NIOSH Responds to the Opioid Crisis

An Update on the Nation's Opioid Overdose Epidemic from CDC

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Oregon Institute of Occupational Health Sciences

Oregon Healthy Workforce Center

Portland State University Occupational Health Psychology Program

“As your Surgeon General, I am committed to doing everything I can to educate the public about the severity of the opioid epidemic. Together, we can stop this crisis.”

-U.S. Surgeon General, Jerome Adams

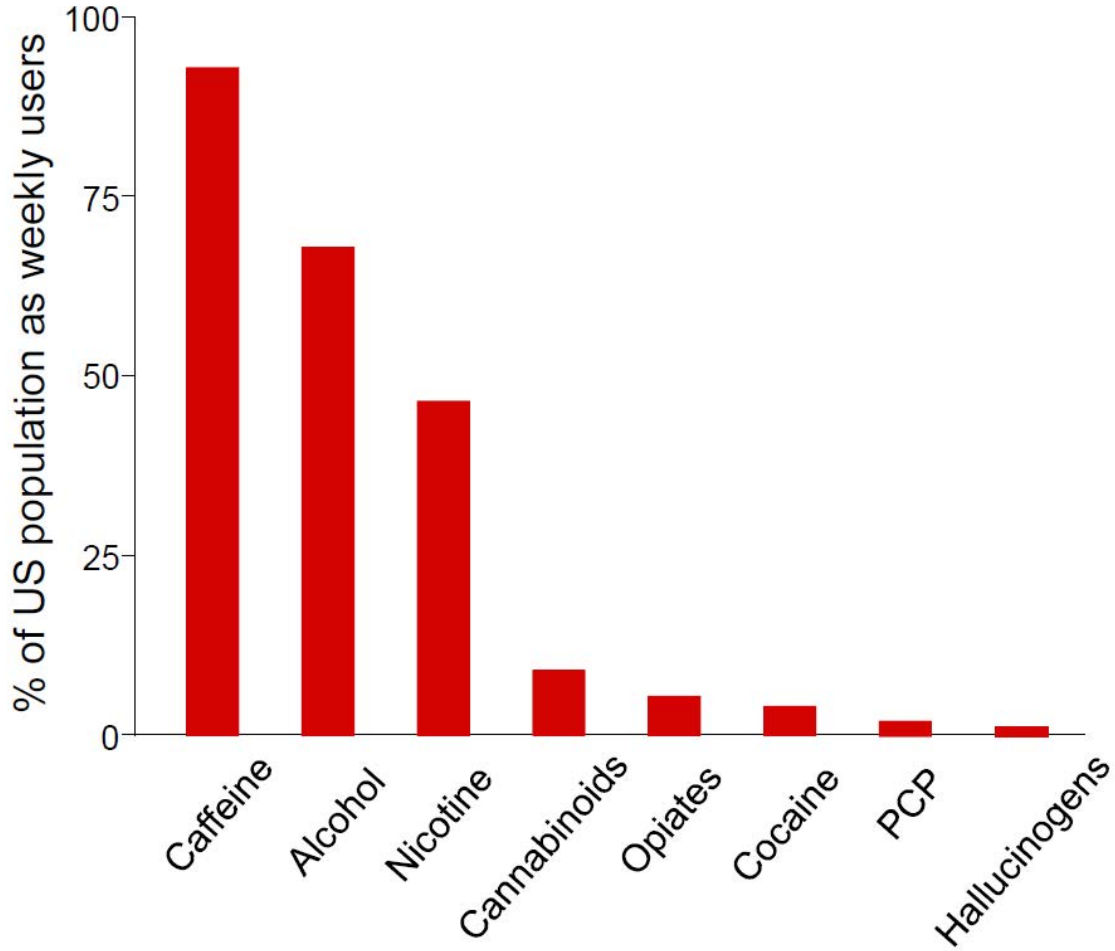
A worker's exposure to opioids can take many forms. Work itself can result in painful injuries for which an opioid can be prescribed by a physician. Chronic opioid use can lead to an Opioid Use Disorder—a treatable brain condition. Emergency workers can be exposed to opioids when responding to an opioid 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.

Why Do People Take Substances of Abuse?

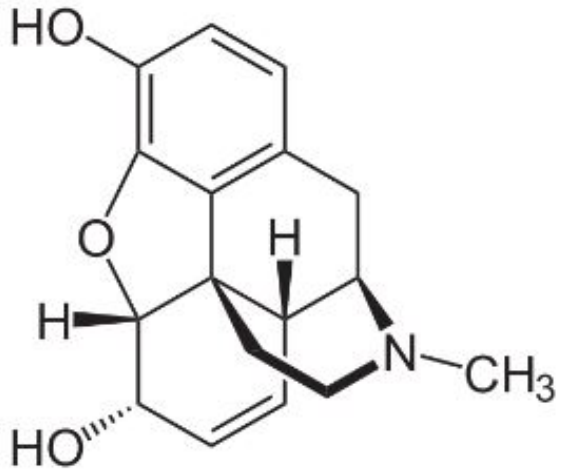
- To feel good
- To feel better
- To do better
- Because others are doing it

NIDA, 2007



3 Categories of Opioids

- **Natural-occurring opioids**
  - Morphine and codeine
- **Semi-synthetic opioids**
  - Hydrocodone, oxycodone, heroin
- **Synthetic opioids**
  - Methadone, demerol, tramadol
  - Fentanyl
    - 50x to 100x more potent than morphine
  - Fentanyl analogues (>2000)
    - Carfentanil
      - Used in veterinary medicine for sedating elephants
      - 10,000x more potent than morphine



Morphine - chemical structure

Pathophysiology

- Opioids increase activity at mu (**μ**), kappa (**κ**), and delta (**δ**) opioid receptors.

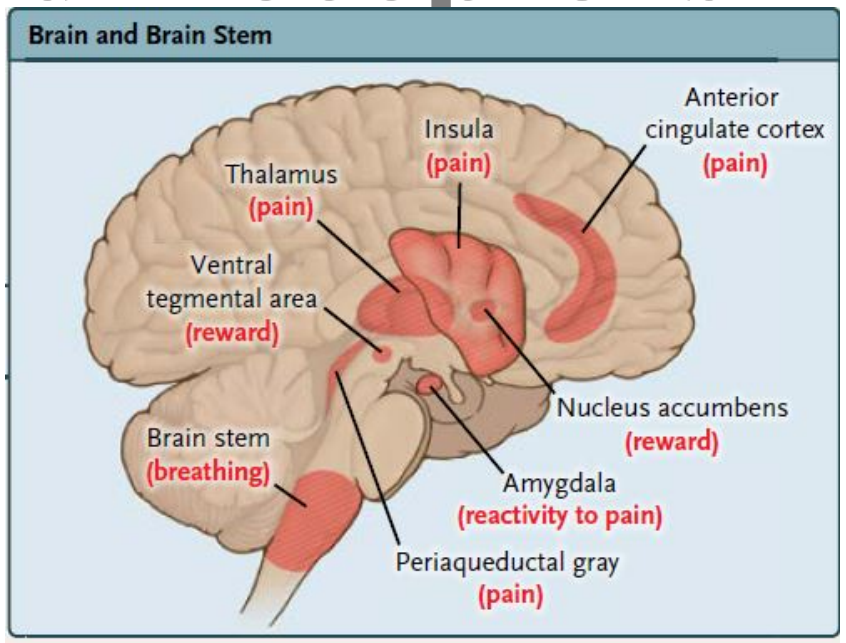
- Opioid receptors are activated by both *endogenous* (endorphins) and *exogenous* (opioids) compounds.

- Mu receptors are responsible for most of the clinical effects:
  - Regulate the perception of pain (***analgesia***)
  - Regulate the perception of pleasure (***euphoria***)

- Rewarding effects of opioids are accentuated mostly when the drugs are delivered *rapidly* to the brain through intranasal or intravenous routes

Location of Mu-Opioid Receptors

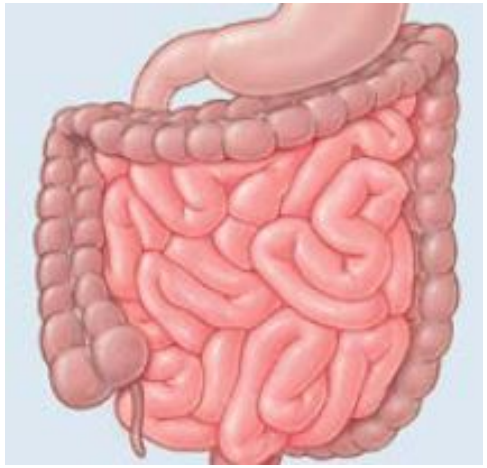
- **Brain and Brain Stem**
  - High concentration in the thalamus, periaqueductal gray, insula, and anterior cingulate (regions involved with **pain perception**), in the ventral tegmental area and nucleus accumbens (regions involved with **reward**), in the amygdala (a region involved with emotional **reactivity to pain**), and in the locus ceruleus of the brain stem (nuclei that regulate **breathing**).

