What Every Physician Needs To Know About Pain

Kevin Cuccaro, D.O.
Learning Objectives

• Assess & critique commonly prescribed therapies for chronic pain.
• Describe the three components of the “Pain Experience.”
• Develop a management plan that addresses chronic pain risk factors.
Background

- D.O.
- Anesthesiologist
- Fellowship trained Pain Physician
- Military & Civilian Experience
- Am I Helping People Get Better?
“Why Should I Care About Pain?”

(“Don’t we have specialists for this?”)
A World of Pain

- Common Symptom
- Most Common Disability
- $600+ Billion Annually
- 100 Million Americans (*)

Back Pain

- 2nd Most Common Reason for ALL physician Visits
- Lifetime Prevalence of 60 – 90%
- Industrialized & Developing World
- Disability rates very different
How We Treat It...

What We Do ...

• Increased MRI’s 307+%  
• Increased Injections 130-700+%  
• Increased Surgeries 300+%  
• Increased Opioids 690+%*

But What Do We Get?
Imaging

• Wide Geographic Variation
• Increasing Use, Increasing Costs ...
• Outcomes Worse
‘Early’ Imaging

• No Increase in Quality of Care
• Longer Disability, Increased Rx Use.
• Mixed Patient Satisfaction
• Patient Anxiety*
Anxiety With Imaging

• ‘Abnormal’ Findings are Common
• Disc Change in Youth
• Bony Change with Age
• Majority of Findings are ‘Normal’
• *Label & Reinforce Organic Pain Beliefs*
Surgery in the U.S.

• Highest Rates In The World
  – 50+ % ‘Unnecessary’
  – 33% ‘Wrong’

• Complex Sx ↑
  – ↑ 15X 5 years
  – ↑ 3X Costs

• Geographic Variation
  – 8-20X

• ‘Best’ Sx Outcomes...
  – Where rates are lowest!

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Fusion For Pain?

“No subset of patients with chronic LBP could be identified for whom spinal fusion is a predictable and effective treatment “

Injections For Pain

- ↑ Practitioners
- ↑ Use
- ↑ Costs

- Geographic Variation
  - 7.7X (State)
  - 18.4X (City)
Do They Help? (Guidelines)

Those Who Get Paid To Do Them...

• Nerve Blocks – Yes
• ‘Burning’ Nerves – Yes
• Disc Treatments – Yes/No
• Epidural – Yes

Those Who Don’t...

• Nerve Blocks – No
• ‘Burning’ Nerves – No
• Disc Treatments – No
• **Epidural – Limited**
Why Do Them?

“↓ Use of Drugs...”
“Prevent Surgery...”
“↓ Pain...”

↑ Rates of Opioid Use
↑ Rates of Surgery
No Difference

(Effect on Risk Factors?)
Opioids & Chronic Pain

- 1996 APS/AAPM Consensus Statement on Pain
- Pain Undertreated
- Effective in treating Chronic Non-Cancer Pain
- Risks of Addiction & Abuse Low
What Happened Next?

Opioid Prescriptions Dispensed by Retail Pharmacies—United States, 1991–2011

What Followed Sales?

**Rates of Opioid Overdose Deaths, Sales, and Treatment Admissions, United States, 1999–2010**

- Opioid Sales/kg/10,000
- Opioid Deaths/100,000
- Opioid Treatment Admissions/10,000

**Drug Overdose Deaths by Major Drug Type, United States, 1999–2010**

- Opioids
- Heroin
- Cocaine
- Benzodiazepines

Sources:
The United States

Population

- Rest of World
- United States (4%)

Opioid Consumption

- Rest of World
- United States (80%)

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# Opioids & Chronic Pain

**What Was Said...**
- Work Well for Chronic Pain
- Little Tolerance
- Low Risk of Abuse
- No Ceiling

**What Was Found...**
- No Studies >16 weeks
- Data from Acute Pain
- Studied w/o Comorbidities
- High Risk of Abuse
- Do Not ‘Eliminate’ Pain
Other Problems...

• Endocrinopathy
• Respiratory Depression
• Sleep Disturbance
• Sudden Death & Cardiac Toxicity
• Diversion & Societal Harm
2001-10
The Decade of Pain Control

What We Did...

• MRI’s ↑300%
• Injections ↑130-700+%  
  – (↑15X for Complex)
• Surgeries ↑300+%
• Opioids ↑690+% (sales)  
  – 1,448% (GPP)

What We Got...

• Disability Rates Increasing
• Complication Rates Increasing
• No Improvement in Self Reports
• Costs Continue to Escalate

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Overall Results...

2000
45 Million Chronic Pain
US Pop. 282 Million

2010
100 Million Chronic Pain
US Pop. 309 Million (↑9.6%)

↑122%
Why?

What Are We Treating?

How Should We Treat It?
What Are We Treating?

“Pain is an unpleasant sensory & emotional experience associated with actual or potential tissue damage or described in terms of such damage.”

IASP 1994
The Neurobiology of Pain

- Sensory-Discriminative
- Affective-Motivational
- Cognitive-Evaluation

- Sensation (Transmission)
- Emotion (Meaning)
- Cognition (Attention & Response)
Pain Is The Output…

[Diagram with three sides: Oxygen, Heat, Fuel on the left; Emotion, Cognition, Sensation on the right.]

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Acute Pain Experience

• > Peripheral
  – i.e. Nociceptive
  – (But Not Always)

• “Broken Leg”

• Cut, Poke, Drug
Chronic Pain Experience

• > Central
  – (Can Cause Peripheral Δ’s)

• “Fibromyalgia” (& Chronic Back Pain)

• Peripheral Tx Poor
What Is This?

Sensation
(Transmission)
Nociception ≠ Pain!

