National Institute of Environmental Health Sciences
Worker Training Program

Final Report on the Opioid Training Materials Development Initiative

for the NIEHS Worker Training Program

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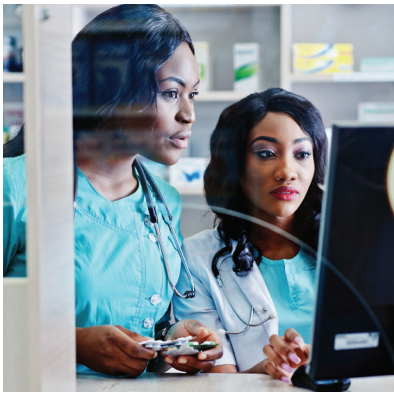


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SECTION I.

INTRODUCTION

A. The Opioid Crisis and Occupational Health

Opioids pose a significant threat to public health in the United States. Astounding statistics led the president to declare the opioid crisis, also known as the opioid epidemic, a public health emergency in 2017.[1] Between 1999 and 2017, nearly 400,000 people died from an overdose involving prescription and illicit opioids. On average, 130 Americans die every day from an opioid overdose.[2]

Over time, it has become increasingly evident that the opioid crisis is connected to reducing the burden of pain and mitigating risks that arise from use of prescription opioids.[3] Although opioids are commonly prescribed by doctors to treat pain, they can be highly addictive to patients.

An estimated 2.1 million Americans have an opioid use disorder (OUD) related to the misuse of prescription opioids.[4] In the mid-1990s, pharmaceutical companies reassured the medical community that patients would not become addicted to opioid pain relievers and healthcare providers began to prescribe them at greater rates. The pharmaceutical companies launched massive sales campaigns. Pain was declared the fifth vital sign and providers were pressured to increase their prescription rates of opioids. In 2013, providers wrote nearly a quarter billion opioid prescriptions, enough for every American adult to have their own bottle of pills. While sales of prescription opioids in the U.S. nearly quadrupled from 1996 to 2012, the amount of pain Americans reported remained unchanged.[5, 6] Purdue Pharma pleaded guilty to misbranding OxyContin, a prescription opioid pain medication, with the intent to defraud or mislead prescribers and patients; in 2007, the company paid a $600 million-dollar settlement in a federal lawsuit

1 Determination That A Public Health Emergency Exists *https://www.hhs.gov/sites/default/files/opioid%20PHE%20Declaration-no-sig.pdf*. [accessed 20 September 2019].
2 Centers for Disease Control and Prevention (CDC). 2017a. Opioid overdose: understanding the epidemic. *https://www.cdc.gov/drugoverdose/epidemic/index.html*. [accessed 27 August 2018].
3 National Academies of Sciences (NAS), Engineering, and Medicine, Health and Medicine Division, Board on Health Sciences Policy, Committee on Pain Management and Regulatory Strategies to Address Prescription Opioid Abuse. 2017. Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use (Phillips JK, Ford MA, Bonnie RJ, eds). Washington, DC: National Academies Press.
4 The National Institutes of Health (NIH). 2016. Rates of nonmedical prescription opioid use and opioid use disorder double in 10 years. *https://www.nih.gov/news-events/rates-nonmedical-prescription-opioid-use-opioid-use-disorder-double-10-years*. [accessed 27 August 2018].
5 FDA (Food and Drug Administration). 2018. FDA analysis of long-term trends in prescription opioid analgesic products: quantity, sales, and price trends. *https://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UCM598899.pdf*. [accessed 27 August 2018].
6 CDC. 2017c. CDC guideline for prescribing opioids for chronic pain. *https://www.cdc.gov/drugoverdose/prescribing/guideline.html*. [accessed 27 August 2018].

brought against it by the state of Virginia.[7] In 2019, the company offered to pay close to $12 billion to settle 2,000 lawsuits linked to the opioid crisis.[8]

One pathway to opioid addiction is the treatment of pain for work-related injuries. Roughly 21 to 29% of patients prescribed opioids for chronic pain misuse them, and between 8 to 12% develop an OUD. Notably, 4 to 6% of people who misuse prescription opioids transition to heroin. About 80% who use heroin first misused prescription opioids.[9] About 60% of the opioid deaths involved illicitly manufactured fentanyl (IMF) and fentanyl analogs. IMF is often found in combination with heroin, counterfeit pills, and cocaine.[10, 11]

Published studies have shown higher-than-expected opioid deaths among workers in Washington state who were treated for carpal tunnel syndrome and lower back pain.[12] These findings led to state policy and education reforms that reduced mortality among the affected worker populations.[13]

A recent study reported industry-specific data on opioid-related overdose deaths that occurred between 2011 and 2015 in Massachusetts.[14] The study found:

- Construction and extraction: 1,096 deaths (six times the average rate)
- Farming, fishing, and forestry: 161 deaths (five times the average rate)
- Other industries with high rates of death from opioid use included material moving, installation, maintenance and repair, transportation, production, food preparation and serving, building and grounds cleaning and maintenance, and health care support.
- The rate of fatal opioid-related overdoses was higher in industries with high rates of work-related injuries and illnesses.

A 2018 government report on occupational patterns of opioid overdose deaths that occurred between 2007 and 2012 reported similar findings to those described in the Massachusetts study.[15]

7 UNITED STATES OF AMERICA v. THE PURDUE FREDERICK COMPANY, INC., ET AL., Defendants. Case No. 1:07CR00029 OPINION AND ORDER By: James P. Jones, Chief US District Judge *http://www.vawd.uscourts.gov/OPINIONS/JONES/107CR00029.PDF*

8 NBC News. Purdue Pharma offers $10-12 billion to settle opioid claims. *https://www.nbcnews.com/news/us-news/purdue-pharma-offers-10-12-billion-settle-opioid-claims-n1046526* [accessed 30 September 2019].

9 The National Institute on Drug Abuse (NIDA). 2018. Opioid overdose crisis. *https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis* [accessed 27 August 2018].

10 CDC. 2017a. Opioid overdose: understanding the epidemic. *https://www.cdc.gov/drugoverdose/epidemic/index.html*. [accessed 27 August 2018].

11 CDC. Fentanyl. Illicitly made fentanyl use is on the rise. *https://www.cdc.gov/drugoverdose/opioids/fentanyl.html* [accessed 1 August 2019].

12 Franklin G, Mai J, Wickizer T, Turner JA, Fulton-Kehoe D, Grant L. 2005 *Opioid dosing trends and mortality in Washington State workers' compensation, 1996-2002*. Am J Ind Med. 48(2):91-9

13 Franklin G, Sabel J, Jones CM, Sabel J, Jones CM, Mai J, Baumgartner C, Banta-Green CJ, Neven D, Tauben DJ. 2015. *A Comprehensive Approach to Address the Prescription Opioid Epidemic in Washington State: Milestones and Lessons Learned*. AJPH 105(3):463-469.

14 Hawkins D, Roelofs C, Laing J, Davis L. *Opioid-related overdose deaths by industry and occupation-Massachusetts, 2011-2015*. Am J Ind Med. 2019 Jul 26. doi: 10.1002/ajim.23029. [Epub ahead of print] PubMed PMID: 31347714

15 Morano H, Steege AL, Luckhaupt SE. 2018. *Occupational patterns in unintentional and undetermined drug-involved and opioid-involved overdose deaths — United States, 2007–2012*. MMWR Morb Mortal Wkly Rep 67(33):925–930.

Occupational exposure to opioids is another concern for worker health and well-being. Reports of occupational exposure are becoming more common, especially among emergency responders and law enforcement personnel.[16] These workers face an especially high risk of exposure to fentanyl and other opioids, as do laboratory professionals, environmental services workers, and health care providers who may lack suitable personal protective equipment (PPE) and procedures to protect themselves on the job.

These data underscore the need to develop workplace programs and training to prevent both occupational exposure and workplace misuse and addiction to opioids. Additionally, the data strongly suggest workplace programs that provide access to treatment and recovery for workers with an OUD are essential to confront the crisis.

B. Developing and Evaluating a New Training Tool

In 2018, the NIEHS Worker Training Program (WTP) and the National Clearinghouse for Worker Safety and Health Training (National Clearinghouse) released a training tool called "*Prevention of Occupational Exposure to Fentanyl and Other Opioids*," which focused on protecting first responders from exposure to fentanyl.

Now, WTP seeks to develop a new training tool to raise awareness on the connection between workplace injuries, psychological stressors, and opioid addiction, and to provide insights on methods to better protect the health and safety of workers. To best inform development of this new training tool, WTP and the National Clearinghouse gathered stakeholder input through a series of listening sessions; we also conducted a needs assessment and gap analysis of current literature, guidelines, and trainings for workplace issues related to opioids.

Prior to the needs assessment, WTP hosted a workshop entitled "*Opioid-Related Hazards in the Workplace: Developing a Training Framework to address Exposure, Use, and Prevention*." Discussions from this workshop outlined best practices for educating workers about opioid risks, as well as broader needs and structural issues that should be addressed in trainings and guidelines. This includes:

- Implementing necessary public health measures
- Empowering workers
- Promoting wellness and self-care
- Sharing stories and transforming lives
- Addressing stigma, workplace drug testing, and disciplinary programs
- Addressing health care and the workers' compensation system
- Offering peer support and assistance

16 National Institute for Occupational Safety and Health (NIOSH). 2019. Illicit Drugs, Including Fentanyl: Preventing Occupational Exposure to Emergency Responders. By Hornsby-Myers J, Headley T, Dowell, C. Atlanta, GA: 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. 2019-126, *https://doi.org/10.26616/NIOSHPUB2019126 External* [accessed 1 August 2019].

Outputs from the workshop, along with information gathered from the listening sessions and needs assessment, offered WTP and the National Clearinghouse key points to develop a new training tool entitled, "Opioids and the Workplace: Prevention and Response." The training tool is in PowerPoint format and consists of 110 slides, three detailed fact sheets, and a list of resources that are designed to raise awareness about the opioid epidemic and its relation to work. The tool includes five activities, each with a different focus based on the section or module; although it was designed to be used in six hours, it can be adapted based on the instructor's preferences for length of time or material. The training tool slides include sections on the background of the epidemic, fentanyl and synthetic opioids, understanding opioid use disorder, stigma, prescription opioids, related infectious diseases, occupational exposure, opioids and work, risk factors, employee and peer assistance programs, and workplace substance use prevention programs.

The overall objectives of the training tool are to:

- Discuss the scope and severity of the opioid crisis;
- Summarize the relationship between workplace injuries and illnesses, working conditions, and OUD;
- Identify occupational exposure, prevention, and response; and
- Discuss workplace actions that might be taken to prevent and respond to opioid use and misuse.

Each section or module of the training tool contains its own objectives, but these can be adapted to fit both the instructor's needs as well as the target population (Appendix ix). WTP anticipates that the training tool, fact sheets, and other related materials will be used by WTP awardees and the broader health and safety community.

SECTION II.

METHODS

A. Needs Assessment

The methodology for the needs assessment and gap analysis included:

- A series of stakeholder listening sessions;
- A literature search for opioid publications (Appendices ii and iii);
- A Web search for and analysis of existing guidelines for occupational issues and opioids (Table 1); and
- A Web search for and review of existing opioid training courses (Appendix iv).

Stakeholder listening sessions were conducted to learn how the opioid crisis is impacting a broad array of industries and identify training needs, gaps, and opportunities. In fall 2018, WTP Director Joseph (Chip) Hughes and Jonathan Rosen, industrial hygienist and consultant with the National Clearinghouse, conducted interactive listening sessions with workers and representatives from local union organizations in Connecticut, Massachusetts, New York, and West Virginia. The first round of listening sessions took place during the week of September 23, 2018. A series of eight questions were used to prompt responses from attendees and facilitate in-depth conversations about concerns related to opioids (Appendix i).

A literature search was conducted using PubMed and Web of Science search engines to identify current practices for treating and preventing opioid use and abuse in the workplace. A list of search terms for various names of opioids and analogues was created; search strings were made that combined the opioid terms with terms reflecting workers, workplaces, and other topical matters related to drug testing, employee assistance programs, treatment and return to work, missed work, and training (Appendix ii). The literature search was limited to publications in the English language and published from January 1, 2000 to December 6, 2018. After creating a bibliography from each search engine, the abstracts for all publications (726 total) were reviewed to determine their relevance. Meeting abstracts, mechanistic or technical publications on the physical impacts of opioids, and publications on target populations outside of the scope (e.g., prison populations) were excluded.

Web searches for existing guidelines and training courses were conducted between November 2018 and March 2019. Specifically, we were interested in identifying content that falls into one or more of the following broad, topic-based categories:

- Protection from occupational exposure
- Workplace opioid misuse and addiction
- Treatment programs
- Employee and human resources (HR) assistance

For the purpose of this analysis, there were no exclusions of publications, guidelines, or training courses based on discussion of opioid type (i.e., synthetic or non-synthetic) or legal versus illegal use. In addition, no one use of the word "treatment" was excluded for the purpose of this analysis, because all types of treatment are relevant.[17] Content for any publication, guideline, or training course that referenced treatment was carefully reviewed and detailed notes about the type of treatment referenced were added.

B. Pilot Tests

WTP and the National Clearinghouse partnered with others to pilot the new "Opioids and the Workplace: Prevention and Response" training tool in four locations:

- Hanford, Washington at the Department of Energy (DOE) HAMMER Training Facility (with the International Chemical Workers Union Council);
- Lowell, Massachusetts at Lowell University (with The New England Consortium for Health and Safety Training);
- New York, New York at the New York District Council of Carpenters Training Center (with the New Jersey/New York Hazardous Materials Worker Training Center); and
- Huntington, West Virginia at the United Steel Workers local union (with the Steelworkers Charitable and Educational Organization).

These locations were selected both due to interest indicated by the participants and prior relationships developed during WTP stakeholder events. Some participants came from other cities or regions to the training site. For example, Hanford's class included workers from different DOE facilities throughout the country and is thus representative of more than just the HAMMER facility in Hanford.

The trainings included: 22 participants in Hanford; 33 in Lowell; 24 in New York; and 18 in Huntington. The trainings started at about 10 AM and ended at about 4 PM on the same day. The pilot trainings were conducted between July 23 and August 13, 2019. A single instructor taught the material in the slides at a pace the instructor felt was appropriate for the audience and for the material. The training was conducted in English, and the training tool slides were presented on a screen in each class.

17 Note: In the context of opioids, treatment can have multiple meanings. Treatment can refer to: acute 'treatment' of an overdose, often with Naloxone; Long-term treatment for OUD and recovery for addiction; or alternative treatments (otherwise better defined as substances, prescriptions, or therapies) for pain management instead of opioids.

Each pilot training session included five activities. Each of the activities took an average of 15 minutes to complete and involved a combination of small group activities or individual efforts. Activity 1 asked participants to describe their experiences with opioids in the workplace and community; Activity 2 was on stigma and words that trigger certain responses, Activity 3 asked participants to identify work related risk factor while Activity 4 involved brainstorming ideas to evaluate, document, and prevent a stressor or hazard identified in Activity 3. Activity 5 asked the participants to record an action plan, which, if they consented, was to be collected by training staff to provide the basis for a future six-month follow-up survey and interview to measure the longer-term outcomes of the training.

The participants voluntarily registered for each of the pilot training sessions and no incentive was provided by the program evaluators for the collection of evaluation data.

C. Evaluation

To evaluate the pilot training sessions, WTP and the National Clearinghouse worked with associate professor, Paul Landsbergis, Ph.D., and Eric Persaud, graduate research assistant and doctoral student, from the State University of New York Downstate Health Sciences University School of Public Health.

The team worked with occupational health and safety experts to develop evaluation instruments for the pilot training sessions. This included pre- and post-tests to measure participants' knowledge, attitudes, and behaviors towards opioids as well as forms to evaluate the training process (i.e., effectiveness of the training content, format, and instructor).

Before each pilot training, a pre-test quiz about knowledge, attitudes and behaviors towards opioids was given to each participant; after the training, the same quiz was given as a post-test, along with a form that asked participants to rate training effectiveness, all on paper. The pre- and post-tests and process evaluation form took an average of five to 10 minutes to complete before and after the training, all of which were collected by a trained graduate research assistant. In order to maintain anonymity and confidentiality, participants were instructed to avoid including any identifying information on the pre- and post-tests and process evaluation form.

The pre-test instrument was pilot-tested among 11 laborers at a construction company in New York City to determine if any questions showed very high agreement and therefore would not be useful to assess knowledge, attitude, or behavior change due to the training. The pilot-testers were also asked to indicate which questions, if any, were unclear, and modifications were made before the first pilot training session on July 23, 2019. Questions included in the pre- and post-tests were based on the material provided in the training tool modules. Due to time constraints, all the training objectives and material were not included in the pre- and post-test. The pre- and post-test questions focused on the most important issues involved in increasing awareness of opioids in the workplace.

The pre- and post-tests were identical. There were 27 questions with a “yes”, “no”, or “unsure” response; four questions used a five-point Likert scale of “strongly disagree”, “slightly disagree”, “neutral”, “slightly agree”, and “strongly agree”.

The process evaluation form contained nine items with the same five-point Likert scale asking for feedback on the training content, process, and instructor. Four additional open-ended questions asked participants to provide feedback on content or skills that were most or least valuable to them, suggestions for improvement, and actions they planned to take as a result of the course. An optional section on the process evaluation form asked participants for their demographic information, including occupation, gender, age, education level, and race/ethnicity.

The graduate research assistant attended and collected qualitative data from all the pilot training sessions. He took notes on comments made by participants during the training, small group activities, discussion of group activities as a class, and individual one-on-one conversations. The graduate research assistant compiled notes and classified the qualitative data into themes based on similarity of responses. Similarities and differences between the four pilot trainings were noted. No identifying information was collected during the notetaking and any information that could be used to identify participants was either omitted or paraphrased in the reporting of qualitative data.

The quantitative data collected was analyzed by calculating the pre-test and post-test percentage agreement with the correct response and determining the change in percentage from pre- to post-test for each training. It was straightforward to assign knowledge questions (1, 2, 5, 8, 10, 11, 13-15, 18) and knowledge and attitude questions (3, 4, 12) with a correct response for the purpose of training evaluation. For the behavior questions (9, 16, 17, 19), such as reporting hazards and injuries at work, or talking to supervisors or coworkers about substance abuse at work, we labeled “correct” responses as those that we believed would be most constructive in addressing the opioid epidemic and improving workplace safety and health. However, we recognize that management or federal policies in some workplaces may inhibit or not permit such behaviors. This is acknowledged in a later section (Section III) when describing pre- and post-test results.

While a five-point Likert scale was used for questions 16-19, in order to provide easily interpretable results for the evaluation, during analysis, we collapsed the “agree” and “strongly agree” response options into one response, and also collapsed the “disagree” and “strongly disagree” response options into one response. One of these responses was labeled the “correct” response, and a chi-square analysis was conducted. Further analyses of these data, which takes into account the full range of responses (such as by using the Mann–Whitney U test), can potentially be conducted in the future.

Changes of 15% or greater in percent agreement with the correct answer, and/or statistically significant changes (based on chi-square tests) from pre- to post-test were highlighted. Since pre-test data could not be matched to post-test data for the same individual, paired analyses (such as the Wilcoxon signed-rank test) were not possible, and only group proportions of correct responses (pre- vs. post-) were compared by chi-square test.

The nine process evaluation questions also used a five-point Likert scale. Again, our goal was to provide easily interpretable evaluation results when examining the associations between the nine

process evaluation questions and demographic variables. Thus, during analysis, we collapsed the “agree” and “strongly agree” response options into one response, and also collapsed the “disagree” and “strongly disagree” response options into one response. The middle or “neutral” response was also retained. A simplified analysis using chi-square with three response categories, (which did not take into account the ordinal nature of the data), was used. Further analyses of these data, which takes into account the full range of responses and its ordinal nature (such as by using the Mann–Whitney U test), can potentially be conducted in the future.

All statistical analyses were performed using IBM SPSS Statistics version 26.

SECTION III.

RESULTS

A. Needs Assessment and Gap Analysis

Primary Themes from Listening Sessions

The following are primary themes and key points of discussion that emerged from the listening sessions in Connecticut, Massachusetts, New York, and West Virginia:

Theme One: Primary concerns regarding opioids

- Job-related injury is a very common origin or pathway for opioid addiction among workers.
  - Steelworkers and construction workers have long workdays, and most work in pain.
- The use of street drugs, like heroin, is another pathway to opioid addiction.
- Workplace stressors, such as trauma, short staffing, and workplace violence, can be a pathway to substance use (alcohol, drugs, etc.) and often lead to addiction.
- A few common obstacles to addressing addiction in the workplace:
  - Stigma poses a significant hurdle for workers. Some are afraid or unwilling to talk to people in authority about addiction issues. Breaking down stigma is needed so that people will communicate and step forward. Language matters; there is a need to change the way we talk about addiction. Addiction is a disease, not a moral failure.
  - The structure of health care is also an obstacle – it can hinder the ability to properly address patient needs.
  - Drug-testing in the workplace, especially zero tolerance policies, pose another significant barrier for workers. Many unions have concerns with current drug testing policies in the workplace. These policies cause injured workers to feel intimated and avoid reporting injuries. Many workers are subject to random drug testing, especially in transportation jobs. Zero tolerance policies don't recognize addiction as a disease.
  - There are disputes between insurance carriers and health care providers about treatment in some states (e.g., New York) based on recent legislative changes.
  - The workers' compensation system and medical guidelines pose challenges.
  - Some union members don't necessarily feel supported and have a lack of trust – they fear that if one person finds out, then everyone will find out.

