Opioid-related Overdose Deaths in Massachusetts by Industry and Occupation, 2011-2015: Implications for Prevention*

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“The findings and conclusions in this report are those of the authors and do no necessarily represent the official position of the Centers for Disease Control and Prevention”
Impetus for study

• Increase in opioid overdoses and deaths in MA (the epidemic)

• Research on widespread use of prescribed opioids following work-related injuries

• Local community identification of “workers in the trades” at risk
“People get hurt and don’t report the injury for fear of losing their job, so they mask the pain with pills.” – Melrose laborer
Study aims

• Describe opioid-related overdose deaths among MA residents by industry and occupation (I/O)
  – By gender, race/ethnicity

• Explore factors that may contribute to differences in risk by I/O using information from state and national surveys

• Generate information for targeting interventions in high risk worker groups
Methods

- Data source: MA Death certificates – 2011-2015
  - Identified overdose deaths using *Cause of Death* codes based on CDC case definition
  - Abstracted I/O and other demographic data
  - Coded I/O automatically

- Excluded deaths: retired, unemployed, disabled, housewife, no occupational information

- Rates: overdose deaths per 100,000 workers
  - Employment data from American Community Survey
5,580 opioid related overdose deaths in MA in 2011-2015

Exclusions
- 191 out of state residents
- 887 not employed
- 1 under age 16
- Insufficient I/O information

4,301 deaths with usable industry and/or occupation information
Occupation groups with opioid overdose death rates significantly higher than average rate for all workers
Massachusetts workers, 2011-2015, n=4,302

Deaths per 100,000 workers

Occupation Groups

- All workers* (n=4,284) 0
- Construction & extraction (n=1,096) 20
- Farming, fishing & forestry (n=61) 150
- Material moving & repair (n=167) 0
- Installation, maintenance & repair (n=221) 0
- Transportation (n=203) 0
- Production (n=312) 0
- Food preparation & serving related (n=372) 0
- Building, grounds cleaning & maintenance (n=230) 0
- Healthcare support (n=146) 0
Rate of opioid overdose death by occupation-specific injury and illness rate category
Massachusetts workers, 2011-2015, n=4,302
Rate of opioid overdose death by level of job insecurity and paid sick leave

*Massachusetts workers, 2011-2015, n=4,302*
Rate of OROD by level of occupation-specific median income*, Massachusetts workers, 2011-2015 n=4,302

Median Income range

Opioid-related deaths per 100,000 workers

* From the American Community survey, 2011-2015
Limitations

• Usual vs. current I/O

• Some decedents with I/O may be unemployed or retired
  – Conducted restricted analysis those 55 or younger (with the same denominator); findings similar

• Limited sample size precluded detailed analysis by race/ethnicity

• Lack of individual level data for injuries, sick leave, and job insecurity. Causal conclusions cannot be drawn.
Discussion

• Consistent with previous reports of wide use of opioids for pain management following work injuries

• Construction and fishing workers – a perfect storm
  • High rates of fatal and non-fatal occupational injuries
  • High prevalence of self reported pain
  • High rate of MSDs
  • Job insecurity – seasonal work
  • > average background drug use

• High rates also observed in other blue collar, manual jobs.

• Higher overdose death rates not likely fully explained by high background rates of drug use
Overall: 8.6%

Conclusions and public health implications

• More research needed to understand contribution of work-related injuries and other occupational factors to opioid use.

• Educational and policy interventions targeting high risk worker groups are needed. These should address
  – Workplace hazards that cause injuries for which opioids prescribed
  – Use of opioids for pain management and recovery following injury, and
  – Addiction treatment and recovery resources.

