NIOSH Responds to the Opioid Crisis
An Update for the NCIPC Board of Scientific Counselors

L. Casey Chosewood, MD MPH
Lore Jackson-Lee, MPH

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Understanding the Opioid Crisis among US Workers

- **95%** – In 2017, 95% of the 70,067 US drug overdose deaths occurred among the working age population, persons aged 15-64 years.

- **4.3%** – According to the National Survey of Drug Use and Health, an estimated 4.3% of respondents age 18 years or older reported illicit opioid use in the past year. An estimated 66.7% of these self-reported illicit opioid users were employed full- or part-time.

Source: https://www.cdc.gov/niosh/topics/opioids/data.html
Understanding the Opioid Crisis among US Workers

- 25% – The Bureau of Labor Statistics reported that overdose deaths at work from non-medical use of drugs or alcohol increased by at least 25% annually between 2013 and 2017. Workplace overdose deaths reported in 2016 accounted for 5.3% of occupational injury deaths that year, compared to 1.8% in 2013.

- 14.8 days – Workers with a current substance use disorder miss an average of 14.8 days per year, while those with a pain medication use disorder miss an average of 29 days per year. This is in contrast to an average of 10.5 days for most employees.

Source: https://www.cdc.gov/niosh/topics/opioids/data.html
## Lifetime odds of death for selected causes, United States, 2017

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Odds of Dying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>1 in 6</td>
</tr>
<tr>
<td>Cancer</td>
<td>1 in 7</td>
</tr>
<tr>
<td>Chronic Lower Respiratory Disease</td>
<td>1 in 27</td>
</tr>
<tr>
<td>Suicide</td>
<td>1 in 88</td>
</tr>
<tr>
<td><strong>Opioid overdose</strong></td>
<td><strong>1 in 96</strong></td>
</tr>
<tr>
<td>Motor Vehicle Crash</td>
<td>1 in 103</td>
</tr>
<tr>
<td>Fall</td>
<td>1 in 114</td>
</tr>
<tr>
<td>Gun Assault</td>
<td>1 in 285</td>
</tr>
<tr>
<td>Pedestrian Incident</td>
<td>1 in 556</td>
</tr>
<tr>
<td><strong>Motorcyclist</strong></td>
<td><strong>1 in 858</strong></td>
</tr>
</tbody>
</table>

Source: National Safety Council
Exploring the Link: Opioids and Work

- Lack of employment
- Insecure employment, new employment arrangements
- Hazardous work and increased risk of work-related injury
- Wages, working conditions that can predispose to chronic health problems or pain
- Lack of benefits/paid sick leave
- Industry/occupation variations
- Geographic differences
Exploring the Link: Opioids and Work

- 75% of employers say their workplace has been impacted by opioids
- Only 17% of employers feel extremely well prepared to deal with it
- 31% report an overdose, arrest, near miss or injury due to opioid use
- Only half are very confident they have the appropriate HR policies and resources to deal with opioid misuse
- Only 4 in 10 employers would return an employee to work after he/she receives treatment for misusing prescription opioids
- Despite effective treatment, only 1 in 5 receive any treatment for OUD, fewer than that receive the gold standard (medication-based treatment)

Data to Characterize and Address the Crisis

- **August 2018 MMWR: Occupational Patterns in Opioid-Involved Overdose Deaths**
  - NIOSH researchers analyzed drug overdose deaths within 26 job groups from 2007-2012.
    - 57,810 drug overdose deaths
    - Majority were: male (61.8%), white (89.8%), aged 45-54 (30.1%) or 35-44 (24.1%)
  - PMRs from drug overdose were highest for six occupation groups
    - Construction (highest PMR for heroin and methadone)
    - Extraction (highest PMR for natural and semi-synthetic opioids)
    - Food preparation and serving
    - Health care practitioners and technical occupations (highest PMR for synthetic)
    - Health care support
    - Personal care and service
  - PMR also significantly elevated for “unpaid/unemployed”

Source: https://www.cdc.gov/mmwr/volumes/67/wr/mm6733a3.htm?s_cid=mm6733a3_e
Opioid-related Overdose Deaths in MA by Industry and Occupation, 2011-2015

- Massachusetts Department of Public Health on opioid-related overdose deaths by industry/occupation, 2011-2015, in their state.

