Opioids: use and abuse

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Disclosure

I am a consultant for:
• Fresenius Kabi (Advisory for novel pain medication development)
• Abbott Laboratories (New product development, clinician education and training seminars)

No other conflicts or relationships to disclose.

I do not receive royalties or own stock or stock options of any drug or device manufacturer, or health care company
Learning Objectives

At the end of this presentation participants should be able to:

• Define pain care outcomes and contributing factors
• Illustrate the incidence of persistent opioid use after surgery and risk factors
• Identify complications related to preoperative opioid use
• Discuss the above as a need statement for integrative comprehensive pain care
Rates of opioid prescribing

22% reduction

AMA opioid task for progress report
All have occurred since publication of the CDC guidelines except for:

1. Reduction in opioid prescriptions
2. Increase in opioid related overdose deaths
3. Increased prescribing of buprenorphine
4. All of the above have occurred
Opioid related death continues to rise

3 Waves of the Rise in Opioid Overdose Deaths

- **Other Synthetic Opioids**
  - e.g., Tramadol and Fentanyl, prescribed or illicitly manufactured

- **Commonly Prescribed Opioids**
  - Natural & Semi-Synthetic Opioids and Methadone

- **Heroin**

**Wave 1:** Rise in Prescription Opioid Overdose Deaths

**Wave 2:** Rise in Heroin Overdose Deaths

**Wave 3:** Rise in Synthetic Opioid Overdose Deaths

Prevalence of pain

- 1.5 billion people live with chronic pain worldwide
- 100 million Americans affected (1 in 3)
- Affects more Americans than diabetes, heart disease, and cancer combined.
  - Silent epidemic

American Academy of Pain Medicine
Outcomes in pain care

Persistent (chronic) uncontrolled pain
• Suffering, disability, substantial healthcare cost, decreased function (cognitive and physical), decline of total health

Persistent opioid or analgesic use
• Therapy burden (adverse events, side effects) decline of total health
From injury to recovery

1. Implement comprehensive pain care
2. Monitor and transition to non-opioid regimen
3. Return to function

Solely non-pharmacologic and/or nonopioid therapy
From injury to persistent pain

- Implement comprehensive pain care
- Monitor and transition to non-opioid regimen
- Return to function

Solely non-pharmacologic and/or nonopioid therapy
Outcomes in Pain Care: contributing factors

- Access to pain and addiction specialists
- Ownership
- HIT tools
- Formulary

- Breadth of pain care provided
- Monotherapy vs vigilant comprehensive pain care

- Patient Factors
  - Anxiety, depression, substance use, preexisting pain

- Injury Mechanism (pain diagnosis)
  - Nerve damage, central sensitization, phantom pain, degeneration

- Institutional Culture
  - Monotherapy vs vigilant comprehensive pain care

- Monotherapy vs vigilant comprehensive pain care
Gateways to persistent opioid use
Surgical opioid Rx: a gateway to dependence?

Access/exposure: 40% of opioids prescribed are for post-operative indications

Surplus: 75% of misused opioids by first time users are from surplus prescriptions

Persistent opioid use after surgery is associated with:

1. Tobacco use
2. Anxiety and depression
3. Preoperative pain
4. Substance use disorder
5. All of the above
Persistent opioid use after surgery is more likely in:

A. Major Surgery
B. Minor Surgery
C. Similar incidence between the two
New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults

Chad M. Brummett, MD; Jennifer F. Waljee, MD, MPH, MS; Jenna Goesling, PhD; Stephanie Moser, PhD; Paul Lin, MS; Michael J. Englesbe, MD; Amy S. B. Bohnert, PhD, MHS; Sachin Kheterpal, MD, MBA; Brahmajee K. Nallamothu, MD, MPH

N=36,177 patients, mean age 44.6y, 66% female, 72% white, 80% minor surg, 20% major surg

Primary outcome: Opioid Rx 90-180 days post surgery

Results: 5.9 to 6.5%; Non op control group 0.4%

Risk factors: tobacco use, substance abuse disorders, mood disorders, anxiety, preoperative pain

Patient factors may significantly increase persistent use

Ask about preoperative pain!