- Addiction affects a worker's well-being and lifestyle. It also impacts the worker's family members and other loved ones and friends.
- Concerns with opioids go beyond the workplace – it affects family members and communities. Those who have not had a personal experience with opioids or addiction, usually know someone who has.
  - Young people are targeted and risks are not being communicated (e.g., younger workers that work in casinos)
- There are safety hazards in workplaces where people who operate cranes or other heavy equipment are using morphine or oxycodone pills. But it is deemed okay because they are within their prescribed limits.
- One person reported that 43 Massachusetts workers died from overdose on the job in 2017.
- A study by the Massachusetts Department of Health found that nine out of 23 occupational groups or industries in the state experienced significant opioid overdose deaths.
- A mortality study of injured workers noted cases where people are out for weeks at a time and dying from overdose and suicide.
- Access to treatment is a major concern for many.
  - There are very few types of assistance and alternatives that workers feel comfortable with.
  - There isn't anywhere to refer or direct members who need help or treatment.
  - There is a need to make connections with treatment programs that are effective (i.e., have high success rates) and will take union members.
  - Proper placement for treatment is key. Treatment should be individualized so that it is conducive for the individual seeking help. Treatment is only part of the solution – it is not all of the solution.
  - Relapse is common before successful treatment, recovery, and sobriety.
- Most immigrants are not using opioids because they don't have access to health care; instead, they use alcohol.

Theme Two: Worker training programs in development or currently available

- One professional association is working on a position paper on opioids directed to bedside nurses. Historically, nurses have administered large quantities of opioids to patients under the direction of licensed prescribers.
- One idea shared was to establish a peer navigator program to train workers, activists, and leaders to provide assistance to injured workers in dealing with workers' compensation and health care systems, and to build in an opioid misuse avoidance component.
- Some training courses integrate topics on substance use and awareness.
- New York City has a mental health training program called Mental Health First Aid (an eight- hour program).

Theme Three: Gaps in the training provided for prevention of occupational exposure to fentanyl and other opioids

- Workers in public sector (e.g., libraries, park workers, transportation, etc.) are encountering drug paraphernalia which presents the potential for occupational exposure.

Theme Four: Peer assistance and/or alternative to discipline programs available in the workplace

- Some locals are trying to create a culture where workers will feel safe seeking help for addiction.
  - One union's Membership Assistance Program (MAP) helps members who are struggling with opioid addiction and related issues. The MAP trains staff, union members, contractors, and peer counselors to help members and their families who need assistance. The success rate is particularly high for the MAP – close to 80%.
  - The union has established a relationship with a treatment program that has a network of facilities. The treatment program lasts for 90 days and offers great after-care. Peer support and interaction during treatment has been extremely beneficial for the success of the treatment program.
  - The union has opened the program to non-members and family members.
  - The impacts of the MAP have been life-changing for workers.
- Many workers have personal stories of dealing with addiction and overcoming these issues through the help of MAPs and other assistance programs.
- Many of these workers find strength and maintain their sobriety by paying it forward (i.e., assisting others who are going through treatment).
- One union also has a Community Engagement Response Team program to help members debrief and address trauma on the job.
- Another union has an Employee Assistance Program (EAP), which provides substance abuse and mental health support for workers. The EAP has been successful in getting members back into the workforce.
- The structure and support within the context of EAPs varies across unions. Some members are skeptical about EAPs and others embrace them.

Theme Five: Training needs to inform and educate workers

- Some workers are not aware of the signs and symptoms of substance abuse or addiction, and therefore, need training.
- There is a need for training to better understand and address:
  - Primary prevention of workplace injuries
  - How to destigmatize substance use disorders and addiction
  - The relationship between work and addiction, and looking at the root causes of these issues
  - The connections between mental health, misuse of opioids, and opioid addiction
  - Stress and resilience; self-care is important (healthy sleeping, eating, exercise, rest, social interaction, etc.)
  - How to make awareness transferable for conversations with family members and doctors
  - Alternative pain management
  - Recognizing signs and symptoms of opioid use
  - Recognizing signs and symptoms of depression, substance abuse, and suicide
  - Transmission of bloodborne pathogens from sharing needles (e.g., HIV, Hepatitis B, C, and D)
  - Workers' compensation system
- Training on opioids and associated hazards is needed for:
  - Physicians (many doctors don't understand the possible pathways to addiction and continue to over-prescribe opioids)
  - Nurses (especially students in nursing school)
  - Employers
  - Workers
- Spanish-speaking communities
- Most health and safety experts are not comfortable addressing the subject matter of addiction.
- Outreach is needed for high-risk sectors, employers, employer associations, and unions.
  - An idea was shared for labor unions to do a public information campaign on the topic.

Review of Literature

A total of 164 articles met the inclusion criteria and were reviewed (Appendix iii). Abstracts and full text documents were accessed via the NIEHS Library system. The most common topics across publications included were:

- Opioids and workplace drug testing;
- Employee assistance and substance abuse;
- Occupational or workplace issues and opioids;
- Workers' compensation and opioids;
- Treatment and return to work;
- Missed work and opioids; and
- Training and opioids.

Review of Major Guidance

A gap analysis and review of existing guidelines for occupational health issues related to opioids was conducted. Due to the breadth of opioid issues relevant to the workplace, we designated four topics for which guidelines might be identified and conducted a search for each separately. The topics included:

- Guidelines on how to protect oneself or employees from occupational exposure;
- Guidelines on how to assist employees with opioid use disorders, legal prescriptions, or dependence;
- Guidelines on how to handle situations of opioid use (legal or illegal) in the workplace; and
- Guidelines that could be used by an HR department or EAP to identify quality treatment programs for workers needing referrals.

Guidelines were defined as documents providing actionable information that are useful in creating or implementing workplace procedures or policies. Fact sheets, general documents on the opioid crisis, and others that were not detailed enough to inform workplace policies or procedures were excluded. A total of 23 guidelines met the inclusion criteria (Table 1).

Guidelines related to protection from occupational exposure to opioids made up the majority of existing guidelines (14 of 23) and dealt primarily with providing information on PPE. The majority of these guidelines were created for emergency medical service (EMS) workers, law enforcement, and other first responders who may inadvertently come in contact with fentanyl or other opioids during an emergency or response. Two distinct sets of PPE guidelines from the National Institute for Occupational Safety and Health (NIOSH) and National Nurses United focused on providing guidance to health care providers in a health care facility, as opposed to those in emergency response. Multiple guidelines included a discussion of protection needed for those administering Naloxone. No guidelines were found for occupations outside of emergency response and healthcare.

Guidelines were relatively consistent in their recommended levels of PPE (many cite NIOSH) and their emphasis to avoid use of hand sanitizers and alcohol-based cleaners.

Guidelines from the Interagency Board, the American Industrial Hygiene Association, the American College of Medical Toxicology and American Academy of Clinical Toxicology (AAMC/AACT), and the Drug Enforcement Administration each focused on exposure scenarios, not just a generalized discussion of risks, to help individuals identify the proper level of PPE needed for their potential exposure scenario and task.

More detailed guidelines that provide actionable and specific information include those from the Idaho Office of Drug Policy and the ACMT/AACT. The Idaho guidelines included a discussion of Idaho immunity laws, while the ACMT/AACT guidelines included extensive details about how levels of risk for different exposures and job types were calculated. A subset of guidelines that touched on protection from occupational exposure also addressed workplace considerations for training as well as storage and use of Naloxone in the workplace.

Guidelines related to employee assistance or workplace opioid use touched on a variety of topics and were not industry-specific, as all six that were identified addressed the workplace in general. The most unique set of guidelines found in this category was NIOSH's "Using Naloxone to Reverse Overdose in the Workplace," which details liability, roles, risk assessment, and training requirements. It also discusses the importance of Naloxone for responding to a workplace incident and aims to help employers and workers decide if they should establish a workplace Naloxone availability and use program. This set of guidelines stands out, not only because of its specificity, but its utility in helping employers design and implement a new policy.

Guidelines to help employers identify treatment programs that a worker with OUD could be referred to were lacking. The only guidelines identified that outline necessary elements for a treatment program are those by The Joint Commission and the Substance Abuse and Mental Health Services Administration (SAMHSA). While these guidelines outline necessary elements of a treatment program in great detail, they are not intended for use by a treatment facility or to inform an employer or HR manager of what to look for in a treatment program. These guidelines require extensive knowledge of healthcare policy, treatments, and federal regulations.

TABLE 1: Guidelines Identified and Reviewed

Sponsor	Guideline Title	Link
American Industrial Hygiene Association (AIHA)	Protection in an Uncontrolled Environment	https://synergist.aiha.org/201712-uncontrolled-environment
American College of Medical Toxicology (ACMT) and American Academy of Clinical Toxicology (AACT)	ACMT and AACT Position Statement: Preventing Occupational Fentanyl and Fentanyl Analog Exposure to Emergency Responders	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5711758/
British Columbia Emergency Health Services	Fentanyl Safety for First Responders	https://www.fentanylsafety.com/
Connecticut Department of Public Health	The Opioid Crisis and Connecticut's Workforce	https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/environmental_health/occupationalhealth/Opioid-conference-writeup_FINAL-FINAL_11_28_18-(2).pdf?la=en
Drug Enforcement Administration (DEA)	Fentanyl Safety for First Responders	https://www.whitehouse.gov/ondcp/key-issues/fentanyl/
Drug Enforcement Administration (DEA)	Fentanyl: A Briefing Guide for First Responders	https://www.nvfc.org/wp-content/uploads/2018/03/Fentanyl-Briefing-Guide-for-First-Responders.pdf
Government of the United Kingdom	Fentanyl: Safety Recommendations for First Responders	https://www.gov.uk/guidance/fentanyl-safety-recommendations-for-first-responders
Idaho Office of Drug Policy	First Responders Naloxone Guide	https://prevention.odp.idaho.gov/wp-content/uploads/sites/33/2017/10/ODP_NaloxoneGuide_rnd4.pdf
Minnesota Department of Health and the Minnesota Business Partnership	Opioid Epidemic Response: Employer Toolkit.	https://www.health.state.mn.us/communities/opioids/communities/employertoolkit.html
National Nurses United	The Opioid Crisis for Healthcare Workers, Nurse Exposures, and Employer Prevention	https://www.nationalnursesunited.org/opioid-crisis-healthcare-workers
National Safety Council	The Proactive Role Employers Can Take: Opioids in the Workplace	https://www.nsc.org/Portals/0/Documents/RxDrugOverdoseDocuments/RxKit/The-Proactive-Role-Employers-Can-Take-Opioids-in-the-Workplace.pdf
National Institute for Occupational Safety and Health (NIOSH)	Fentanyl: Preventing Occupational Exposure to Emergency Responders NIOSH	https://www.cdc.gov/niosh/topics/fentanyl/risk.html

Sponsor	Guideline Title	Link
National Institute for Occupational Safety and Health (NIOSH)	Preventing Occupational Exposure to Healthcare Personnel in Hospital and Clinic Settings NIOSH	https://www.cdc.gov/niosh/topics/fentanyl/healthcareprevention.html
National Institute for Occupational Safety and Health (NIOSH)	Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers	https://www.cdc.gov/niosh/docs/2019-101/default.html
National Institute for Occupational Safety and Health (NIOSH)	Opioids in the Workplace	https://www.cdc.gov/niosh/topics/opioids/default.html
The Interagency Board for Emergency Preparedness and Response	Recommended Best Practices to Minimize Emergency Responder Exposures to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs	https://www.health.ny.gov/community/opioid_epidemic/docs/iabopioidresponse.pdf
The Interagency Board for Emergency Preparedness and Response	Recommendations on Selection and Use of Personal Protective Equipment and Decontamination Products for First Responder Against Exposure Hazards to Synthetic Opioids, Including Fentanyl and Fentanyl Analogues	https://www.interagencyboard.org/content/recommendations-selection-and-use-personal-protective-equipment-and-decontamination-products
White House/ Office of National Drug Control Policy	Fentanyl Safety Recommendations for First Responders	https://www.whitehouse.gov/ondcp/key-issues/fentanyl/
American College of Occupational and Environmental Medicine (ACOEM)	ACOEM Practice Guidelines: Opioids and Safety Sensitive Work	https://journals.lww.com/joem/Fulltext/2014/07000/ACOEM_Practice_Guidelines___Opioids_and.15.aspx
Department of Homeland Security	Proceedings from the 2017 Fentanyl Working Meeting-May 1, 2018	https://www.dhs.gov/publication/proceedings-2017-fentanyl-working-meeting
Substance Abuse and Mental Health Services Administration (SAMHSA)	Federal Guidelines for Opioid Treatment Programs	https://store.samhsa.gov/product/Federal-Guidelines-for-Opioid-Treatment-Programs/PEP15-FEDGUIDEOTP
The Joint Commission	Opioid Treatment Program Accreditation	https://www.jointcommission.org/facts_opioid_treatment_program_otp_accreditation/

Review of Training Courses

A gap analysis and review of training courses specific to opioids and opioids in the workplace was also conducted. To identify training courses, we performed a broad search for "opioid training," "opioid training for workers," and "opioid training in the workplace" on the Internet and used our knowledge of existing training developed by federal agencies, academia, as well as WTP awardees and partnering organizations.

Inclusion criteria for training courses:

- Content developed and sponsored by an academic institution, professional, government, or other credible organization or agency;
- Content delivered in classroom, hands-on training, interactive exercises, or via the Web (PowerPoint, video, webinar, etc.);
- Content is accessible for viewing or download, either at no-cost or for a user registration fee;
- Content has specific learning goals and objectives; and
- Content is focused on opioids.

Courses were categorized by level of training (awareness, hands-on, operations), intended audience, topic, delivery methods, duration, and cost. A total of 56 training courses met the inclusion criteria (Appendix iv).

Various training resources, such as fact sheets, one-pagers, toolkits, and wallet cards were excluded. Any webinars, seminars, or training events that had occurred but did not provide accessible materials that were used for the training (e.g., PowerPoint slides, recording, etc.) for free or at registered cost, were also excluded.

Course Level of Training, Delivery Method, and Duration

Of the 56 training courses identified, 55 were classified as awareness-level. Only one course was identified to have operations-level, hands-on training content, which was delivered during an interactive exercise or in a classroom.

The primary form of delivery for these awareness-level courses is web-based, either through e-learning systems, PowerPoints, or webinars. Most of these courses are readily available online and are free to the public, while a few of them require membership to a professional society or organization, such as the American Society of Addiction Medicine or American Psychiatric Nurses Association.

The average duration for the awareness-level courses is 2.97 hours. The longest course is 14 hours long while the shortest course is nearly 0.23 hours long. These estimations are based on 37 of the awareness-level courses that specified length of time. The remaining 22 courses did not specify duration, as they are either only accessible via online registration through a professional society or organization, are PowerPoint presentations, or are presented as modules in educational packages or series.

Course Topics and Audiences

Most of the courses cover topics such as opioid addiction and misuse, treatment for opioid use disorders, pain management and alternatives for treatment. Notably, there is some overlap in topics across courses identified. Approximately 20 courses covered the topic of opioid addiction and misuse; 31 covered treatment and seven covered pain management.

These courses are primarily directed towards health care providers and professionals, such as physicians, nurses, dentists, and pharmacists. A few examples of these courses include:

- "Understanding Addiction," sponsored by Harvard Medical School;
- "Effective Treatments for Opioid Use Disorders: Educating and Empowering Nurses During an Epidemic," sponsored by the American Psychiatric Nurses Association;
- "SAFE Opioid Prescribing: Strategies. Assessment. Fundamentals. Education," sponsored by the American College of Physicians;
- "Collaborative Care Approaches for Management of Opioid Use Disorder," sponsored by Harvard Medical School; and
- "Pain Management and Opioids: Balancing Risks and Benefits," sponsored by the American Society of Addiction Medicine.

TABLE 2: Topics and Number of Courses

Topic	Number of Courses
Opioid addiction/misuse	20
Treatment	31
Pain management	7

Other identified courses focus on topics such as preventing, recognizing, and responding to overdoses, as well as and administering naloxone. These courses are directed to a wide range of audiences, including health care providers, school nurses, law enforcement, librarians, and the general public. Approximately 10 courses cover Naloxone use and administration, but at the awareness-level. One course that is notable for its specificity to its target audience is, "Opioid Epidemic and Libraries: Challenges, Resources, and More," developed by the American Library Association, which covers unique concerns that librarians are faced with during the opioid crisis.

Only a few courses cover opioid issues specific to the workplace, such as protection from occupational exposure. Three courses that focus on protection from occupational exposure are directed to EMS workers, law enforcement, and other first responders.

One course sponsored by MRA-The Management Association and the International Foundation of Employee Benefit Plans called "The Opioid Epidemic…Is Your Workplace Prepared?" touches on a myriad of workplace issues to help employers and HR departments determine if their workplace is prepared to deal with opioid-related issues. It is also the only course we identified that covered the issue of addiction and misuse specifically as it relates to workers and the workplace.

Some courses cover special, emerging topics related to the impact of the opioid epidemic on the potential spread of infectious diseases. For example, one course developed by the Eppley Institute for Parks and Public Lands and the Biosafety and Infectious Disease Training Initiative entitled "Spotlight on Safety: Recognizing Hazards from Opioid Waste and Associated Infectious Diseases," provides content to help employees, volunteers, and community members recognize opioid-related waste or hazards they may encounter in parks. A few additional examples include:

- "Infectious Disease Consequences on Opioid Use," developed by the Association of State and Territorial Health Officials;
- "Opioids: Epidemic of Our Time and Impact on Infectious Disease," developed by the National Institutes of Health; and
- "Hidden Casualties: The Consequences of the Opioid Epidemic on the Spread of Infectious Disease," developed by the U.S. Department of Health and Human Services (HHS).

Other courses are directed to underserved or minority audiences, such as rural or tribal communities. A few examples of these include:

- "Forum on Opioids: Strategies and Solutions for Minority Communities," developed by HHS;
- "How the Opioid Crisis Impacts Individuals and Rural Communities," developed by Michigan State University; and
- "Opioids in Indian Country Part 1: Understanding the Problem," developed by SAMHSA.

Resources to Enhance Training

While searching for guidelines and trainings, we identified several resources (e.g., fact sheets, toolkits, handouts, etc.) which did not meet the stated definitions of a guideline or training course but are potentially of value for those working to combat the opioid crisis. Recognizing the importance of these additional resources as supplemental materials for education and training, we have provided a sample listing of these in Table 3.

TABLE 3: Resources to Enhance Training

Sponsor	Resource Title	Link
American Society of Addiction Medicine (ASAM)	Opioid Use Disorders and the Americans with Disabilities Act: Eliminating Discriminatory Barriers to Treatment and Recovery	https://elearning.asam.org/products/opioid-use-disorders-and-the-americans-with-disabilities-act-eliminating-discriminatory-barriers-to-treatment-and-recovery-15-cme
CPWR	CPWR Hazard Alert	https://www.cpwr.com/sites/default/files/publications/Opioids-Hazard-Alert.pdf
CPWR	CPWR Toolbox Talk	https://www.cpwr.com/sites/default/files/publications/TT-Opioids.pdf
International Association of Fire Fighters (IAFF)	Responding to the Opioid Crisis Toolkit	http://client.prod.iaff.org/#page=OpioidCrisis

Sponsor	Resource Title	Link
National Council of State Boards of Nursing	Opioid Toolkit	https://www.ncsbn.org/opioid-toolkit.htm
National Safety Council (NSC)	Prescription Drug Community Action Kit	https://www.nsc.org/home-safety/tools-resources/rx-community-action-kit
Oregon Pain Guidance Group	Pain Education Toolkit	https://www.oregonpainguidance.org/resources/patient-education-toolkit/
Painters and Allied Trades International Union	11 Questions to Ask Your Doctor Before Taking Opioids (wallet card)	http://www.lmcionline.org/wp-content/uploads/11-Questions-to-Ask-Your-Doctor-Before-Taking-Opioids.pdf
Painters and Allied Trades International Union	IUPAT Helping Hand: Suicide Prevention and Substance Abuse Disorder	http://www.lmcionline.org/iupathelpinghand/ http://www.lmcionline.org/iupathelpinghand/#substance-abuse
Substance Abuse and Mental Health Services Administration (SAMHSA)	Drug-Free Workplace Toolkit	https://www.samhsa.gov/workplace/toolkit

B. Evaluation and Analysis of the Pilot Trainings

Pilot Training Pre- and Post-Test Quiz Results

Combined Results for All Training Sites

Table 4 provides percent agreement with the correct response during pre-test and post-test and change in percent, for questions 1-13 across all four pilot trainings. A total of 96 pre-test quizzes were returned, and 83 post-test quizzes were returned. Site-specific pre- and post-test results are contained in Appendix v and the evaluation forms are contained in Appendix vi.

TABLE 4: Percent agreement with correct response during pre-test and post-test and change in percent, questions 1-13 (changes of 15% or greater or statistically significant changes highlighted in yellow), n=96 for pre-test, n=83 for post-test pilot training participants.

