Chronic Pain Management at a Crossroads: Addressing Public Health Crisis

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What is chronic pain?

- Pain lasts at least 3 months or past the normal time for tissue healing*
- Pain disrupts everyday activities and often affects sleep
- Does not have to be constant to be a significant problem

What is the most common reason people see a doctor in the USA?

Pain!
Where are we heading with chronic pain management?
RoadMap

- Impact of chronic pain in U.S.
- Who is more affected by chronic pain?
- What about opioid therapy?
  - Evidence for long-term effectiveness
  - Risks (drug overdose, all-cause hospitalization)
  - Risk mitigation
- Role for non-pharmacologic management?
  - Evidence for low back pain
  - Practical suggestions to engage patients
- Thorny, unresolved issues
Case: part 1

- 41 yo white male
- Married
- BMI 30ish
- In good health
- Active: dancing, riding, hunting
- Anxiety disorder (no sons)
Case: part 2

- 45 yo white (Tudor) male
- Divorced, widowed x 2 (one natural the other not)
- BMI 40ish
- Poor health after injuries sustained in a jousting accident
- Chronic pain from non-healing wounds
- Orders murders of wife(s), many courtiers, and administrators
A National Priority

Relieving Pain in America
A Blueprint for Transforming Prevention, Care, Education, and Research

For more information visit www.iom.edu/relievingpain
### Compared with other diseases

<table>
<thead>
<tr>
<th>Condition</th>
<th># patients in US</th>
<th>Source</th>
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<tbody>
<tr>
<td>Chronic Pain</td>
<td>25 million with moderate to severe pain</td>
<td>IOM, NIH</td>
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<tr>
<td>Diabetes</td>
<td>26 million diagnosed &amp; undiagnosed</td>
<td>American Diabetes Association</td>
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<tr>
<td>Heart Disease</td>
<td>16.3 million</td>
<td>American Heart Association</td>
</tr>
<tr>
<td>Stroke</td>
<td>7.0 million</td>
<td>American Heart Association</td>
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<tr>
<td>Cancer</td>
<td>11.9 million</td>
<td>American Cancer Society</td>
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</table>
Impact of chronic pain in USA

- 1 in every 3 Americans will have chronic pain at some point in their lives
- When it starts, it often lasts
  - 60% of older adults reporting pain still had it after one year.

Institute of Medicine. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research, 2011
Massive annual demand for health care

- Adults with joint pain
  - 12 million physician office or clinic visits
  - 1.5 million emergency department visits
  - 177,000 inpatient hospitalizations

- Adults with back pain
  - 7.8 million physician office or clinic visits
  - >1.5 million emergency department visits
  - 227,000 inpatient hospitalizations

Source: NIH Evidence Review
Economic burden

Pain costs an estimated $100 billion annually in lost workdays, medical expenses, and other benefit costs.

NIH Evidence Review, 2015
Who is affected by chronic pain?
Obesity and chronic pain
Arthritis prevalence and BMI

Arthritis Prevalence Increases With Body Weight

- Healthy Weight: 16.9%
- Overweight: 19.8%
- Obese: 29.6%

### Chronic pain conditions by BMI

<table>
<thead>
<tr>
<th>BMI GROUP</th>
<th>% Neck and back condition</th>
<th>% Knee and leg condition</th>
<th>% Other recurring pain condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>28</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Normal weight</td>
<td>27</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Overweight</td>
<td>31</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>Obese</td>
<td>37</td>
<td>36</td>
<td>24</td>
</tr>
</tbody>
</table>

Gallup-Healthways Well-Being Index 2011

GALLUP®
Who is more likely to report severe pain?

