Opioid Considerations in the Elderly

Brittany Sphar, PGY-4
Geriatrics Fellow

University of Colorado Internal Medicine
Department of Geriatrics Grand Rounds

March 17, 2016

Objectives

• Describe the history of opioids
• Discuss the prevalence of opioid misuse among the general population, and how it compares to the elderly population
• Identify alternatives to opioids for pain relief and the available evidence for them
• Identify strategies to more safely prescribe opioids in an elderly population
History of Opioids

3400 B.C. 
Opium poppy cultivated in lower Mesopotamia\(^1\)

333 B.C. 
Alexander the Great introduced opium to India; used as a sedative\(^2\)

460 B.C. 
Hippocrates acknowledged opium's usefulness as a narcotic\(^2\)

1300 A.D. 
Opium disappeared from European historical record for 200 years\(^3\)

1806 
Morphine isolated from opium; became mainstay of medical treatment in the US, used to treat pain, anxiety, consumption and women's ailments\(^1,5\)

1527 
Opium introduced as an analgesic; called laudanum\(^4\)

---

\(^1\) Brownstein, MJ. A brief history of opiates, opioid peptides, and opioid receptors. Proc Natl Acad Sci. 1993;90(12):5391‐5393


\(^3\) A history of opium: From ancient use to present day. www.thedrugspot.com/opiates/history‐of‐opium.html


History of Opioids

1853
Hypodermic needle was invented

1898
Heroin synthesized as derivative of morphine; Bayer offered as cough suppressant

1909
Opium Exclusion Act passed – beginning of US war on drugs

1916
Oxycodone first synthesized

1924
Heroin Act of 1924 passed – made importation, manufacturing and possession of heroin illegal in the US

*Yes, Bayer promoted heroin. Here are the ads that prove it. Business Insider Website. http://www.businessinsider.com/yes‐bayer‐promoted‐heroin‐for‐children‐here‐are‐the‐ads‐that‐prove‐it‐2011‐11?op=1. 2011.
*Opium Throughout history. PBS Thirteen Website.
History of Opioids

1950
Oxycodone approved by FDA as Percodan

1960s
Resurgence of illegal heroin smuggled into the States

1970
The Controlled Substances Act passed; consolidated regulated prescription narcotic/opioid drugs into schedules

1973
Drug Enforcement Agency created by executive order of Richard Nixon

1980s
“Opiophobia” predominated

1983
Vicodin available in generic formulation

---

History of Opioids

1990s
Prescription opioid landscape changed due to undertreatment of pain; long-acting opioids hit the market

2002
6.2 million Americans abusing prescription drugs

2000s
JCAHO incorporated new standards for pain management, required pain be “fifth vital sign”, opioid prescribing increased

2009
More than 730,000 ER visits due to abuse of prescription painkillers

2010-present
FDA and pharmaceutical companies create product formulations with abuse deterents; 48 states implemented prescription drug monitoring programs

References:
How did we get here?

• Prescription opioid epidemic began in ‘90s
• American Pain Society advocates the “fifth vital sign”
• Professional/consumer groups pushed for increased use of opioids for pain
• Oxycontin marketing downplayed addictive potential


How did we get here?

• 1996-2012 – OxyConttin sales increased from $48 million to over $2.4 billion globally
• In the US & Canada, the number of prescriptions written for opioids increased by 300% and 850% respectively
• In 2009, the US consumed:
  – 99% of the world’s hydrocodone
  – 60% of the world’s hydromorphone
  – 81% of the world’s oxycodone

Dhalla, et al. Prescribing of opioid analgesics and related mortality before and after the introduction of long-acting oxycodone. CMAJ. 2009;181:891-896
Comments on the reported statistics on narcotic drugs. International Narcotics Control Board.
Why did prescribing rates increase?