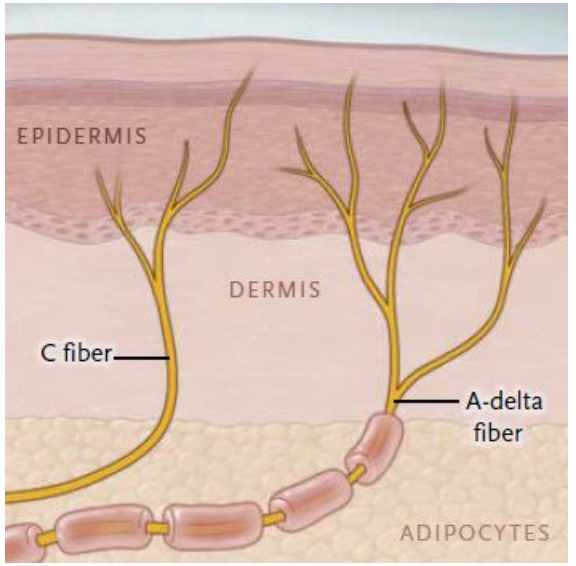


- **Spinal Cord**
  - High concentration of mu-opioid receptors located in the dorsal horn.

- **Peripheral Nervous System**
  - Modulate the perception of pain.

- **Intestine**
  - Regulates gut motility.





What does Overdose Look Like?

- Essential sign is **respiratory depression**
- Individual with a respiratory rate of 12 breaths/minute or less:
  - Who is not in physiologic sleep
  - Suggests acute opioid intoxication particularly when accompanied by **miosis** or **stupor.**

Understanding the Opioid Crisis in the US

- Drug overdose deaths, especially from opioids, continue to increase in the United States.
- From 1999 to 2017, more than 700,000 people died from a drug overdose.
- From 1999 to 2017, more than 399,000 Americans lost their lives to opioid overdoses from prescription and illicit opioids.
- Nearly 68% of the more than 70,200 drug overdose deaths in 2017 involved an opioid.

Sources: https://www.cdc.gov/mmwr/volumes/67/wr/mm675152e1.htm?s_cid=mm675152e1_w and https://www.cdc.gov/drugoverdose/epidemic/index.html

Understanding the Opioid Crisis in the US

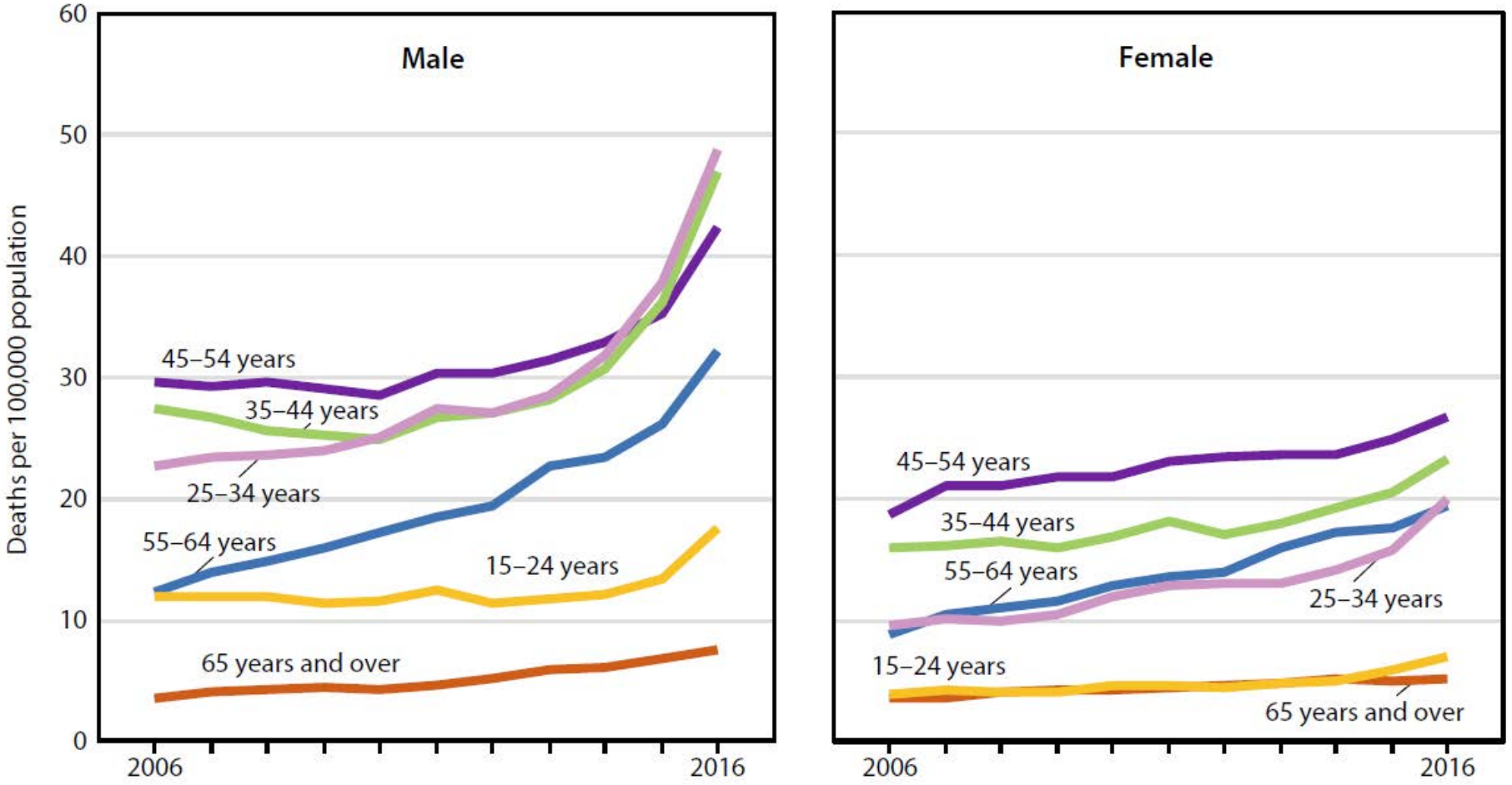
- In 2017, the number of overdose deaths involving opioids (including prescription opioids and illegal opioids like heroin and illicitly manufactured fentanyl) was 6 times higher than in 1999.

- On average, 130 Americans die every day from an opioid overdose.

- The number of opioid overdose deaths increased from 42,000 in 2016 to more than 49,000 in 2017