• Workplace provides unique opportunities to promote primary and secondary as well as tertiary prevention
Preventing opioid use, misuse and overdose among high risk worker groups: Opportunities for moving upstream

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Before pain, injury &amp; opioid use</em></td>
<td><em>Post (at) injury</em></td>
<td><em>Post substance use disorder (SUD)</em></td>
</tr>
<tr>
<td>Prevent pain &amp; injuries</td>
<td>Access to treatment and appropriate pain management</td>
<td>Access to SUD treatment and recovery support</td>
</tr>
<tr>
<td>Health and safety Committees/Programs</td>
<td>Paid sick leave</td>
<td>EAP/ Peer support programs</td>
</tr>
<tr>
<td>......</td>
<td><em>Return to Work accommodations</em></td>
<td>Naloxone/training in the workplace</td>
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**Opioid awareness**

Address cultural issues regarding help seeking, stigma

Acknowledgment: Dr. Cora Roelofs for her input.
Further research in Massachusetts

• Review of prescription drug monitoring data to describe opioid prescribing for work-related injuries paid by workers’ compensation

• Updated fatality study with additional years of data

• Link workers’ compensation claim data with large longitudinal merged data base to assess:
  – Risk of fatal and non-fatal overdose among injured workers
  – Work-related injuries as a gateway to opioid use.
Massachusetts prevention initiatives

- **Workers’ Compensation: Alternative Treatment Pathway**
  - Quicker access to make treatment decisions in settled claims

- **Engagement with stakeholders to inform an educational outreach strategy**
  - Key informant interviews/focus groups

- **Pilot peer-to-peer opioid awareness training program for workers in high risk occupations**
  - Catalogue of existing opioid education materials for workers
Opioid-related Overdose Deaths in Massachusetts by Industry and Occupation, 2011-2015

August, 2018

Rate & number of opioid overdose deaths by occupation groups with five highest rates by gender, Massachusetts workers, 2011-2015

<table>
<thead>
<tr>
<th>Males</th>
<th></th>
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<tbody>
<tr>
<td>Occupation</td>
<td>Rate</td>
<td>#</td>
</tr>
<tr>
<td>Farming, fishing, and forestry occupations*</td>
<td>205.9</td>
<td>60</td>
</tr>
<tr>
<td>Construction and extraction occupations*</td>
<td>152.3</td>
<td>1,084</td>
</tr>
<tr>
<td>Material moving occupations*</td>
<td>72.4</td>
<td>158</td>
</tr>
<tr>
<td>Installation, maintenance, and repair occupations</td>
<td>54.3</td>
<td>213</td>
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<tr>
<td>Building and grounds cleaning and maintenance occupations</td>
<td>54.2</td>
<td>207</td>
</tr>
<tr>
<td>Total – male workers</td>
<td>38.3</td>
<td>3,324</td>
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<table>
<thead>
<tr>
<th>Females</th>
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<tbody>
<tr>
<td>Occupation</td>
<td>Rate</td>
<td>#</td>
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<tr>
<td>Construction and extraction occupations</td>
<td>73.5</td>
<td>12</td>
</tr>
<tr>
<td>Installation, maintenance, and repair occupations</td>
<td>47.8</td>
<td>8</td>
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<tr>
<td>Healthcare support occupations*</td>
<td>30.1</td>
<td>119</td>
</tr>
<tr>
<td>Food preparation and serving related occupations*</td>
<td>28.9</td>
<td>145</td>
</tr>
<tr>
<td>Transportation occupations</td>
<td>22.4</td>
<td>16</td>
</tr>
<tr>
<td>Total - female workers</td>
<td>11.6</td>
<td>978</td>
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* Rate significantly higher than rate for all occupation categories
Industry sectors with OROD rates significantly higher than the average rate for all workers, Massachusetts workers, 2011-2015, n=4,302
Grouped analysis

• Findings from state and national surveys used to group industries and occupations by:
  
  – Work-related injury and illness rates
    • Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses
  
  – Job security*
    • National Health Interview Survey
  
  – Availability of paid sick leave*
    • Bureau of Labor Statics Employee Benefits Survey

*Occupation only