- Found that the opioid-related death rate for those employed in construction and extraction occupations was 6 times the average rate for all Massachusetts workers.

- Other occupational groups with higher than average rates included: farming, fishing and forestry; material moving; installation, maintenance and repair; and transportation among others.

The report also found that the rate of fatal opioid-related overdose was higher among workers employed in industries known to have high rates of work-related injuries and illnesses.

Additionally, rates were higher among workers in occupations with lower availability of paid sick leave and lower job security.

New Update Report from the Massachusetts Department of Public Health

- Unintentional overdose in the workplace was the **leading single cause of fatal injury at work** in 2016-2017.
- Unintentional overdose, drugs or alcohol, resulted in 54 fatalities (25%) during those two years.*
- For more details visit: [https://www.mass.gov/info-details/fatal-injuries-at-work](https://www.mass.gov/info-details/fatal-injuries-at-work)

The NIOSH Framework to Address Opioid Misuse
A worker’s exposure to opioids can take many forms. Work itself can result in painful injuries for which an opioid can be prescribed by a physician. Chronic opioid use can lead to an Opioid Use Disorder—a treatable brain condition. Emergency workers can be exposed to opioids when responding to an opioid overdose, or working to detect and decontaminate an affected area. NIOSH has collected data, conducted research and field investigations, and is committed to the principles of Total Worker Health® to better understand the crisis and recommend policies, programs, and practices to help workers and employers face this challenge together.

-NIOSH Director, John Howard, M.D.
NIOSH’s Ongoing Work to Address the Crisis

- Examine work-related factors and exposures as risk factors for opioid use
- Better understand the crisis though important occupational lenses
  - Industry/occupation, age, gender, geographic region, workplace culture
  - Surveillance coordination and optimization
  - Workers compensation data and partnerships
- Protect workers who respond to the crisis as part of their job
- Develop recommendations for exposure prevention for first responders, healthcare workers, and other frontline groups
- Create information, guidance, resources, and educational materials for workers and employers
- Coordinate with intramural and extramural partners addressing this crisis
Opioid Dispensing Rates in Workers’ Compensation

- NIOSH-funded study by the Workers’ Compensation Research Institute (WCRI) found rates differed based on several factors:
  - **Industry in which the injured worker is employed**
    - Mining (including oil and gas) and Construction had the highest opioid dispensing rates, followed by Agriculture, Forestry, and Fishing and Public Safety
  - **Company size** (based on payroll)
    - Smaller companies had higher opioid dispensing rates than larger companies
  - **Injured worker age**
    - Older workers had higher opioid dispensing rates than younger workers

The NIOSH WCRI also found rates differed based on several factors:

- **County-level factors** (in which the injured workers resides)
  - Rural areas had higher opioid dispensing rates than urban areas
  - Areas with low rates of health insurance had higher rates for opioids prescribing than areas with high rates of health insurance

- **Injury type**
  - Fractures and carpal tunnel syndrome had the highest opioid dispensing rates, followed by neurologic spine pain

Long-Term Trends in Opioid Overdose Deaths

Fentanyl

- Pharmaceutical fentanyl is a synthetic opioid pain medication and schedule II prescription drug approved for treating severe pain, typically after surgery or advanced cancer pain.

- Among the more than 72,000 drug overdose deaths estimated in 2017, the sharpest increase occurred among deaths related to fentanyl and fentanyl analogs (synthetic opioids) with nearly 30,000 overdose deaths.

- It is 50 to 100 times more potent than morphine

- Illicitly-made fentanyl is sold illegally for its heroin-like effect, and often mixed with heroin and/or cocaine.