Source: https://www.cdc.gov/drugoverdose/epidemic/index.html

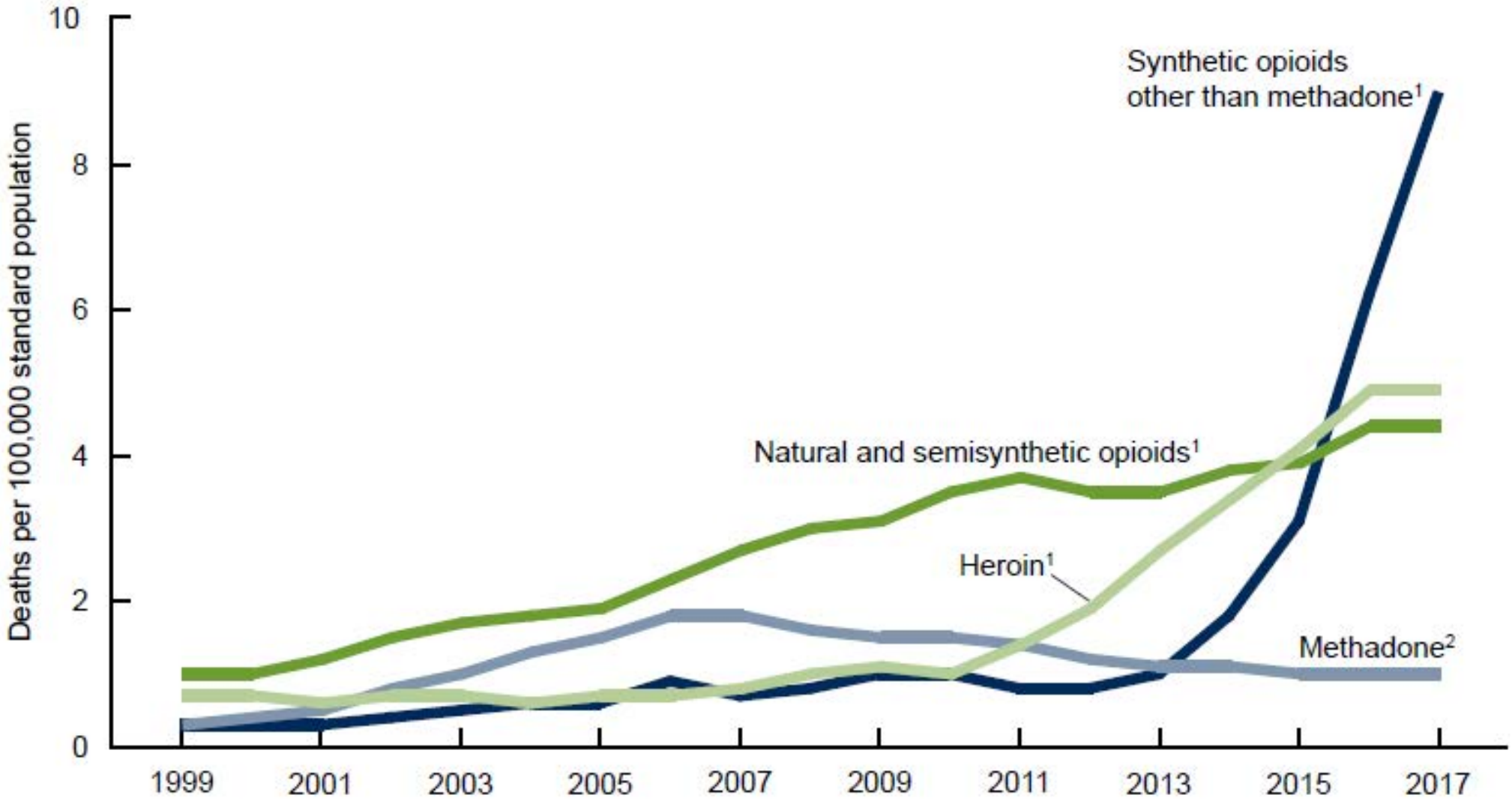
Drug overdose death rates by sex: Persons aged 15 and over



NOTE: Drug overdose deaths are identified using *International Classification of Diseases, 10th Revision* (ICD–10) underlying cause of death codes X40–X44 (unintentional drug poisoning), X60–X64 (suicide by drug poisoning), X85 (homicide by drug poisoning) and Y10–Y14 (drug poisoning of undetermined intent).

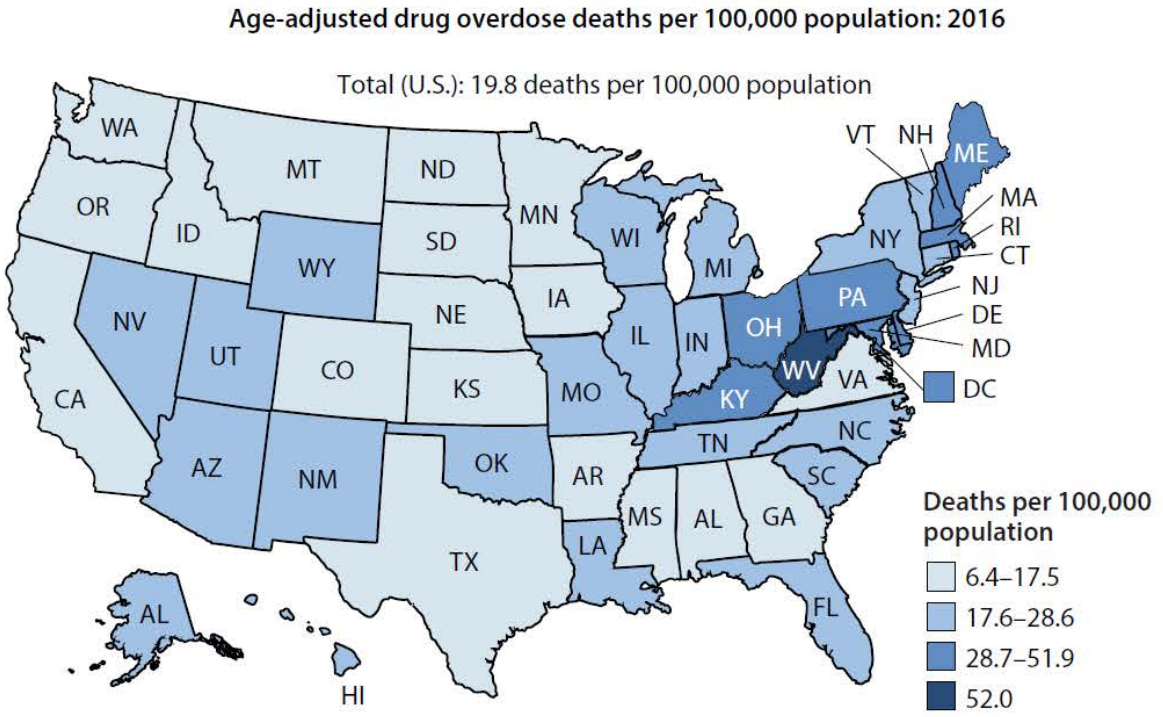
SOURCE: NCHS, *Health, United States, 2017*, Figure 26. Data from the National Vital Statistics System (NVSS), Mortality.

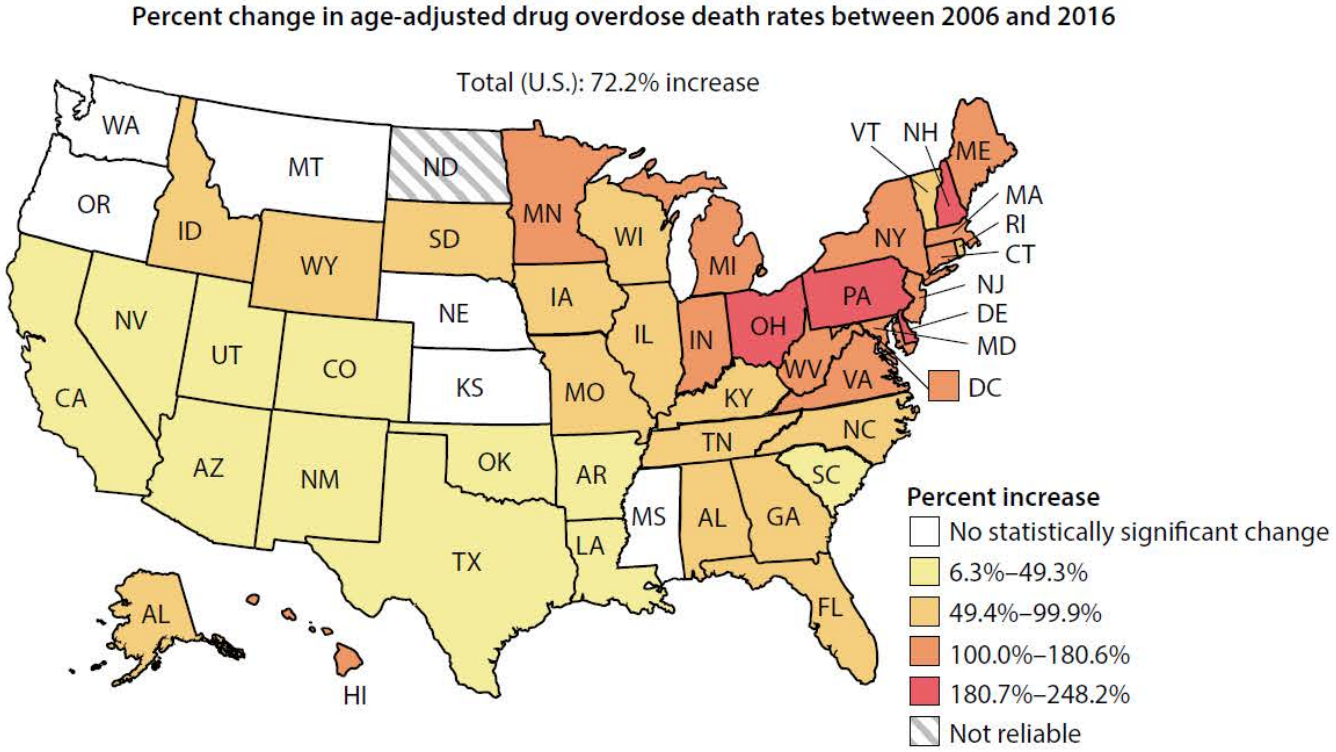
Long-Term Trends in Opioid Overdose Deaths



