The Emerging Epidemiology of Chronic Opioid Use: Evidence for Adverse Selection

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Acknowledgments

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Photo courtesy of The Herb Museum, Vancouver, BC
Collaborators

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- Brad Martin, PharmD, PhD, University of Arkansas for Medical Sciences
- Joan Russo, PhD, University of Washington
- Andrea DeVries, PhD, HealthCore
- Jennifer Brennan Braden, MD, MPH, University of Washington
“Among the remedies which it has pleased Almighty God to give to man to relieve his sufferings, none is so universal and so efficacious as opium.” Sydenham, 1682
Background on Prescribed Opioids

- Following successful cancer pain initiatives, efforts have been made to liberalize the use of opioids for the treatment of individuals with Chronic Non Cancer Pain (CNCP).

- These efforts are based on the belief that patients with Chronic Non Cancer Pain (CNCP) deserve pain relief as much as those with cancer and that sustained pain relief is possible with stable doses of opioids.
While some see the growth in opioid prescribing as evidence of better attention to the problem of unrelieved pain\textsuperscript{1}, others have expressed concern that we have not had adequate trials to prove the “safety and effectiveness of long-term opioid therapy.”\textsuperscript{2}

Clinical Trials Evaluating Opioids for CNCP

- Lack of long-term studies
- Often excluded individuals with serious physical health disorders, other comorbid pain conditions, or mental health and substance use disorders.
20% of the general population are significantly affected by Chronic Non Cancer Pain (CNCP)

Gureje O, *JAMA* 1998
Verhaak PF, *Pain* 1998
The number of poisoning deaths and the percentage of these deaths involving opioid analgesics increased each year from 1999 through 2006.

Figure 1. Poisoning deaths involving opioid analgesics, other drugs, and no drugs: United States, 1999–2006

NOTE: Access data table for Figure 1 at ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Data_Briefs/db022/fig01.xls.
Further, the addictive potential of opioids remains a concern.¹⁻³

1. Substance Abuse and Mental Health Services Administration (SAMHSA) 2000.
TROUP Study: Trends and Risks of Opioid Use for Pain

- 2000-2005 claims data from HealthCore and Arkansas Medicaid insurance plans
- Follow patients with tracer Chronic Non Cancer Pain diagnoses:
  - Arthritis/joint pain
  - Back pain
  - Neck pain
  - Headaches/Migraines
  - HIV/AIDS

TROUP study, supported by NIDA grant, DA 022560
Questions

- How rapidly is use of prescription opioids increasing?
- Who receives prescription opioids?
- Who is most likely to abuse opioids?
- How often does opioid discontinuation occur?
1) Depressive and anxiety disorders are risk factors for the *use* of chronic opioids and, among individuals using opioids for Chronic Non Cancer Pain, *abuse* of opioids.
## HealthCore percent change in chronic opioid use 2000-2005

<table>
<thead>
<tr>
<th>Group</th>
<th>% with ≥90d opioids in 2000</th>
<th>Estimated % change 2000-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female 18-44</td>
<td>2.7%</td>
<td>24%</td>
</tr>
<tr>
<td>Female 45-64</td>
<td>4.4%</td>
<td>34%</td>
</tr>
<tr>
<td>Female 65+</td>
<td>6.9%</td>
<td>35%</td>
</tr>
<tr>
<td>Male 18-44</td>
<td>2.1%</td>
<td>34%</td>
</tr>
<tr>
<td>Male 45-64</td>
<td>3.7%</td>
<td>41%</td>
</tr>
<tr>
<td>Male 65+</td>
<td>4.6%</td>
<td>25%</td>
</tr>
</tbody>
</table>

## AR Medicaid percent change in chronic opioid use 2000-2005

<table>
<thead>
<tr>
<th>Group</th>
<th>% with ≥90d opioids in 2000</th>
<th>Estimated % change 2000-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female 18-44</td>
<td>12%</td>
<td>54%</td>
</tr>
<tr>
<td>Female 45-64</td>
<td>20%</td>
<td>52%</td>
</tr>
<tr>
<td>Female 65+</td>
<td>13%</td>
<td>40%</td>
</tr>
<tr>
<td>Male 18-44</td>
<td>14%</td>
<td>34%</td>
</tr>
<tr>
<td>Male 45-64</td>
<td>21%</td>
<td>52%</td>
</tr>
<tr>
<td>Male 65+</td>
<td>12%</td>
<td>41%</td>
</tr>
</tbody>
</table>

Chronic opioid use (>90d/yr) in pts with Mental Health and Substance Use Disorder diagnoses

Edlund, Clin J Pain, 2010
Individuals Most Likely to Receive Opioids?