NIOSH Field Investigations

- NIOSH Health Hazard Evaluation Program
- 14 projects assessing hazards to emergency responders and other groups of workers
- Early Key Findings
  - It is difficult to examine emergency response situations retrospectively
  - Possibility of multiple types of substances present at any response
  - Ill effects were related to work activities and impacted the ability to perform job duties
- Additional real-time evaluation and research necessary
- Firefighter Fatality Investigation Program efforts

https://doi.org/10.1002/ajim.22967
NEW NIOSH Webpages on Opioids

- Features the NIOSH Framework and sub-pages:
  - Data Collection
  - Field Investigations
  - Research
  - Resources

Source: https://www.cdc.gov/niosh/topics/opioids/default.html
NEW NIOSH Webpages on Opioids: Resources

- Resources related to the Opioid Epidemic
  - Tools for Workplaces
  - Research on Workplaces
  - General Resources

Source: https://www.cdc.gov/niosh/topics/opioids/resources.html
Emergency Responder Resources
Fentanyl Webpages & First Responder Toolkit

https://www.cdc.gov/niosh/topics/fentanyl/risk.html
Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers

Introduction
Opioid misuse and overdose deaths from opioids are serious health issues in the United States. Overdose-related deaths involving prescription and illicit opioids doubled from 2010 to 2016, with more than 70,000 deaths in 2016 (CDC 2016a). Provisional data show that there were more than 69,000 opioid overdose deaths in the United States in 2017 (CDC 2018e). In October 2017, the President declared the opioid overdose epidemic to be a public health emergency.

Naloxone is a very effective drug for reversing opioid overdoses. Police officers, emergency medical services providers, and non-emergency professional responders carry the drug for that purpose. The Surgeon General of the United States is also urging others who may encounter people in need of opioid overdose to have naloxone available and to learn how to use it to save lives (2017).

The National Institute for Occupational Safety and Health

Background

What are opioids?
Opioids include three categories of pain-relieving drugs:

1. Natural opioids (also called opiates) which are derived from the opium poppy, such as morphine and codeine.
2. Semi-synthetic opioids, such as the prescription drugs hydrocodone and oxycodone and the illicit drug heroin.
3. Synthetic opioids, such as methadone, tramadol, and fentanyl. Fentanyl is 50 to 100 times more potent than morphine. Fentanyl tablets are small, similar in appearance to aspirin tablets, can be 10,000 times more potent than morphine. Overdose deaths from fentanyl have greatly increased since 2013 with the introduction of illicitly manufactured fentanyl entering the drug supply (CDC 2016c, 2018d). The National Institute on Drug Abuse (NIDA 2018) has more information about types of opioids.

What is naloxone?
Naloxone hydrochloride (also known as naloxone, NARCAN or EVZIO) is a drug that can temporarily stop many of the life-threatening effects of overdoses from opioids. Naloxone can help restore breathing and reverse the sedation and unconsciousness that are common during an opioid overdose.

Side effects
Serious side effects from naloxone use are very rare. Naloxone is generally well tolerated when administered during an overdose for outweighs any risk of side effects. If the cause of the unconsciousness is not due to opioid overdose, naloxone is not likely to cause further harm to the person. In rare cases would naloxone cause acute opioid withdrawal symptoms such as physical reactions, increased heart rate, irritability, agitation, vomiting, diarrhea, or convulsions. Allergic reaction to naloxone is very uncommon.

Limitations
Naloxone will not reverse overdoses from other drugs, such as alcohol, benzodiazepines, cocaine, or amphetamines. More than one dose of naloxone may be needed to reverse some overdoses. Naloxone alone may be inadequate if someone has taken large quantities of opioids, very potent opioids, or long acting opioids. For this reason, call 911 immediately for every overdose situation.

Opioids and Work
Opioid overdoses are occurring in workplaces. The Bureau of Labor Statistics (BLS) reported 1215 workplace opioid overdoses at work from non-medical use of drugs or alcohol increased by at least 28% annually between 2013 and 2016. The 2017 workplace overdose data reported in 2016 accounted for 2.4% of occupational injury deaths that year, compared to 1.8% in 2016 (BLS 2017). This large increase in overdose deaths in the workplace from all drugs parallels a trend in overall overdose deaths reported by CDC (2017). Workplaces that serve the public (e.g., libraries, restaurants, parks) may also have visitors who overdose while onsite.