Suggested citation: Hedegaard H, Miniño AM, Warner M. Drug overdose deaths in the United States, 1999–2017. NCHS Data Brief, no 329. Hyattsville, MD: National Center for Health Statistics. 2018. (Available from https://www.cdc.gov/nchs/products/databriefs/db329.htm)

Age-adjusted drug overdose death rates by state: All persons





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SOURCE: NCHS, *Health, United States, 2017*, Figure 27. Data from the National Vital Statistics System (NVSS), Mortality.

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

Cause of Death	Odds of Dying
Heart Disease	1 in 6
Cancer	1 in 7
Chronic Lower Respiratory Disease	1 in 27
Suicide	1 in 88
Opioid overdose	1 in 96
Motor Vehicle Crash	1 in 103
Fall	1 in 114
Gun Assault	1 in 285
Pedestrian Incident	1 in 556
Motorcyclist	1 in 858

Source: National Safety Council

A More Comprehensive View of the Opioids Crisis: Social and Economic Determinants

- Origins in earlier “under-treatment” of chronic pain
- Crisis far more complex than over-prescribing
- Intertwining of prescription opiates and heroin
- Shift to more dangerous drugs; illicit fentanyl and analogues
- Social, structural, economic antecedents
- Role of “suffering” - underlying poverty, absent opportunities, isolation, hopelessness
- Need for more comprehensive, broader-based approaches
- “Compassion”, social cohesion, advocacy, life satisfaction

Source: Dasgupta, N. et al. Opioid Crisis: No Easy Fix to Its Social and Economic Determinants. AJPH February 2018, Vol 108. No. 2, 182-186

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/occupational, cultural, and 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)

Source: National Safety Council, March 18, 2019; National Academies of Sciences, Engineering, and Medicine. 2019. *Medications for opioid use disorder save lives*. Washington, DC: The National Academies Press. doi: https://doi.org/10.17226/25310.

The NIOSH Framework to Address Opioid Misuse

Total Worker Health®

….policies, programs, and practices that
integrate protection from work-related safety & health hazards
with promotion of injury and illness prevention efforts
to advance worker well-being.

Why does it matter for opioid use and misuse?

- Effects of opioid use and misuse not isolated to work or home environments
- Prevention and intervention require comprehensive, integrated solutions
- Coordinated “systems approaches” vital

Sources:
https://www.cdc.gov/niosh/topics/opioids/default.html
https://www.cdc.gov/niosh/twh/totalhealth.html