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>29%</td>
</tr>
<tr>
<td>Men</td>
<td>26%</td>
</tr>
<tr>
<td>Women</td>
<td>33%</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>26%</td>
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<tr>
<td>Black, non-Hispanic</td>
<td>44%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>41%</td>
</tr>
</tbody>
</table>

Percent of adults with joint pain

Source: NHIS 2006
Overweight and obese women more affected by pain than men

Percent of adults
Source: NHIS 2007
Bars with the same values may have different lengths because of rounding.
Pain management strategies
Obesity and arthritis

Queen Victoria

• Increasingly disabled by arthritis-related pain
• Waist measurement of 50 inches in her 70s
• Unable to climb steps to church at her Diamond Jubilee
What might Queen Victoria have received for her pain?

- Alcohol and opium
- Over the counter!
- The usual laudanum user was a Caucasian woman.
Are we doing any better now?
Still a challenge

- 52 white woman, BMI 35
- Diabetes, hypertension, depression
- Chronic low back pain, laminectomies x 2
- Hydrocodone for years @ increasing doses
- Can’t work or play with her grandchildren
- Wants more pain meds “pain 8-10/10”
- “Nothing else works”
What to do?
People still rely on pills
Narcotics (opioids) still a common treatment

What is the evidence for effectiveness of opioid therapy?
• Fifteen trials (5540 participants) of non-injectable opioids in CLBP for >4 months
• Support for short-term efficacy -- moderate for pain and small for function – compared with placebo but not other drugs
• Quality problems: high drop-out, short duration, and hard to interpret measures of improvement in function
• Conclusion: effectiveness and safety of long-term opioid therapy for treatment of CLBP unproven.
No studies of opioid therapy versus none looking at long-term (>1 year) outcomes including pain, function, quality of life, opioid abuse, or addiction.

No studies of long-term effectiveness of:
- short- versus long-acting opioids or combination;
- scheduled, continuous dosing versus as-needed dosing;
- opioid rotation versus maintenance of current therapy.

No good information to help doctors or patients with treatment plans.
Some of the downsides: Misuse, addiction, and death
Annual sales of prescription opioids and unintentional overdose death 1990 - 2006

Source: Paulozzi, CDC, Congressional testimony, 2007
Motor vehicle traffic, poisoning, and drug poisoning death rates U.S., 1980–2010

Deaths per 100,000 population

Year


Motor Vehicle Traffic, Poisoning, Drug Poisoning (Overdose)
Drug overdose deaths by major drug type U.S. 1999–2010

Painkiller Abuses and Ignorance

By THE EDITORIAL BOARD  MARCH 2, 2015

The epidemic of deaths and addiction attributable to opioid painkillers...
Heath Ledger's death on Jan. 22 was due to an accidental mixture of prescription drugs, New York City's Chief Medical Examiner has concluded.

"Mr. Heath Ledger died as the result of acute intoxication by the combined effects of Oxycodone, Hydrocodone, Diazepam, Temazepam, Alprazolam, and Doxylamine," said an announcement released Wednesday morning by office spokeswoman Ellen Borakove.

"We have concluded that the manner of death is accident, resulting from the abuse of prescription medications," the two-paragraph statement said in its entirety.
Opioid dose and risk of adverse events
Useful tool: dose calculator

http://www.agencymeddirectors.wa.gov/opioiddosing.asp

<table>
<thead>
<tr>
<th>Opioid (oral or transdermal)</th>
<th>mg per day*</th>
<th>Morphine equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>codeine</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>fentanyl transdermal (in mcg/hr)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>hydrocodone</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>hydromorphone</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>methadone</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>morphine</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>oxycodone</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>oxymorphone</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Tapentadol</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Tramadol</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL daily morphine equivalent dose (MED) = 40

* Note: All doses expressed in mg per day with exception of fentanyl transdermal, which is expressed in mcg per hour
206,869 patients aged 18 to 64 with non-cancer pain and filled two or more prescriptions for Schedule II or III opioids from 1/2009 to 7/2012.