- Those with mental health (MH) disorders and substance abuse disorders (SUD)
Among individuals with COT, who are most likely to develop abuse and misuse?
## Variables Associated with Incident Opioid Use Disorders

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opioid Dose and Days</td>
<td></td>
</tr>
<tr>
<td>No Opioid Use (reference)</td>
<td>1.00 (--)</td>
</tr>
<tr>
<td>Low dose, acute</td>
<td>3.03 (2.32-3.95)***</td>
</tr>
<tr>
<td>Low dose, chronic</td>
<td>14.92 (10.38-21.46)***</td>
</tr>
<tr>
<td>Medium dose, acute</td>
<td>2.80 (2.12-3.71)***</td>
</tr>
<tr>
<td>Medium dose, chronic</td>
<td>28.69 (20.02-41.13)***</td>
</tr>
<tr>
<td>High dose, acute</td>
<td>3.10 (1.67-5.7)***</td>
</tr>
<tr>
<td>High dose, chronic</td>
<td>122.45 (72.79-205.99)***</td>
</tr>
<tr>
<td>Age in Years N (%)</td>
<td></td>
</tr>
<tr>
<td>18-30</td>
<td>10.51 (5.47-20.20)***</td>
</tr>
<tr>
<td>31-40</td>
<td>4.62 (2.39-8.91)***</td>
</tr>
<tr>
<td>41-50</td>
<td>3.27 (1.70-6.30)***</td>
</tr>
<tr>
<td>51-64</td>
<td>2.18 (1.12-4.26)*</td>
</tr>
<tr>
<td>&gt;=65 (reference)</td>
<td>1.00 (--)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female (reference)</td>
<td>1.00 (--)</td>
</tr>
<tr>
<td>Male</td>
<td>2.27 (1.85-2.78)***</td>
</tr>
</tbody>
</table>
### Variables Associated with Incident Opioid Use Disorders

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Non-Substance Mental Health Disorder Types</strong></td>
<td></td>
</tr>
<tr>
<td>0 (reference)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.12 (2.41-4.04)***</td>
</tr>
<tr>
<td>2+</td>
<td>5.71 (3.83-8.52)***</td>
</tr>
<tr>
<td><strong>Pre-Index Substance Abuse/Dependence Diagnoses</strong></td>
<td></td>
</tr>
<tr>
<td>Non-Opioid</td>
<td>8.26 (4.74-14.39)***</td>
</tr>
<tr>
<td>Alcohol</td>
<td>3.22 (1.79-5.80)***</td>
</tr>
</tbody>
</table>
“Adverse Selection”

Those individuals who are most likely to receive COT are also those who are most likely to develop opioid abuse/dependence.
Why does adverse selection occur?

- Patients with Mental Health and Substance Use Disorders and multiple pain problems are more distressed (pain and psychological symptoms) and more persistent in demanding opioid initiation and dose increases.
- Doctor shopping among individuals with Substance Use Disorders.
The population attributable risk for opioid abuse/dependence from mental health disorders may be greater than the population attributable risk from non-opioid substance disorders.
COT discontinuation

- Once started on a course of Chronic Opioid Therapy, how long do patients remain on opioids?
- TROUP study of Chronic Opioid Therapy recipients (used at least 90 days without a 32 day gap)
- Outcome: 6 months without any opioid Rx
Kaplan-Meier Plot

Health Plans

Time to Opioid Discontinuation

- Arkansas
- Health Core
Key Points

- Opioid use for chronic non-cancer pain is a two-edged sword
- Opioid use for chronic non-cancer pain is increasing rapidly
- Often those individuals receiving opioids for chronic non-cancer pain are those most likely to abuse them
Once on Chronic Opioid Therapy (COT), most patients remain on COT for years.
Limitations

- Non-Experimental Design
- Use of Clinician Diagnoses
"To write prescriptions is easy, but to come to an understanding with people is hard."
-- Franz Kafka,
"A Country Doctor"
More Information

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