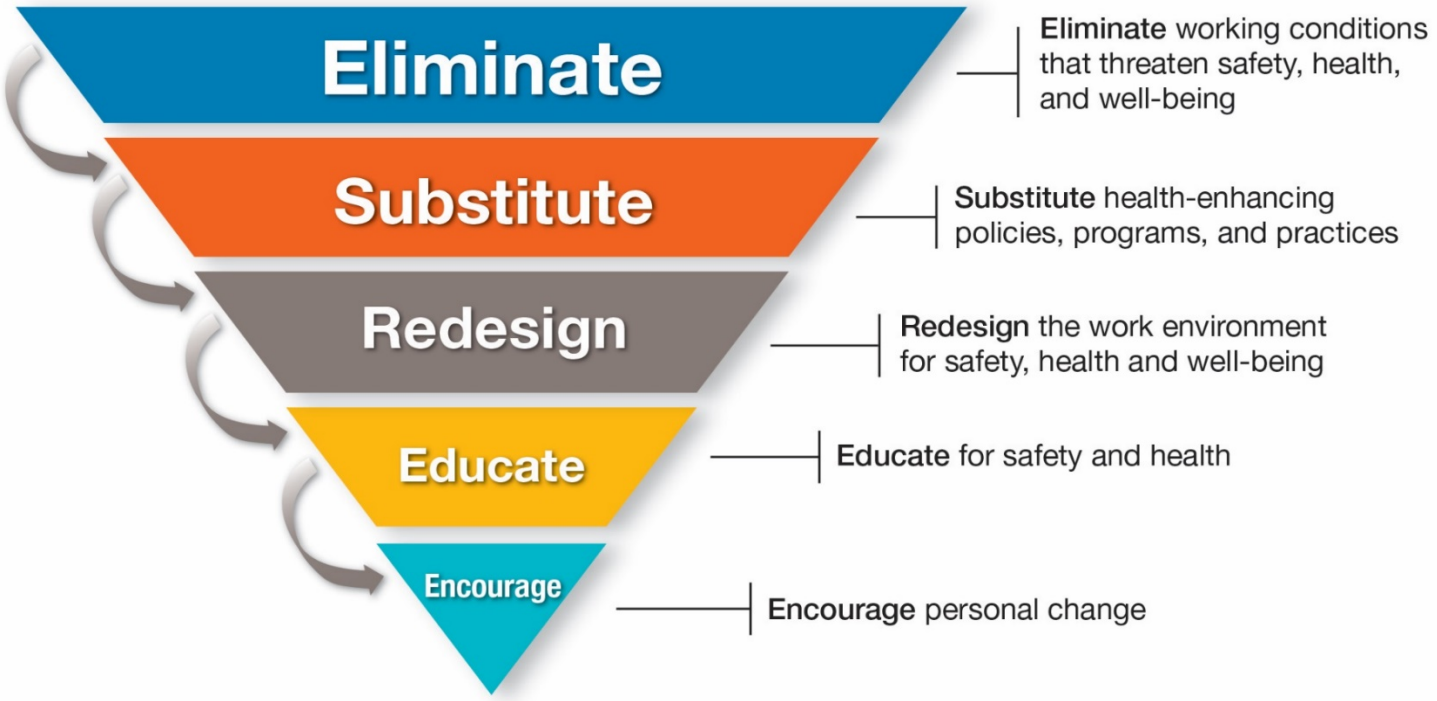
Total Worker Health®

Keep Workers Safe

Establish workplace policies, practices and programs that grow health

Create Worker Well-being

Hierarchy of Controls Applied to TWH



NIOSH's Ongoing Work to Address the Crisis

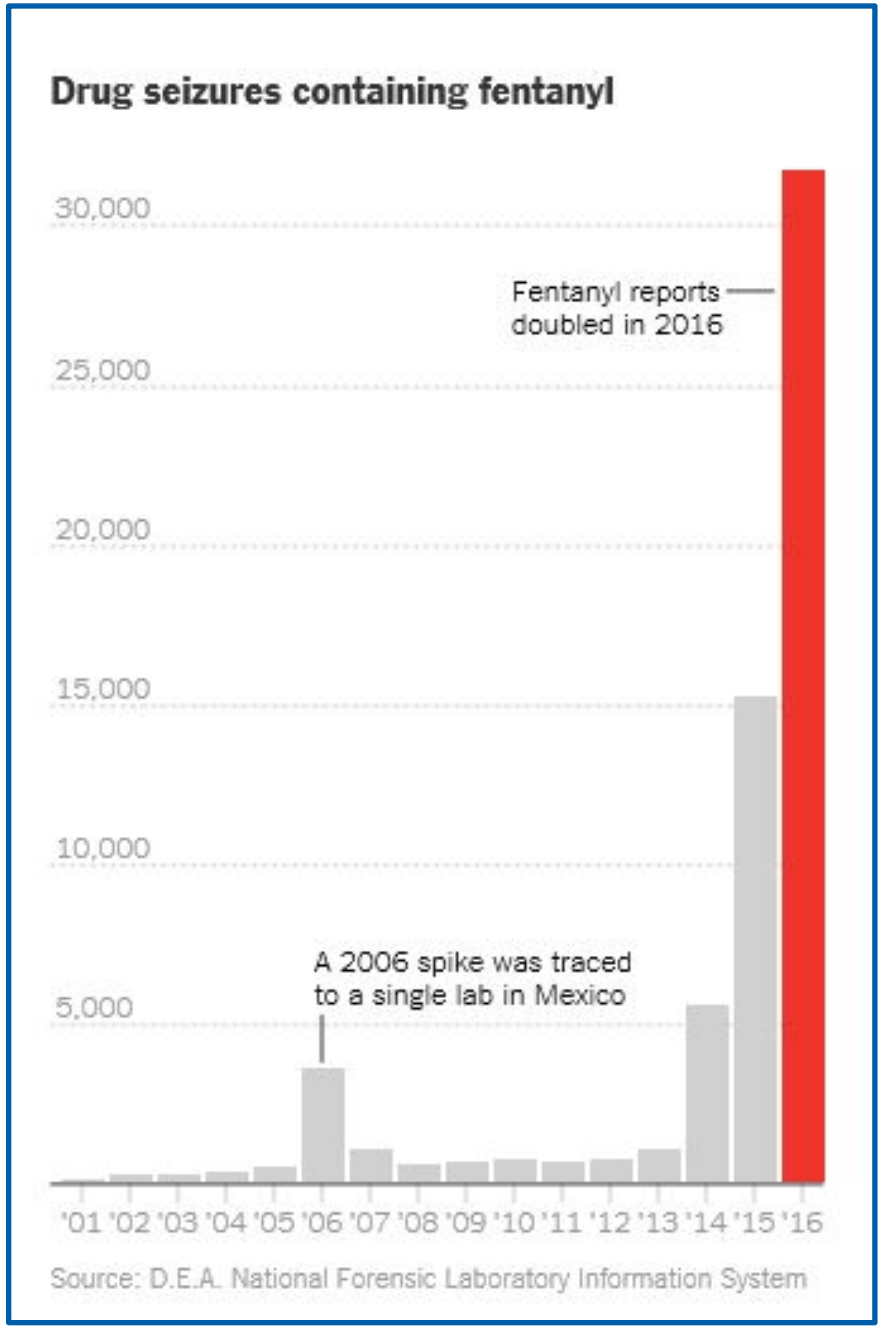
- Examine work-related factors and exposures as risk factors for opioid use
- Better understand the crisis though important occupational lenses
  - Industry/occupation, age, gender, geographic region, workplace culture
  - Surveillance coordination and optimization
  - Workers compensation partnerships
- Protect workers who respond to the crisis as part of their job
- Conduct health hazard evaluations
- 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

NIOSH Field Investigations

- NIOSH Health Hazard Evaluation Program (HHE)
- 14 projects assessing hazards to emergency responders and other groups of workers
- Example of 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

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.



Source: CDC WONDER, https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates

Fentanyl: NIOSH Webpage

Naloxone

- What is it?
  - Naloxone hydrochloride (also known as naloxone, NARCAN® or EVZIO®) is a non-addictive, life-saving drug that can reverse the effects of an opioid overdose when administered in time

- Can be given nasally to a person suspected of overdose, allowing trained lay persons to administer the drug without injection

Source: https://www.cdc.gov/media/releases/2015/p0424-naloxone.html

Naloxone: Establishing a Program

- **Risk assessment:** Conduct a risk assessment before implementing the naloxone program.
- **Liability:** Consider liability and other legal issues
- **Records Management:** Include formal procedures for documenting incidents and managing those records
- **Staff Roles:** Define clear roles and responsibilities for all persons designated to respond to a suspected overdose
- **Training:** Train staff to lower their risks when providing naloxone
- **Purchasing and storing Naloxone:** Naloxone is widely available in pharmacies, follow manufacturer instructions for storing, keeping it near all other PPE (gloves, etc.)
- **Follow-up care planning:** Develop a plan for immediate care, referral, and ongoing support for any worker who has overdosed
- **Maintenance:** Re-evaluate your program periodically, assessing for new risks

Source: CDC NIOSH Naloxone Fact Sheet

Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers

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 deaths involving prescription and illicit opioids doubled from 2010 to 2016, with more than 42,000 deaths in 2016 [CDC 2016a]. Provisional data show that there were more than 49,000 opioid overdose deaths in 2017 [CDC 2018a]. 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 at risk for opioid overdose to have naloxone available and to learn how to use it to save lives [USSG 2018].

The National Institute for Occupational Safety and Health (NIOSH), part of the Centers for Disease Control and Prevention (CDC), developed this information to help employers and workers understand the risk of opioid overdose and help them decide if they should establish a workplace naloxone availability and use program.

Photo by ©Thinkstock

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 analogues, such as carfentanil, 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 2016b; CDC 2018b]. 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. Using naloxone during an overdose far outweighs any risk of side effects. If the cause of the unconsciousness is uncertain, giving naloxone is not likely to cause further harm to the person. Only in rare cases would naloxone cause acute opioid withdrawal symptoms such as body aches, 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.

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Opioids and Work

Opioid overdoses are occurring in workplaces. The Bureau of Labor Statistics (BLS) reported that overdose deaths at work from non-medical use of drugs or alcohol increased by at least 38% annually between 2013 and 2016. The 217 workplace overdose deaths reported in 2016 accounted for 4.2% of occupational injury deaths that year, compared with 1.8% in 2013 [BLS 2017]. This large increase in overdose deaths in the workplace (from all drugs) parallels a surge in overall overdose deaths from opioids reported by CDC [2017]. Workplaces that serve the public (i.e. 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. Risky workplace conditions that lead to injury, such as slip, trip, and fall hazards or heavy workloads, can be associated with prescription opioid use [Kowalski-McGraw et al. 2017]. Other factors, such as job insecurity, job loss, and high-demand/low-control jobs may also be associated with prescription opioid use [Kowalski-McGraw et al. 2017]. Some people who use prescription opioids may misuse them and/or develop dependence. Prescription opioid misuse may also lead to heroin use (Cicero et al. 2017). Recent studies show higher opioid overdose death rates among workers in industries and occupations with high rates of work-related injuries and illnesses. Rates also were higher in occupations with lower availability of paid sick leave and lower job security, suggesting that the need to return to work soon after an injury may contribute to high rates of opioid-related overdose death [MDPH 2018, CDC 2018c]. Lack of paid sick leave and lower job security may also make workers reluctant to take time off to seek treatment.

Considering a Workplace Naloxone Use Program

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

- Does the state where your workplace is located allow the administration of naloxone by non-licensed providers in the event of an overdose emergency?
- What liability and legal considerations should be addressed? Does your state's Good Samaritan law cover emergency naloxone administration?
- Do you have staff willing to be trained and willing to provide naloxone?
- Has your workplace experienced an opioid overdose or has there been evidence of opioid drug use onsite (such as finding drugs, needles or other paraphernalia)?
- How quickly can professional emergency response personnel access your workplace to provide assistance?
- Does your workplace offer other first aid or emergency response interventions (first aid kits, AEDs, trained first aid providers)? Can naloxone be added?
- 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 2018a.]
- Are the risks for opioid overdose greater in your industry or among occupations at your workplace? [See MDPH 2018 and CDC 2018c.]
- Does your workplace have frequent visitors, clients, patients, or other members of the public that may be at increased risk of opioid overdose?

Photo by ©Thinkstock

Review the above questions periodically even if a program is not established right away. Ideally, a naloxone program is but a part of a more comprehensive workplace program on opioid awareness and misuse prevention.

Establishing a Program

You will need policies and procedures for the program. These should be developed in consultation with safety and health professionals. Involve the workplace safety committee (if present) and include worker representatives. You also will need a plan 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.

- Decide whether workers, visiting clients, customers, or patients are at risk of overdose.
- Assess availability of staff willing to take training and provide naloxone.
- Consult with professional emergency responders and professionals who treat opioid use disorders in your area.

Liability

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

Records management

Include formal procedures for documenting incidents and managing those records, to include safeguarding the privacy of affected individuals. Maintain records related to staff roles and training.

Staff roles

Define clear roles and responsibilities for all persons designated to respond to a suspected overdose. Include these roles and responsibilities in existing first aid or emergency response policies and procedures (first aid kits, AEDs, training for lay first-aid providers, and/or onsite health professionals).

