

Chief Evaluation Office  
U.S. DEPARTMENT OF LABOR



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## **U.S. DEPARTMENT OF LABOR RESEARCH ROUNDTABLE: OPIOID USE IN THE MINING & EXCAVATION INDUSTRIES (FEBRUARY 6, 2023)**

sponsored by the Department of Labor Chief Evaluation Office, Mining Safety and Health Administration, and organized by the Manhattan Strategy Group

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## SUMMARY

On February 6, 2023, the U.S. Department of Labor (DOL) presented a research roundtable on opioids and mining to interested internal staff as well as selected federal government partners. The purpose of the roundtable was to advance federal policies and programs to prevent opioid-related harms experienced by mine workers. The roundtable speakers presented the state of the evidence, the experience in the construction sector, and the context for substance use and the workplace risk factors and interventions.

The four speakers were Jamie Osborne (consultant) and Casey Chosewood (Director) of the National Institute for Occupational Safety and Health's *Total Worker Health*® Division; Chris Trahan Cain, Executive Director of the Center for Construction Research and Training; and Cora Roelofs (Principal), CR Research/Consulting. Scott Gibbons, Acting Chief Evaluation Officer at the Chief Evaluation office (CEO) and Chris Williamson, Assistant Secretary of Labor, Mining Safety and Health Administration offered introductory remarks and emphasized their agencies' commitment to research and action related to opioids and mining.

The speakers addressed the following in their talks:

- known and potential risk factors for opioids and opioid-related harms facing the mining community
- evidence and background with regard to opioids and mining, including knowledge gaps and directions for future research
- best practices for prevention and reducing opioid-related harms in mining and related domains including opioids and the workplace generally, and in the construction sector
- available resources for worker training, peer support, and employer guidance and programs.

Seventy-five people registered for the roundtable; 78 attended. Participants asked for clarification on risk factors for opioid use disorder, including workplace and genetic susceptibility factors. They also asked about recovery success rates over time, regional differences, and access to data.

The following report summarizes the content discussed above and provides links to numerous resources and references presented by panelists during the roundtable.



## ROUNDTABLE REPORT

### Introduction

The U.S. Department of Labor’s Chief Evaluation Office organizes periodic scientific roundtables for the purpose of informing department personnel about the state of the evidence relevant to the Department’s missions. In light of the on-going opioid epidemic’s impact on workers and employers, CEO has held a series of roundtables addressing substance use and the workplace. In February 2023, CEO collaborated with the Mining Safety and Health Administration (MSHA) to present a research roundtable on opioid use and the mining and excavation industries. The purpose of the roundtable was to inform federal policies and programs working to prevent opioid-related harms experienced by mine workers.

### Description

The roundtable began with comments from [Scott Gibbons](#), Acting Chief Evaluation Officer at the CEO. Scott welcomed the participants and thanked MSHA leadership for bringing forward the idea for the roundtable. He also described the mission and function of the CEO as a Department-level office, supporting all of DOL in developing and disseminating independent, credible information and data about DOL programs, policies, operations, and activities. In addition to leading DOL’s evaluation and research agenda, CEO supports evidence-based decision-making with various capacity-building efforts and has developed and hosted a number of Research Roundtables, with the objective of sharing objective, cutting-edge research and resources on key topics, facilitating researcher networking for DOL agencies, and highlighting research opportunities that can inform your agency’s policies, programs, grant-funding and future research plans. CEO also facilitates the learning agenda process. This research roundtable evolved from MSHA’s 2022 learning agenda, which identified opioid use disorder in the mining community as a priority area for additional evidence building activities. In particular, MSHA defined an interest in creating additional rigorous evidence to inform future training programs, and other programs/policies as a way to serve this particular community. Mr. Gibbons also mentioned that part of the mission of the roundtable was to identify research gaps that CEO might be able to help fill.