- Lack of consensus regarding appropriate dose/use of narcotics
- Demand for the products among patients who have opioid dependency
- Rise of for-profit clinics: “pill mills”
- Prominent role of pharmaceutical companies in advertising opioid pain relievers
- Historic under-treatment of pain


Scope of the Problem

- 44 people/day die in the US from overdose of prescription painkillers
- 1999-2010: 48,000 women died of prescription painkiller overdose
  - Rate of overdose death increased by 400%
- 2010: > 10,000 men died of prescription painkiller overdose
  - Rate of overdose death increased by 265%
- Rate of heroin overdose deaths has tripled since 2010
- Direct health care costs: $72.5 billion annually

www.CDC.gov
Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)

% Change in Number of Deaths, 2000-2010
What about our population?

• Older adults are fastest growing segment of the global population
  – 2050: adults > 65yo expected to increase to 1.53 billion
• In 2006, 1 in 4 older adults used psychoactive medications with abuse potential
  – Baby boomers are more likely to report use of these medications than earlier cohorts


What about our population?

• From 1995-2010, 9-fold increase in opioid prescriptions for older adults
• # of Americans aged 50+ with a substance abuse disorder will double to 5.7 million in 2020
• Few studies have examined illicit drug use problems in older adults

National Epidemiologic Survey on Alcohol and Related Conditions

- Face to face survey conducted by the National Institute on Alcohol Abuse and Alcoholism from 2001-2002 (43,093 subjects)
- 18 years and older
- Survey addressed alcohol use and treatment but also prevalence of opioid use and abuse

Huang, et al.

- Objective: Present national data on prevalence, correlates and comorbidity of nonmedical prescription drug use and drug use disorders
- Method: Derived data from the NESARC

J Clin Psychiatry 2006;67:1062-1073
Huang, et al. - Results

Moore, et al.

- Objective: Examine prevalence and sociodemographic correlates of substance use in adults aged 65 years and older
- Methods: Derived from data from NESARC
  - N= 8,205 US adults age 65+
  - Measured both lifetime and past 12-month nonmedical drug use
Moore, et al.

• Results:
  – Lifetime nonmedical use of opioids 1.1%
  – Previous-12-month nonmedical use of opioids 0.5%
  – Adults age 75+, women less likely to use each substance
  – Whites had higher lifetime use than non-whites (except American Indians and Alaskan Natives)

National Survey on Drug Use and Health

• Sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA)
• Annual nationwide survey involving interviews with ~70,000 randomly selected individuals aged 12 and older
Blazer and Wu

• Objective: Estimate frequency, distribution and correlates of nonprescription use of pain relievers by middle-aged and elderly people
• Methods: Derived from data from 2005/2006 NSDUH
  – N=6,717 (age 50-64); N=4,236 (age >65)
• Results:
  – Nonmedical use of prescription opioids had past year prevalence of 0.6% in 65+ age group
  – Compared to other prescription drugs: tranquilizers (0.46%), stimulants (0.16%), sedatives (0.14%)


NSDUH – Most recent results, adults 50 or older (2013)

“How long has it been since you last used any prescription pain reliever that was not prescribed for you or that you took only for the experience or feeling it caused?”

<table>
<thead>
<tr>
<th>Never used pain relievers</th>
<th>92%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the past 30 days</td>
<td>0.8%</td>
</tr>
<tr>
<td>More than 30 days ago but within the past 12 months</td>
<td>0.9%</td>
</tr>
<tr>
<td>More than 12 months ago</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

Rathrauff, et al.

• In 2000/2001, an estimated 1.7 million older adults were in need of substance abuse treatment
  – Estimated 4.4 million by 2020
• Opioids were the most frequently reported primary illicit drug in treatment-seeking adults aged 50+

Pain in the elderly

• Persistent pain highly prevalent, costly and disabling
• Multiple sites, multiple comorbidities
• Mixed pain syndromes exist
  – Combination of musculoskeletal and neuropathic pain
• Diagnostic workups frequently fail to contribute useful information

Substance Abuse and Mental Health Services Administration. 2007.