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	Correct response
1. Morphine is 50-100 times more potent than Fentanyl.	76 (79.2%)	68 (81.9%)	2.7	0.22 (0.642)	No
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use	69 (71.9%)	64 (77.1%)	5.2	0.64 (0.424)	No

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	Correct response
3. Opioid use or misuse is caused by lack of willpower.	82 (85.4%)	69 (83.1%)	-2.3	0.18 (0.675)	No
4. Opioid use disorder is a disease.	80 (85.1%)	75 (90.4%)	5.3	1.12 (0.290)	Yes
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred	82 (85.4%)	78 (94.0%)	8.6	3.44 (0.064)	Yes
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	71 (74.0%)	76 (91.6%)	17.6	9.40 (0.002)	No
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	78 (81.3%)	83 (100%)	18.7	14.63 (<0.001)	Yes
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse	90 (93.8%)	79 (96.3%)	2.5	0.62 (0.432)	Yes
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	52 (54.2%)	60 (72.3%)	18.1	6.24 (0.0125)	Yes
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 79 (82.3%) 80 (83.3%)	 79 (95.2%) 80 (96.4%)	 12.9 13.1	 7.14 (0.0075) 7.99 (0.0047)	 Yes Yes
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	54 (56.3%)	72 (86.7%)	30.4	19.86 (<0.001)	Yes
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	77 (80.2%)	69 (83.1%)	2.9	0.25 (0.615)	No
13. I know what makes up a supportive workplace "drug free" policy.	30 (31.3%)	69 (83.1%)	51.8	48.48 (<0.001)	Yes

TABLE 5: Percent agreement with correct response during pre-test and post-test and change in percent, questions 14-15 (changes of 15% or greater or statistically significant changes highlighted in yellow), n=96 for pre-test, n=83 for post-test pilot training participants.

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	Correct response
14. Please indicate which of the following are signs of opioid addiction					
• Drowsy	76 (79.2%)	80 (100%)	20.8	16.14 (<0.001)	YES
• Vomiting	63 (65.6%)	76 (95.0%)	29.4	22.68 (<0.001)	YES
• Slow breathing	69 (71.9%)	77 (96.3%)	24.4	18.33 (<0.001)	YES
• Improved decision making	75 (78.9%)	66 (83.5%)	4.6	0.59 (0.441)	NO
15. Please circle which of the following are opioids:					
• OxyContin	85 (93.4%)	79 (98.8%)	5.4	3.10 (0.785)	YES
• Cocaine	64 (71.1%)	50 (62.5%)	-8.6	1.42 (0.233)	NO
• Vicodin	70 (77.8%)	74 (92.5%)	14.7	7.09 (0.0078)	YES
• Aspirin	82 (91.1%)	70 (87.5%)	-3.6	0.58 (0.445)	NO
• Morphine	73 (81.1%)	71 (88.8%)	7.7	1.91 (0.167)	YES
• Fentanyl	84 (92.3%)	80 (100%)	7.7	4.03 (0.447)	YES
• LSD	64 (71.1%)	60 (75.0%)	3.9	0.325 (0.569)	NO
• Methadone	49 (53.8%)	70 (87.5%)	33.7	22.78 (<0.001)	YES
• Methamphetamine	51 (56.0%)	43 (53.8%)	-2.2	0.09 (0.764)	NO

TABLE 6: Percent agreement with correct response during pre-test and post-test and change in percent, questions 16-19 (changes of 15% or greater or statistically significant changes highlighted in yellow), n=96 for pre-test, n=83 for post-test pilot training participants.

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	Correct response
18. Workplace stress may lead to self-medication with drugs or alcohol.	82 (89.1%)	69 (88.5%)	-0.6	0.019 (0.890)	Agree or Strongly Agree

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	"Constructive" behavior, but dependent on workplace policies*
16. I am likely to report hazards at my workplace.	87 (94.6%)	74 (94.9%)	0.3	0.008 (0.929)	Agree or Strongly Agree

	Pre: N (%) agreement w/ correct response	Post: N (%) agreement w/ correct response	Change %: Pre-Post	χ^2 (p-value)	"Constructive" behavior, but dependent on workplace policies*
17. I am likely to report injuries at my workplace.	82 (89.1%)	71 (91.0%)	1.9	0.169 (0.681)	Agree or Strongly Agree
19. I am likely to talk about substance abuse at work:					
• With coworkers	66 (71.7%)	67 (85.9%)	14.2	4.970 (0.026)	Agree or Strongly Agree
• With supervisors	52 (56.5%)	52 (66.7%)	10.2	1.830 (0.176)	Agree or Strongly Agree

*For questions 16, 17 and 19, we labeled as "constructive" those behaviors that we believe would be most constructive in addressing the opioid epidemic and improving workplace safety and health. However, we recognize that management or Federal policies in some workplaces may inhibit or not permit such behaviors. Workers may face penalties or termination in some workplaces if they act in the "constructive" way. Therefore, these questions may not be valid measures of training program outcomes in some workplaces.

As can be seen in Tables 4-6, substantial and statistically significant increases in percent agreement with the correct response were observed for questions 6, 7, 9-11, and 13. These questions addressed some of the major objectives of the training: the role of ergonomics and risk of pain; injuries and potential opioid use and misuse; feeling comfortable accessing treatment for opioid misuse or addiction through work; knowing how to speak to a healthcare provider about avoiding opioids if injured and alternative pain treatments; knowing what questions to ask to understand the quality of health insurance coverage for substance use treatment; and knowing what makes up a supportive workplace drug free policy.

In addition, increases were seen in knowledge for some symptoms (q14), some names of opioids (q15), and one's likelihood to talk with a supervisor about substance abuse at work (q19). On the other hand, no substantial or significant increases were seen for other questions. This may be due, in part, to the high percentage agreement with the correct response at pre-test, leaving little room for improvement (i.e., "ceiling effect"). A decline in percent correct response was seen for four questions, however, in no case was that decline substantial or statistically significant, and thus may be due to chance. One potential reason that some participants reported a willingness to talk with their supervisors may be due to their roles serving as the site supervisor. Therefore, the question may not be applicable for them and its applicability would vary by location and demographics.

The substantial (>15%) and significant improvements in some questions need to be interpreted with caution since not all participants who completed the pre-test (n=96) also completed the post-test (n=83). It is possible that some participants who did not have the correct answer at pre-test failed to complete the post-test, thus leading to a spuriously high percent improvement. We are unable to determine whether this may have happened since tests were not identified by individual, and we could not match an individual's pre-test to their post-test (or failure to complete the post-test).

Differences Between Training Sites in Pre- and Post-Test Results

Some of the participants in Lowell, Massachusetts were exposed to a stakeholder meeting prior to the training. The meeting included key topics in the training and may have contributed to increasing knowledge before the pre-test in some of the participants. Several pre-test questions in Lowell had substantially higher (>9.2% higher) percent agreement than pre-test results at other training sites (see Table 7). Therefore, this potential source of bias may have led to smaller increases in knowledge from pre-test to post-test than would otherwise have been observed.

TABLE 7: Substantially higher pre-test % agreement with correct answer in Lowell compared to the three other training sites

Question	Pre-test n (%) Lowell	Pre-test n (%) 3 sites other than Lowell
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred	31 (93.9)	51(81.0)
6. Naloxone (Narcan) is dangerous to administer to someone overdosing	27 (81.8)	44 (69.8)
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse	33 (100)	57 (90.5)
15. Please circle which of the following are opioids:(LSD)	25 (83.3)	39 (65.0)
15. Please circle which of the following are opioids:(Methadone)	18 (60)	31 (50.8)
18. Workplace stress may lead to self-medication with drugs or alcohol	29 (96.7)	53 (85.5)

Naloxone. Increases from pre- to post-test were seen in questions 5 and 6 in all four pilots, most notably in Huntington, where there was a 42.9% increase in agreement with the correct response for "Naloxone (Narcan) is dangerous to administer to someone overdosing". The possible high percentage change in Huntington may be due to an open discussion about Narcan and whether it was an "enabling" medication. The subject of Naloxone (Narcan) arose multiple times in Huntington, such as through discussion of personal experiences. This discussion beyond the original frame of the presentation may have increased the awareness of Naloxone safety. Naloxone is discussed further in a separate training tool that the instructor introduced to the participants, but was not covered extensively in the pilot trainings.

Reporting Hazards and Injuries. In Lowell, New York, and Huntington, there was an increase in being likely to report hazards (q16) and injuries (q17) at work, in drawing an association between workplace stress and self-medication (q18), and being likely to talk about substance abuse at work with co-workers or supervisors (q19). However, in Hanford, there was a decline in percent agreement with these questions, except for talking to supervisors (q19). This difference may be due to a workplace culture in Hanford that focuses on punitive policies. Support for such a hypothesis is seen in the decline in percent agreement in Hanford for question 12, where the "correct" response was that zero tolerance policies were not the most effective way to prevent drug use in the workplace. Participants in other training sites described experiences with punitive

policies, but there was less support for such policies. Workplace conditions and culture prior to training will vary across workplaces and therefore could influence how respondents perceive their ability to report hazards and injuries, the role of work stress, and support for supportive versus zero tolerance workplace policies.

Stigma and Language. One of the important goals of the pilot training sessions was to encourage participants to engage in discussion about uncomfortable issues regarding addiction and stigma. On two items on stigma (q3 and 4), Lowell participants showed an increase in percent agreement with the correct answer; however, participants at other sites varied and included declines. The two items asked if opioid use or misuse is due to a lack of willpower, and if OUD is a disease. Participants at each site debated whether OUD was a disease and if it was due to a lack of willpower. It is challenging to change participants' inherent beliefs on these issues.

Pilot Training Process Evaluation Results (Participants' Assessment of Training and Instructor Effectiveness)

Combined Results for All Training Sites

TABLE 8: Percent agreement with process evaluation questions across all pilot training sites, n=74*

Item	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
The training adequately covered the learning objectives (*n=73)	8 (10.96)	1 (1.37)	7 (9.59)	23 (31.51)	34 (46.58)
The training was presented effectively according to the needs of the trainees	10 (13.51)	2 (2.70)	8 (10.81)	20 (27.03)	34 (45.95)
The small group activities were relevant and allowed members in the group to share important experiences and information	7 (9.46)	4 (5.41)	5 (6.76)	22 (29.73)	35 (47.30)
I feel that the training has prepared me well to handle opioids in the workplace	10 (13.51)	7 (9.46)	9 (12.16)	21 (28.38)	27 (36.49)
I intend to use the content and skills learned in this course in my current job	10 (13.51)	3 (4.05)	8 (10.81)	22 (29.73)	31 (41.89)
The training content was effective	8 (10.81)	3 (4.05)	7 (9.46)	24 (32.43)	32 (43.24)
The training format was effective	9 (12.16)	5 (6.76)	7 (9.46)	20 (27.03)	33 (44.59)
The instructor was effective	8 (10.81)	3 (4.05)	10 (13.51)	15 (20.27)	38 (51.35)
The training overall was effective	8 (10.81)	3 (4.05)	8 (10.81)	20 (27.03)	35 (47.30)

The majority of participants agreed that the content, instructor, and overall training was effective,

with percent "agree" or "strongly agree" ranging from 64.1 to 78.1 percent. Some of the "strongly disagree" results may be attributed due to a formatting issue. Participants mentioned after training that the response option order was reversed from the post-test quiz to the process evaluation form for Likert-scaled items. This reversal led some participants to accidentally respond "strongly disagree" when they had intended to respond "strongly agree". This is consistent with the fact that some participants selected "strongly disagree" on all process evaluation items but did not add any negative feedback in their written responses.

About 22 participants did not complete the process evaluation form.

Differences Between Training Sites or Demographic Factors

TABLE 9: Significant Differences in Participant Assessment of Training Effectiveness, 4 Pilot Training Sessions, by Training Site, Age, Gender, Education or Race, n52 to n=74, n (%)

Questions		Training Site				χ^2	p
		Hanford	Lowell	NYC	WV		
1. The training adequately covered the learning objectives	Disagree Neutral Agree	3 (21.) 6 (42.9) 5 (35.7)	0 (0.0) 1 (4.8) 20 (95.2)	3 (13.0) 0 (0.0) 20 (87.0)	3 (20.0) 0 (0.0) 12 (80.0)	28.817	<0.001
2. The training was presented effectively according to the needs of the trainees	Disagree Neutral Agree	5 (35.7) 5 (35.7) 4 (28.6)	1 (4.5) 1 (4.5) 20 (90.9)	3 (13.0) 2 (8.7) 18 (78.3)	3 (20.0) 0 (0.0) 12 (80.0)	20.894	0.002
4. I feel that the training has prepared me well to handle opioids in the workplace	Disagree Neutral Agree	7 (50.0) 4 (28.6) 3 (21.4)	2 (9.1) 1 (4.5) 19 (86.4)	5 (21.7) 4 (17.4) 14 (60.9)	3 (20.0) 0 (0.0) 12 (80.0)	19.086	0.004
5. I intend to use the content and skills learned in this course in my current job	Disagree Neutral Agree	7 (50.0) 1 (7.1) 6 (42.9)	0 (0.0) 4 (18.2) 18 (81.8)	3 (13.0) 3 (13.0) 17 (73.9)	3 (20.0) 0 (0.0) 12 (80.0)	17.674	0.007
6. The training content was effective	Disagree Neutral Agree	4 (28.6) 4 (28.6) 6 (42.9)	1 (4.5) 1 (4.5) 20 (90.9)	3 (13.0) 2 (8.7) 18 (78.3)	3 (20.0) 0 (0.0) 12 (80.0)	13.788	0.032
7. The training format was effective	Disagree Neutral Agree	6 (42.9) 3 (21.4) 5 (35.7)	2 (9.1) 0 (0.0) 20 (90.9)	3 (13.0) 4 (17.4) 16 (69.6)	3 (20.0) 0 (0.0) 12 (80.0)	16.766	0.010

Questions		Training Site				χ^2	p
8. The instructor was effective	Disagree Neutral Agree	4 (28.6) 6 (42.9) 4 (28.6)	1 (4.5) 2 (9.1) 19 (86.4)	3 (13.0) 2 (8.7) 18 (78.3)	3 (20.0) 10 (0.0) 12 (80.0)	19.903	0.003
9. The training overall was effective	Disagree Neutral Agree	4 (28.6) 5 (35.7) 5 (35.7)	1 (4.5) 1 (4.5) 20 (90.9)	3 (13.0) 2 (8.7) 18 (78.3)	3 (20.0) 0 (0.0) 12 (80.0)	17.945	0.006
Education level							
		HS or less	Some college	4-year degree	Grad school		
1. The training adequately covered the learning objectives	Disagree Neutral Agree	3 (75.0) 0 (0.0) 1 (25.0)	2 (7.7) 3 (11.5) 21 (80.8)	1 (7.7) 2 (15.4) 10 (76.9)	1 (9.1) 1 (9.1) 9 (81.8)	15.040	0.020
2. The training was presented effectively according to the needs of the trainees	Disagree Neutral Agree	3 (75.0) 0 (0.0) 1 (25.0)	4 (15.4) 1 (3.8) 21 (80.8)	2 (14.3) 4 (28.6) 8 (57.1)	1 (9.1) 2 (18.2) 8 (72.7)	14.919	0.021
6. The training content was effective	Disagree Neutral Agree	3 (75.0) 0 (0.0) 1 (25.0)	2 (7.7) 3 (11.5) 21 (80.8)	2 (14.3) 2 (14.3) 10 (71.4)	1 (9.1) 0 (0.0) 10 (90.9)	14.864	0.021
9. The training overall was effective	Disagree Neutral Agree	3 (75.0) 0 (0.0) 1 (25.0)	3 (11.5) 1 (3.8) 22 (84.6)	2 (14.3) 3 (21.4) 9 (64.3)	1 (9.1) 1 (9.1) 9 (81.8)	14.608	0.024
Race/ethnicity							
		White	Hispanic	Amer. Indian	Other		
1. The training adequately covered the learning objectives	Disagree Neutral Agree	3 (7.5) 3 (7.5) 34 (85.0)	1 (20.0) 0 (0.0) 4 (80.0)	0 (0.0) 1 (50.0) 1 (50.0)	3 (60.0) 1 (20.0) 1 (20.0)	16.789	0.010
2. The training was presented effectively according to the needs of the trainees	Disagree Neutral Agree	4 (10.0) 4 (10.0) 32 (80.0)	1 (20.0) 0 (0.0) 4 (80.0)	0 (0.0) 1 (50.0) 1 (50.0)	4 (80.0) 1 (20.0) 0 (0.0)	20.667	0.002
3. The small group activities were relevant & allowed members in the group to share	Disagree Neutral Agree	4 (10.0) 2 (5.0) 34 (85.0)	1 (20.0) 1 (20.0) 3 (60.0)	0 (0.0) 0 (0.0) 2 (100)	3 (60.0) 1 (20.0) 1 (20.0)	12.870	0.045

Questions		Training Site				χ^2	p
4. I feel that the training has prepared me well to handle opioids in the workplace	Disagree Neutral Agree	5 (12.5) 6 (15.0) 29 (72.5)	2 (40.0) 0 (0.0) 3 (60.0)	1 (50.0) 0 (0.0) 1 (50.0)	4 (80.0) 1 (20.0) 0 (0.0)	15.134	0.019
7. The training format was effective	Disagree Neutral Agree	5 (12.5) 3 (7.5) 32 (80.0)	1 (20.0) 1 (20.0) 3 (60.0)	0 (0.0) 0 (0.0) 2 (100)	4 (80.0) 1 (20.0) 0 (0.0)	16.749	0.010
8. The instructor was effective	Disagree Neutral Agree	3 (7.5) 3 (7.5) 34 (85.0)	1 (20.0) 0 (0.0) 4 (80.0)	1 (50.0) 0 (0.0) 1 (50.0)	3 (60.0) 2 (40.0) 0 (0.0)	19.839	0.003
Age group							
		25-35	36-50	50+			
3. The small group activities were relevant & allowed members in the group to share	Disagree Neutral Agree	1 (16.7) 2 (33.3) 3 (50.0)	5 (22.7) 2 (9.1) 15 (68.2)	3 (11.5) 0 (0.0) 23 (88.5)		9.593	0.048
8. The instructor was effective	Disagree Neutral Agree	0 (0.0) 2 (33.3) 4 (66.7)	5 (22.7) 4 (18.2) 13 (59.1)	3 (11.5) 0 (0.0) 23 (88.5)		9.990	0.041
9. The training overall was effective	Disagree Neutral Agree	0 (0.0) 2 (33.3) 4 (66.7)	5 (22.7) 3 (13.6) 14 (63.6)	3 (11.5) 0 (0.0) 23 (88.5)		9.669	0.046
Notes: Only statistically significant differences shown in this Table.							

Of the 45 tests of differences between the nine training effectiveness ratings and the four demographic measures or training site, 21 were statistically significant. (Only two would have been expected by chance.) There were no significant differences in ratings of training effectiveness by gender. Ratings of training effectiveness were very high in Lowell, New York, and Huntington (60.9%-95.2%), but were much lower in Hanford. Ratings of training effectiveness were very high for all educational groups (64.3%-90.09%) except for the four participants identifying themselves as having a high school education or less. Ratings of training effectiveness were very high for all participants identifying themselves as White or Hispanic (60.0%-85.0%), but lower among those reporting being American Indian (n=2) or "Other" (n=5). Finally, ratings of training effectiveness were highest for the 50+ year old group (88.5%) and a little lower for the younger groups (50.0%-66.7%). Further analysis would be required to determine if any of the demographic differences were confounded by training site.

Open-Ended Process Evaluation Information

TABLE 10: Participants' answers to open-ended process evaluation questions across all pilot training sites. Numbers of participants with similar answers in parentheses.