Training

Train staff to lower their risks when providing naloxone. Staff must be able to:

- Recognize the symptoms of possible opioid overdose.
- Call 911 to seek immediate professional emergency medical assistance.
- Know the dangers of exposure to drug powders or residue.
- Assess the incident scene for safety concerns before entering.
- Know when NOT to enter a scene where drug powders or residues are visible and exposure to staff could occur.
- Know to wait for professional emergency responders when drug powders, residues, or other unsafe conditions are seen.
- Use personal protective equipment (PPE; nitrile gloves) during all responses to protect against chemical or biological exposures including opioid residues, blood, or other body fluids.
- Administer naloxone and recognize when additional doses are needed.
- Address any symptoms that may arise during the response, including agitation or combativeness from the person recovering from an overdose.
- Use additional first aid, CPR/basic life support measures. Opioid overdose can cause respiratory and cardiac arrest.

Prepare for possible exposure to blood. Needles or other sharps are often present at the scene of an overdose. Provide bloodborne pathogen training to responding staff members and consider additional protection, such as hepatitis B vaccination.

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

Data to Characterize and Address the Crisis

- December 2018 National Vital Statistics Report: **Drugs Most Frequently Involved in Drug Overdose Deaths: United States, 2011–2016**

- Researchers analyzed data from National Vital Statistics System-Mortality files linked to text information from death certificates and ICD-10 codes

- Among drug overdose deaths that mentioned at least one specific drug, the 10 most frequently mentioned drugs during 2011–2016 included fentanyl, heroin, hydrocodone, methadone, morphine, oxycodone, alprazolam, diazepam, cocaine, and methamphetamine.

- Oxycodone ranked first in 2011, heroin during 2012–2015, and fentanyl in 2016

Source: https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_09-508.pdf

Data to Characterize and Address the Crisis: Prescription Opioids

- December 2018 JAMA Editorial: **Increasing Evidence for the Limited Role of Opioids to Treat Chronic Noncancer Pain**
- **In 2017,** an estimated 11 to 12 million people in the United States (4.2% of the total population) misused opioids (including heroin).[1]
  - 92% of people who misuse opioids do so by taking prescription opioids,[1]
  - 75% of individuals who use heroin report that they started misusing opioids through the misuse of prescription opioids.[2]
- 34.6% of the individuals who misused prescription opioids reported that they obtained the drug they misused via prescription from 1 prescriber.[1]
- Overprescribing opioids to treat acute pain is associated with increased risk of long-term opioid use.[3]
- 53.1% of individuals who misused prescription opioids obtained these opioids from a friend or relative.[1]

Source: https://jamanetwork.com/journals/jama/fullarticle/2718775

Data to Characterize and Address the Crisis: Opioids and Women

- Women have higher rates of chronic pain, anxiety, depression, and disability than men, changing the opioid use patterns and risks
- They are more likely to be prescribed opioids than men
- Heroin addiction rates in men and women are now similar, a significant change from previous decades
- Women have quicker onset of addiction, and greater risk at lower doses
- Women have greater withdrawal symptomatology and more frequent relapse
- They have different family/parenting risks and loss, and other psychosocial outcomes

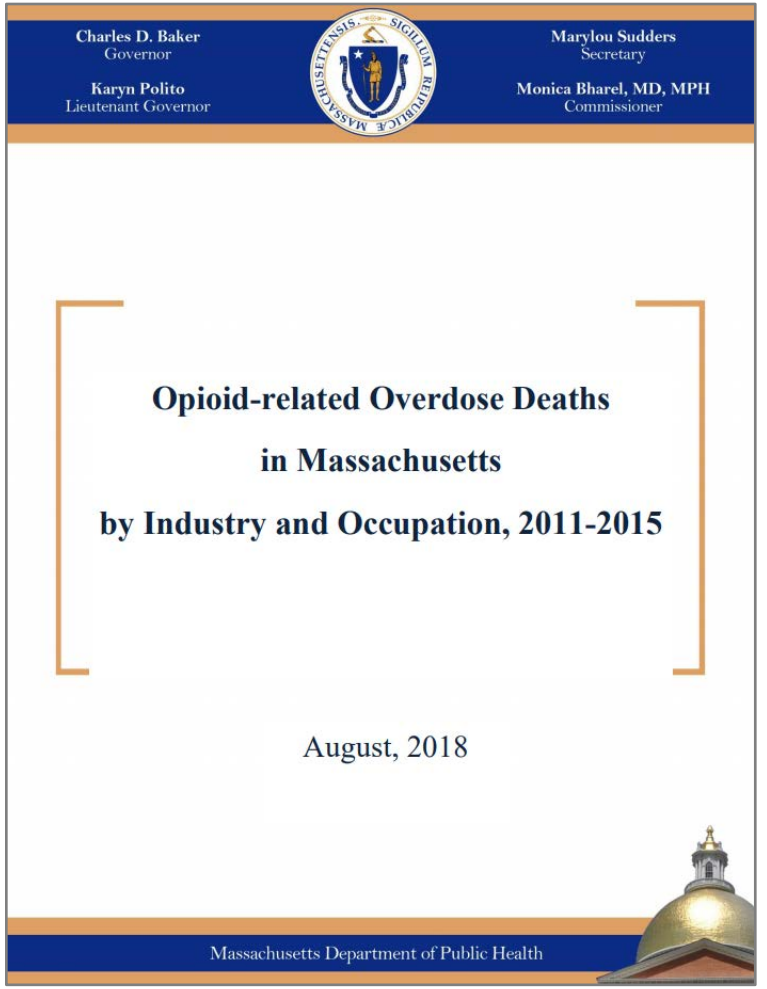
Source: https://doi.org/10.1186/s13293-018-0215-5

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.

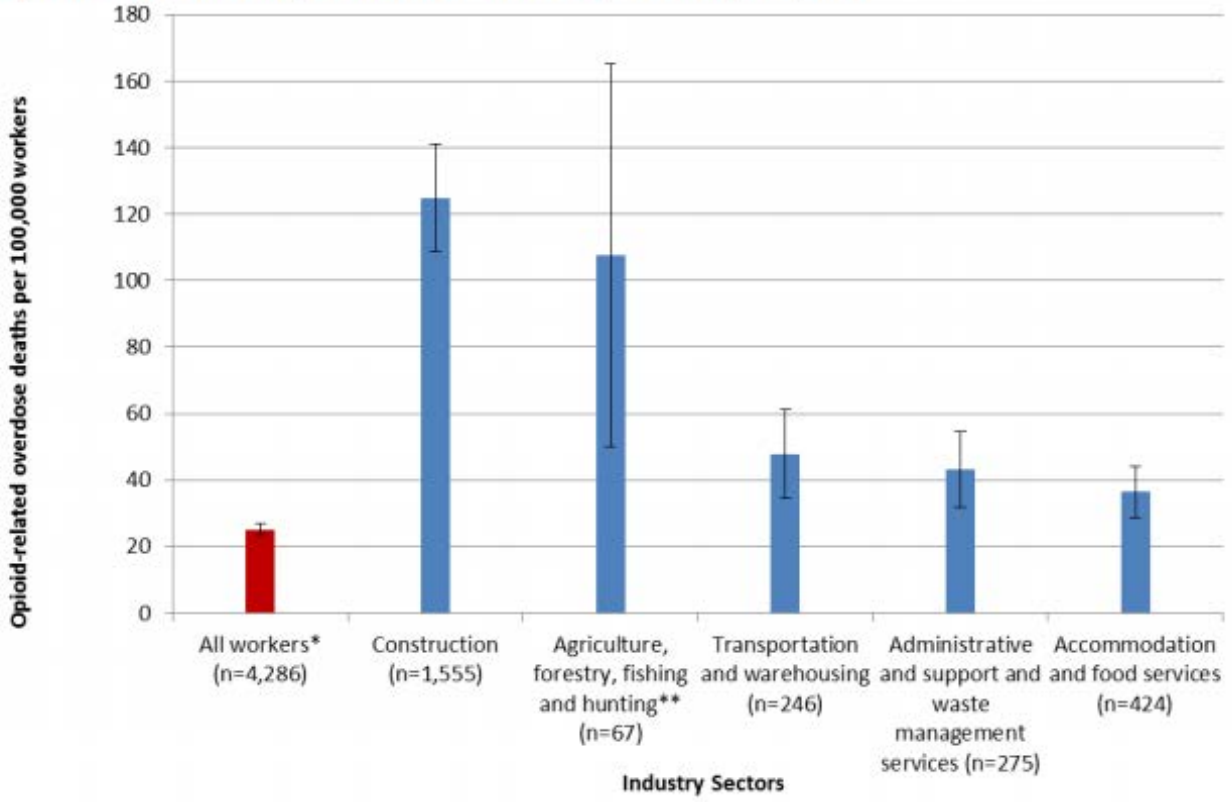
- Other occupational groups with higher than average rates included: farming, fishing and forestry; material moving; installation, maintenance and repair; and transportation among others.