[Chris Williamson](#), Assistant Secretary of Labor, (MSHA/DOL), also welcomed and thanked the participants and noted that MSHA’s Deputy Assistant Secretary for Policy for Mine Safety and Health, [Jeannette Galanis](#), played an important role in identifying the issue of opioids as a priority for the agency. Mr. Williamson reminded participants that purpose of the federal Mine Safety and Health Act is to assert that “the first priority and concern of all in the coal or other mining industry must be the health and safety of its most precious resource, the miner.” He discussed the renewed focus of MSHA on miner health and the creation of a campaign called [Miner Health Matters](#). He noted that opioids are an important focus of miner health efforts because “mining communities arguably are ground zero for the devastating effects of the crisis.” He reiterated MSHA’s desired intent to provide help in the form of research, training, and guidance for the prevention of, and recovery from, opioid use disorder.

The first roundtable speakers were **L. Casey Chosewood, MD MPH, Director, Office of Total Worker Health, National Institute for Occupational Safety and Health (NIOSH)** at the Centers for Disease Control and Prevention (CDC) and **Jamie Osborne, MPH CHES, Public Health Analyst, Office for Policy,**



**Planning, and Evaluation, NIOSH.** Jamie began by reviewing risk factors and links between work and opioid misuse including:

- lack of employment, insecure employment, and new employment arrangements
- hazardous work, work-related injury, and difficult working conditions that may increase the likelihood that a worker would be introduced to opioids through a pain medication prescription
- lack of benefits, like paid sick leave, such that worker may feel that they need to use an opioid medication rather than miss a day of pay.
- cultural, geographic, and occupational differences across the workforce.

Jamie began with several points on the epidemiology of opioids and workers in all sectors. She noted that in 2019, 93% of the nearly 71,000 US drug overdose deaths occurred among the working age population, and overdose deaths at work from non-medical use of drugs or alcohol accounted for nearly 6% of occupational injury deaths, the seventh year in a row that this percentage increased. In 2021, 106,699 [drug overdose deaths occurred](#), more than any other year on record. Overdose deaths involving synthetic opioids other than methadone accounted for nearly 22% of those deaths, almost doubling since 2019. These numbers were primarily driven by illicitly manufactured fentanyl which has contributed to a more potent and lethal drug supply. An analysis from the University of Chicago and National Safety Council (NSC) [found](#) that one in every 12 workers has an untreated substance use disorder, with higher rates in industries with safety-sensitive positions, such as construction and mining. A [survey](#) from the NSC also found that more than 70% of employers say their workplace has been impacted by prescription drugs, but only 19% of employers feel extremely well prepared to deal with it.

Focusing in on substance use and mining, Jamie discussed a 2015 report released by the Substance Abuse and Mental Health Services Administration that compared illicit drug use and heavy alcohol use across various industry sectors in the United States. Some of the study findings pertaining to workers within the [mining industry](#) include:

- 17.5% of mine workers reported heavy alcohol use within the past month (higher than any other industry and more than double the overall rate among all full-time workers in the United States)
- 5% of mine workers reported illicit drug use within the past month
- miners reporting a substance use disorder within the past year was the third highest of all industries.
- 1 in 100 workers in the mining industry has an opioid use disorder, which is a higher than average rate
- workers in the extraction industry (mining, quarrying, and oil and gas extraction) have the highest mortality rates from natural and semisynthetic opioid-related overdose deaths and the second highest mortality rates from synthetic opioid-related overdose deaths, according to a study of [occupations associated with drug overdose](#) deaths based on mortality data from the National Occupational Mortality Surveillance system
- mine workers are more often prescribed opioid pain medications and for longer duration

As noted above, workers in mining often experience work-related stressors, including nonstandard shift schedules, work insecurity, physically demanding tasks, and numerous hazardous exposures, such as heat, noise, and environmental contaminants. These hazards are associated with high rates of respiratory illnesses, hearing loss, fatigue, heat stress and heart disease, as well as high rates of mental



distress, depression, and suicide. The conditions and design of work can increase individuals' risk for substance use, misuse, and overdose. Work-related traumatic injuries and cumulative physical strain may lead to workers' use of prescription opioids and/or self-medication to manage pain, which may subsequently lead to substance misuse and overdose. Work-related environmental hazards and psychosocial factors present a potential pathway to substance misuse. These stressors have also been associated with depression and suicide.