Questions	Participant Responses
What content or skills did you learn that were most valuable to you? n=56	• Extent of the crisis, how many people are affected by opioids, data/stats, stats on death, stats and levels of the opioid crisis (5) • What opioids were, on opioids, the various types of opioids (4) • Comprehensive names of drugs, names, list of opioids (3) • Resource material that can be used to build our own modules, resources available (2) • Group discussions, discussions in small groups (2) • Causes of opioid addiction, learning what to look for and things that causes workplace drug abuse, injury/bullying/stress (2) • Prevention ideas, prevention is valuable to help curb the opioid crisis (2) • Identify opioid use disorder as a disease, definition of disease (2) • Signs/symptoms • The slide content-discussion with hearing other union strategies • The think the content at the end regarding steps that could be taken were very valuable • Connections made with other class attendees and discussions • Upper management buy in • Better understanding of opioid addiction as a disease • Components of supportive drug free policies • Information about new methods for pain management • Communication • Alternative forms of treatment, alternative discipline (supportive) • Employee rights, risk factors in many different professions, symptoms of addiction and OD • Small group activities, introduction to what is an opioid • How the system works when it comes to opioids, politics etc. • Medication information • Language is important when talking about opioids, avoid labeling • Exercises to discuss opioid issues • New info on drugs • The concept and word phrases used when speaking with someone with a disorder • The importance of opioids in the workplace • The amount of information that is out there to learn from • Addiction awareness • Dependence is on the user, everyone is affected/family • Accept what I can't change • Language to talk about opioid use-hearing from participants • Most valuable was discussion/training around how to have a discussion about substance use disorders • Use of Narcan • About medicine which contains opioid • To keep discussing issue • Link between opioids & the trades. Drug testing for work is interesting & complicated-punitive in a setting trying to be more compassionate

Questions	Participant Responses
What content or skills did you learn that were most valuable to you? n=56	• The statistics presented although some were not adequately covered. Relapse was not discussed, types of treatment that are not effective. More specific topics and direction of presentation. • Glimpse into the carpenter's culture, no sick days • Approach the issue • General knowledge terms, legal recourse • All
What content or skills did you learn that were least valuable to you? n=43	• N/A, none, all was relevant, all good points, all worthwhile, it all was useful, there was nothing invaluable, it was all excellent content, all was good (26) • Some of the activities weren't as helpful, particularly the stigma activity and the second to last activity. Come up with solutions is good exercise, but not if you work for such a large bureaucracy that you can't effect change, the stigma discussion should have been better framed/structured (2) • Too much stats, info in books, the statistics did nothing for me (2) • Not able to use in DOE site due to security • Use of politically correct language • There is a need for this information, already aware of the clear and present danger • Class was not helpful-very dull too many slides • We can not have a drug issue at our job. • EAPs-audience background made most content unavailable • Old info 2017, None of the info was new • Bullying is a issue! • How to effectively know if someone is on opioids • Most of this was beyond my job description • About the average of injuries in the industry • Some of the group activities didn't feel relevant • Opioid info was very basic but necessary
Suggestions for improvement to the training n=53	• More video and less death by PowerPoint, too many very wordy slides, less PowerPoint, add a hands-on segment, sometimes seemed repetitive, consolidate some of the modules, hands on integrated, know your audience background, the slide content and collaboration with other resources, a review of the slides to ensure they are addressing the objectives, maybe fewer slides, too many words on screen, shorter presentation, more group activities (14) • N/A, none, was fine, all good, excellent class (9) • Maybe a video or testimonial, show videos, more movies to mix it up, the training was excellent and effective. maybe video, videos, more study on finding out if someone is on opioids (4) • Better discussion less dismissal, more listening and discussion with all students more open to suggestion (2) • Need hard copy to follow along with slides presentation to not have to take as many notes; Have a printed copy of slides and under comments to follow along with (2) • Quit calling opioid abuse a "disease". It almost normalizes drug use and using soft and kind words to describe it does not make it any less of a personal choice to abuse and not get professional help. • I hope the fact that we have no coverage to drug abuse that you can work on adding that to training. • Prework via online assignments • I think further consultant with folks in the recovery community and prevention community could be valuable. Particularly in the stigma section, the presenter and slides used language that enforced stigma and was lax on stigmatic attitudes expressed by the audience.

Questions	Participant Responses
Suggestions for improvement to the training n=53	• It was very comprehensive? Perhaps more guidance, examples on how to deal with "deniers" or people who don't believe what you're saying • I came into the training to learn about specific interventions that could be taken in the workplace (i.e. the policies) that I could share with local employers. I would recommend less background on crisis and move on what can be done. • Post test question 6 can be dangerous depending on environment. • Very small groups work best • Add different instructors in course. Instructor needs to control room better. Very poor use of language when describing someone suffering from OUD. • More opportunities for interactive exercises. More sampling policies focused on injury prevention and health & safety. • Good balance of explanation and activities • Lots of discussion of how unions can help; almost none for non-unionized workplaces • Can streamline stats. Eliminate proper verbiage, replace with an activity i.e. hazard map. • It was great to have the trainer's perspective to enhance the training because of their practical approach • More specific talk about abstinence base recovery • Show video earlier on in training, small group discussions good but not for all activities-large group discussions valuable also • To make PowerPoint easily seen, providing stats in folder to allow for demonstrations • For the pre/post-test suggest rephrasing question 2 to make less confusing. Also suggest changing yes/no format to true/false • Know you audience, don't believe everything you're told, talk about chronic relapsing. • Fewer activities, more focus on relevant pieces • Explore peer to peer and institute • Access documents electronically

As listed in Table 10, the most valuable content or skills participants learned were: awareness about addiction, identifying opioids, signs and symptoms, and the extent of the epidemic. Also, the added resources on prevention, communication, and medication. The least valuable content or skills reported included: "politically correct" language, and not being able to report having a drug issue on their job (Hanford), and the stigma activity (Lowell). However, 26 participants responded to this question by saying "none" or "N/A". Common suggestions for improvement were to incorporate more videos, reduce word content on slides, and include more discussion and hands-on activities. There was a technical problem showing videos in New York City and Huntington, which may have contributed to comments about videos.

Demographics of Training Participants

TABLE 11: Demographics of participants across all pilot trainings (n=54)

	N	%
Gender		
Female	19	35.2
Male	35	64.8
Age		
25-35	6	11.1
36-50	22	40.7
50-64	24	44.4
65 or over	2	3.7
Race		
White	40	76.9
Hispanic	5	9.6
American Indian	2	3.8
Other	5	9.6
Education Level		
Less than High School	1	1.8
High School Diploma	3	5.5
Some College	26	47.3
4-year college degree	14	25.5
Graduate School	11	20

TABLE 12: Occupations of participants across all pilot trainings (n=42)

Hanford (n=6)	Lowell (n=12)	New York City (n=16)	Huntington (n=8)
• Instructor DOE • Industrial hygiene technician • Radiological control • Tool maker • Scientist • Assembler & DOE	• Trainer (3) • Social worker • Prevention coordinator • Director Public & Community health • Occupational health specialist/researcher • Instructor • Human service professional • Coordinator • Labor • Registered nurse	• Carpenter Instructor (6) • Safety and Health Consultant • Trainer • Administrative Assistant • Instructor • Industrial Hygienist • OSHA training coordinators • Safety supervisor • EAP • Sr. program coordinator • Health & safety specialist	• USW Staff (4) • Contract Coordinator • Safety Advocate • Steel worker • Operator

Demographic information could not be associated with pre- or post-test results since demographics were collected on a separate form and the pre- and post-test form contained no identifying information. Participants in the trainings were generally managers, health and safety professionals, or trainers. “Rank and file” workers were not well represented in the pilots.

Summary of Participants' Plans to Take Action in the Workplace Following the Pilot Training Program

Tables 13 and 14 summarize information provided by participants on two separate forms on what actions they plan to take as a result of the training when they return to work.

TABLE 13: Summary of 54 responses from all pilot trainings to end-of-training process evaluation question, "What actions do you plan to take as a result of this course?"

Participant Responses
• Instruct this class, teach people, educate others on opioids, properly staff and train my staff, develop and present training modules for workers on these subjects, incorporate this into our training programs, training at our local, provide training on opioids use in the workplace, have training throughout the state/ districts, hopefully establish a class to make people aware of the real world with opioids and its powers, This info will help me to set up our own training (11)
• Be more aware of the problem, increase staff awareness, be more aware, be more aware of the symptoms of misuse, better observe (5)
• Bring to my facility, bring the information to the workplan (2)
• Review & revise, review with staff (2)
• Create plan
• Plan and educate to prevent
• Build an awareness module specific to our facility
• Keep an eye out for co-workers in possible recovery
• Will be better enabled to "field questions" that might arise in classroom
• Build a better module, less feel good phrases, more reality
• Try to find more recent info and better suited training methods
• Using over the counter more often
• Find prevention methods
• Continue to move forward with programs that we started. Talk with business agents, stewards, and others and bring information forward. Keep at it!
• Share information
• Further consultation with experts around the effect of stigma and language can have on treatment seeking behavior. A greater comfort needs to be developed in supporting the use of the language on the slides. The antidotal "success" of using terms like "junkie" with folks at work cannot outweigh data that supports stigma free, person first language.
• Look at HR policies and talk to my employees about workplace stress/how to destress and work-life balance.
• Share with others in state developing recovery friendly workplaces
• Push for training in workplaces and community
• Not nearly enough discussion or examples/photos involving women (except nurses), people of color
• Revise training curriculum
• I intend to apply all that I learned at my workplace.
• Talk more about services available for our union members and any improvement that can be made. How to best communicate that which is available.
• Methods of dealing with people using various drugs
• Follow up with my org, how can we build on this work
• Pass this information to our community
• Consult with director of my program to address how this training can be effective
• Organize a training with my co-workers
• Bring in an outside trainer to talk to our staff about stigma and language in order to prepare them on how to talk about opioids in future trainings.

Participant Responses
• We already have action plans in place • Use the info/PowerPoint • Negotiate better language in CBAs • Contact training coordinators in USW and try to get this content introduced to unions at least • To pass along everything I learned • Address the issue • Peer committees/remove blame the worker programs/get trained and get others trained on Narcan use "Project DAWN (Deaths Avoided With Naloxone)" • Become more active with the tools you have provided • Talk to local leaders to set up a committee to deal with these issues

TABLE 14: Summary of 14 responses on the Action Planning Activity 5 for 4 pilot trainings (n=5 from Lowell, n=4 from New York, n=5 from Huntington, n=0 from Hanford). Participants were asked "What actions can be taken over the next 3-6 months".

Category on Form	Summary of Responses
To prevent injury, illness, stress, and pain	• Develop training module on opioid awareness for OSHA 10/30 • Plan and conduct training and education • Work on sexual harassment task force • Open, honest conversations with co-workers on substance misuse • Ergonomic studies • Be better at listening and understanding • Employee morale
To improve workplace substance use treatment and recovery programs	• Plan and conduct training and education • Review punitive workplace substance use policies • Propose policy • Provide support to the worker and family • Collective Bargaining Agreements
Key people to consult/ involve	• Fellow trainers • Involve firms • Task force member • EAP representatives • Management • Family • Union representatives • OSHA
Timeline	• Three months • Six months • One year • Immediately
Opportunities/Barriers	• People who don't want help • Opportunity to change policies • Funding • Stigma • Contract negotiations • Training workshops

Category on Form	Summary of Responses
Resources	• Materials from this course • NIOSH website • NIEHS • Legal consultants • Local union • Funds from employee grants • Simple handout with more information • Location and material
Notes	• It would help to have recovering addicts present to tell success stories • Discuss when training opportunities arise, such as Joint H&S Committee Training

A variety of actions were proposed by the participants, including developing and using their own training tool, using the training resources, being more aware and increasing staff awareness; reevaluating the policies within their workplaces, including human resources, and collective bargaining agreement language; reaching out to leadership, experts, union training coordinators, and local leadership.

These planned activities reflect the diversity of participants that were represented in the pilot trainings and roles in their organizations. The response rate to the Action Planning Activity 5 was low due, in some cases, to difficulty understanding the purpose of the activity and how to complete the form.

Pilot Training Participants' Representative Written and Spoken Comments During Pilot Trainings, Organized by Themes (Qualitative Data)

All site-specific comments are included in Appendix viii. The list below includes representative comments from the four pilot training programs, organized by theme.

Theme One: Every class had members with personal experiences dealing with addiction, either themselves, someone within their family, or a co-worker within their workplace:

- "My 17-year-old daughter had her wisdom teeth removed and the doctor provided a 10 mg opioid, I don't remember the name, but it was an opiate, I was furious. She's 17, why are you giving her an opioid? I was furious."
- "I had surgery and was in extreme pain. The doctors — they give you just enough to get by. It's hard for those in need for pain management."
- "There have been deaths, but nobody talks about it. Someone dies from an overdose we just ignore it. There is a stigma about it."
- "From kids to our jails, this is a problem."
- "Once they reach rock bottom, it is nearly impossible to get them back up."
- "My youngest son….my son is 6 years clean…and unless they want to help themselves, you

can't help them…you can yell at them till you're blue in the face…I investigated through our local what was available (on recovery)…happy to say he's in the union now…the rabbit is always there and I refuse to chase it…people say it's a disease but it's a self-inflicted disease."

- "It's just day after day after day…its tearing families apart…we are going down a rabbit hole…until we have a change…it's going to take jobs and a community for hope…right now there isn't none."
- "I lost my brother to heroin laced with fentanyl…he had an injury to the arm…kept pumping him with painkillers…realize it ain't working…they cut him off and he turned to other ways…couldn't tell he was on drugs…we have a volunteer program here at the union to come forward."
- "My daughter runs a center that administers these (MAT) and the success rate is quite well… the success rate is very high". On perceptions of MAT in community, "It depends what kind of community you come from…it works when you have the family support…and they can get counseling twice a week."

Theme Two: Challenges working with insurance and receiving medical treatment:

- "I injured my foot once and getting workers comp was a battle. Insurance companies don't care, it's all about the money. They don't care if I get better or anything, it's all about the money."
- "Insurance companies have too much control."
- "Insurances are cutting people off. Insurance dictating care, they don't care if you die or not."

Theme Three: Struggles with the workplace EAPs, seeking treatment, and being in recovery:

- When talking about EAPs: "People didn't feel like they had someone to trust."
- "Some people will call for an EAP and get some consultant that's totally bullshit not doing anything."
- "The nurses don't trust the EAPs since it's the employer….not only will you be told you are not ok, but it's going to take your job away from you……it's our biggest barrier (on communicating addiction)….we need a change in culture….it is a punitive workplace."
- "Lack of trust a lack of confidentiality…yup in the EAP."
- "We have banana heads running the EAP."
- "Thanks to an EAP, we have setup AA meetings during lunch time and they have proved really successful."
- On coming out as being in recovery: "I don't want to be a spokesperson of recovery, to be clapped and applauded."
- "How do you ensure that confidentiality that it doesn't go back to the boss?"
- "When I was addicted, I rather die than go to my EAP."

Theme Four: Punitive policies make it difficult for workers to seek help amid drug screening policies that can lead to the workers possibly losing their jobs. In response, some participants suggested forms of peer advocacy:

- "We have drug testing, not sure what we test for exactly, but the testing keeps it from our work."
- "If you come up dirty, you are done."
- "If you have an active substance abuse problem, you done."
- On recovery: "We don't really have people in recovery." "You can lose your clearance if you fail the drug test. As DOE we need that clearance, you lose it and you're done, they can't employ you anymore."
- "We have brought on a recovery approach...sometimes that phone call (to get recovery) is very hard…we don't want people to ask for help, we go to them."
- "There's a stigma…we have men in our union that are clearly addicted and can't go to a union represent or a boss…fear of losing their job makes it hard."
- "People react negatively to the zero-policy part of it, that term pushes people further in the closet."
- "If you show up dirty, that's it." [on relapsing and testing]

Theme Five: Stigma and addiction language were widely discussed and provided some insight into perceptions and attitudes towards the issue of "willpower vs. disease":

- When discussing Opioid Use Disorder (OUD): "I don't see this so much as a disease, but a choice."
- "Comparing cancer to drug use would offend a cancer patient."
- "I don't understand how using drugs is a disease. My grandfather died of cancer, that's a disease. Not someone using drugs, they made a choice, not a person who is sick with cancer."
- "You don't have a choice in getting cancer, you have a choice in doing drugs."
- "Addiction is the disease; abuse is what you are sugar coating it as. You are sugar coating abuse."
- "What about the people who didn't have an injury, they just want to party. To me isn't that a moral issue."
- "I don't want to call them addicts; I rather call them struggling."
- "It is not all about shame and disgrace...if there is a neutral attitude means there isn't a stigma… if there is no stigma, so what…people are afraid to say anything to not be stigmatized...they are being oversensitive."
- "You don't want something that's hurting someone to become a positive."
- "Everyone has talked and patted them on the back…but sometimes you have to get dirty… sometimes calling that a person a junkie is the only thing that gets through because that's the only thing they understand at that time."

- "We are cuddling guys."
- "Political correctness doesn't work here…compassion and baby talk isn't a solution."
- "People don't want to say it's a disease, you wouldn't treat a person with cancer the way people get treated with a drug addiction."
- "We not even gonna call them addicts? Are we going to have gloves on when we say it?"
- "It shouldn't be something we are proud of."
- "The problem is not only the pill…some people become addicts because of something within… they use the pill as an escape."
- "My brother in law was in recovery and no one wanted to talk about it, a stigma, a dirty little secret."
- "If you say those words your mind goes straight to the negative." [on the language of junkie]
- "Stigmas are really hard to evaluate. Depends how tough their skin is, how scared."

Theme Six: Discussions held after each class provided feedback on the training tool in terms of effectiveness, interest in incorporating it into their workplace's training, and further training beyond awareness, for example, on leadership:

- "This was great, I came in thinking I knew about opioids and I was completely wrong."
- "You hear about opioids all the time in the news, but never like this…this was different because now I think I can relate."
- "The training was worth it; we see this problem everywhere. I know people in recovery and its hard they face so much stigma…for sure I am going to incorporate this into a training."
- "We should be putting this into HAZWOPER training."
- "It's not like we can look at the curriculum and know what to do." [in reference to needing leadership training]
- "The training was interesting; I didn't even know what ergonomics was before this…It was informative."
- "Well I thought the training would just be slides but I like it getting people together working and talking."

Evaluators' review of participants' comments: The training sites varied in the way stigma and language about addiction were discussed. For example, in Hanford, perhaps because of the punitive drug policies in that workplace, there was less discussion of personal experiences with recovery. Hanford participants were less willing to accept OUD as a disease. In contrast, participants at other sites offered multiple personal experiences of recovery from addiction and were more accepting of less stigmatizing language. There was also a small decline among Hanford participants from pre-test to post-test in agreement with the view that zero tolerance policies are not the most effective way to prevent drug use in the workplace. In contrast, in Lowell and New York City, there was an increase in the attitude that zero tolerance policies are not the most effective way to prevent drug use, and peer advocacy efforts were discussed in the classes.

Hanford employees reported that, if they failed a drug examination, they would lose their government clearance and ultimately the ability to work at Hanford. This is seen in question 9 on "comfort accessing treatment for opioid addiction through their workplace" being minimal in Hanford in comparison to other training sites. Other workplace policies tended to encourage workers to seek treatment, but penalize them if they failed a drug test, and thus, potentially lose their job. Participants described their difficulties with workplace EAPs. However, peer advocate programs were supported and currently in place in multiple workplaces where participants work. This is supported by the increase in pre- to post-test questions on knowing what makes up a supportive "drug free" policy and support for peer advocacy.

Stigma for people with OUD was most prominent in Hanford where participants resisted the idea of labeling OUD as a disease. A number of Hanford participants argued that OUD is a self-inflicted disease and should not be compared to diseases such as cancer or diabetes. Some participants in the three other training sites felt that avoiding language that stigmatizes OUD was "enabling", while others thought it was the right thing to do. However, unlike Hanford, the small group and overall group discussions in the other training sites favored less stigmatizing language.



SECTION IV.

CONCLUSIONS

A. Needs Assessment and Gap Analysis

Based on our needs assessment and gap analysis, there is an abundance of publications on topics of interest related to opioids, such as workplace drug testing, costs of opioid use in the workplace, and interventions for workplace opioid use and addiction. While the publications address a wider range of topics on the opioid issue, existing guidelines and training courses are more narrowly focused and they provide very little actionable information for the workplace.

Most guidelines and training courses are focused on two distinct groups of workers – first responders and health care workers. Guidelines targeting these groups primarily cover information as it relates to PPE and protection from occupational exposure, and most training courses are focused on safe opioid prescribing practices, treating OUD, recognizing overdoses, and administering Naloxone.

While these topics are important, it is very clear that workplace-specific topics on opioid use, addiction, treatment, and others are significantly lacking in existing guidelines and training courses. Given the high rates of OUD reported among construction, fishing, and other manual labor trades, there is a need for guidelines for employers and managers to use in cases of treatment referral for workers who may be struggling with OUD. Similarly, training is needed to help employers, managers, and workers effectively recognize and respond to OUD within the workplace.

Existing guidelines on workplace drug testing are outdated and most of them are based on punitive, disciplinary policies such as zero tolerance. Additionally, there is little to no training available on workplace drug testing, how to handle workers with a legal opioid need, and referrals for treatment. Most existing guidelines cover workplace Naloxone programs, and while these are valuable, they don't encourage workplace intervention before an overdose occurs. Very few guidelines mention the role of preventing workplace injuries in the first place, which is a valid public health measure to reduce use of opioid prescriptions. Managers or employers who are interested in implementing workplace policies specific to opioids are likely to find more actionable best practices and recommendations in the peer-reviewed literature, which presents evidence from case studies, evaluations, and interventions in the workplace.

It is important to note that guidelines and training alone will not solve the complexity of the opioid crisis and the resulting workplace issues. This point was evident from discussion during

the 2018 WTP workshop, where attendees identified broader, systemic issues, including health care and the workers' compensation system, stigma, and workplace drug testing and disciplinary programs.

There are many industry- and audience-specific factors to consider in order to effectively address the issue in the workplace. Injury prevention should be a primary focus, followed by educational training on risks of opioids, and supportive workplace policies to refer workers to rehabilitation and treatment. Addressing the full extent of the issue will not only require financial resources and time, but it will also require employers and health and safety experts to come to a collaborative, holistic understanding of what factors lead to opioid dependence and ways to create a safer and more supportive workplace culture.

B. Evaluation of Pilot Trainings

The WTP "Opioids and the Workplace: Prevention and Response" training tool addresses the urgent need for training on this issue. The training tool was designed to cover relevant topics more broadly so that it can be adapted for various workplaces and industries. During July and August 2019, the training tool was pilot tested at four training sites in a manner that was able to increase awareness and knowledge of opioids in the workplace, including prevention and response, among the participants. The main learning objectives were mostly met in the four pilot training sessions, although this varied to some extent by training site.