Source: https://www.mass.gov/files/documents/2018/08/15/opioid-industry-occupation.pdf

Opioid-related Overdose Deaths in MA by Industry and Occupation, 2011-2015

Figure 1. Industry sectors with opioid-related overdose death rates significantly higher than the average rate for all workers, Massachusetts workers, 2011-2015, n=4,302



- 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.

Source: https://www.mass.gov/files/documents/2018/08/15/opioid-industry-occupation.pdf

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

NEW NIOSH Resource

- Workplace Solutions: **Medication-Assisted Treatment for Opioid Use Disorder**
- Visit: https://www.cdc.gov/niosh/docs/wp-solutions/2019-133/default.html
- Suggested Citation:
  - NIOSH [2019]. Medication-assisted treatment for opioid use disorder. By Howard J, Cimineri L, Evans T, Chosewood LC, Afanuh S. Washington, DC: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2019-133, https://doi.org/10.26616/NIOSHPUB2019133external icon

WORKPLACE SOLUTIONS

From the National Institute for Occupational Safety and Health

Medication-Assisted Treatment for Opioid Use Disorder

Summary

The opioid overdose epidemic continues to claim lives across the country with a record 47,600 overdose deaths in 2017. (This number represents 67.8% of the 70,237 overdose deaths from all drugs) [CDC 2018a]. More Americans now die every year from drug overdoses than in motor vehicle crashes [CDC 2016]. The crisis is taking an especially devastating toll on certain parts of the U.S. workforce. High rates of opioid overdose deaths have occurred in industries with high injury rates and physically demanding working conditions such as construction, mining, or fishing [Massachusetts Department of Public Health 2018; CDC 2018b]. Certain job factors such as high job demands, job insecurity, and lack of control over tasks have also been linked to opioid use [Kowalski-McGraw et al. 2017]. Medication-assisted treatment (MAT) (also known as medication-based treatment*) has been shown to be effective for many people with opioid use disorder [SAMHSA 2015b; National Academies of Sciences, Engineering, and Medicine 2019]. In addition to providing general information about MAT, this document provides information for employers wishing to assist or support workers with opioid use disorder.

Background

Challenges related to prescription drug misuse, illicit drug use, and addiction affect individual workers, their families, and both large and small businesses. In a 2017 National Safety Council survey, 70% of employers reported suffering the negative effects of prescription drug misuse; noting positive drug tests, absenteeism, injuries, accidents, and overdoses [Hersman 2017]. In 2013, the total U.S. societal costs of prescription opioid use disorder (OUD) and overdoses were $78 billion. Of that, about $2.8 billion was for treatment [Florence et al. 2016].†

In 2016, individuals with insurance coverage received $2.6 billion in services for treatment of opioid addiction and overdose, a dramatic increase from $0.3 billion in 2004 (based on claims data from large employers). Of that $2.6 billion, $1.3 billion was for outpatient treatment, $911 million was for inpatient care, and $435 million was for prescription drugs [Cox et al. 2018].

Employers may save up to $2,607 per worker annually (based on 2012–2014 data) by getting workers into treatment [NSC et al. 2016; NORC].

Despite these findings, 80% of individuals in need of treatment for a substance use disorder in 2016 did not receive treatment [CBHSQ 2017]. Making medication-assisted treatment (MAT) more readily available to people with OUD can help diminish the opioid crisis in the United States.

Treatment

What is medication-assisted treatment (MAT)?

MAT uses medications approved by the U.S. Food and Drug Administration (FDA) in combination with counseling and behavioral therapies to treat OUD involving misuse of either prescription

*Note that some experts recommend the term "medication-based treatment" or MBT instead of MAT. This change in nomenclature aligns with the premise that OUD is a chronic disorder for which medications are first-line treatments (often an integral part of a person's long-term treatment plan) rather than complementary or temporary aids on the path to recovery [National Academies of Sciences, Engineering, and Medicine 2019].

†The White House Council of Economic Advisers [CEA 2017] estimated the economic cost of these deaths related to opioids "using conventional economic estimates for valuing life routinely used by U.S. Federal agencies." The CEA report "also adjusts for underreporting of opioids in overdose deaths, includes heroin-related fatalities, and incorporates nonfatal costs of opioid misuse." CEA estimates that in 2015, the economic cost of the opioid crisis was $504.0 billion, or 2.8 percent of GDP that year."

CDC NIOSH

Source: https://www.cdc.gov/niosh/docs/wp-solutions/2019-133/pdfs/2019-133.pdf

New NIOSH Science Blog

- Titled, "Injured Workers More Likely to Die from Suicide or Opioid Overdose"
- 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, addiction, and suicide
- The following may substantially reduce deaths following injuries:
  - Improved working conditions
  - Improved pain treatment
  - Better treatment of substance use disorders
  - Treatment of post-injury depression
- Read more about Opioids on the NIOSH Science Blog share your comments.

NIOSH Science Blog

Injured Workers More Likely to Die from Suicide or Opioid Overdose

Posted on August 8, 2019 by Katie M. Applebaum, ScD; Abay Asfaw, PhD; Paul K. O'Leary, PhD; Andrew Busey, BS; Yorghos Tripodis, PhD; and Leslie I. Boden, PhD

Drug overdoses and suicides have been rising since 2000 and are major contributors to a recent decline in US life expectancy. The opioid crisis is largely to blame, with a record 47,600 overdose deaths in 2017.[1] Suicide rates in 2016 have increased 30% from 1999.[2] Case and Deaton have called these "deaths of despair."[3]

In the study, "Suicide and drug-related mortality following occupational injury," published in the *American Journal of Industrial Medicine,* researchers found that workplace injury significantly raises a person's risk of suicide or overdose death. Earlier studies have shown that injured workers have elevated rates opioid use and depression. In fact, depression is among the most well-documented health consequences of workplace injury.[4] [5] [6] However, no studies have measured increased deaths related to opioid use and depression among injured workers.

Injured workers often receive powerful prescription pain medication, including opioids. In one study, 42% of workers with back injuries were prescribed opioids within a year after injury.[7] Approximately 16% of those prescribed opioids continued taking them for four quarters, with doses increasing substantially over time.

New Blog from the National Institute on Drug Abuse (NIDA) and the National Institute of Mental Health (NIMH)

- Titled, "Suicide Deaths Are a Major Component of the Opioid Crisis that Must Be Addressed"
- Directors of NIDA and NIMH discuss the "links between opioid use, opioid use disorder, and suicide."*
- "A 2017 study using national survey data showed that people who misused prescription opioids were 40-60% more likely to have thoughts of suicide…"*

*Suicide Deaths Are a Major Component of the Opioid Crisis that Must Be Addressed https://www.drugabuse.gov/about-nida/noras-blog/2019/09/suicide-deaths-are-major-component-opioid-crisis-must-be-addressed