Workplace risk factors for opioid use
Opioids are often initially prescribed to manage pain arising from a work injury. Workplace conditions that lead to injury, such as slip, trip, and fall hazards contribute to workers seeking opioid pain medications as a way to cope with their pain. Opioids often cause sleepiness, dizziness, and impaired judgment. These effects can interfere with job performance and put workers at risk of workplace injury. Opioids can also impair cognitive function and reaction time.

Considering a Workplace Naloxone Use Program

Anyone at a workplace, including workers, clients, customers, and visitors, is at risk of opioid overdose. Call 911 immediately for any suspected overdose. Overdose without immediate intervention can quickly lead to death. Consider implementing a naloxone program to make naloxone available in the workplace in the event of an overdose. The following considerations can help you decide whether your program is needed or feasible:

- Does the use of naloxone in your workplace enable you to provide the administration of naloxone to a patient who is suffering from an opioid overdose?
- Is there a legal protection available for the person administering naloxone to a patient who is suffering from an opioid overdose?
- What liability and legal considerations should be addressed? Does the state’s Good Samaritan law cover emergency naloxone administration?
- Do you have staff willing to be trained and willing to provide naloxone in case of an opioid overdose?
- Has your workplace experienced an opioid overdose or has there been evidence of opioid use or overdose in or near your workplace?
- How quickly can personnel on your staff provide assistance?

Do your workplace offer other first aid or emergency response interventions (first aid, AEDs, trained first aid providers)? Can naloxone be provided quickly to any worker with an opioid overdose?

Are the risks for opioid overdose greater in your geographic location? The National Center for Health Statistics provides data on drug overdose deaths in an online state dashboard (CDC 2016b). The National Institute for Occupational Safety and Health provides data on workplace overdoses in the United States (NIOSH 2018d).

Establishing a Program

You will need policies and procedures for your program. These should be developed in consultation with safety and health professionals. Involving the workplace safety committee (if present) and include worker representatives. You may also need to purchase, store, and administer naloxone in case of overdose. Additional considerations for establishing a program are described below.

Risk assessment
Conduct a risk assessment before implementing the naloxone program:
- Are the worksite, whether workers, visiting clients, customers, or patients at risk of overdose?
- Assess availability of staff willing to take action and provide naloxone
- Consult with professional emergency responders and other professionals who treat opioid use disorders in your area.

Liability
Consider liability and other legal issues related to such a program.

Records management
Include appropriate procedures for documenting incidents associated with the naloxone program, including the identity of the person administering naloxone. Records should include the name of the person, the date of the incident, the name of the person administering naloxone, and any additional information that may be necessary to ensure the safety and well-being of the person administering naloxone.

Staff training:
Define clear roles and responsibilities for all persons designated to respond to a suspected overdose. Include these roles and responsibilities in existing first aid and emergency response policies and procedures (first aid, safety in the workplace, and in your workplace’s naloxone program). Training of staff should be provided by qualified health professionals.

Manufacturers and distributors of naloxone may provide training for naloxone administration. Remember that naloxone is a powerful medicine and can cause respiratory and cardiac arrest. Prepare for possible exposure to blood, bodily fluids or other substances. This is important as it may be present at the scene of an overdose. Provide healthcare providers training to respond to staff members with naloxone. Staff members with naloxone should have an additional protection, such as hepatitis B vaccination.
NEW NIOSH Resource

- Workplace Solutions: Medication-Assisted Treatment for Opioid Use Disorder
- Suggested Citation:
New NIOSH Science Blog

- **“Injured Workers More Likely to Die from Suicide or Opioid Overdose”** Aug 2019
  - Study published in the *American Journal of Industrial Medicine*
    
    **“Suicide and drug-related mortality following occupational injury”**
    
    - Workplace injury raises a person’s risk of suicide or overdose death.
    - Link between work injury, opioids, use disorders, and suicide
    - The following may substantially reduce deaths following workplace injuries:
      - Improved working conditions
      - Improved pain treatment
      - Better treatment of substance use disorders
      - Treatment of post-injury depression

- **“The Role of Veterinarians in the Opioid Crisis”** Nov 2019
  
  [Link](http://blogs.cdc.gov/niosh-science-blog/2019/11/20/veterinarians_opioids/)
For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.