Opioid therapy examined in 6-month intervals
Drug overdose in 1,385 (.67%) subjects
Total opioid dose/6 months and drug overdose
Adjusted risk for drug overdose of total and daily opioid dose categories
Clinical implications

- Monitor both daily dose and total dose of prescribed opioid drugs
- Significantly increased risk for 100+ mg daily opioid dose, regardless of duration
- Risk also increased for >50-99 mg daily opioid dose plus high total dose (>1830 mg)
- Example: hydrocodone 10 mg every 4-6h (6 a day = 60 mg daily MED) x 30 d = 1800
What about risks of polypharmacy management of chronic pain?
National Overdose Deaths
Number of Deaths from Rx Opioid Pain Relievers

Source: National Center for Health Statistics, CDC Wonder
National Overdose Deaths—Number of Deaths from Benzodiazepines. The figure above is a bar chart showing the total number of US overdose deaths involving benzodiazepines from 2001 to 2013. The chart is overlayed by a line graph showing the number of deaths by females and males. From 2001 to 2013 there was a 4-fold increase in the total number of deaths.

Source: National Center for Health Statistics, CDC Wonder
What about combinations of these drugs?
Interaction of opioid dose with depression for drug overdose

Adjusted odds ratio for drug overdose with 95% CI

Depression:
- dotted line: no
- solid line: yes

Opioid analgesic dose (average daily dose per 6 month interval)
Duration of benzodiazepine use, anxiety/PTSD, and drug overdose

Adjusted odds ratio for drug overdose with 95% CI

Anxiety/PTSD:
- □ no
- ▲ yes

(Relative)

Benzodiazepine therapy (days per six month interval)

- None
- 1-30 d
- 31-90 d
- 91-180 d
Clinical Implications

- In all patients co-treatment of opioids and benzodiazepines significantly increases the risk of overdose – up to 8 times higher.
- But in persons with depression, the risk is even greater:
  - Moderately high dose opioids (e.g. 60 mg/d) plus benzodiazepines for \( \geq 1 \) month increased the likelihood of drug overdose by 12 times.
  - Co-treatment with zolpidem increased the likelihood by 14-fold.
What about risks of subsequent heroin use?
Harder to get opioids
Opioids and risk of heroin use

Source: NIDA
What approaches are recommended to reduce risk?
LATE BREAKING NEWS!
FOR IMMEDIATE RELEASE
March 26, 2015

HHS takes strong steps to address opioid-drug related overdose, death and dependence

Evidence-based, bipartisan efforts focus on prescribing practices and treatment to reduce prescription opioid and heroin use disorders

U.S. Health and Human Services Secretary Sylvia M. Burwell today announced a targeted initiative aimed at reducing prescription opioid and heroin related overdose, death and dependence. Deaths from drug overdose have risen steadily over the past two decades and currently outnumber deaths from car accidents in the United States. The President’s FY 2016 budget includes critical investments to intensify efforts to reduce opioid misuse and abuse, including $133 million in new funding to address this critical issue.

The Secretary’s efforts focus on three priority areas that tackle the opioid crisis, significantly impacting those struggling with substance use disorders and helping save lives.

1. Providing training and educational resources, including updated prescriber guidelines, to assist health professionals in making informed prescribing decisions and address the over-prescribing of opioids.

2. Increasing use of naloxone, as well as continuing to support the development and distribution of the life-saving drug, to help reduce the number of deaths associated with prescription opioid and heroin overdose.

3. Expanding the use of Medication-Assisted Treatment (MAT), a comprehensive way to address the needs of individuals that combines the use of medication with counseling and behavioral therapies to treat substance use disorders.
DEA restrictions on prescribing

DEA to Publish Final Rule Rescheduling Hydrocodone Combination Products

AUG 21 (WASHINGTON) – On Friday the U. S. Drug Enforcement Administration (DEA) will publish in the Federal Register the Final Rule moving hydrocodone combination products (HCPs) from Schedule III to the more-restrictive Schedule II, as recommended by the Assistant Secretary for Health of the U.S. Department of Health and Human Services (HHS) and as supported by the DEA’s own evaluation of relevant data. The Federal Register has made the Final Rule available for preview on its website today at http://go.usa.gov/mc8d.
CDC recommendations

- Prescription drug monitoring programs
- Patient review and restriction programs
- Laws/regulations/policies
- Insurers and pharmacy benefit managers mechanisms
- Clinical guidelines
Prescription drug monitoring programs (PDMPs)