TABLE 15: Success in meeting training program objectives

Program Objectives		Objectives met?
1. Discuss the scope and severity of the opioid crisis • Module 1 • Module 2 • Module 3 • Module 5 • Module 6	**Pre-post test:** q1, q3, q4, q14, q15 • >13% increase for some items in q14, q15 • No or non-significant increase in q1, q3, q4 **Written process evaluation comments:** • Participants reported that among the skills or content most valuable to them were the extent of the crisis, identifying opioids, causes of opioid addiction and a better understanding of it as a disease. Others responded that there were too many statistics. However, others did not accept OUD as a disease and did not feel the activity on stigma was helpful. **General verbal comments:** • Participants often described personal experiences dealing with addiction, either themselves, someone within their family, or a co-worker. Discussion included not knowing about opioids before the program but now being able to better understand the issue. Participants were divided on whether to accept OUD as a disease and the language used to discuss OUD.	Mostly (but varied based on training site)

Program Objectives		Objectives met?
2. Summarize the relationship between workplace injuries and illnesses, working conditions and opioid use disorder. • Module 4 • Module 7 • Module 8	**Pre-post test:** q2, q5, q6, q7, q18 • >13% increase in q6, q7 • No or non-significant increase in q2, q5, q18 **Written process evaluation comments:** • Participants reported that among the most valuable skills or content were ideas on prevention, including learning about the causes of workplace drug abuse and risk factors, such as injury, bullying, and stress. Additional important skills or content were distinguishing occupations and industries hardest hit by opioids, learning about the risk factors in many different professions, linking opioids and trades, and using Narcan. **General verbal comments:** • The demands of work can create pressure that lead to occupational stress, burnout, and injury. Participants at multiple sites discussed the pressure of working when not healthy and not managing a work-life balance leading to burnout.	Mostly
3. Identify occupational exposure, prevention, and response • Module 9 • Module 10 • Module 11	**Pre-post test:** q7, q8, q9, q16, q17, q19 • >13% increase in q9 • No or non-significant increase in q7, q8, q16, q17, q19 **Written process evaluation comments:** • Participants reported the value of learning about alternative forms of treatment, and the components of supportive drug free policies. Since some workplaces had a punitive approach to drug use, some participants did not feel that the discussion on EAPs was useful for their workplace. **General verbal comments:** • Participants had concerns with their workplace EAPs prior to training. Participants did appreciate learning about ergonomics, since many had not previously received training on it.	Mostly (but varied based on training site)
4. List actions that might be taken at the workplace to prevent and respond to opioid use and misuse • Module 11	**Pre-post test:** q9, q10, q11, q12, q13, q16, q17, q19 • >13% increase in q9, q11, q13, q19 (for coworkers, not supervisors) • No or non-significant increase in q10, q12, q16, q17 **Written process evaluation comments:** • Participants greatly appreciated learning about prevention strategies. They showed an interest in developing their own workplace training, encouraging awareness, and reviewing their current workplace policies. **General verbal comments:** • Participants commonly discussed the difficulties they had with their EAPs, and their successes with peer advocacy and recovery approaches that were non-punitive. Participants discussed planning to use this tool to develop their own training. However, some participants did not feel they could take action and create change.	Mostly
Note: A substantial majority of the participants agreed that the content, instructor and overall training was effective, with percent "agree" or "strongly agree" ranging from 64.1% to 78.1%. This adds to the evidence that the training objectives were met, at least mostly or partly.		

Substantial increases in knowledge for all training sites combined were observed for some questions in the pre- and post-test: Naloxone being safe to administer to someone overdosing (q6); understanding how workplace ergonomics can reduce potential opioid use and misuse (q7); and knowing what questions to ask to understand the quality of health insurance coverage for substance use treatment (q11). Participants also reported increases in: being comfortable accessing treatment for addiction through their workplace (q9); being able to speak to their healthcare provider on opioids following an injury and on alternative pain treatments (q10); being more likely to talk with their supervisors at work about substance use (q19); and knowing what makes up a supportive workplace drug free policy (q13).

One of the important goals of the pilot training programs (module 3 objective) was to encourage participants to engage in discussion about the uncomfortable issues of addiction and stigma. Beliefs, attitudes (including attitudes toward stigma), and perceptions will vary across training participants. One message of the training program is "it's time to get uncomfortable." Participants with histories of addiction personally or within their family or workplace helped to deliver a message of compassion in response to those who objected to "comforting" language as "enabling." Developing additional guidelines for any instructor who teaches this program on handling debates on stigma and addiction will be helpful.

Finally, a high percentage of participants agreed that the instructor and the training were effective. Participants also agreed that the small group activities were relevant and they intended to use the content and skills learned in the course in their current workplace.

Pilot training participants provided a variety of suggestions for improving the training program. A number of them suggested more activities and fewer slides, and more videos (although this suggestion may have been made by some people due to video technical problems in two sites). Two participants suggested providing a printed copy of the slides in class. Additional suggestions were made by one person, which included: preliminary work via online assignments; further consultation with people in the recovery community and prevention community; more about specific workplace policies or programs that could be shared with local employers; more advice for non-unionized workplaces; and allow access to the course materials electronically.

The long-term goal of the new training tool and program is to encourage development of labor and management workplace policies and EAP (or MAP) programs that can help workers. Many resources are needed to make headway toward this goal, which cannot be achieved by individuals alone. Additional versions of this training program (for example, leadership training, train-the-trainer, for peer advocacy committees) can be helpful in making headway toward this goal.



SECTION V.

RECOMMENDATIONS

A. Training Tool

The pilot trainings featuring the "Opioids and the Workplace: Prevention and Response" training tool were effective in raising awareness and merit being implemented on a larger scale. The objectives can be altered to best suit the needs of the target audience. The training tool can be modified to fit different industries, workplaces and backgrounds of participants, and can be used in its entirety or in part. Therefore, those providing the training are encouraged to be flexible in using the training tool.

Addressing Stigma and Addiction

The pilot training sessions addressed the difficult topics of stigma and addiction. Some training participants may resist changing viewpoints on these topics. A training session may not always include participants who can help the class avoid stigma by sharing their personal experiences. Having instructor notes reflecting strategies that the instructor can use when encountering such resistance would likely be beneficial. An activity dedicated to language and stigma may be a valuable addition to the training tool. The activity could entail small group discussions on how to use language in addressing addiction and stigma. These and other lessons learned from the pilot training sessions were used to develop an "Instructor Tips" guide for the training tool (Section E).

Participants' Suggestions for the Training Program

Pilot training participants provided a variety of suggestions for improving the training program, which we feel could be useful. These include a greater emphasis on the activities than the slides, an additional video (beyond the International Union of Operating Engineers video), providing a printed copy of the slides in class, further consultation with people in the recovery community, more information about specific workplace policies or programs that could be shared with local employers, and allowing access to the course materials electronically.

Need for Leadership Training

One concern raised in all four pilot training sessions was that a six-hour awareness course was not enough to start developing change in the workplace beyond an awareness-level. The training tool is intended, designed, and executed as an awareness-level training. Pilot training participants suggested that there needs to be a leadership training program on this topic to help convince

management to bring about changes in programs and policies in the workplace.

Need for Train-the-Trainer Course

The training tool can be expanded to include a train-the-trainer course. The tool would be designed to train instructors on how to effectively deliver the material in the course. The tool would need to introduce the instructors to subject matter concepts such as opioid use disorder, dependence, addiction, tolerance, behavioral health, and motivational interviewing. Ideally, it would increase the confidence in potential instructors towards presenting and adapting the material for the needs of their target audience.

B. Evaluation Instruments

Pre- and Post-Test

TABLE 16: Recommendations for Pre-Post Test

Questions	Issue	Recommendations
q2: "Whether a job has a higher risk of work-related injury is not a factor in opioid use"	Class feedback: question was confusing	Modify question
q8: "Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse"	High pre- and post-test percent agreement	Modify or remove question
q14: "Improved decision making" as sign of addiction	This may or may not be related to addiction	Eliminate question
q15: "Please circle which of the following are opioids"	Only meaningful improvement seen in Vicodin and Methadone.	Remove cocaine, aspirin, LSD, methamphetamine. Replace with Buprenorphine and Naltrexone (two opioids discussed in the training tool & classes; these are two MATs facing stigma nationally)
q15: Use of word "circle"	Participants confused on how to respond to the question	Change to "mark"
q19: I am likely to talk about substance abuse at work: "With supervisors"	"Constructive" response dependent on workplace policies	Modify question to: "With trusted people"
New pre-post question	Defining "presenteeism" was discussed in all four pilots	Add question: "I can identify presenteeism in the workplace"
Pre-Test	Completing the test takes only five to 10 minutes. However, it may interfere with the early flow of the class	Possible solution: Ask participants to take pre-test on arrival before the class starts

Evaluation and Demographic Forms

TABLE 17: Recommendations for All Evaluation Forms

Questions	Issue	Recommendations
All response options	To help participants more easily fill out the form	Change numbers to words in all response options: to “yes” “no”, “unsure”, “strongly agree”, “agree”, etc.
All forms	Some did not complete reverse side of form	Add “see other side” on bottom of first page

On the process evaluation form, the scale of “strongly disagree” to “strongly agree” should be reversed to match the post-test format. Participants would typically complete the post-test first, then the evaluation form. Some participants acknowledged after the training that they assumed the format remained the same and selected “strongly disagree” when they intended to select “strongly agree”.

On the demographic form, change the “age in years” category “50-64” to “51-64” to avoid overlap with the “36-50” category.

On the form for Action Planning (Activity 5) add the participant’s role in company or union.

C. Content in Training Tool, Slide-Specific Revisions

TABLE 18: Slide-specific recommendations

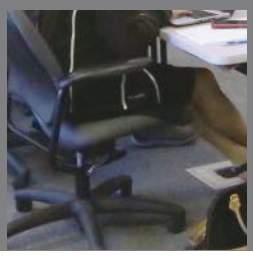
Module	Recommendation
Introduction	• Move the slide on benzodiazepines, currently slide 58, to be slide 4, right after the opening slide that defines opioids to help improve the flow of the program.
Background on the epidemic	• Slide 4: Add to instructor notes that slides 5-14 are background on the epidemic slides and some or all of them can be omitted/hidden for training programs that are of short duration. • Slide 12: Pain was designated as the fifth vital sign. Add to instructor notes that this information may be especially relevant to health care and emergency medical service workers. However, it may be omitted/hidden for other audiences or for programs of short duration as it can be time consuming and complex to explain. • Slides 10 and 11: 1980 Letter to the Editor and Worst man-made epidemic in modern medical history. Similarly, these slides can be omitted/hidden in programs of short duration. • Slide 13: Change “1600” to “2,000” lawsuits.

Module	Recommendation
Understanding opioid use disorder	• Slide 28: Delete the words “and abuse”. • Slide 29: Put the info into 2 slides. There is too much text and it is hard to read in the current format. • Slide 39: Cumulative stress. Delete this slide. It doesn’t flow with the material and is complex to explain. • Slide 41: Maybe delete this slide? It outlines types of treatment but may not add a lot of value to the program. If we keep it, change the photo. • Slide 43: Move the graphic so that it doesn’t cover up the word “costs”.
Stigma	• Slide 45: Activity 2. This should be changed to an individual activity. No need to label it a small group activity or assign a recorder/reporter. Also make that change to the activity worksheet. • Slide 49: Add to instructor notes that it is likely that participants will not know what presenteeism is and they should make sure that it is defined. • Slide 50 and 82: Activities 3 and 4 could be combined into one activity. This would reduce the total number of activities and get participants working on solutions earlier in the program. • Slide 51: Openness is the first step to recovery. Move before slide 49. It doesn’t flow in its current spot.
Prescription Opioids	• Slide 52: Add to instructor notes that we are now going to address prescription opioids in more detail as they are often prescribed as a result of workplace injury. Also, that slides 53 – 57 can be combined, omitted/hidden in programs of shorter duration.
Occupational Exposure	• Slide 66: Replace the photo on the right-hand side as it is pixelated.
Opioids and Work	• Slide 71: Occupational Injury: delete or replace the graphic. • Slides 72 – 79: Add to instructor notes that these slides provide evidence of the impact of the opioid epidemic by industry and occupation. In programs of shorter duration, they could be combined, omitted/hidden.
Employee assistance and peer assistance programs	• Slide 89: IUOE Video. Put in the instructor notes that some trainers may prefer to show this video earlier in the training program to put a human face on the problem of opioid use and show the power of peer assistance/member assistance programs. Also, refer to the resource factsheet for additional videos that are available online.
Workplace substance use prevention programs	• Slides 94-96: NSC survey on employer’s drug policies and impact on employers and workers. Add to instructor notes that if this material has already been covered in prior discussions it may be omitted. No need to repeat it. • Slide 104: CDC recommendations for opioid prescribers. Delete this slide. Too much info for most of the intended participants. • Slide 107: Action planning. We should amend the worksheet to make it clearer where to write action ideas and list some examples of individual action and some that are organizational. Some participants may feel they have no influence on organizational change.

D. Potential Follow-up and Outcome Evaluation

At six months after training, there is potential to conduct an on-line survey, plus follow-up phone calls to participants that agree to phone calls on the online survey. Also, request any documents from the company or union that describe follow-up activities, or changes in policies or programs. This would provide valuable information to assess the longer-term outcomes of the training program. However, conducting an impact evaluation (that is, to have greater confidence that the outcomes can be attributed to the training program) would require at least a quasi-experimental research design with control groups and pre- and post-assessments. The feasibility of such a study design is unclear.





SECTION VI.

APPENDICES FOR NEEDS ASSESSMENT

Appendix i. Questions for Listening Sessions

1) Who is in attendance and what are your main concerns regarding opioids in the workplace?

2) What worker training programs are currently available?

   a) Who is the target audience of the training?

   b) What are the main objectives of the training?

   c) What is the length of the training?

   d) Is the training awareness or operations level?

   e) What methods are used in the training?

   f) For operations level training, is there hands on practice with PPE and respirators and decontamination?

   g) For operations level training, are the NIOSH and IAB guidelines being applied?

3) Are there gaps in the protection and related training provided for prevention of occupational exposure to fentanyl and other opioids? If yes, what are they?

4) Are there peer assistance and/or alternative to discipline programs available in your workplace? If yes, is there relevant training and outreach so that workers with an opioid use disorder can utilize them?

5) Should training be developed to inform workers how to avoid opioid misuse, addiction, overdose and death? If yes, what would be the nature and content of that training?

6) Should training and educational materials be developed to assist injured workers in avoiding opioid abuse and addiction? What would the training and materials look like?

7) Should training and educational materials be developed to educate workers about alternative pain treatment and navigating the potential delays inherent in state workers' compensation systems? What would the training and materials look like?

8) Can safety and health trainers ramp up efforts at preventing work injuries and illnesses by educating workers about the connection between safety and health and the opioid epidemic? What would that look like?

Appendix ii: Topical Search Strings for Literature Search

TOPIC: opioids and workplace drug testing

Web of Science (WOS) : (Carfentanil OR Sufentanil OR fentanyl OR heroin OR opioid OR opioids) AND ("drug testing" OR "drug test") AND (work OR workplace) [topic]

PubMed: (carfentanil[tiab] OR sufentanil[tiab] OR fentanyl[tiab] OR heroin[tiab] OR opioid[tiab] OR opioids[tiab] OR opiate[tiab] OR opiates[tiab]) AND (("drug testing"[tiab] and workplace[tiab]) OR ("drug test"[tiab] AND workplace[tiab]))

TOPIC: employee assistance and substance abuse

WOS: ("Employee assistance program" or "Member assistance program" or "Peer assistance") and ("substance abuse" OR "drug use" OR recovery OR "Access to treatment") [topic]

PubMed: ("Employee assistance"[tiab] or "Member assistance"[tiab] OR "Peer assistance"[tiab]) and ("substance abuse" OR "drug use"[tiab] OR recovery[tiab] OR "access to treatment"[tiab])

TOPIC: broader occupational/workplace and opioids

WOS: (occupation OR occupational OR workplace) AND (Carfentanil OR Sufentanil OR fentanyl OR heroin OR opioid OR opioids OR opiate OR opiates) [topic]

PubMed: (occupation[tiab] or occupational[tiab] OR workplace[tiab]) AND (carfentanil[tiab] OR sufentanil[tiab] OR fentanyl[tiab] OR heroin[tiab] OR opioid[tiab] OR opioids[tiab])

TOPIC: workers' comp

WOS: ("workers' comp" OR "workers' compensation") AND (Carfentanil OR Sufentanil OR fentanyl OR heroin OR opioid OR opioids OR opiate OR opiates) [topic]

PubMed: ("workers' compensation"[tiab] OR "workers' comp"[tiab]) AND (carfentanil[tiab] OR sufentanil[tiab] OR fentanyl[tiab] OR heroin[tiab] OR opioid[tiab] OR opioids[tiab] OR opiates[tiab] OR opiate[tiab])

TOPIC: treatment and return to work

PubMed: ("return to work"[tiab] OR "employee retention"[tiab] OR "retaining employees"[tiab] OR "workforce retention"[tiab]) AND ("substance abuse"[tiab] OR "drug use"[tiab] OR "pain treatment"[tiab])

WOS: ("return to work" OR "employee retention" OR "retaining employees" OR "workforce retention") AND ("substance abuse" OR "drug use" OR "pain treatment")

TOPIC: missed work and opioids

PubMed: "missed work"[tiab] AND (carfentanil[tiab] OR sufentanil[tiab] OR fentanyl[tiab] OR heroin[tiab] OR opioid[tiab] OR opioids[tiab] OR opiates[tiab] OR opiate[tiab])

WOS: "missed work" AND (carfentanil OR sufentanil) OR fentanyl OR heroin OR opioid OR opioids OR opiates OR opiate)[topic]

TOPIC: training and opioid

PubMed: (carfentanil[tiab] OR sufentanil[tiab] OR fentanyl[tiab] OR heroin[tiab] OR opioid[tiab] OR opioids[tiab]) AND ("training"[tiab]) AND (employer[tiab] OR employment[tiab] OR worker[tiab] OR workplace[tiab])

WOS: training AND (employer OR employment OR worker OR workplace) AND (carfentanil OR sufentanil OR fentanyl OR heroin OR opioid OR opioids OR opiates OR opiate)[topic]

Appendix iii: Literature Review Results

2019

1) Tenney L, McKenzie LM, Matus B, Mueller K, Newman LS. Effect of an opioid management program for Colorado workers' compensation providers on adherence to treatment guidelines for chronic pain. *American journal of industrial medicine*. Jan 2019;62(1):21-29 Abstract

2) Higgins SA, Simons J. The Opioid Epidemic and the Role of the Occupational Health Nurse. *Workplace health & safety*. Jan 2019;67(1):36-45 Abstract

3) Brose SW, Schneck H, Bourbeau DJ. An Interdisciplinary Approach to Reducing Opioid Prescriptions to Patients with Chronic Pain in a Spinal Cord Injury Center. PM & R : *the journal of injury, function, and rehabilitation*. Feb 2019;11(2):135-141 Abstract

2018

4) Zezima K. Nearly 1 million people were out of the workforce because of opioid addiction in 2015, according to study. *Washington Post*. 2018/03/27/T02:13-500, 2018;Post Nation.

5) Toney-Butler TJ, Siela D. Recognizing Alcohol and Drug Impairment in the Workplace in Florida. *StatPearls*. Treasure Island FL: StatPearls Publishing LLC.; 2018.