Casey then addressed the impact of substance use on workers and their co-workers, staff, family, and community and noted that the lines between those communities and environments have been drastically blurred in the wake of the COVID-19 pandemic. Casey described the *Total Worker Health*<sup>®</sup> principles and strategies to combat substance use harms, which involves the integration of protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.

Casey highlighted several resources for employers, workers and workplaces found through NIOSH's [Opioids in the Workplace](#) webpage. The first, [Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers](#), helps employers and workers understand the risk of opioid overdose and provides guidance to help them decide if they should establish a workplace naloxone availability and use program. The second is a [Workplace Solutions document](#) which provides information for employers wishing to assist or support workers with opioid use disorder, in addition to providing general information about medication-assisted treatment (MAT), also known as medication-based treatment. He noted that employment and return-to-work strategies are critical to successful recovery, and that MAT contributes to more stable, long-term employability. This document describes current treatments, and provides a multi-step set of information on creating the right kind of workplace atmosphere that focuses on prevention, opioid misuse minimization, decreasing stigma, and supporting people with substance use disorder (SUD) through treatment and return to work. NIOSH has also developed an Illicit Drug Tool-Kit, which provides accessible [NIOSH recommendations](#) for how First Responders can protect themselves from exposure to illicit drugs, including Fentanyl.

Casey then described a [Workplace Supported Recovery](#) Program, where employers use evidence-based policies, programs, and practices to reduce multiple risk factors, help workers seek the care they need, and provide assistance in recovery. A recovery-supportive workplace encourages employees to seek treatment and initiate recovery early in their disorder and provides access to evidence-based supportive resources for treatment and recovery. This may include developing return-to-work plans and supporting second chance employment, providing workplace accommodations, and providing peer support and peer coaching to bolster the social supports available to workers in recovery. These resources can be found on the new [Recovery-Ready Workplaces Resource Hub](#) hosted by DOL. NIOSH has been participating in a Recovery-Ready Workplaces interagency workgroup led by the Office of National Drug Control Policy (ONDCP) and the Domestic Policy Council (DPC) to identify and drive policy actions that facilitate employment opportunities for people in or seeking recovery from substance use disorders and promote the adoption of recovery-ready workplace policies.

Drawing attention to NIOSH's work in the mining sector, Casey described NIOSH's [Mining Program](#) and [The Miner Health Program, 2020-2030 Strategic Agenda](#). In 2016, NIOSH established the Miner Health Program to improve understanding of the burden of disease and health-related exposures among mine workers. Given the inherent complexities of "health" and conducting workplace research, NIOSH initiated a process to better inform and coordinate health research that also evaluates the impact of the



research and communicates information with all the relevant community partners in a timely manner. The Miner Health Program can simply be described as a *long-term*, national initiative, led by NIOSH, that *engages* with mining community partners and provides a *systematic research approach* for understanding and improving the health and well-being of miners.

Casey concluded by describing the Miner Health Partnership established (formally in 2021). The Partnership aims to facilitate collaboration across a network of diverse partners to identify priorities, conduct research, evaluate solutions, and disseminate findings, best practices, guidance, useful tools. In collaboration with MSHA, NIOSH has led the [Miner Health Partnership](#) as a stakeholder effort to raise awareness and make progress toward improved miner health.