Pain in the Elderly

• Persistent pain can be associated with –
  – Functional decline — Falls
  – Diminished appetite — Immobility
  – Sleep disruption — Depression and anxiety
  – Agitation — Delirium
  – Cognitive decline

Why is pain so difficult to treat in the elderly?

• Age-related physiologic changes resulting in altered drug absorption, decreased renal excretion
• Sensory/cognitive impairments
• Polypharmacy
• Multi-morbidity
• Limited evidence base to guide management in elderly patients
• Physician concern regarding treatment-related harm
Nonpharmacologic Management

- Cognitive behavioral therapy
  - Reduces pain (effect size 0.47; P<0.01) and improves physical functioning (effect size, 0.15, P<0.05)
  - Did not report on safety issues
  - Recommended for use by patients if delivered by a professional
  - Level of evidence (LOE): IIb


- Acupuncture
  - Reduces pain (standard mean difference, -0.35, 95% CI -0.14 to -0.55) and functional disability (SMD, -0.35, 95% CI -0.15 to -0.56) relative to sham controls
  - Minimal adverse effects (local reaction at needle insertion sites)
  - Consider use in older adults as adjunctive therapy
  - LOE: 1a
Nonpharmacologic Management

• Mindfulness meditation
  – Reduces pain/disability and improves psychological function in patients with chronic back pain
    • But not relative to attention control group
  – No adverse events reported
  – Limited/weak evidence supporting use
  – LOE: Ib


Nonpharmacologic Management

• Massage
  – Reduces pain (effect size 0.96) and stiffness (effect size 0.31) and improves functioning (effect size 0.74) relative to attention control
  – No serious adverse events reported
  – Consider use as adjunctive therapy
  – LOE: Ib

Nonpharmacologic Management

• Self-management education programs
  – Reduces pain (effect size -0.06, CI -0.02 to -0.1) and improves functioning (-0.06, CI -0.06 to -0.10) relative to controls
  – No adverse events reported
  – Recommended by US organizations
  – LOE: 1a


Nonpharmacologic Management

• Exercise
  – Reduces pain relative to usual care/control (effect size range 0.25 to 2.75); improves physical functioning and self efficacy
  – Did not report on safety issues
  – Strong recommendation that physical activity program be considered
    • Focus on strengthening, flexibility, endurance, balance
  – LOE: 1b

Nonpharmacologic Management

• Tai Chi
  – Reduces pain (SMD -0.86, CI -1.19 to -0.39),
    physical disability (SMD -0.86, CI -1.20 to -0.53)
    and joint stiffness (SMD -0.53, CI -0.99 to -0.08)
  – Minor adverse events: muscle soreness, joint pain
  – Consider for use in older patients if delivered appropriately
  – LOE: IIb


Nonpharmacologic Management

• Yoga
  – Reduces pain and improved physical function in
    pretest vs posttest comparisons
  – No adverse events reported
  – Consider for use in older adults if delivered appropriately
  – LOE: III

Treatment Algorithms

**Nociceptive Pain**
- Acetaminophen
- Topical Agent
- SNRI
- Opioid

**Neuropathic Pain**
- SNRI or Gabapentin
- Opioids

*Makris, et al. JAMA 2014;312(8):825-836*

Pharmacologic Management

- Acetaminophen
  - Reduces pain relative to placebo (effect size 0.21, CI 0.02 to 0.41)
  - Inferior when compared with oral NSAIDs for pain reduction, stiffness, and physical functioning
  - Concern for unintentional overdose
  - Recommended as first line therapy
  - LOE: 1a

Pharmacologic Management

• Oral NSAIDs
  – Reduce pain (effect size 0.32, CI 0.24-0.39) and functional disability (effect size 0.29, CI 0.18-0.40) relative to placebo
  – Concern for GI, renal, CV toxicity
  – Use with caution for shortest time possible and only when other safer therapies have failed
  – LOE: 1a