6) Terry PE. Breaking the Silence and Other Prevention Lessons From the Opioid Epidemic. *American journal of health promotion* : AJHP. May 2018;32(4):854-857 Abstract

7) Subramaniam S, Holtyn AF, Jarvis BP, Koffarnus MN, Leoutsakos JS, Silverman K. Illicit drug use and work in a model therapeutic workplace. *Drug and alcohol dependence*. Oct 1 2018;191:110-116 Abstract

8) Shockey TM, Luckhaupt SE, Groenewold MR, Lu M-L. Frequent Exertion and Frequent Standing at Work, by Industry and Occupation Group - United States, 2015. *MMWR Morb Mortal Wkly Rep*. 2018/01/12/ 2018;67(1):1-6 Abstract

9) Scherbaum N, Specka M, Kaspar C, Mikoteit T, Lieb B. [Unemployment and Addiction: The SUNRISE Project]. *Gesundheitswesen (Bundesverband der Arzte des Offentlichen Gesundheitsdienstes (Germany))*. Jan 2018;80(1):73-78 Abstract

10) Ring BM, Jarvis BP, Sigurdsson SO, DeFulio A, Silverman K. Propensity to work among detoxified opioid-dependent adults. *J Vocat Rehabil*. 2018;49(2):187-194 Abstract

11) Passey DG, Brown MC, Hammerback K, Harris JR, Hannon PA. Managers' Support for Employee Wellness Programs: *An Integrative Review. American Journal of Health Promotion*. 2018/04/12/ 2018 Abstract

12) O'Donnell JA, Anderson JT, Haas AR, et al. Preoperative Opioid Use is a Predictor of Poor Return to Work in Workers' Compensation Patients After Lumbar Diskectomy. *Spine*. Apr 15 2018;43(8):594-602 Abstract

13) Nkyekyer EW, Fulton-Kehoe D, Spector J, Franklin G. Opioid and Benzodiazepine Use Before Injury Among Workers in Washington State, 2012 to 2015. *Journal of occupational and environmental medicine*. Sep 2018;60(9):820-826 Abstract

14) Nikoo M, Vogel M, Choi F, et al. Employment and paid work among participants in a randomized controlled trial comparing diacetylmorphine and hydromorphone. *The International journal on drug policy*. Jul 2018;57:18-24 Abstract

15) Mumba MN. Employment implications of nurses going through peer assistance programs for substance use disorders. *Archives of psychiatric nursing*. Aug 2018;32(4):561-567 Abstract

16) Mohamadi A, Chan JJ, Lian J, et al. Risk Factors and Pooled Rate of Prolonged Opioid Use Following Trauma or Surgery: A Systematic Review and Meta-(Regression) Analysis. *The Journal of bone and joint surgery American volume*. Aug 1 2018;100(15):1332-1340 Abstract

17) McCombie RP, Stirling JL. Opioid Substance Abuse Among Occupational Therapy Clients. *Occup ther Ment Health*. 2018;34(1):49-60 Abstract

18) Helmore E. Enduring pain: how a 1996 opioid policy change had long-lasting effects. *the Guardian*. *2018/03/30/T10:00:17.000Z* 2018 Link

19) Faour M, Anderson JT, Haas AR, et al. Preoperative Opioid Use: A Risk Factor for Poor Return to Work Status After Single-level Cervical Fusion for Radiculopathy in a Workers' Compensation Setting. *Clinical spine surgery*. Feb 2018;31(1):E19-E24 Abstract

20) Carnide N, Hogg-Johnson S, Furlan AD, Cote P, Koehoorn M. Prescription Dispensing Patterns Before and After a Workers' Compensation Claim: An Historical Cohort Study of Workers With Low Back Pain Injuries in British Columbia. *Journal of occupational and environmental medicine*. Jul 2018;60(7):644-655 Abstract

21) Al Achkar M, Grannis S, Revere D, MacKie P, Howard M, Gupta S. The effects of state rules on opioid prescribing in Indiana. *BMC health services research*. Jan 18 2018;18(1):29 Abstract

22) Worker's Rights: Comp system fails to offer adequate benefits. *National Employment Law Project*; 2018.

23) Anderson JT, O'Donnell JA, Haas AR, et al. Lumbar Discography Is Associated With Poor Return to Work Status Following Lumbar Fusion Surgery in a Workers' Compensation Setting. *Journal of surgical orthopaedic advances*. 2018;27(1):25-32 Abstract

24) Spying On Injured Workers Often Adds To Their Pain. *Honolulu Civil Beat*. 2018/03/05/T00:01:05-10:00 2018 Link

2017

25) Tye EY, Anderson JT, Faour M, et al. Prolonged Preoperative Opioid Therapy in Patients With Degenerative Lumbar Stenosis in a Workers' Compensation Setting. Spine. Oct 1 2017;42(19):E1140-E1146 Abstract

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27) Punnett L. "Diseases of distress": Can we estimate the component that is work-related? *The Pump Handle*. 2017/02/24/T18:05:27+00:00 2017 Link

28) Lucas G, Neeper M, Linde B, Bennett J. Preventing Prescription Drug Misuse in Work Settings: Efficacy of a Brief Intervention in Health Consciousness. *Journal of medical Internet research*. Jul 6 2017;19(7):e242 Abstract

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Appendix iv: Review of Existing Opioid Training Courses

Sponsor/Developer	Training Title/Course	URL
Addiction Technology Transfer Center Network	ATTC Educational Packages for Opioid Use Disorders	https://attcnetwork.org/centers/global-attc/taking-action-address-opioid-misuse
American College of Physicians	SAFE Opioid Prescribing: Strategies. Assessment. Fundamentals. Education	https://www.acponline.org/meetings-courses/focused-topics/safe-opioid-prescribing-strategies-assessment-fundamentals-education
American Dental Association	Continuing Education Webinars on Opioids for the ADA	https://www.ada.org/en/advocacy/advocacy-issues/opioid-crisis/webinars
American Health Lawyers Association	Intersection of Public Health and Healthcare in the 21st Century: Hot Topics and Practice Tips, Part II	https://distancelearning.healthlawyers.org/products/the-intersection-of-public-health-and-healthcare-in-the-21st-century-hot-topics-and-practice-tips-part-ii-on-demand-recording
American Heart Association	Opioid Education for Non-Clinical Staff and Lay Responders	https://elearning.heart.org/course/320
American Library Association	Opioid Epidemic and Libraries: Challenges, Resources, and More	https://nnlm.gov/gmr/guides/health-resources-public-libraries/opioid-resources
American Pharmacists Association (APhA) (in partnership with Walmart and Sam's Club)	Opioid Treatment	https://www.pharmacist.com/opioid-use-abuse-and-misuse-resource-center
American Psychiatric Nurses Association	Effective Treatments for Opioid Use Disorders: Educating and Empowering Nurses During an Epidemic	https://www.apna.org/i4a/pages/index.cfm?pageID=6088
American Society of Addiction Medicine (ASAM)	Pain and Addiction: Common Threads Course	https://elearning.asam.org/products/the-asam-pain-addiction-common-threads-course-xviii-2017-75-cme
American Society of Addiction Medicine (ASAM)	Pain Management and Opioids: Balancing Risks and Benefits	https://www.asam.org/education/resources/opioid-prescribing
Association of State and Territorial Health Officials	Infectious Disease Consequences on Opioid Use	http://www.astho.org/generickey/GenericKeyDetails.aspx?contentid=20455&folderid=5162&catid=7254
Boston Public Health Commission, Office of Public Health Preparedness, DelValle Institute for Emergency Preparedness	Overdose Prevention and Bystander Training	https://delvalle.bphc.org/course/search.php?search=opioid

Sponsor/Developer	Training Title/Course	URL
Centers for Disease Control and Prevention	Coordinating Clinical and Public Health Responses to Opioid Overdoses Treated in Emergency Departments	https://emergency.cdc.gov/coca/calls/2018/callinfo_031318.asp
Centers for Disease Control and Prevention	Vital Signs Teleconference: Opioid Overdoses Treated in Emergency Departments	https://www.cdc.gov/media/releases/2018/t0306-vs-opioid-overdoses.mp3
Centers for Disease Control andPrevention	Prescribing Opioids for Chronic Pain	https://www.cdc.gov/drugoverdose/training/online-training.html
City of New York, Dept. of Health and Mental Hygiene	Emergency Planning and Response for Dialysis Centers and Opioid Treatment Programs	https://www.youtube.com/watch?v=UyME_tML0u0
CleanFleet	How Employers Can Protect Themselves from the Opioid Epidemic	https://www.cleanfleet.org/webinar-employers-can-protect-opioid-epidemic/
D.A.R.E.	Opioid Prevention Curricula	https://dare.org/d-a-r-e-online-opioid-lesson/
Duke University, Duke Community and Family Medicine, Duke Physician Assistant Program	Responding to the Opioid Crisis: Free Training Opportunities for Providers	https://cfm.duke.edu/duke-physician-assistant-program/news-and-events/responding-opioid-crisis-free-training
Emory University	The Addicted Brain	https://www.coursera.org/learn/addiction-and-the-brain
Eppley Institute for Parks and Public Lands, Indiana University (in partnership with BIDTI)	Spotlight on Safety: Recognizing Hazards from Opioid Waste and Associated Infectious Diseases	https://rise.articulate.com/share/vPOhhrLMmDrjspRDuJfNg0soeF2ytpYF
Harvard Medical School	Collaborative Care Approaches for Management of Opioid Use Disorder (OUD)	https://cmeonline.hms.harvard.edu/courses/course-v1:HarvardMedGlobalAcademy+OUDEP3+2T2017/about
Harvard Medical School	Identification, Counseling, and Treatment of Opioid Use Disorder (OUD)	https://cmeonline.hms.harvard.edu/courses/course-v1:HarvardMedGlobalAcademy+OUDEP2+2T2017/about
Harvard Medical School	Understanding Addiction	https://cmeonline.hms.harvard.edu/courses/course-v1:HarvardMedGlobalAcademy+OUDEP1+1T2017/about
Harvard University, HarvardX	The Opioid Crisis in America	https://www.edx.org/course/the-opioid-crisis-in-america

Sponsor/Developer	Training Title/Course	URL
Interprofessional Education Collaborative	IPE Approach to the Opioid Epidemic	https://ipecollaborative.wufoo.com/forms/083018-ipec-webinar-archived-registration/
Lippincott Nursing Center	Opioid Crisis: for Registered Nurses	https://nursing.ceconnection.com/browse/collections/146?_ga=2.265706895.1890849049.1553201992-1464957493.1553201992
Lippincott Nursing Center	Opioid Crisis: for Advanced Practice Nurses	https://nursing.ceconnection.com/browse/collections/229?_ga=2.164418111.1890849049.1553201992-1464957493.1553201992
Michigan State University	How the Opioid Crisis Impacts Individuals and Rural Communities	https://www.youtube.com/watch?v=nO_9QLVkEKI
MRA-The Management Association; International Foundation of Employee Benefit Plans	The Opioid Epidemic…Is Your Workplace Prepared	http://www.ifebp.org/education/schedule/Pages/the-opioid-epidemic-17MRA.aspx#benefits-of-attending
National Association of School Nurses	Naloxone Use in the School Setting: The Role of the School Nurse	https://www.pathlms.com/nasn/courses/5151
National Association of School Nurses	Opioid Overdose Awareness and Prevention Program: A Model for School Health	https://www.pathlms.com/nasn/courses/5151
National Attorneys General Training and Research Institute (National Association of Attorneys General)	Opioid Abuse	https://www.naag.org/assets/redesign/files/nagtri-PDF/Community%20Presentation%20updated%201704.pdf
National Development and Research Institutes	Administering Naloxone - Get Naloxone Now	https://www.getnaloxonenow.org/flashbystander.aspx
National Highway Traffic Safety Administration, Office of Emergency Medical Services (EMS)	How EMS (Emergency Medical Services) Can Reduce Opioid Overdoses	https://www.youtube.com/watch?v=WaBqtFsckWE
National Institutes of Health	2018 Demystifying Medicine: The Opioid Epidemic: How, Where, and What Can Be Done?	https://videocast.nih.gov/summary.asp?Live=26736&bhcp=1
National Institutes of Health	Opioids: Epidemic of Our Time and Impact on Infectious Disease	https://videocast.nih.gov/Summary.asp?file=26182&bhcp=1

Sponsor/Developer	Training Title/Course	URL
National Network of Libraries of Medicine, New England Region	How to Save a Life: Naloxone 101	https://nnlm.gov/class/how-save-life-administering-naloxone-101/8877
National Security Council	Fentanyl: The Real Deal, Fentanyl Safety Recommendations for First Responders	https://www.youtube.com/watch?v=UkxT0bgekQ8
New York State Division of Criminal Justice Service	Opioid Overdose and Intranasal Naloxone Training for Law Enforcement (training guide & materials)	https://bjatta.bja.ojp.gov/naloxone/opioid-overdose-and-intranasal-naloxone-training-law-enforcement-trainers-guide
NIDA, Medscape Education	Opioid and Pain Management CMEs/CEs	https://www.drugabuse.gov/opioid-pain-management-cmesces
NIEHS Worker Training Program	Prevention of Occupational Exposure to Fentanyl and Other Opioids	https://tools.niehs.nih.gov/wetp/index.cfm?id=2562https://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=11333
North Carolina Dept. of Health and Human Services	Opioid and Methamphetamine Awareness Training for Public Workers	http://www.ncalhd.org/wp-content/uploads/2017/10/NC-EHCommitteeOpioidsCrystalMeth.pdf
Ohio Attorney General's Ohio Peace Officer Training Academy	Naloxone Educational Video	https://www.ohioattorneygeneral.gov/Media/Videos/Naloxone-Educational-Video
Research America	Innovative Research on the Opioid Epidemic	https://www.youtube.com/watch?v=8zV2smgrekU
SIU School of Medicine	Rural Opioid Prescriber Training Program	https://www.siumed.edu/psych/rural-opioid-prescriber-training-program.html
Substance Abuse and Mental Health Services Administration	Opioids in Indian Country Part 1: Understanding the Problem	https://www.youtube.com/watch?v=Rfj-UUY0Oqs
Substance Abuse and Mental Health Services Administration	Opioid Addiction and Prevention	https://www.youtube.com/watch?v=b2uB2pBb3j0
Substance Abuse and Mental Health Services Administration	Opioid Prescribing Courses for Health Care Providers	https://www.samhsa.gov/medication-assisted-treatment/training-resources/opioid-courses
University of North Dakota	Strategies to Combat Opioid Use in Rural Communities	https://www.ruralhealthresearch.org/webinars/strategies-to-combat-opioid-use
University of Washington, Northwest Center for Public Health Practice	Public Health Approach to the Opioid Crisis	http://www.nwcphp.org/training/opportunities/webinars/public-health-approach-to-opioid-crisis

Sponsor/Developer	Training Title/Course	URL
U.S. Dept. of Health and Human Services	Forum on Opioids: Strategies and Solutions for Minority Communities	https://www.youtube.com/watch?v=Tx8tgRKDjnw
U.S. Dept. of Health and Human Services	Hidden Casualties: The Consequences of the Opioid Epidemic on the Spread of Infectious Disease	https://www.youtube.com/playlist?list=PLrl7E8KABz1En3_pq2NgNxWdPshWHzm5Y
U.S. Dept. of Health and Human Services	Pathways to Safer Opioid Use	https://health.gov/hcq/training-pathways.asp
U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration	Providers' Clinical Support System for Opioid Therapies	https://pcssnow.org/education-training/
U.S. House of Representatives, Committee on Energy and Commerce	Combating the Opioid Crisis: Improving the Ability of Medicare and Medicaid to Provide Care for Patients	https://energycommerce.house.gov/committee-activity/hearings/hearing-on-combating-the-opioid-crisis-improving-the-ability-of-medicare

SECTION VII.

APPENDICES FOR EVALUATION DETAILS AND INSTRUMENTS

Appendix v. Site Specific Pre- and Post-Test and Process Evaluation Results

Results from Hanford, Washington

TABLE 1: Hanford, Washington. Pre-Post-test agreement per items 1 to 13 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
1. Morphine is 50-100 times more potent than Fentanyl.	77.3	77.3	0	No
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use	77.3	72.7	-4.6	No
3. Opioid use or misuse is caused by lack of willpower.	63.6	68.2	4.6	No
4. Opioid use disorder is a disease.	72.7	63.6	-9.1	Yes
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	81.8	90.9	9.1	Yes
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	72.7	86.4	13.7	No
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	81.8	100	18.2	Yes
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	77.3	86.4	9.1	Yes

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	50.0	54.5	4.5	Yes
10. I know how to speak to my healthcare provider about:				
• How to avoid using opioids if I am injured at work.	77.3	95.5	18.2	Yes
• Alternative pain treatments.	77.3	100.0	22.7	Yes
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	40.9	77.3	36.4	Yes
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	86.4	81.8	-4.6	No
13. I know what makes up a supportive workplace "drug free" policy.	31.8	72.7	40.9	Yes

TABLE 2: Hanford, Washington. Pre-Post-test agreement per items 14 and 15 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
14. Please indicate which of the following are signs of opioid addiction:				
• Drowsy	68.2	100	31.8	YES
• Vomiting	63.6	100	36.4	YES
• Slow breathing	72.7	100	27.3	YES
• Improved decision making	72.7	76.2	3.5	NO
15. Please circle which of the following are opioids:				
• OxyContin	90.9	100	9.1	YES
• Cocaine	77.3	66.7	-10.6	NO
• Vicodin	77.3	100	22.7	YES
• Aspirin	86.4	90.5	4.1	NO
• Morphine	81.8	90.5	8.7	YES
• Fentanyl	90.9	100	9.1	YES
• LSD	63.6	85.7	22.1	NO
• Methadone	54.5	85.7	31.2	YES
• Methamphetamine	59.1	52.4	-6.7	NO

TABLE 3: Hanford, Washington. Pre-Post-test agreement per items 16 to 19 and percentage change.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
16. I am likely to report hazards at my workplace.	90.9	85.7	-5.2	Agree or Strongly Agree
17 I am likely to report injuries at my workplace.	81.8	71.4	-10.4	Agree or Strongly Agree
18. Workplace stress may lead to self-medication with drugs or alcohol.	86.4	61.9	-24.5	Agree or Strongly Agree
19. I am likely to talk about substance abuse at work:				
• With coworkers	63.6	71.4	-7.8	Agree or Strongly Agree
• With supervisors	45.5	33.3	12.2	Agree or Strongly Agree

Based on the pre-post test, it was found that items 7, 10, 11, 13, and parts of 14 and 15 exceeded 15% in change. Item 18 presented a negative change of 15% or greater. The pre- and post-test had 22 participants, with one person not completing the back side of their post-test (excluding items 14 to 19 for one person).

TABLE 4: Evaluation Form responses per item for Hanford, Washington. 14 of the 22 participants completed and returned their form. Responses greater than 33% are highlighted in yellow.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The training adequately covered the learning objectives (n=14)	2 (14.3%)	1 (7.1%)	6 (42.9%)	3 (21.4%)	2 (14.3%)
The training was presented effectively according to the needs of the trainees (n=14)	3 (21.4%)	2 (14.3%)	5 (35.7%)	3 (21.4%)	1 (7.1%)
The small group activities were relevant and allowed members in the group to share important experiences and information (n=14)	1 (7.1%)	1 (7.1%)	2 (21.4%)	8 (57.1%)	1 (7.1%)
I feel that the training has prepared me well to handle opioids in the workplace (n=14)	4 (28.6%)	3 (21.4%)	4 (28.6%)	1 (7.1%)	2 (14.3%)
I intend to use the content and skills learned in this course in my current job (n=14)	4 (28.6%)	3 (21.4%)	1 (7.1%)	6 (42.9%)	0 (0%)
The training content was effective (n=14)	2 (14.3%)	2 (14.3%)	4 (28.6%)	5 (35.7%)	1 (7.1%)
The training format was effective (n=14)	3 (21.4%)	3 (21.4%)	3 (21.4%)	4 (28.6%)	1 (7.1%)
The instructor was effective (n=14)	2 (14.3%)	2 (14.3%)	6 (42.9%)	2 (14.3%)	2 (14.3%)
The training overall was effective (n=14)	2 (14.3%)	2 (14.3%)	5 (35.7%)	4 (28.6%)	1 (7.1%)

Results from Lowell, Massachusetts

TABLE 5: Lowell, Massachusetts. Pre-Post-test agreement per items 1 to 13 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
1. Morphine is 50-100 times more potent than Fentanyl.	78.8	91.3	12.5	No
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use.	69.7	78.3	8.6	No
3. Opioid use or misuse is caused by lack of willpower.	90.3	95.7	5.4	No
4. Opioid use disorder is a disease.	87.9	100	12.1	Yes
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred	93.9	95.7	1.8	Yes
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	81.8	95.7	13.9	No
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	78.8	100	21.2	Yes
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	100	100	0	Yes
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	57.6	73.9	16.3	Yes
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 87.9 87.9	 95.7 91.3	 7.8 3.4	 Yes Yes
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	51.5	87.0	35.5	Yes
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	78.8	95.7	16.9	No
13. I know what makes up a supportive workplace "drug free" policy.	33.3	87.0	53.7	Yes

TABLE 6: Lowell, Massachusetts. Pre-Post-test agreement per items 14 and 15 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
14. Please indicate which of the following are signs of opioid addiction:				
• Drowsy	84.8	100	15.2	YES
• Vomiting	66.7	100	33.3	YES
• Slow breathing	78.8	95.5	16.7	YES
• Improved decision making	87.9	95.2	7.3	NO
15. Please circle which of the following are opioids:				
• OxyContin	96.7	100	3.3	YES
• Cocaine	76.7	73.9	-2.8	NO
• Vicodin	76.7	95.7	19	YES
• Aspirin	93.3	100	6.7	NO
• Morphine	80.0	73.9	-6.1	YES
• Fentanyl	93.3	100	6.7	YES
• LSD	83.3	91.3	8.0	NO
• Methadone	60.0	95.7	35.7	YES
• Methamphetamine	56.7	65.2	8.5	NO

TABLE 7: Lowell, Massachusetts. Pre-Post-test agreement per items 16 to 19 and percentage change.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
16. I am likely to report hazards at my workplace.	96.7	95.5	-1.2	Agree or Strongly Agree
17. I am likely to report injuries at my workplace.	93.3	100	6.7	Agree or Strongly Agree
18. Workplace stress may lead to self-medication with drugs or alcohol.	96.7	95.5	1.2	Agree or Strongly Agree
19. I am likely to talk about substance abuse at work:				
• With coworkers	80.0	100	20.0	Agree or Strongly Agree
• With supervisors	63.3	90.9	27.6	Agree or Strongly Agree

The pre-test had 33 participants with two people not completing the back side of their pre-test (excluding items 14 to 19 for two persons). The post-test was completed by 23 participants. Based on the pre-post-test, it was found that items 7, 9, 11, 12, 13, parts of 14 and 15, and 19 exceeded 15% in change. No item presented a negative change of 15% or greater.