**Chris Trahan Cain**, Executive Director, Center for Construction Research and Training ([CPWR](#)) was the next speaker. Chris explained that CPWR, a non-profit dedicated to construction safety and health and an affiliate of North America’s Building Trade Unions (NABTU), became alerted to the high rates of opioid overdose among construction workers following reports from Massachusetts and elsewhere around 2017. CPWR and NABTU have taken action to address suicides, opioid addiction and overdose, and mental health issues through policy and program initiatives and Chris’s comments described these. First, she mentioned the NABTU Opioid Task Force which she chairs. It is composed of representatives from 14 international union, employers, building trades councils, insurers, and government partners. The Task Force is charged with advancing the NABTU 2020 Resolution: “Support for Efforts to Reduce Pain, Opioid Use, Opioid Overdose and the Number of Deaths by Suicide in the Construction Industry” through a Public Health model. The Public Health Model emphasizes primary prevention (prevent pain and injuries), followed by secondary prevention (alternatives to opioids), followed by tertiary prevention (substance use disorder treatment and recovery).

CPWR’s efforts to address the problem of opioids in the construction sector are described in an article that appeared in a special issue of the occupational health policy journal *New Solutions* that was devoted to opioids and workers (Roelofs C, Rodman C, Rinehart R, Cain CT. Preventing Opioid-Related Harms in the Construction Industry: NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy. Published online April 7, 2021. doi:10.1177/10482911211008174). These initiatives include a report on strategies for communicating the importance of primary prevention, union Peer Advocacy programs, and data related to construction workers and opioids and suicide. They also include [Opioid Awareness Training](#) materials and Physicians Alert that construction workers can bring to health care providers to educate them about construction work and to help them avoid opioids.

The primary prevention communications strategy mentioned above (developed by [The Frameworks Institute](#) for CPWR) included the following points:

- Link causes and consequences to build support for structural solutions.
- Use the Upstream/Downstream metaphor (primary prevention) to explain prevention.
- Appeal to the Value of Investment in messages to construction industry.
- Choose concrete examples to illustrate what effective interventions look like.
- Provide the context needed to interpret unfamiliar concepts and data.
- Explicitly name who or what is responsible for problem or taking action to fix it.
- Emphasize systemic solutions to expand thinking beyond individual-level interventions.



These concepts have been incorporated into CPWR’s training and outreach. CPWR recently created an opioid hazard awareness training available and applicable to all trades. The goals of the training are to improve knowledge about opioids and related substance use and mental health and to Inspire and motivate trainees to act. The training has been piloted, evaluated, shortened (to 1 hour), online-optimized and updated in 2022. Materials are available free for download [www.cpwr.com](http://www.cpwr.com).

CPWR also interviewed 13 union representatives from the NABTU Opioid Task Force about their programs related to supporting workers struggling with substance use and mental health problems. Most respondents discussed Peer Advocacy where construction workers with personal experience of recovery were available to help others who were struggling. The report discusses elements of Peer Advocacy including barriers to participation (stigma, buy-in, trust), program planning and design, and recovery supports.

Three data-driven reports have been produced by CPWR relevant to [drug overdoses](#) among construction workers, [opioid use](#), and [mental health during COVID](#). These are accessible summaries that complement CPWR’s peer-reviewed literature on these subjects. Other resources that CPWR has produced include the above-mentioned Physician’s Alert, infographics to promote awareness and reduce stigma, and jobsite suicide prevention resources such as “Tool Box Talks.”

Last August, CPWR and NABTU sponsored a workshop of diverse stakeholders to bring together and further collaborate between organizations and programs focused on preventing opioid overdose and suicide in construction. The participants discussed opportunities for innovation, incubation, collaboration, and increased investment and recommended actions for targeted data collection, evaluation, research, and learning. Four ongoing workgroups were created to continue this work. The workgroups focus on training and education, changing the culture and stigma reduction, injury prevention and workplace stress, and peer support. Additionally, CPWR continues to champion prevention through research including on bullying and harassment risk factors and through an open solicitation for small research grants.

Chris concluded her comments by reminding the participants that the resources discussed above are available without charge and both the resources and the approaches are adaptable to the mining sector.