• Topical NSAIDs
  – Reduce pain (effect size 0.41, CI 0.14-0.68), improve physical function (effect size 0.44, CI 0.16-0.71) and stiffness (effect size, 0.43, CI 0.15-0.70) relative to placebo
  – Equivalent to oral NSAIDs in terms of pain reduction at 1 year
  – Well tolerated; safety in renal impairment/concomitant anticoagulation use unknown
  – Consider if pain is localized
  – Expensive – difficult to get covered by most insurances
  – LOE: Ib

Pharmacologic Management

• Tramadol
  - Reduces pain relative to placebo (visual analog score at day 7, P=0.002; day 14 P=0.01); no difference between groups for functional index score
  - Adverse effects: constipation, nausea, vomiting, dizziness, headache, somnolence
  - Potential drug/drug interactions; caution with serotonergic medications; avoid if at risk for sz
  - LOE: 1b


Pharmacologic Management

• Opioids
  - Reduce pain (effect size 0.56, P< 0.001) and functional disability (effect size 0.43, P<0.002) relative to placebo
  - Risk of falls, hospitalization (compared to nonselective NSAIDs), constipation, nausea, vomiting
  - Consider for mod/severe pain, failed other treatments
  - LOE: 1a

Pharmacologic Management

• Tricyclic antidepressants
  — Amitriptyline reduces pain relative to placebo in patients with diabetic neuropathy
  — Significant adverse effects: anticholinergic, QTc prolongation, toxicity at higher doses
  — Tertiary tricyclics (amitriptyline, doxepin) should be avoided d/t adverse effects
    • Nortriptyline with somewhat less anticholinergic side effects
  — LOE: Ib


Pharmacologic Management

• Anticonvulsants – gabapentin and pregabalin
  — Both reduce pain relative to placebo among patients with diabetic neuropathy
  — Adverse effects: sedation, dizziness, peripheral edema
  — Recommended for older adults with diabetic neuropathy
  — LOE: 1b

Pharmacologic Management

• SNRIs
  – Duloxetine reduces diabetic neuropathic pain
  – Duloxetine superior to placebo for pain reduction/improved physical functioning in patients with knee OA
  – Generally well tolerated; adverse effects hyponatremia, dizziness, abdominal pain, nausea
  – LOE: 1b


Pharmacologic Management

• SSRIs
  – No studies available with regard to chronic pain in older adults
  – Not recommended for use as analgesic
Pharmacologic Management

• Topical lidocaine
  – Pts with knee OA: 50% improvement in symptom severity reported by 40% for pain, 40% stiffness, 38% increased functioning
  – Generally well tolerated; headache is most common adverse effect
  – Consider for localized pain
  – LOE: IIb


Opioids

• Hydrocodone
  – Metabolized by CYP2D6 to hydromorphone, by CYP3A4 to norhydrocodone
  – Consider dose adjustment for moderate/severe renal impairment

Opioids

- Oxycodone
  - Metabolized by CYP2D6 and CYP3A4 to active metabolites
  - No toxic metabolites
  - Blood levels increased ~50% in renal insufficiency (CrCl < 60)


Opioids

- Morphine
  - Clearance of active/neurotoxic metabolites decreased in renal impairment; consider avoiding if CrCl < 30

Opioids

• Hydromorphone
  – Metabolized to inactive metabolites; consider in mild renal/hepatic impairment
  – In severe CKD or ESRD, could have accumulation of neurotoxic metabolites


Opioids

• Oxymorphone
  – Similar to hydromorphone
  – Relatively new – not a lot of data for older adults

Opioids

• Transdermal fentanyl
  – Metabolized by CYP3A4 to inactive metabolites
  – Full effect after application of 1st patch 18-24 hrs
  – Steady state may not be reached in elderly until 6-9 days
  – Avoid in opiate-naïve, cognitive impairment


Opioids

• Transdermal buprenorphine
  – Partial mu agonist, weak kappa agonist; analgesic dose-ceiling
  – Metabolized by CYP3A4 and glucuronidation to active metabolites
  – Delayed effect – 72 hours
  – Limited data on renal impairment dosing
  – Unclear role in older adults