TABLE 8: Evaluation Form responses per item for Lowell, Massachusetts. 22 of the 33 participants completed and returned their form. Responses greater than 33% are highlighted in yellow.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The training adequately covered the learning objectives (n=21)	0 (0%)	0 (0%)	1 (4.8%)	8 (38.1%)	12 (57.1%)
The training was presented effectively according to the needs of the trainees (n=22)	1 (4.5%)	0 (0%)	1 (4.5%)	6 (27.3%)	14 (63.6%)
The small group activities were relevant and allowed members in the group to share important experiences and information (n=22)	0 (0%)	1 (4.5%)	2 (9.1%)	6 (27.3%)	13 (59.1%)
I feel that the training has prepared me well to handle opioids in the workplace (n=22)	0 (0%)	2 (9.1%)	1 (4.5%)	9 (40.9%)	10 (45.5%)
I intend to use the content and skills learned in this course in my current job (n=22)	0 (0%)	0 (0%)	4 (18.2%)	5 (22.7%)	13 (59.1%)
The training content was effective (n=22)	0 (0%)	1 (4.5%)	1 (4.5%)	7 (31.8%)	13 (59.1%)
The training format was effective (n=22)	0 (0%)	2 (9.1%)	0 (0%)	4 (18.2%)	16 (72.7%)
The instructor was effective (n=22)	0 (0%)	1 (4.5%)	2 (9.1%)	4 (18.2%)	15 (68.2%)
The training overall was effective (n=22)	0 (0%)	1 (4.5%)	1 (4.5%)	6 (27.3%)	14 (63.6%)

Results from New York, New York

TABLE 9: New York, New York. Pre-Post-test agreement per items 1 to 13 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
1. Morphine is 50-100 times more potent than Fentanyl.	73.9	79.2	5.3	No
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use.	56.5	79.2	22.7	No
3. Opioid use or misuse is caused by lack of willpower.	91.3	79.2	-12.1	No
4. Opioid use disorder is a disease.	87.0	100	13	Yes
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	78.3	95.8	17.5	Yes
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	82.6	91.7	9.1	No
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	78.3	100	21.7	Yes
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	95.7	100	4.3	Yes
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	56.5	79.2	22.7	Yes
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 82.6 87.0	 91.7 95.8	 9.1 8.8	 Yes Yes
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	56.5	87.5	31	Yes
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	65.2	70.8	5.6	No
13. I know what makes up a supportive workplace "drug free" policy.	34.8	79.2	44.4	Yes

TABLE 10: New York, New York. Pre-Post-test agreement per items 14 and 15 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
14. Please indicate which of the following are signs of opioid addiction:				
• Drowsy	78.3	100	21.7	YES
• Vomiting	60.9	91.7	30.8	YES
• Slow breathing	60.9	91.7	30.8	YES
• Improved decision making	72.7	79.2	6.5	NO
15. Please circle which of the following are opioids:				
• OxyContin	90.9	95.7	4.8	YES
• Cocaine	68.2	56.5	-11.7	NO
• Vicodin	81.8	87.0	5.2	YES
• Aspirin	90.9	78.3	-12.6	NO
• Morphine	77.3	100	22.7	YES
• Fentanyl	90.9	100	9.1	YES
• LSD	68.2	60.9	-7.3	NO
• Methadone	45.5	78.3	32.8	YES
• Methamphetamine	54.5	52.2	-2.3	NO

TABLE 11: New York, New York. Pre-Post-test agreement per items 16 to 19 and percentage change.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
16. I am likely to report hazards at my workplace.	95.5	100	4.5	Agree or Strongly Agree
17. I am likely to report injuries at my workplace.	95.5	100	4.5	Agree or Strongly Agree
18. Workplace stress may lead to self-medication with drugs or alcohol.	81.8	100	18.2	Agree or Strongly Agree
19. I am likely to talk about substance abuse at work:				
• With coworkers	68.2	77.3	9.1	Agree or Strongly Agree
• With supervisors	54.5	72.7	18.2	Agree or Strongly Agree

Based on the pre-post-test, it was found that items 2, 5, 7, 9, 11, 13, parts of 14 and 15, 18, and part of 19 exceeded 15% in change. No item presented a negative change of 15% or greater. The pre-test had 24 participants with two people not completing the back side of their pre-test (excluding items 14 to 19 for two persons) and one person not completing the back side of their post-test. The pre-test was completed by 23 participants and the post-test was completed by 24 participants.

TABLE 12: Evaluation Form responses per item for New York, New York. 23 of the participants completed and returned their form. Responses greater than 33% are highlighted in yellow.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The training adequately covered the learning objectives (n=23)	3 (13.0%)	0 (0%)	0 (0%)	8 (34.8%)	12 (52.2%)
The training was presented effectively according to the needs of the trainees (n=23)	3 (13.0%)	0 (0%)	2 (8.7%)	9 (39.1%)	9 (39.1%)
The small group activities were relevant and allowed members in the group to share important experiences and information (n=23)	3 (13%)	2 (8.7%)	1 (4.3%)	7 (30.4%)	10 (43.5%)
I feel that the training has prepared me well to handle opioids in the workplace (n=23)	3 (13.0%)	2 (8.7%)	4 (17.4%)	8 (34.8%)	6 (26.1%)
I intend to use the content and skills learned in this course in my current job (n=23)	3 (13.0%)	0 (0%)	3 (13.0%)	8 (34.8%)	9 (39.1%)
The training content was effective (n=23)	3 (13.0%)	0 (0%)	2 (8.7%)	8 (34.8%)	10 (43.5%)
The training format was effective (n=23)	3 (13.0%)	0 (0%)	4 (17.4%)	7 (30.4%)	9 (39.1%)
The instructor was effective (n=23)	3 (13.0%)	0 (0%)	2 (8.7%)	5 (21.7%)	13 (56.5%)
The training overall was effective (n=23)	3 (13.0%)	0 (0%)	2 (8.7%)	6 (26.1%)	12 (52.2%)

Results from Huntington, West Virginia

TABLE 13: Huntington, West Virginia. Pre-Post-test agreement per items 1 to 13 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
1. Morphine is 50-100 times more potent than Fentanyl.	88.9	78.6	-10.3	No
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use.	88.9	78.6	-10.3	No
3. Opioid use or misuse is caused by lack of willpower.	94.4	92.9	-1.5	No
4. Opioid use disorder is a disease.	93.8	100	6.2	Yes
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	83.3	92.9	9.6	Yes
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	50.0	92.9	42.9	No
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	88.9	100	11.1	Yes
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	100	100	0	Yes
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	50.0	85.7	35.7	Yes
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 77.8 77.8	 100 100	 22.2 22.2	 Yes Yes
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	83.3	100	16.7	Yes
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	94.4	85.7	-8.7	No
13. I know what makes up a supportive workplace "drug free" policy.	22.2	100	77.8	Yes

TABLE 14: Huntington, West Virginia. Pre-Post-test agreement per items 14 and 15 and percentage change. Changes exceeding 15% are highlighted.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
14. Please indicate which of the following are signs of opioid addiction:				
• Drowsy	83.3	100	16.7	YES
• Vomiting	72.2	84.6	12.4	YES
• Slow breathing	72.2	100	27.8	YES
• Improved decision making	77.8	84.6	6.8	NO
15. Please circle which of the following are opioids:				
• OxyContin	94.1	100	5.9	YES
• Cocaine	56.3	46.2	-10.3	NO
• Vicodin	75.0	84.6	9.6	YES
• Aspirin	93.8	76.9	-16.9	NO
• Morphine	87.5	92.3	4.8	YES
• Fentanyl	94.1	100	5.9	YES
• LSD	62.5	53.8	-8.7	NO
• Methadone	52.9	92.3	39.4	YES
• Methamphetamine	52.9	38.5	-14.4	NO

TABLE 15: Huntington, West Virginia. Pre-Post-test agreement per items 16 to 19 and percentage change.

	Pre: % agreement w/ correct response	Post: % agreement w/ correct response	Change: Pre-Post	Correct response
16. I am likely to report hazards at my workplace.	94.4	100	5.6	Agree or Strongly Agree
17. I am likely to report injuries at my workplace.	83.3	92.3	9.0	Agree or Strongly Agree
18. Workplace stress may lead to self-medication with drugs or alcohol.	88.9	100	11.1	Agree or Strongly Agree
19. I am likely to talk about substance abuse at work:				
• With coworkers	72.2	100	27.8	Agree or Strongly Agree
• With supervisors	61.1	69.2	8.1	Agree or Strongly Agree

Based on the pre-post-test, it was found that items 6, 9, 10, 11, 13, parts of 14 and 15, and part of 19 exceeded 15% in change. No item presented a negative change of 15% or greater. The pre-test had 18 participants with two people not completing the back side of their post-test (excluding items 14 to 19 for two persons). The post-test was completed by 14 participants with four people not completing the post-test.

TABLE 16: Evaluation Form responses per item for Huntington, West Virginia. 15 of the participants completed and returned their form. Responses greater than 33% are highlighted in yellow.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The training adequately covered the learning objectives (n=15)	3 (20%)	0 (0%)	0 (0%)	4 (26.7%)	8 (53.3%)
The training was presented effectively according to the needs of the trainees (n=15)	3 (20%)	0 (0%)	0 (0%)	2 (13.3%)	10 (66.7%)
The small group activities were relevant and allowed members in the group to share important experiences and information (n=15)	3 (20%)	0 (0%)	0 (0%)	1 (6.7%)	11 (73.3%)
I feel that the training has prepared me well to handle opioids in the workplace (n=15)	3 (20%)	0 (0%)	0 (0%)	3 (20%)	9 (60%)
I intend to use the content and skills learned in this course in my current job (n=15)	3 (20%)	0 (0%)	0 (0%)	3 (20%)	9 (60%)
The training content was effective (n=15)	3 (20%)	0 (0%)	0 (0%)	4 (26.7%)	8 (53.3%)
The training format was effective (n=15)	3 (20%)	0 (0%)	0 (0%)	5 (33.3%)	7 (46.7%)
The instructor was effective (n=15)	3 (20%)	0 (0%)	0 (0%)	4 (26.7%)	8 (53.3%)
The training overall was effective (n=15)	3 (20%)	0 (0%)	0 (0%)	4 (26.7%)	8 (53.3%)

Appendix vi. Pre- and Post-Test and Process Evaluation Forms

Opioids and the Workplace: Prevention and Response – Pre-test

Your assistance in evaluating this training program will help make it better.

Please write your number at the top so that we can compare answers before and after the training.

Please mark the answer that best matches your response to the following statements.

	No	Yes	Unsure
1. Morphine is 50-100 times more potent than Fentanyl.	①	②	③
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use.	①	②	③
3. Opioid use or misuse is caused by lack of willpower.	①	②	③
4. Opioid use disorder is a disease.	①	②	③
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	①	②	③
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	①	②	③
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	①	②	③
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	①	②	③
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	①	②	③
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 ① ①	 ② ②	 ③ ③
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	①	②	③
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	①	②	③
13. I know what makes up a supportive workplace "drug free" policy.	①	②	③
14. Please indicate which of the following are signs of opioid addiction: • Drowsy • Vomiting • Slow breathing • Improved decision making	 ① ① ① ①	 ② ② ② ②	 ③ ③ ③ ③

	No	Yes	Unsure
15. Please circle which of the following are opioids:			
• OxyContin	①	②	③
• Cocaine	①	②	③
• Vicodin	①	②	③
• Aspirin	①	②	③
• Morphine	①	②	③
• Fentanyl	①	②	③
• LSD	①	②	③
• Methadone	①	②	③
• Methamphetamine	①	②	③

	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
16. I am likely to report hazards at my workplace.	①	②	③	④	⑤
17. I am likely to report injuries at my workplace.	①	②	③	④	⑤
18. Workplace stress may lead to self-medication with drugs or alcohol.	①	②	③	④	⑤
19. I am likely to talk about substance abuse at work:					
• With coworkers	①	②	③	④	⑤
• With supervisors	①	②	③	④	⑤

Thank you for your responses. The pre-test questions are now complete.

Opioids and the Workplace: Prevention and Response — Post-test

Your assistance in evaluating this training program will help make it better.

Please write your number at the top so that we can compare answers before and after the training.

Please mark the answer that best matches your response to the following statements.

	No	Yes	Unsure
1. Morphine is 50-100 times more potent than Fentanyl.	①	②	③
2. Whether a job has a higher risk of work-related injury is not a factor in opioid use.	①	②	③
3. Opioid use or misuse is caused by lack of willpower.	①	②	③
4. Opioid use disorder is a disease.	①	②	③
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	①	②	③
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	①	②	③
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	①	②	③

	No	Yes	Unsure
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	①	②	③
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	①	②	③
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 ① ①	 ② ②	 ③ ③
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	①	②	③
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	①	②	③
13. I know what makes up a supportive workplace "drug free" policy.	①	②	③
14. Please indicate which of the following are signs of opioid addiction: • Drowsy • Vomiting • Slow breathing • Improved decision making	 ① ① ① ①	 ② ② ② ②	 ③ ③ ③ ③
15. Please circle which of the following are opioids: • OxyContin • Cocaine • Vicodin • Aspirin • Morphine • Fentanyl • LSD • Methadone • Methamphetamine	 ① ① ① ① ① ① ① ① ①	 ② ② ② ② ② ② ② ② ②	 ③ ③ ③ ③ ③ ③ ③ ③ ③

	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
16. I am likely to report hazards at my workplace.	①	②	③	④	⑤
17. I am likely to report injuries at my workplace.	①	②	③	④	⑤
18. Workplace stress may lead to self-medication with drugs or alcohol.	①	②	③	④	⑤
19. I am likely to talk about substance abuse at work: • With coworkers • With supervisors	 ① ①	 ② ②	 ③ ③	 ④ ④	 ⑤ ⑤

Thank you for taking the time to participate. Your responses are very important and meaningful as we work to improve our training and to raise awareness on Opioids in the Workplace.

Opioids and the Workplace: Prevention and Response – Evaluation Form

How much do you agree with the follow statements? Please mark the circle that best fits your answer.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The training adequately covered the learning objectives.	①	②	③	④	⑤
2. The training was presented effectively according to needs of the trainees (for example, language, cultural, educational level).	①	②	③	④	⑤
3. The small group activities were relevant and allowed members in the group to share important experiences and information.	①	②	③	④	⑤
4. I feel that the training has prepared me well to handle opioids in the workplace.	①	②	③	④	⑤
5. I intend to use the content and skills learned in this course in my current job.	①	②	③	④	⑤
6. The training content was effective.	①	②	③	④	⑤
7. The training format was effective.	①	②	③	④	⑤
8. The instructor(s) were effective.	①	②	③	④	⑤
9. The training overall was effective.	①	②	③	④	⑤

Please provide responses to the following questions in a few sentences or keywords.

10) What content or skills did you learn that were most valuable to you?

11) What content or skills did you learn that were least valuable to you?

12) What suggestions for improvement (i.e. content, format, teaching/learning methods, and facility, instructor, and support staff) to the training do you have?

13) What actions do you plan to take as a result of this course?

Please fill out the following information for our records. If you do not wish to answer any these questions, you do not have to:

Occupation:	

	Male	Female
Please specify your gender:	①	②

	18-24	25-35	36-50	50-64	65 or over
Please indicate your age in years:	①	②	③	④	⑤

	Less than high school	High School Diploma	Some College	4 year college degree	Graduate school
Please indicate your highest level of education:	①	②	③	④	⑤

	White	Black or African American	Hispanic or Latino/a	Asian	American Indian or Alaska Native	Native Hawaiian or Other Pacific Islander	Other
Are you:	①	②	③	④	⑤	⑥	⑦

Thank you for taking the time to participate. Your responses are very important and meaningful as we work to improve our training and to raise awareness on Opioids in the Workplace.

Appendix vii. Pre- and Post-Test and Process Evaluation Forms Revised

Opioids and the Workplace: Prevention and Response — Pre-test

Your assistance in evaluating this training program will help make it better.

Please write your number at the top so that we can compare answers before and after the training.

Please mark the answer that best matches your response to the following statements.

	No	Yes	Unsure
1. Morphine is 50-100 times more potent than Fentanyl.	No	Yes	Unsure
2. A higher risk of work-related injury is not a factor in opioid use.	No	Yes	Unsure
3. Opioid use or misuse is caused by lack of willpower.	No	Yes	Unsure
4. Opioid use disorder is a disease.	No	Yes	Unsure
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	No	Yes	Unsure
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	No	Yes	Unsure
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	No	Yes	Unsure
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	No	Yes	Unsure
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	No	Yes	Unsure
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 No No	 Yes Yes	 Unsure Unsure
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	No	Yes	Unsure
12. "Zero tolerance" policies are the most effective way to prevent drug use in the workplace.	No	Yes	Unsure
13. I know what makes up a supportive workplace "drug free" policy.	No	Yes	Unsure
14. I can identify presenteeism in the workplace.	No	Yes	Unsure

See other side

	No	Yes	Unsure
14. Please indicate which of the following are signs of opioid addiction: • Drowsy • Vomiting • Slow breathing	 No No No	 Yes Yes Yes	 Unsure Unsure Unsure
15. Please mark which of the following are opioids: • OxyContin • Buprenorphine • Vicodin • Naltrexone • Morphine • Fentanyl • Methadone	 No No No No No No No	 Yes Yes Yes Yes Yes Yes Yes	 Unsure Unsure Unsure Unsure Unsure Unsure Unsure

	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
16. I am likely to report hazards at my workplace.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
17. I am likely to report injuries at my workplace.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
18. Workplace stress may lead to self-medication with drugs or alcohol.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
19. I am likely to talk about substance abuse at work: • With coworkers • With a trusted person	 Strongly Agree Strongly Agree	 Slightly Agree Slightly Agree	 Unsure Unsure	 Slightly Disagree Slightly Disagree	 Strongly Disagree Strongly Disagree

Thank you for your responses. The pre-test questions are now complete.

Opioids and the Workplace: Prevention and Response — Post-test

Your assistance in evaluating this training program will help make it better.

Please write your number at the top so that we can compare answers before and after the training.

Please mark the answer that best matches your response to the following statements.

	No	Yes	Unsure
1. Morphine is 50-100 times more potent than Fentanyl.	No	Yes	Unsure
2. A higher risk of work-related injury is not a factor in opioid use.	No	Yes	Unsure
3. Opioid use or misuse is caused by lack of willpower.	No	Yes	Unsure
4. Opioid use disorder is a disease.	No	Yes	Unsure
5. Naloxone (Narcan) should be available at the workplace in locations where overdoses have occurred.	No	Yes	Unsure
6. Naloxone (Narcan) is dangerous to administer to someone overdosing.	No	Yes	Unsure
7. I understand how workplace ergonomics can reduce risk of pain, injuries and potential opioid use and misuse.	No	Yes	Unsure
8. Programs where co-workers are trained to be peer advocates and supporters can contribute to reducing opioid misuse.	No	Yes	Unsure
9. I am comfortable accessing treatment for opioid misuse or addiction through my workplace, if needed.	No	Yes	Unsure
10. I know how to speak to my healthcare provider about: • How to avoid using opioids if I am injured at work. • Alternative pain treatments.	 No No	 Yes Yes	 Unsure Unsure
11. I know what questions to ask to understand the quality of my health insurance coverage for substance use treatment. (Leave blank if you do not have health insurance.)	No	Yes	Unsure
12. “Zero tolerance” policies are the most effective way to prevent drug use in the workplace.	No	Yes	Unsure
13. I know what makes up a supportive workplace “drug free” policy.	No	Yes	Unsure
14. I can identify presenteeism in the workplace.	No	Yes	Unsure

See other side

	No	Yes	Unsure
14. Please indicate which of the following are signs of opioid addiction: • Drowsy • Vomiting • Slow breathing	 No No No	 Yes Yes Yes	 Unsure Unsure Unsure
15. Please mark which of the following are opioids: • OxyContin • Buprenorphine • Vicodin • Naltrexone • Morphine • Fentanyl • Methadone	 No No No No No No No	 Yes Yes Yes Yes Yes Yes Yes	 Unsure Unsure Unsure Unsure Unsure Unsure Unsure

	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
16. I am likely to report hazards at my workplace.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
17. I am likely to report injuries at my workplace.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
18. Workplace stress may lead to self-medication with drugs or alcohol.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
19. I am likely to talk about substance abuse at work: • With coworkers • With a trusted person	 Strongly Agree Strongly Agree	 Slightly Agree Slightly Agree	 Unsure Unsure	 Slightly Disagree Slightly Disagree	 Strongly Disagree Strongly Disagree

Thank you for taking the time to participate. Your responses are very important and meaningful as we work to improve our training and to raise awareness on Opioids in the Workplace.

Opioids and the Workplace: Prevention and Response – Evaluation Form

How much do you agree with the follow statements? Please mark the answer that best fits your answer.

	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
1. The training adequately covered the learning objectives.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
2. The training was presented effectively according to needs of the trainees (for example, language, cultural, educational level).	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
3. The small group activities were relevant and allowed members in the group to share important experiences and information.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
4. I feel that the training has prepared me well to handle opioids in the workplace.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
5. I intend to use the content and skills learned in this course in my current job.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
6. The training content was effective.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
7. The training format was effective.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
8. The instructor(s) were effective.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree
9. The training overall was effective.	Strongly Agree	Slightly Agree	Unsure	Slightly Disagree	Strongly Disagree

Please provide responses to the following questions in a few sentences or keywords.