Nociception

• Nerve stimulation that conveys information about potential tissue damage to the brain.
• Anesthesia INDEPENDENT
• OBJECTIVE

Pain

• Perception & Response to Sensory Information
• Genetics, prior learning, current psychological status & sociocultural influences
• Anesthesia DEPENDENT
• SUBJECTIVE
Why This Is Important

Chronic

Acute

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Changing Pain Without Changing Nociception

• Context
  – Threat
  – Accidental vs. Intentional

• Meaning
  – Abdominal Pain

• Learning
  – Snake Bite

• Emotion
  – Anxiety
  – Anger

• Sensation
  – Epidural
Now What?

(How Should We Treat It?)
What Are The Risk Factors?

- Genetic & Epigenetic
- Developmental
  - Childhood Illness, Abuse, Neglect
- Adult Victimization/PTSD
- Psychosocial Stressors
  - Chronic or Acute
- Psychiatric Comorbidities
- Pain Beliefs
- Maladaptive Coping
  - Pain Intensity
  - Nonorganic Signs
  - High Baseline Impairment

(What’s Missing?)
Positive Outcomes...

- Pain Beliefs
- Coping Strategies
- Pain Self-Efficacy
- Psychological Distress

Not:

- Δ’s In Imaging
- ‘Satisfactory Fusion’
- ↑Injections
Primary ‘Pain Targets’

Beliefs

Coping

Self-Efficacy
Beliefs That ↑ Pain

- **Fear Avoidance**
  - ‘Hurt’ = ‘Harm’
  - Avoidance of Activity
  - Kinesiophobia

- **Catastrophizing**
  - Rumination
  - Helplessness
  - Magnification

- **‘Organic’ Pain Beliefs**
  - Persistent pain is the result of damage to tissues of the body
  - Physical exercise makes the persistent pain worse
  - It is impossible to do much for oneself to relieve persistent pain
  - Persistent pain is a sign of illness
  - Experiencing persistent pain is a sign that something is wrong with the body
  - It is impossible to control your own persistent pain
  - Being in persistent pain prevents you from enjoying hobbies and social activities
  - The amount of persistent pain is related to the amount of damage.
‘Organic’ Pain Beliefs

– Structural Focus

– Imaging Reinforcement

– Negative Future Outlook

– Worse Outcomes

– Iatrogenic* 


Words That Harm Or Heal

Harmful

• Structural Scapegoat
  – “You have disc degeneration, etc.”

• Prolong Fear
  – You should avoid...

• False Prophecy
  – “Your back will wear out..”

• Hurt = Harm
  – “Let pain guide you...”

Helpful

• Discuss Pain*
  – “Back pain is not ‘damage’”

• Promote Resilience
  – “The back is strong...”

• Promote movement
  – “Motion is lotion...”

• ‘Frame’ Imaging
  – “Your MRI shows wrinkles...”

• Self-Management*
  – “Let’s create a plan to help you help yourself...”

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Coping & Pain

**Passive Coping**
- Avoidant behaviors
- “It’s awful & I can’t do anything!”
- ‘External’ reliance for solution or relief.
- Reactive

**Active Coping**
- Engaged behaviors
- Reliance on self
- Social Support (w/o drowning)
- Humor
- Proactive
What Coping Style Is Reinforced?

• Cut, Poke, Drug
• Physical Therapy
• Behavioral Health
• Groups
• Acupuncture, etc.

• Passive
• Mixed
• Active
• Active*
• Passive
Self-Efficacy

Individual’s *perception*...

they can carry out a specific *action*...

...when challenged.
Sources Self-Efficacy

‘Mastery Experiences’
- Overcoming obstacles through persistent effort.

Role Models
- Seeing people similar to oneself succeed by sustained effort.

- Social Persuasion
  - Peer group that persuades & encourages*

- Eustress Not Distress
  - Improved stress & interoceptive management
Goals of Treatment

**Ideal**
- Develop & Reinforce Positive Beliefs
- Encourage & Reinforce Active Coping
- Teach & Reinforce Self-Management

**No Harm**
- Do Not Contribute To Bad Beliefs
- Do Not Promote Passive Coping
- Do Not Decrease Self-Efficacy
How To ‘Manage’ Pain.

- Rule out “Badness”
- What Else On Problem List?
- Over- vs. Under-treatment
  - Downstream Effects
- Focus on Function
- Encourage & Engage
- Find the “Bright Spots”
- Scheduled follow up *
- Behavioral Health
- More Coach…Less Genie
Summary

Crisis of Pain...

...Management

– Imaging

– Surgery

– Injections

– Drugs

• Pain Is The Output

• Nociception ≠ Pain

• Risk Factors Are Psychosocial...

• ...But Tx Focus Is Biomechanical
Last Words...

The Decade of Pain Control
& Research

US Pop. ↑ 9.6%

Chronic Pain ↑ 122%
Questions or Comments?

Videos: StraightShotHealth.Com

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True or False

• There are two types of pain—Emotional & Physical.

• Injections for back pain reduce chronic opioid consumption.


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Selected Bibliography


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“Life is Pain, Highness. Anyone who says differently is selling something.”

The Princess Bride (1987)
All Pain Has 3 Components

Broken Leg

- Cognition (Brain)
- Emotion (Brain)
- Sensation (Body)
- Pain Experience

FMS or Chronic Back Pain

- Cognition (Brain)
- Emotion (Brain)
- Sensation (Body)
- Pain Experience

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Opioids & Chronic Pain

What Was Said...

• Improve Function & Quality of Life
• Retain or Return to Work
• Retain Cognition, Dexterity, Reaction times...

What Was Found...

• No Clear Evidence
• No Evidence
• Maybe IF
  – Unchanged Dose...and No Other Impairments Present