Opioids

• Methadone
  – Not first line
  – Significant QTc prolongation
  – Variable pharmacokinetic/pharmacodynamic profile
  – Higher risk of overdose

Safe Opioid Prescribing in the Elderly

• Screen for substance abuse potential
• Ensure that patients with cognitive impairment will have help managing their opioid medications
• Prescription drug monitoring programs
• Frequent monitoring
  – Opioid contract
  – Urine tox screens
  – Pill counts
• Harm reduction – Concurrent naloxone prescribing
Screener and Opioid Assessment for Patients with Pain (SOAPP) Version 1.0-14Q

- Designed to help providers evaluate the patients’ relative risk for developing problems when placed on long-term opioid therapy
- Developed based on expert consensus regarding concepts likely to predict which patients will require more/less monitoring on opioid therapy
- 14 items, 5 point scale

### Screener and Opioid Assessment for Patients with Pain (SOAPP) Version 1.0-14Q

**SOAPP® Version 1.0-14Q**

The following are some questions given to all patients at the Pain Management Center who are on or being considered for opioids for their pain. Please answer each question as honestly as possible. This information is for our records and will remain confidential. Your answers alone will not determine your treatment. Thank you.

Please answer the questions below using the following scale:

0 = Never, 1 = Seldom, 2 = Sometimes, 3 = Often, 4 = Very Often

<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you have mood swings?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>2. How often do you smoke a cigarette within an hour after you wake up?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>3. How often have any of your family members, including parents and grandparents, had a problem with alcohol or drugs?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>4. How often have any of your close friends had a problem with alcohol or drugs?</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>
Screener and Opioid Assessment for Patients with Pain (SOAPP) Version 1.0-14Q

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. How often have others suggested that you have a drug or alcohol problem?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>6. How often have you attended an AA or NA meeting?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>7. How often have you taken medication other than the way that it was prescribed?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>8. How often have you been treated for an alcohol or drug problem?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>9. How often have your medications been lost or stolen?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>10. How often have others expressed concern over your use of medication?</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. How often have you felt a craving for medication?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>12. How often have you been asked to give a urine screen for substance abuse?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>13. How often have you used illegal drugs (for example, marijuana, cocaine, etc.) in the past five years?</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>14. How often, in your lifetime, have you had legal problems or been arrested?</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>
Screener and Opioid Assessment for Patients with Pain (SOAPP) Version 1.0-14Q

To score the SOAPP® V.1 - 14Q, simply add the ratings of all the questions:

A score of 7 or higher is considered positive.

<table>
<thead>
<tr>
<th>Sum of Questions</th>
<th>SOAPP® Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; or = 7</td>
<td>+</td>
</tr>
<tr>
<td>&lt; 7</td>
<td>-</td>
</tr>
</tbody>
</table>

Opioid Risk Tool

- **Purpose:** Assesses the risk of aberrant behaviors when patients are prescribed opioid medication for chronic pain
- **High degree of sensitivity and specificity for differentiating high vs low risk for opioid abuse**
Naloxone

- Highly specific, high-affinity opioid antagonist used to reverse the effects of opioids
- Can be safely administered by laypersons via IM or IN routes
  - No major side effects – lower lay-administered doses produce only mild withdrawal symptomatology
  - No effect in the absence of opioids
- Effects last 30-90 minutes
PrescribeToPrevent.org

- Who gets naloxone?
  - High dose (>50mg morphine equivalent/day)
  - Receiving any opioid prescription for pain plus:
    - Smoking, COPD, emphysema, asthma, OSA, respiratory infection, other respiratory illness
    - Renal dysfunction, hepatic disease, cardiac illness
    - Concurrent alcohol abuse
    - Concurrent benzo use
    - Concurrent antidepressant prescription
    - Patients who have difficulty accessing care

