimodal, interdisciplinary approach
  – Access to care through reimbursement reform
Primary care with or without specialist support

Advanced pain management at an accredited program providing integrated care that addresses biopsychosocial & functional aspects of pain control

Expanded treatment teams that include professionals with expertise in Pain; Rehabilitation; Psych / Mental Health; &/or Substance Use Programs

Primary care with or without specialist support

Simple self-initiated non-drug methods with access to therapy using the appropriate strength / duration of analgesia therapy

What can we as Nurses do to Lead a Cultural Transformation to Improve way Pain is Understood & Controlled?
In Conclusion

• Many Innovations are needed
  – Refining existing treatments
  – Developing approaches to pain treatments
  – Leverage new techniques & technologies

• Improve Understanding & Treatment of Pain
  – Individual Level
  – Organizational Level
  – Public Policy Level

• Support Team-based Patient-centered Care
  – Articulate the central role of nurses
    • Education, Practice, Research and Advocacy