10) What content or skills did you learn that were most valuable to you?

11) What content or skills did you learn that were least valuable to you?

12) What suggestions for improvement (i.e. content, format, teaching/learning methods, and facility, instructor, and support staff) to the training do you have?

13) What actions do you plan to take as a result of this course?

See other side

Please fill out the following information for our records. If you do not wish to answer any of these questions, you do not have to:

Occupation:	

Please specify your gender:	Male	Female

Please indicate your age in years:	18-24	25-35	36-50	51-64	65 or over

Please indicate your highest level of education:	Less than high school	High School Diploma	Some College	4 year college degree	Graduate school

Are you:	White	Black or African American	Hispanic or Latino/a	Asian	American Indian or Alaska Native	Native Hawaiian or Other Pacific Islander	Other

Thank you for taking the time to participate. Your responses are very important and meaningful as we work to improve our training and to raise awareness on Opioids in the Workplace.

Appendix viii. Site-Specific Comments from Participants

Comments from Hanford, Washington

Participants would describe their background experiences with opioids and the challenges presented to either them, their workplace, family, or community. One prominent issue was with insurance companies and doctors overprescribing opioids:

- "I injured my foot once and getting workers comp was a battle. Insurance companies don't care, it's all about the money. They don't care if I get better or anything, it's all about the money."
- "Insurance companies have too much control."
- "Insurances are cutting people off. Insurance dictating care, they don't care if you die or not."
- "My 17-year-old daughter had her wisdom teeth removed and the doctor provided a 10 mg opioid, I don't remember the name, but it was an opiate, I was furious. She's seventeen why are you giving her an opioid. I was furious."
- "I had surgery and was in extreme pain. The doctors they give you just enough to get by. It's hard for those in need for pain management."
- "There have been deaths, but nobody talks about it. Someone dies from an overdose we just ignore it. There is a stigma about it."

One would describe her sister's relationship in recovery and the burden of it:

"My sister, she lives in Willington and she's addicted to opioids. When I called home, I found out she was on suboxone. I didn't know till now actually that is an opioid, just that it was a medication… She came home for three days. We couldn't get a prescription filled because it was an out of state doctor….5 thousand dollars a week…we can only afford due to military insurance. Many people getting kicked out cause they can't afford it, they can't afford that thirty thousand a month."

Her sister is in her 40's using her husbands' insurance, working for $60 a day to break down walls. Others would get paid more to do the work but since it was her landlord giving her the work and knew her situation, they would take advantage.

Workers at the Hanford training, due to government clearances being revoked if found to be in recovery and ultimately lose their job, described opioids not being present in the workplace and their struggles with recovery and seeking treatment. They also described their challenges with EAPs:

- When talking about EAPs: "People didn't feel like they had someone to trust."
- When talking about alternative treatment, it could not be done due to collective bargaining agreement. "Even if they could they wouldn't, they don't want to be bothered it cost too much money."
- "How long will it take you to find another doctor? 7 months? You're in chronic pain, you're going to look for your prescriptions some other way and you are going to find it. Cause you can't be out that long in pain."

- "We have drug testing, not sure what we test for exactly, but the testing keeps it from our work."
- "If you come up dirty, you are done."
- "Some people will call for an EAP and get some consultant that's totally bullshit not doing anything."
- "If you have an active substance abuse problem, you done."
- On recovery: "We don't really have people in recovery." "You can lose your clearance if you fail the drug test. As DOE we need that clearance, you lose it and you're done, they can't employ you anymore."
- "Zero tolerance, you do it your clearance is pulled. Your gone, you need that clearance to do that job."
- "To be hired here you need to pass a drug screening. If your screening ever pops, you are done."

A large part of the conversation in Hanford was around the use of words to describe and define opioid addiction among the participants and if it is a lack of willpower or moral failure:

- When discussing Opioid Use Disorder (OUD): "I don't see this so much as a disease, but a choice."
- "Comparing cancer to drug use would offend a cancer patient."
- "I don't understand how using drugs is a disease. My grandfather died of cancer, that's a disease. Not someone using drugs, they made a choice, not a person who is sick with cancer."
- "You don't have a choice in getting cancer, you have a choice in doing drugs."
- "I may have made a shitty choice to start this, but now it's a mental disease. That's how you got to describe it, as a mental disease."
- "People don't want to hear it's a disease."
- "Addiction is the disease; abuse is what you are sugar coating it as. You are sugar coating abuse."
- "Call a spade a spade, if its abuse its abuse. If you sugar coat it, you never get that spot."
- "Because it's a disease, we can help you, we can treat diseases."
- "It's a choice, until it becomes a disease."
- "When I was in an ICU it should of killed me but it didn't. When I got out I quit. Why didn't I get addicted?"
- "What about the people who didn't have an injury, they just want to party. To me isn't that a moral issue."
- "At what point is it a disease?"
- "Had a friend that OD'ed on a normal amount." [This statement raises an interesting point of people correlating doses with levels of addiction and safety].

On the generational gap, and consequently referring to the later discussion on OUD being a disease:

- "You don't even know if you're offending people nowadays. People walking around on eggshells. You could say something to someone else, not even meaning anything, and someone 20 feet away could get offended, you don't know."

When addressing the class individually and as a group, the focus of action planning was minimal due to an inability to feel that they can provide change in their workplace:

- When asked if they plan to take any action: "No, no point."
- "You hear of an act of God for change, in our work it literally takes an act of congress for change."
- "We are in the middle of contract changes and can't get anything meaningful done even if we wanted to."
- "We have subcontractors that have their own policies, and if I go and see them doing something wrong, I can't do anything anyway since they are different contractors and not going to listen anyway."

Comments from Lowell, Massachusetts

Participants would describe struggles dealing with insurance companies and personal experiences with injuries and opioids:

- On alternative medicines: "It turns into a battle with the insurance companies."
- "They may pay for these medications, these drugs, but not alternative medicine."
- "Dentist handed me 50 oxycontin and says if you need more call me, and I don't want to take the pills...no, you need it." [participant describing interaction with dentist following a surgery]
- "From kids to our jails, this is a problem."
- "Once they reach rock bottom, it is nearly impossible to get them back up."

Two participants engaged with working in a homeless shelter described the issues with opioids in their workplace:

- "Working in the homeless shelter, there are 5, 6 in recovery, but it's hard to handle in that environment…I would like to think our workplace is supportive…our workplace is supportive but it's still hard we still have challenges."
- "There is a stigma in homeless facilities."
- "Stumbling over what to do."
- "Our workplace is constantly being impacted by the opioid epidemic…we need to be prepared…our staff is definitely been trained as peer advocates and it works… they can connect with clients when they have personal experiences."
- Using Narcan: "Puts a lot of strain on staff and with so many folks in recovery its particularly difficult."

In contrast to a recovery supportive environment for the homeless shelter workers, nurses cannot seek help for recovery and maintain work, which presents challenges to their health and preventing burnout among those who are handling overdoses:

- "We are having a harder time getting nurses and keeping them too and its related to the opioid crisis."
- On a nurse coming out in recovery: "Nurses are more underground than they were twenty years ago." "Sure a nurse can be in recovery but that time they cannot work, no work no pay."

One of the greatest concerns throughout the training and among the class were issues with EAPs:

- "The nurses don't trust the EAPs since it's the employer….not only will you be told you are not ok, but it's going to take your job away from you……it's our biggest barrier (on communicating addiction)….we need a change in culture….it is a punitive workplace."
- "Lack of trust a lack of confidentiality…yup in the EAP."
- On third party EAP: "Nothing more than a search engine…my friend's son was threatening suicide, so she called the EAP, that was a third party, and they sent an email with 70 places to call...they gave them 70 places for a suicide."
- On recovery: "It is really hard to schedule a follow up appointment."
- "We have brought on a recovery approach...sometimes that phone call (to get recovery) is very hard…we don't want people to ask for help, we go to them."
- "You work 14,16,17 hours at peak, there is no time for recovery."
- "We have banana heads running the EAP."

However, some would support EAPs being effective in their workplace for example:

- "Thanks to an EAP, we have setup AA meetings during lunch time and they have proved really successful."

The topic of stigma and the way we described addiction in the words we used presented numerous insights into the class's viewpoints:

- "I don't want to call them addicts; I rather call them struggling."
- "It is not all about shame and disgrace...if there is a neutral attitude means there isn't a stigma… if there is no stigma, so what…people are afraid to say anything to not be stigmatized...they are being oversensitive."
- "You don't want something that's hurting someone to become a positive."
- "Everyone has talked and patted them on the back…but sometimes you have to get dirty… sometimes calling that a person a junkie is the only thing that gets through because that's the only thing they understand at that time."
- "We are cuddling guys."
- "Political correctness doesn't work here…compassion and baby talk isn't a solution."
- "It's about breaking down barriers…sometimes I can't hack it."

- "The language is less of an issue…the words don't matter it's the compassion."
- "I don't like burnout, rather call it compassion fatigue…you can only keep seeing the same thing in the emergency room over and over and the compassion fatigues you."

Recovery and presenting oneself in recovery, as well as defining addiction spurred useful discussion:

- "Recovery gets talked about, but what exactly is recovery."
- "At what point do you become addicted."
- "I take an opioid but am not addicted…I don't get any of those symptoms (on withdrawal) …I'll take 2-3 to sleep at night sometimes…but then I go weeks without needing it."
- On coming out as being in recovery: "I don't want to be a spokesperson of recovery, to be clapped and applauded."

After the training, the class would provide feedback suggesting the training tool and class was effective in raising awareness and the skills needed to develop their own training:

- "I learned a lot."
- "You hear about opioids all the time in the news, but never like this…this was different because now I think I can relate."
- "This was great, I came in thinking I knew about opioids and I was completely wrong."
- "I don't think the class should be any shorter, we need the extra time as trainers to really get into it…sure I'll go back and bring it down a bit here and there but overall we need to talk about this."
- "The training was worth it; we see this problem everywhere. I know people in recovery and its hard they face so much stigma…for sure I am going to incorporate this into a training."
- "Our workers don't have a lot of time, that is why we need to step up for them…they mentioned a leadership training and I think that's a wonderful idea."

Comments from New York, New York

The class was largely aware of opioids and shared experiences and perceptions of the epidemic in their lives, communities, and families:

- "Doctors need to stop prescribing narcotics."
- "Cheaper than getting medications." [on heroin usage]
- "They are just miserable, and they just want you to get rid of the pain."
- "My son was in recovery, injured his leg in a car accident and started taking opioids for his pain…he ended up becoming addicted and always needing them…it took jail to get him on the right track…I like to say he is one of the success stories."
- "It is a freight train coming." [on the opioid epidemic]
- "It's like the AIDS crisis and the stigma from 20 years ago."
- "Men from our hall die from this every year, we are 20 years late."

- "My youngest son….my son is 6 years clean…and unless they want to help themselves, you can't help them…you can yell at them till you're blue in the face…I investigated through our local what was available (on recovery)…happy to say he's in the union now…the rabbit is always there and I refuse to chase it…people say it's a disease but it's a self-inflicted disease."
- "It is hard on the family, no one talks about that, sometimes the family enables them."
- "My son used guilt on me, I would give him money because I felt like a bad parent not providing for him."

Like earlier discussions in different pilot trainings, the topics of stigma and language would be largely present in New York. The class would describe the stigma of bringing up the uncomfortable topic and the barriers to presenting Opioid Use Disorder as a disease:

- "There's a stigma…we have men in our union that are clearly addicted and can't go to a union represent or a boss…fear of losing their job makes it hard."
- "People don't want to say it's a disease, you wouldn't treat a person with cancer the way people get treated with a drug addiction."
- "We not even gonna call them addicts? Are we going to have gloves on when we say it?"
- "It shouldn't be something we are proud of."
- "You almost making it too nice."
- "You can't sugar coat what they are."
- "The problem is not only the pill…some people become addicts because of something within… they use the pill as an escape."
- "It is hard for someone to say in a group setting to say I have a problem."
- "I was a sick dude…there is not shame in this…I think the term is sick."
- "How do you get out of it, calling someone a junkie?"

The class had participants linking the relationship between opioids and the workplace. Discussions on seeking help at work and those challenges were brought up consistently:

- "People aren't always going to be warm and fuzzy; they have a business to run…but then again you shouldn't always be so light and fluffy because you have to deal with it."
- "There has to be consequences to your behavior…the drug addict loses their job the family suffers."
- "How do you ensure that confidentiality that it doesn't go back to the boss?"
- "How do you get your union leaders the space to talk about these issues?"
- "We can't say we are going to de-stigmatize opioids but then be punitive to using the medication."
- "Safety has to come first."

Beyond the general talk on opioids and the workplace, participants would get into describing their experiences with treatment, recovery, and seeking help at work:

- "The cost is high…am not sure if the insurance pays for it."
- "They've cut down the number of facilities where people can go." [on seeking mental health/recovery]
- "There is nothing worse than people who prey on the vulnerable…I try to steer people towards our EAP."
- "Drug testing has become part of the working world, especially in our field random drug test, can create a fear or stigma."
- "We have guys who I know that ending up dying from 9/11 that never went to get medical treatment…because of the stigma…if they can't go imagine people with addiction."

The demands of working, even when sick or unhealthy, can create a pressure that is leading to occupational stress, burnout, and injury:

- "It's either you work, or you don't get paid."
- "You have to stand up and say you're not going to be there."
- "You don't work, you don't eat."
- "There is a subtle pressure to work…an unspoken culture of taking time off."
- "I let my work come before my family, and that's my mistake."
- "You have contractors that won't give you a ten-minute break."
- "There's a lot of pressure."
- "When you work so much, you lose more than you gain."
- "Our brothers and sisters are in pain." [on unions]
- "Work gives you structure."
- "You end up not caring about other problems." [on working too much]

Once the training was completed, a discussion was held with the participants, trainers, and organizers. Overall, it supported the training being effective in raising awareness to opioids and the workplace among the group. The discussion supported a need for further training in leadership and modifying the class to be adapted into other trainings:

- "We should be putting this into HAZWOPER training."
- "We got to figure what works for us, it's big and pretty unique."
- "It's not like we can look at the curriculum and know what to do." [in reference to needing leadership training]
- "The training was interesting; I didn't even know what ergonomics was before this…It was informative."

Comments from Huntington, West Virginia

Participants discussed prior experiences with opioids among family and friends, showcasing the dire need for awareness intervention within the community:

- "It's a disease, and we need to do a better job educating."
- "I have a niece for lack of a better word that is in jail for opioids."
- "…my dad was an electrician, and was injured (2005) …he couldn't get painkillers because of doctors overprescribing…I just recall my childhood being very different."
- "In the 60s we had a very beautiful home…then the steel mill shut down…a lot of despair… businesses started shuttering…with lack of jobs people turned to drugs." [on Dreamland]
- "It's just day after day after day…its tearing families apart…we are going down a rabbit hole…until we have a change…it's going to take jobs and a community for hope…right now there isn't none."
- "Something like that had happened here in Huntington about a year ago…about 20-30 people died in 12 hours." [in relation to Fentanyl]
- "You were in Huntington, disoriented, and out." [on the EMTs justification to using Narcan on a participant's father who was experiencing a heat stroke].

The training drew from the experiences of participants dealing with recovery for addiction and drove conversation on seeking treatment and handling recovery in the workplace. Notable dialogue revolved around EAPs and participants being involved in their own treatment programs:

- "When I was addicted, I rather die than go to my EAP."
- "It does work, it takes courage." [on treatment]
- "You don't give up on them until they give up on themselves."
- "If someone says they need help, they hit rock bottom, it takes sometimes a month to get help."
- "When I was going through my addiction…treatment is part of the solution but not everything…if it's possible for the local unions to be involved on the ground level…have support babysit them if that's what you want to call it…addiction is addiction."
- "I lost my brother to heroin laced with fentanyl…he had an injury to the arm…kept pumping him with painkillers…realize it ain't working…they cut him off and he turned to other ways…couldn't tell he was on drugs…we have a volunteer program here at the union to come forward."
- "My daughter runs a center that administers these (MAT) and the success rate is quite well… the success rate is very high". On perceptions of MAT in community: "It depends what kind of community you come from…it works when you have the family support…and they can get counseling twice a week."
- "The government can screw things up…they want certain staffing we can't afford…our treatment facility is successful because we stayed to the mission of compassion first." [on running a treatment facility run on non-profit donations]

A major driver in the class was on zero tolerance policies and punitive approaches:

- "We also have drug testing, if you come forward you go too rehab but if you pop you are done."
- "People react negatively to the zero-policy part of it, that term pushes people further in the closet."
- "Sometimes everyone knows, but them." [on needing treatment]
- "Rehabilitation over discipline." [against zero tolerance]
- "It drives people back into the hole." [on zero tolerance]
- "Our contract language is somewhat weaponized." [on randomized drug testing]. "It's weaponized because it says if there is a reasonable suspicion. Hey you in USW? That's all it takes."
- "If you show up dirty, that's it." [on relapsing and testing]
- "We only want them to relapse on their 4 days off." [on difficulties of relapsing and working]

As part of each pilot, prior to the discussion of language and stigma brought up points from the class that supported a continuing need to combat stigma on addiction, treatment and recovery:

- "My brother in law was in recovery and no one wanted to talk about it, a stigma, a dirty little secret."
- On talking about recovery: "You want it to be uncomfortable, we know what is comfortable and its getting high."
- "If you say those words your mind goes straight to the negative." [on the language of junkie]
- "You're running those razors edge showing treatment but you don't want on the flop side to be an enabler."
- "You can be loving and caring without being enabling."
- "We joke about those words amongst ourselves." [in the recovery community]
- In response to that: "Yeah, but don't call my son that…it depends what side of the fence your on…you can sit there and call them what you want until you're the one going through it."
- "Don't you think that's enabling it?" [getting Narcan over the counter]

On the topics of injury and occupational stressors and hazards, much of the conversation brought up challenges that were unique to this class. The entire class was with the United Steel Workers (USW) and therefore union focused dialogue was intermingled throughout in addition to bringing up their hazards and stressors:

- "I work 80 hours a week on a rotating schedule…we miss birthdays, holidays so it's hard."
- "It's a work life union balance, because we want to be involved in them all and finding that balance."
- "Definitely bullying (in the workplace) …maybe bullying is not the word…it's more like playful." What about the people who can't handle that do you still joke with them? "No, they don't last long."

- "Working in the steel dust breathing it in, no respirator, when you got on all this PPE stuff and it makes you another 20 degrees hotter you can't wear that (respirator) all day."
- "Short deadlines can have a huge bearing on how you feel and act."
- "Working with this stuff is very stressful…ten years from now you don't know what can happen."
- "Instead of going home and unwinding, they go unload." [on occupational stress]
- "We are working too many hours, going 100 miles an hour while there."
- "Adapt or die. There ain't much you can do." [on work schedule]
- "Stigmas are really hard to evaluate. Depends how tough their skin is, how scared."

Post-training discussion and interactions during breaks would raise points that supported the training as effective and meaningful for the class:

- "Well I thought the training would just be slides but I like it getting people together working and talking."
- "I like the training, I do, our community needs this."
- "A lot of this comes down to awareness. Someone has to break the ice."
- "If we save one life, we did our job."
- "It plants the seed…maybe they don't listen right then and there, but they come back and shot some honesty your way." [on active listening]
- "We need to get past thinking we are better; we are all human."

Appendix ix. Module Objectives by Number and Title

Objectives by Module Number

1) Background on the epidemic:
    a) Define opioids.
    b) Describe the scope, impact, and roots of the national opioid crisis.
2) Fentanyl and Synthetic Opioids:
    a) Explain the main characteristics of synthetic opioids and analogues
3) Understanding Opioid Use Disorder:
    a) Explain how emotional and physical pain can lead to opioid use.
    b) Review relevant definitions.
    c) Identify why opioid use disorder is classified as a disease.
    d) Describe the impact of withdrawal on users.
4) Stigma:
    a) Relate how stigma effects workers who need support for mental health and substance use issues.
    b) Address occupational risk factors that impact mental health/substance use.
5) Prescription Opioids:
    a) Describe the benefits and dangers of prescription opioids
6) Related Infectious Diseases:
    a) Describe how opioids can contribute to the spread of infectious diseases
7) Occupational Exposure:
    a) List workers with potential occupational exposure to fentanyl and other opioids.
    b) Discuss use of naloxone.
    c) Locate the NIEHS Worker Training Program training module on the topic.
8) Opioids and Work:
    a) Name industries and occupations hardest hit by the opioid crisis.
    b) Review the public health approach to prevention.

9) Prevention: Identifying Program Gaps and Risk Factors

   a) Identify gaps in safety and health program and standards.

   b) Explain the importance of ergonomics in preventing pain, injury, and opioid use.

10) Employee Assistance and Peer Assistance Programs:

   a) Review the role of employee and member assistance programs.

   b) Highlight the value of peer assistance programs.

11) Workplace Substance Use Prevention Programs:

   a) Review gaps in employment-based substance use programs.

   b) Discuss the impact of substance use on the worker and the workplace.

   c) Outline elements of supportive workplace programs.

   d) Begin action planning for workplace improvement.

SECTION VIII.

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