September 19, 2019

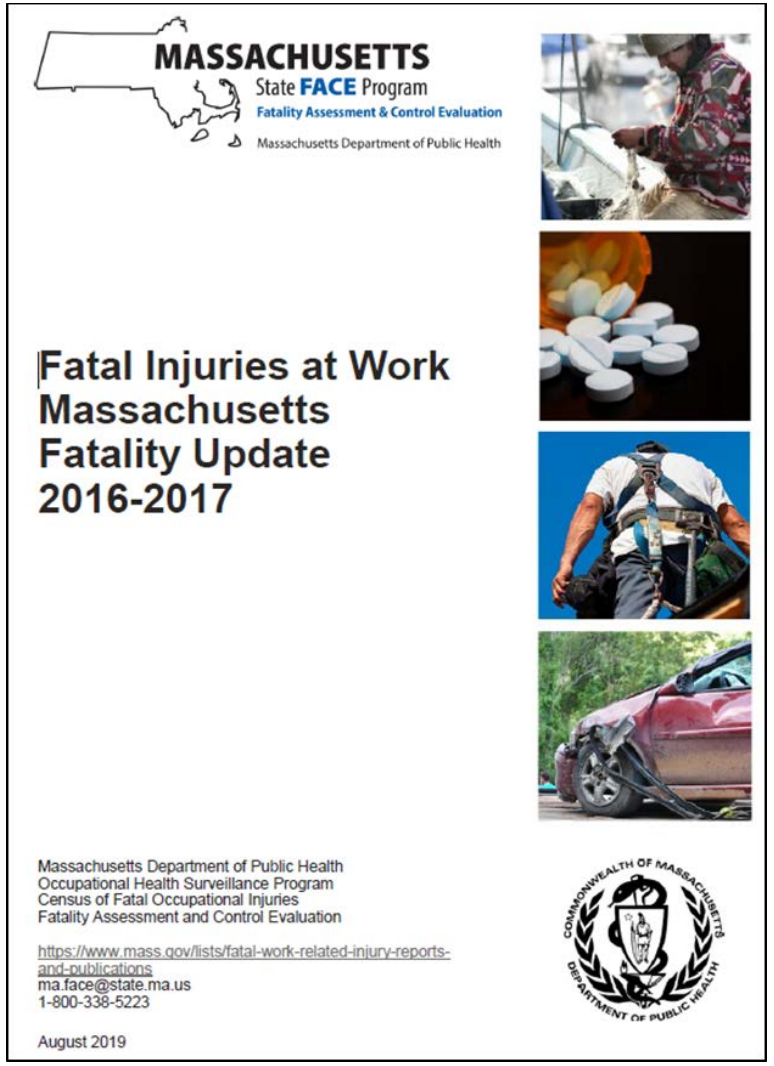
September is National Suicide Prevention Awareness Month. In observance, our two institutes, the National Institute on Drug Abuse (NIDA) and National Institute of Mental Health (NIMH), are taking this opportunity to highlight a dimension of the opioid crisis that receives too little attention—the links between opioid use, opioid use disorder (OUD), and suicide.

We've heard a lot about the opioid epidemic, and the rising toll it is taking on our communities. In 2017, 47,600 people died from overdoses involving prescription or illicit opioids. But the opioid overdose epidemic is not limited to people with opioid addiction who accidentally take too much of a pain reliever or unknowingly inject a tainted heroin product. Concealed in the alarming number of overdose deaths is a significant number of people who have decided to take their own life.

It can be challenging to discover the true relationship between suicide and drug use. In the absence of a suicide note, it is difficult to assess the intentions of an individual who has died of an overdose, other than circumstantially. Also, the intentions of someone with OUD who overdoses may not always be clear-cut. In a study last year of current and past overdose experiences among patients seeking treatment in a Flint, Michigan emergency department, 39% of those whose worst overdose had involved an opioid or sedative reported wanting to die or not caring about the risks; another 15% reported they were unsure of their intentions.

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



*Massachusetts Fatality Update, 2016-2017 - https://www.mass.gov/info-details/fatal-injuries-at-work

Stories of Hope

- Police Assisted Addiction and Recovery Initiative (PAARI)
  - Opioid drug users able to voluntarily turn themselves in for treatment at participating police departments
  - Police officers assist with getting users enrolled in treatment and rehabilitation programs

- Gloucester, Massachusetts ANGEL program
  - 417 treatment eligible patients in Glouster in first year of program (June 2015-May 2016)
    - 94.5% were offered direct placement and 89.7% enrolled in detox or other recovery services
  - Those numbers compared with less than 60% of direct referrals from hospital-based programs

Sources:
https://www.bostonglobe.com/metro/2017/02/21/angel-opioid-initiative-thrives-despite-exit-gloucester-police-chief/hvH14GgG0dRYTXJOpGEswO/story.html
https://www.nejm.org/doi/full/10.1056/NEJMc1611640

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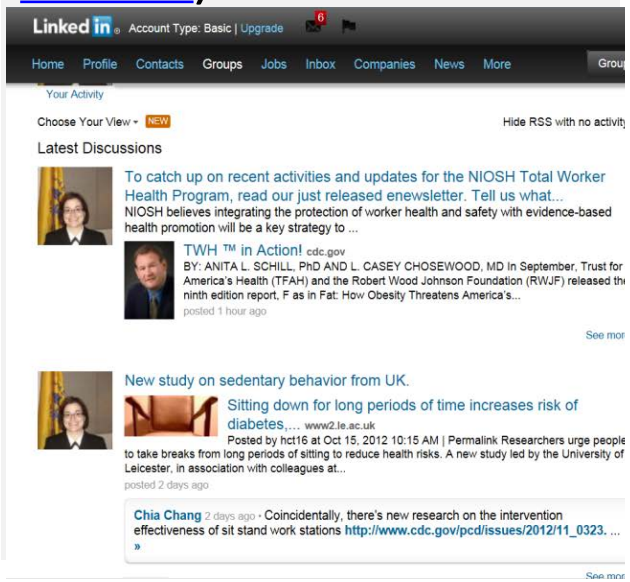
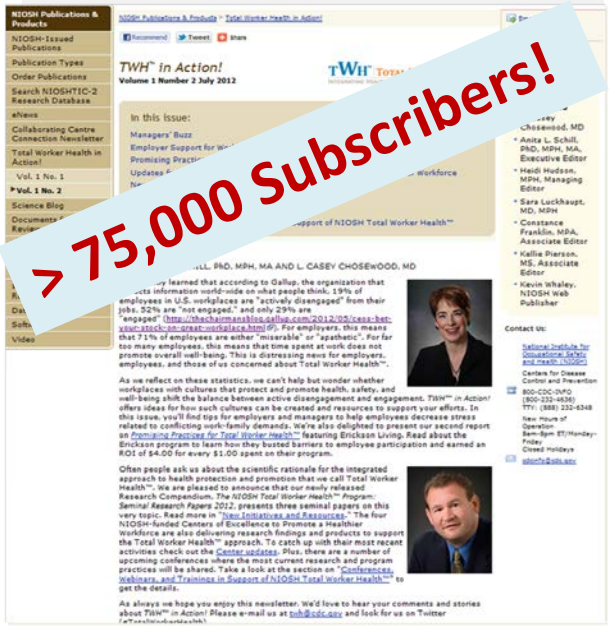
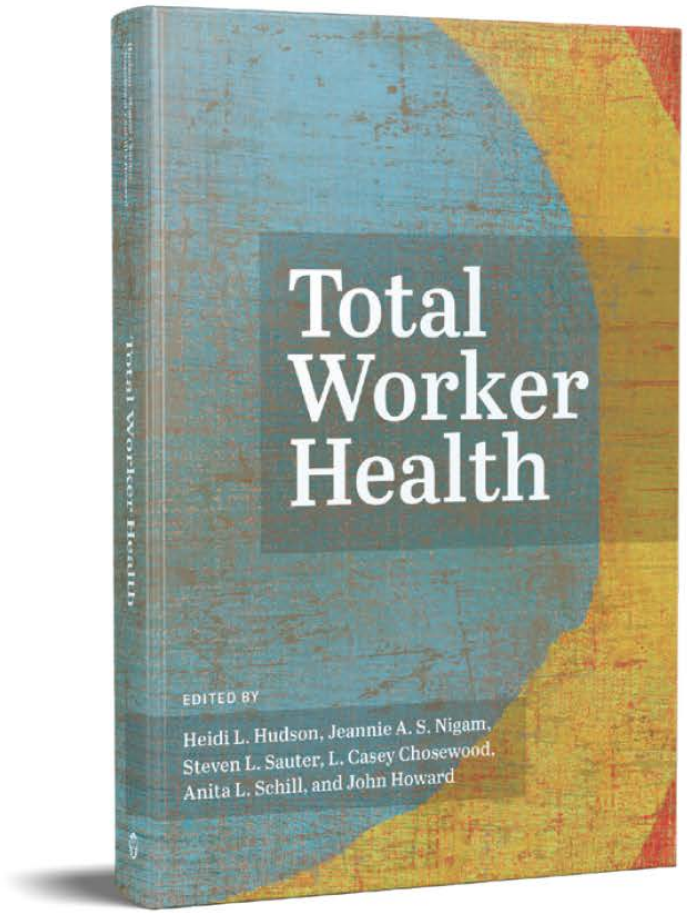


TWH in Action! e-Newsletter





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