- Operational in 42 states
Insurer/pharmacy benefit manager interventions

- Reimbursement incentives/disincentives
- Formulary development
- Quantity limits
- Step therapies/prior authorization
- Real-time claims analysis
- Lock-in programs
State and city guidelines to reduce risk

Interagency Guideline on Opioid Dosing for Chronic Non-cancer Pain:

>120 mg morphine equivalent – refer to pain specialist

Avoid opioids unless other approaches to analgesia have been ineffective
Informed consent with a signed agreement
Risk screening tool like Opioid Risk Tool
Initial opioid therapy only as a trial
Urine drug screening
If must prescribe, close monitoring of persons with history of drug abuse, psychiatric issues, or aberrant drug-related behaviors and consider mental health specialist consultation
Repeated dose escalation requires reassessment of therapy
Monitor pain intensity and level of functioning, progress toward achieving therapeutic goals, adverse events, and adherence to prescribed therapies
Some success for national initiatives
Opioid analgesics and abuse and diversion, RADARS System, 2002–13

Cutting down on opioids: Patients worry you don’t believe they have pain.
Chronic pain as a unique disease?
Chronic pain and the brain

- Chronic pain engages brain regions critical for cognitive/emotional assessments
- Neuroimaging studies reveal impact of environment and genetics in chronic pain
- These features of chronic pain may be unique compared with acute pain
- Chronic pain is less related to ongoing tissue damage

J Clin Invest. 2010;120:3788-97
International Classification of Functioning, Disability, and Health (ICF) framework

Cieza and Stucki 2008
What about non-pharmacologic therapy?
There are alternatives!
Evidence-based non-pharmacologic interventions for chronic low back pain

- Exercise
- Physical therapy
- Spinal manipulation
- Massage
- Yoga
- Acupuncture
- Cognitive behavioral therapy
- Progressive relaxation

Review: Strength training, with or without flexibility and aerobic training, reduces pain in lower limb osteoarthritis


Impact of Exercise Type and Dose on Pain and Disability in Knee Osteoarthritis

A Systematic Review and Meta-Regression Analysis of Randomized Controlled Trials

Sorting Through the Evidence for the Arthritis Self-Management Program and the Chronic Disease Self-Management Program

Executive Summary of ASMP/CDSMP Meta-Analyses
A Randomized Trial Comparing Yoga, Stretching, and a Self-care Book for Chronic Low Back Pain

Karen J. Sherman, PhD, MPH; Daniel C. Cherkin, PhD; Robert D. Wellman, MS; Andrea J. Cook, PhD; Rene J. Hawkes, BS; Kristin Delaney, MPH; Richard A. Deyo, MD, MPH

Rowland Disability Questionnaire
Walking program for low back pain?

ITT analysis found significant improvements at 12 mos in the Oswestry Disability Index (Primary Outcome), Numerical Rating Scale, Fear Avoidance-PA scale, and EuroQol Weighted Health Index (P<0.05), but no significant between-group differences.
Value of an active lifestyle

“Be honest—how much are you exercising?”
Practical approach to a patient with chronic pain on opioids

• Ask:
  • “Are you able to do the things you want to?”
  • “So what else are you doing for your chronic pain?”

• Offer support:
  • Chronic pain takes on a life of its own
  • It can be helped by things you can do in your daily life – stretching, walking

• Examination:
  • Usually shows marked muscle tightness/tenderness, poor ROM, deconditioning
Debunk unrealistic expectations

• Medical miracles are performed everyday
• People think that a pill or simple procedure can cure chronic pain
• But opioids often do not address underlying cause of pain and facilitate a sedentary lifestyle that can worsen pain
Body’s reward for exercising
Community-based resources for physical activities

- Safe walking locations
- Libraries (zumba)
- Swimming pools
- YMCA/gyms
- Home videos/apps (ReACH website)
- Siclovia, fitness in the park, the family challenge (Mayors Fitness Council)
8.) LEARN TO RELAX
When you are stressed out, your pain gets worse.
- To help yourself, try to relax by deep breathing and meditation.

