Evolution of a National VA Chronic Pain Cohort: Defining Chronic Pain in Administrative Data

Evan Carey, MS
Denver-Seattle Center of Innovation, VHA
Colorado School of Public Health
Chronic Pain Affects 100 Million Americans and Costs Exceeds $560 Billion

Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research
Chronic Pain is a leading Public Health Issue in the US

Number of Americans (millions)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Number (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>25.8</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>16.3</td>
</tr>
<tr>
<td>Stroke</td>
<td>7</td>
</tr>
<tr>
<td>Cancer</td>
<td>11.9</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>100</td>
</tr>
</tbody>
</table>
- Pain Telementoring – Pain Specialists providing education for Primary Care Providers

- The Office of Specialty Care wants to know: Is this training program effective?
  - Which Veterans should it effect?
Chronic Pain is Difficult to Define

- Chronic Pain Syndrome: ICD9 - 338.2
- Pain lasting beyond the expected healing time for an injury
- Pain Lasting longer than 3 (or 6) months
- Pain without an underlying identified injury
Chronic Pain based on Surveys

- IOM Report: 100 million Americans in Chronic Pain
  - “Severe of moderate pain that interfered with ability to do work or household chores in previous 4 weeks”

- Nahin 2015
  - Based on National Health Interview Survey
  - 126 million Americans reported some pain in past 3 months
  - 25 million Americans (11.2%) reported daily (chronic) pain
What Veterans should I expect this program to impact (who should I be studying)?

How can I identify them from administrative data sources?
QUERI’s and PhD’s

- **Triple Aim QUERI**
  - Construct a National Cohort of Veterans suffering from Chronic Pain
  - Examine variation in Multi-modal Pain Care at the Facility Level
  - Implement Pain SCAN-ECHO training at outlier facilities in a controlled fashion

- Aligned dissertation work to studying national chronic pain care and outcomes in the VA
We Need a Chronic Pain Administrative Data Definition

- What is the burden of chronic pain in the Veteran population?
- What is the impact of chronic pain care in the VA?
- What is the health burden of chronic pain in Veterans?
- What is the cost of chronic pain in Veterans experiencing chronic pain?
- What is the utilization of emergency department services in Veterans experiencing chronic pain?
How Might We Define Chronic Pain in Administrative Data?

<table>
<thead>
<tr>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAIN SCORES</td>
</tr>
<tr>
<td>ICD9 CODES</td>
</tr>
<tr>
<td>Opioid Exposure</td>
</tr>
<tr>
<td>Utilization</td>
</tr>
</tbody>
</table>
Chronic Pain and Pain Scores

  - VA data 2001-2009
  - 153,212 OEF/OIF Vets
  - 3 or more pain scores $\geq 4$ in 3 different months
    "persistent Pain"
  - Of 16,611 Veterans with at least 3 available pain scores, $\sim 20\%$ Had Persistent Pain

- Frank et al 2015
  - 3 or more pain scores $\geq 4$ in 3 different months
  - $\sim 1.2$ million Veterans with any pain score $\geq 4$
  - $\sim 375,000$ Veterans with chronic pain
Chronic Pain Based on ICD9

- Lamerato 2015 (non-VA)
  - Henry Ford Health System
  - 25 pain conditions of interest identified by icd9 codes
  - First encounter with diagnosis was baseline
  - Chronic pain defined as 2 or more visits for a pain condition > 30 days apart and < 365
  - Of 127,317 patients, 14,784 (11.6%) met definition of Chronic Pain

- Edlund 2011 (VA Study)
  - Two clinical encounters for CNCP conditions > 30 days apart and > 365 days apart
  - ~1.4 million Veterans per year met chronic pain criteria
  - ~5.6 million Veterans used VA in 2010, ~25%?
Chronic Pain and Opioids

- Seal 2012
  - 141,000 Iraq/Afghanistan Veterans with at least 1 Non-cancer pain diagnosis
  - Examined Opioid prescriptions, high risk opioid use, and adverse outcomes. ~11% received opioids

- Sullivan 2008: TROUP Study
  - Examined Patients with common non-cancer chronic pain conditions
  - Identified Patients Receiving opioids
  - “Likely receiving opioids for chronic non-cancer pain”
Using electronic health records data to identify patients with chronic pain in a primary care setting

Terrence Y Tian, Ianita Zlateva, Daren R Anderson

- 38,520 patients in community health setting
- Chronic Pain: “Non-cancer Pain that is continuous and persistent for more than 90 days”
- ICD9 Codes – “Potential Chronic Painful Conditions”, at least one visit
- Opioid Exposure – 90+ days opioid exposure
- Pain scores – 2 or more pain scores >= 4
ICD9 Codes Identify the Most Patients

![Graph showing the number of patients identified by different factors]

- ICD9: 12,000
- Pain Scores: 8,000
- Pain Score + ICD9: 4,000
- Chronic Opioid: 1,000
Chronic Opioid Exposure has the Highest PPV

![Bar graph showing Positive Predictive Value for Chronic Opioid, Pain Score + ICD9, ICD9, and Pain Scores, with Chronic Opioid having the highest PPV at 100, followed by Pain Score + ICD9 and ICD9 at 80 each, and Pain Scores at 60.](image)
Initial Research Questions

- How many Veterans report persistently elevated pain scores?
- How many Veterans are diagnosed with conditions likely related to chronic pain?
- How many Veterans are exposed to long term opioid therapy?
- What is the overlap in these estimates?
Total Number Patients = 3,403,205

- Pain diagnoses: N=2,822,282 (83%)
- Pain scores: N=2,167,859 (63.7%)
- Long-term opioid therapy: N=749,979 (22%)
Acknowledgements

- Joseph Frank, Michael Ho, Robert Kerns, Robin Masheb, Joseph Goulet
- Denver Triple Aim Query Team