**Cora Roelofs, ScD., CR Research/Consulting**, was the next and final speaker. Cora reviewed the need for action on opioids in the mining sector and her research on opioid hazard awareness for the stone, sand and gravel mining sector. She also shared her perspective on gaps in our understanding and strategies that strengthen the case for action, including potential investigations and sources of evidence.

First, she reviewed the evidence regarding opioids and mining (full citations included at the end of this report). These included:

- Miners are at increased risk of opioid overdose (Harduar Morano 2018; Hawkins et al. 2019)
- Miners are more likely to be prescribed opioids for work-related injury, at higher doses and for longer (Thumula and Liu 2018)
- Coal-dependent counties have higher opioid deaths (Metcalf, G. and Wang, Q. 2019; Monnat 2018)
- Mining communities were targeted by pharmaceutical companies for opioid sales (Macy 2019; Quinones 2019; EYRE 2020)
- There is higher background drug use in mining populations (Ompad et al. 2019)





- Workers in mining have higher rates of self-reported prescription opioid and illicit drug use (Gu 2021)
- And, mining has high rates of risk factors for injuries/conditions that are often treated with opioids. These include:
  - Long working hours (Friedman, AlMBERG, and Cohen 2019; Le, Balogun, and Smith 2022)
  - Injuries (Bureau of Labor Statistics, U.S. Department of Labor 2021; Applebaum et al. 2019)
  - Musculoskeletal disorders (Balogun and Smith 2020)
  - Physical demands (Gallagher 2021)

She also noted that these risk factors do not occur in a vacuum, or singly, but in complex economic social, cultural, and physical environments. She noted Friedman, et al.'s (Friedman, 2020) article about these complex factors and citing of a description of coal mining families struggling with opioids, family stress, Black Lung, economic insecurity, and injuries. The theme of the relationship between opioid dependence and dependence on coal employment was illustrated by an excerpt from a former miner's op-ed piece that noted that miners have used opioids to be able to go to work and are "embarrassed" by their dependence (Mullins, 2017). Mullins also noted that the problem of opioid dependence is compounded by the lack of healthcare resources in coal mining areas.

Next, Cora discussed her research on the development of [opioid hazard awareness training](#) and employer guidance for the stone, sand and gravel sector supported with a grant from the Alpha Foundation for Mining Safety and Health. She developed a 35 minute opioid hazard awareness training for safety refresher training which was delivered to over 800 miners in Massachusetts in 2020. The training follows the Public Health Model described by Chris above, but is tailored with examples from mining. Pre- and post-training surveys showed modest gains in knowledge, improved knowledge of resources to refer individuals who are struggling, low levels of stigma, and high marks for the relevance and quality of the training (Roelofs, 2021). This training has now been made applicable to the sector generally and disseminated nationally and in Canada. To publicize the training, she has given presentations at MSHA-sponsored conferences, published articles in the industry journals, and presented to the Miners Health Partnership and the National Stone, Sand and Gravel Association. The training has been adopted and delivered by companies and MSHA trainers from several states including Arkansas, Michigan, Oregon and New Jersey. Many trainers are using the fully-narrated video-based version which allows the trainer to advance the presentation and continue to integrate discussion. Additional post-training surveys continue to show positive reception and results from the states beyond Massachusetts.

In addition to training resources, Cora has developed an [Employer Guide to Preventing Opioid Harms in the Stone, Sand, and Gravel Mining Sector](#). The guide is a combination of public health best practices and content developed from input from sector stakeholders. It emphasizes practical and feasible approaches for small and medium sized operators. The table of contents includes:

- Background and Basic Steps
- Employer Opioid Hazard Awareness Program Checklist
- Glossary – What's the Difference?
- Drug-Free Workplace Policies
- Opioid Hazard Awareness Programs for Your Company



- Recovery Friendly Workplaces
- What are the Elements of Recovery Friendly Workplaces?
- Return to Work Policies
- Prescription Management and Disability Prevention
- Overdose Prevention and Response
- Employee Benefits

The Appendix to the report includes several sample policies for promoting a compassionate approach to a Drug-Free Workplace.