Naloxone

- Colo. Rev. Stat. § 12-36-117 Unprofessional conduct:
  - (1.7) The prescribing, dispensing, or distribution of an opiate antagonist by a licensed health care practitioner shall not constitute unprofessional conduct if he or she prescribed, dispensed, or distributed the opiate antagonist in a good faith effort to assist:
    - (a) A person who is at increased risk of experiencing or likely to experience an opiate-related drug overdose event, as defined in section 18-1-712(5)(e), C.R.S.; or
    - (b) A family member, friend, or other person who is in a position to assist a person who is at increased risk of experiencing or likely to experience an opiate-related drug overdose event, as defined in section 18-1-712(5)(e), C.R.S.
Naloxone Stats – 1996-2010

- # of program participants from beginning of program through June 2010: 53,032
- Reported # opioid overdose reversals: 10,171

MMWR Weekly Report 2012;61(6);http://www.cdc.gov/mmwr/pdf/wk/mm6106.pdf

Naloxone – Medicare Coverage

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Symphonix Value Rx (PDP) (50522-028)</td>
<td>$27.60</td>
<td>$360</td>
<td>$3310</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y/N</td>
<td>Y/N</td>
<td>20%</td>
<td>None</td>
<td>20%</td>
<td>None</td>
<td>20%</td>
<td>None</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Symphonix Prime/Saver Rx (PDP) (50522-002)</td>
<td>$43.30</td>
<td>$200</td>
<td>$3310</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y/N</td>
<td>Y/N</td>
<td>20%</td>
<td>None</td>
<td>25%</td>
<td>None</td>
<td>20%</td>
<td>None</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Magellan Rx Medicare Basic (PDP) (55067-022)</td>
<td>$34.00</td>
<td>$360</td>
<td>$3310</td>
<td>2</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>$3</td>
<td>None</td>
<td>None</td>
<td>$8</td>
<td>None</td>
<td>None</td>
<td>$3</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Anthem Blue MedicareRx Standard (PDP) (55066-069)</td>
<td>$46.70</td>
<td>$360</td>
<td>$3310</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>$29</td>
<td>None</td>
<td>None</td>
<td>$44</td>
<td>None</td>
<td>$29</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Anthem Blue MedicareRx Plus (PDP) (50596-080)</td>
<td>$85.70</td>
<td>$0</td>
<td>$3310</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>$40</td>
<td>None</td>
<td>None</td>
<td>$45</td>
<td>None</td>
<td>$40</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Anthem Blue MedicareRx Premier (PDP) (55066-061)</td>
<td>$140.20</td>
<td>$0</td>
<td>$3310</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>$25</td>
<td>None</td>
<td>None</td>
<td>$45</td>
<td>None</td>
<td>$25</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
Naloxone – Cost Effective?

• Coffin & Sullivan, *Ann Intern Med* 2013:
  – Estimated cost-effectiveness of distributing naloxone to heroin users
  – Used analytic models to determine overdose deaths prevented and incremental cost-effectiveness ratio

— Results:
  – 1 death prevented for every 227 naloxone kits distributed
  – Distribution increased costs by $53 and quality-adjusted life years by 0.119
    » Incremental cost effectiveness ratio = $438.00

• Conclusion: Naloxone distribution to heroin users is likely to reduce overdose deaths and is cost-effective
Resources for Patients and Physicians

- Prescription Drug Monitoring Program:
  - [https://www.colorado.gov/pacific/dora/PDMP](https://www.colorado.gov/pacific/dora/PDMP)
- [www.PrescribeToPrevent.org](http://www.PrescribeToPrevent.org)

Conclusions

- Prescription opioid abuse remains a major public health concern among the general population
- Prevalence of opioid misuse among elderly patients is less than the general population, but is suspected to rise in the coming years
- Chronic pain remains an important cause of morbidity among elderly patients
- Treatment options remain limited, and opioids are still among the mainstays of treatment for elderly patients with chronic pain
- Efforts should be made to safely prescribe opioids, which includes screening for possible substance abuse, considering opioid contracts and prescribing concurrent naloxone when appropriate
Questions?