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>6%</td>
<td>Brummett CM et al. <em>JAMA Surg.</em> 2017; 152(6).</td>
</tr>
<tr>
<td>Leg</td>
<td>13%</td>
<td>Johnson SP et al. <em>JHS.</em> 2016;41(10).</td>
</tr>
<tr>
<td>Breast</td>
<td>10%</td>
<td>Lee JS et al. <em>JCO.</em> 2017. Epub</td>
</tr>
<tr>
<td>Shoulder</td>
<td>19%</td>
<td>Marcusa D et al. <em>PRS.</em> 2017;140(6).</td>
</tr>
</tbody>
</table>
Opioid dependence and surgical outcomes

Preoperative Opioid Use is Independently Associated With Increased Costs and Worse Outcomes After Major Abdominal Surgery

David C. Cron, BS,* Michael J. Englesbe, MD,* Christian J. Bolton, BS,† Melvin T. Joseph, BS,† Kristen L. Carrier, BS,‡ Stephanie E. Moser, PhD,‡ Jennifer F. Waljee, MD, MPH, MS,§ Paul E. Hilliard, MD,† Sachin Kheterpal, MD, MBA,† and Chad M. Brummett, MD†

Annals of Surgery Volume 265, Number 4, April 2017, 695-701
### TABLE 3. Complication Rates by Preoperative Opioid Use

<table>
<thead>
<tr>
<th>Complication</th>
<th>Opioid-naïve</th>
<th>Opioid Users</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical site infection: any</td>
<td>8.3% (159)</td>
<td>14.9% (75)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Surgical site infection: superficial</td>
<td>5.8% (110)</td>
<td>10.4% (52)</td>
<td>0.001</td>
</tr>
<tr>
<td>Surgical site infection: deep</td>
<td>0.8% (15)</td>
<td>1.4% (7)</td>
<td>0.19</td>
</tr>
<tr>
<td>Surgical site infection: organ space</td>
<td>2.2% (41)</td>
<td>3.4% (17)</td>
<td>0.14</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>0.9% (17)</td>
<td>2.0% (10)</td>
<td>0.053</td>
</tr>
<tr>
<td>Sepsis</td>
<td>1.6% (30)</td>
<td>3.8% (19)</td>
<td>0.004</td>
</tr>
<tr>
<td>Severe sepsis</td>
<td>1.2% (23)</td>
<td>1.4% (7)</td>
<td>0.66</td>
</tr>
<tr>
<td><em>Clostridium difficile</em></td>
<td>0.6% (11)</td>
<td>0.6% (3)</td>
<td>1</td>
</tr>
<tr>
<td>Respiratory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intraoperative unplanned intubation</td>
<td>0% (0)</td>
<td>0.2% (1)</td>
<td>0.21</td>
</tr>
<tr>
<td>Postoperative unplanned intubation</td>
<td>1.3% (24)</td>
<td>2.6% (13)</td>
<td>0.040</td>
</tr>
<tr>
<td>Pulmonary embolism</td>
<td>0.5% (9)</td>
<td>0.8% (4)</td>
<td>0.49</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac arrhythmia</td>
<td>0.4% (7)</td>
<td>0.8% (4)</td>
<td>0.26</td>
</tr>
<tr>
<td>Postoperative myocardial infarction</td>
<td>0.3% (5)</td>
<td>1.0% (5)</td>
<td>0.038</td>
</tr>
<tr>
<td>Postoperative cardiac arrest</td>
<td>0.2% (4)</td>
<td>0.2% (1)</td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>0.2% (3)</td>
<td>0.2% (1)</td>
<td>1</td>
</tr>
<tr>
<td>Deep venous thrombosis</td>
<td>0.6% (12)</td>
<td>0.8% (4)</td>
<td>0.76</td>
</tr>
<tr>
<td>Postoperative transfusion</td>
<td>3.5% (66)</td>
<td>7.2% (36)</td>
<td>0.001</td>
</tr>
<tr>
<td>Renal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>0.7% (14)</td>
<td>1.4% (7)</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Numbers are unadjusted and represent % (N).
Outcomes in Pain Care: contributing factors

- Access to pain and addiction specialists
- Ownership
- HIT tools
- Formulary

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PAIN DIAGNOSIS and tailored diagnosis specific treatment

- Physical therapy services
- Pharmacotherapy
- Procedural therapy
- Primary care wellness
- Lab services
- Specialty consultation
- Personalized Medicine
- Imaging and diagnostics
- Health psychology
- Integrative medicine

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Summary

- Since CDC guidelines and opioid epidemic, less opioids prescribed, increasing overdoses occurring, prevalence of pain remains significant, pain more stigmatized
- Surgery may be a gateway for postoperative pain, patient factors are most influential (Vigilance, follow up)
- Preoperative opioid use increases adverse events and health care costs
- Whether managing chronic pain, weaning opioids, comprehensive pain care supports these scenarios, the patients, providers, and health system.