Next Cora gave her research-informed perspective on gaps in our understanding of the issues related to opioids and the mining workplace, including:

- Causes and epidemiology of opioid use disorder (OUD) and overdose among miners (and the relation between OUD and overdose)
- Current prescribing practices and factors involved in transitions from prescription drugs to street drugs
- Miners' perspectives on the issue
- Interactions of mining/work-related factors and other factors such as rurality, age, healthcare access, "machismo/provider" ethic, and alternative employment
- Interaction of mining/work-related factors such as precarity/seasonality, physical demand, hazards/injury, long hours, illness risk, wages, and unionization
- Views from less commonly discussed mining contexts including surface mining, metal/non-metal, and areas of the country beyond Appalachia
- Employers' willingness to engage, prevent, and support programs and policies related to opioid hazard awareness, prevention, and recovery and treatment

Despite these gaps, Cora shared that there was sufficient evidence to inform further public health strategies to support those affected by opioids in the mining sector. In addition to the documented risk factors described above, she noted that in the face of an on-going crisis impacting the community, there were numerous actions that miners and operators can take to lessen the impact. For example, increasing worker awareness through training can lead individuals to protect themselves and work with others to take collective action to reduce work and non-work risk factors. These might include health and safety interventions to reduce slips, trips and falls which are a leading cause of injury in the sector and which can result in opioid prescriptions. There is sufficient evidence that training improves miner knowledge, skills, attitudes related to opioid harms. The deployment of such training broadly, but especially in the three states with mandatory drug testing and loss of employment for miners who test positive can reduce the punitive and potentially deadly impacts of OUD.

Enhanced employer awareness can lead to policy and programs such as those described in the Employer Guide mentioned above to help reduce risk factors and support workers who are struggling. In addition to compassionate drug-free workplace policies, numerous other employer actions have potential for important positive preventive impacts (Dunphy 2022; Shaw, Roelofs, and Punnett 2020). Mining-related public health agencies such as MSHA and NIOSH are already providing numerous helpful and accessible



resources and building a community of practice that can normalize the “opioid conversation” and support workers and operators in making changes.

Cora concluded her talk with recommendations for further research and investigation including qualitative (interview) formative research with stakeholders, interpreting the body of investigative reporting which has focused on mining and opioid use, scanning the peer-reviewed and grey literature in a variety of disciplines including economics, health, and behavior health and state data, and fostering collaboration across disciplines. More is needed to be known about the causes and consequences of opioid use among miners as well as what interventions are feasible and effective. The Miners Health Partnership is a robust way of engaging stakeholders to advance these objectives, but agency leaders might also consider holding “town halls” in mining heavy areas as the National Institute for Environmental Health Sciences did a few years ago.

The Roundtable concluded with gratitude to all who produced it and who carry on the mission of prevention of harm in the mining community and promotion of resources to address the needs of those who are struggling.



## RESOURCES:

### MSHA

[Miner Health Matters](#)

### NIOSH/CDC

[Miner Health Program Addresses Substance Use and Work \(Blog\)](#)

[Opioids in the Workplace](#)

[Workplace Supported Recovery Program](#)

[Recovery Ready Workplace Hub](#)

[Total Worker Health](#)

### CPWR/NABTU

[Resources to Prevent Opioid Deaths in Construction](#)

### Center for the Promotion of Health in the New England Workplace (Roelofs)

[Opioid Hazard Awareness for the Stone, Sand, and Gravel Sector](#)

### Others

[The Mining Industry and Addiction - Substance Abuse Statistics \(americanaddictioncenters.org\)](#)

[National Safety Council: Opioids and the Workplace Employer Tool Kit](#)



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