9.) PLAN FOR SET BACKS
Everyone has set backs.
- Try to learn from these set backs and do not be DEFEATED by them.

10.) TEAM WORK, ACTION PLANNING AND BEING VOCAL
YOU need team work and a plan with your doctor/nurse.
- You are the expert on your body and your pain. Your doctor/nurse can help take control of your pain.
- Ask your family and/or friends to help you. Ask for help when you need it.
- Make an action plan that includes more than just taking pills and/or getting shots. This plan will help you and your doctor track your progress.

“Just Keep Moving!”

You Can Take Control Of Your Chronic Pain

Here are ways to do that.
1.) ACCEPTANCE
Accept that you have continuing pain and start to get on with your life.
- Acceptance is the first and most important tool.

2.) BE REALISTIC
To do the things that you want to do, you don’t need to be pain free.
- The goal of pain care is not to get rid of all pain. Do things even though you’re in pain.

3.) SELF-MANAGEMENT PLAN FOR PAIN
Like any skill, self-management must be learned and practiced.
- Remember YOU are the manager. Like the manager of a company, you must create a plan and do every task.

To help create a self-management plan, try to do these things below:
- Decide what you want to do and SET GOALS.
- Look for ways to get what you want to do done.
- Make a short-term action plan for yourself.
- Reward yourself for your success.

Sources:

Living a Healthy Life with Chronic Conditions. (n.d.). Retrieved February 24, 2015, from https://books.google.com/books?id=GM9BQAQBAJ&pg=PA40&dq=living%20a%20healthy%20life%20with%20chronic%20pain&hl=en&sa=X&ei=AfmVrVryE4hlyQ5oyXCoBA&ved=0CDIQ6AEwAA#v=onepage&q=living%20a%20healthy%20life%20with%20chronic%20pain&f=false
4.) LLEVAR A CABO SU PLAN
No haga demasiado o muy poco.
✓ Haga actividades diarias a un ritmo lento y estable.
✓ Controlé el ritmo de su trabajo y sus actividades diarias
✓ Llevar a cabo su plan de acción.
✓ Realizar cambios según sea necesario.

5.) GUARDE PISTA DE LO QUÉ HACE
- Guarde una lista diaria de su “escala de dolor” y actividades que hizo ese día. Puede llevar la lista a sus visitas del doctor y su doctor le puede ayudar a encontrar modos de llegar a sus objetivos/ metas.

6.) CAMBIOS DE ESTILO DE VIDA
Siga una dieta sana añadiendo verduras más frescas y frutas a sus comidas.
- Comer saludable es importante. No sólo ayuda a mantener su peso bajo pero puede ayudar a disminuir el estrés sobre las articulaciones.

7.) EL EJERCICIO ES PARA TODO EL MUNDO
Comience un programa de ejercicios despacio y aumente su actividad diaria.
¡El estiramiento es clave! Ejemplos:

Para obtener más ejercicios y consejos escaneé este Código QR con su teléfono inteligente!
Exercise Prescription

Patient Name: ______________________ Date: __________

<table>
<thead>
<tr>
<th>Prescribed Activity</th>
<th>How Often</th>
<th>How Long Each Time?</th>
<th>Special Instructions</th>
</tr>
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<tbody>
<tr>
<td></td>
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</table>

☐ Start today  ☐ Start tomorrow  ☐ Start __________

Patient Log

Date: __________

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Activity</th>
<th>How Long?</th>
<th>Feelings Before</th>
<th>Feelings After</th>
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<tbody>
<tr>
<td></td>
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Not the kind of water exercise we are looking for!
But lots of unresolved issues

- How to avoid opioids in the first place?
- How to cut down on opioids once started?
- How to engage patients in other non-drug types pain management?
- How to offer this care for low income persons?
- What is the best model of care for persons with chronic pain, what is the role of pain specialty care?
Motion is Lotion