

It Is Time to Implement Primary Prevention in the Workplace to Ameliorate the Ongoing U.S. Opioid Epidemic

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Abstract

The United States' opioid public health crisis continues having disastrous consequences on communities, including workers and employers. From May 2019 to May 2020, the largest number of drug overdose deaths was recorded over a twelve-month period. The “twindemics” of COVID-19 and opioids underscore the urgent need to address workers' physical and mental health. Although much has been written about the negative impacts of the opioid epidemic on the workplace, few initiatives have focused on primary prevention, addressing work-related root causes of opioid use disorders (e.g., injury, stress) that may lead to prescription or illicit opioid use. We suggest primary prevention efforts to address the connection between workplace hazards and opioid misuse, dependence, and addiction such as examining patterns of work injury and stress with records of opioid prescription. Government funding should be expanded to support primary prevention and research efforts to strengthen the evidence-base to support workplace primary prevention endeavors.

Keywords

primary prevention, public health policy, opioids, occupational health, workers

Background

In the last year, the dual COVID-19 and opioid epidemics have had a devastating impact on workers, employers, and communities. Isolation, deviations from one's regular way of life, unemployment, and difficulty accessing mental health resources during the COVID-19 pandemic have exacerbated the opioid crisis.^{1–4} At least forty states have reported increases in opioid overdoses and fatalities since state-specific lockdowns began in March 2020.^{1,2} More than 70% of the overdose deaths in 2019 involved an opioid and approximately 81,000 drug overdose deaths occurred in the United States. This is the largest number of drug overdoses for a twelve-month period ever recorded (May 2019–May 2020).^{5,6} There is growing awareness that physical and emotional pain, including from work-related injury and stress, are significant drivers of the opioid crisis.^{2,5,7,8} In 2019, 20.4% of adults self-reported chronic pain and 7.4% agreed chronic pain frequently limited life or work activities in the last three months.⁹ The Centers for Disease Control and Prevention (CDC) reports that 25% of people on long-term opioid pain prescriptions struggle with addiction.¹⁰ Addressing the work-related root causes of injury and barriers to related

pain treatment is key to stopping the current cycle of substance use and addiction.

The consequences of the opioid epidemic have been underscored by the personal, community, and economic damage. Prior to the COVID-19 pandemic, it was estimated that the United States spent \$35 billion per year to treat substance use disorders (SUD) and an additional \$85 billion per year on injuries, infections, and illnesses associated with SUDs. In addition to the lives lost, the financial implications for employers of a worker with an untreated SUD can cost from \$2600 to \$13,000 in direct (e.g., medical costs) and indirect costs (e.g., absenteeism, turnover intention, lost productivity).^{11,12} In addition, approximately more than one million workers are out of the work force due to the opioid crisis and many employers are finding it hard to hire workers who can

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pass a pre-employment drug test.¹¹ This is a crisis that employers must address and cannot ignore as 75% of adults experiencing an SUD are in the work force.

One approach to reducing the incidence and prevalence of opioid use and addiction is limiting its occurrence in the first place through primary prevention. Primary prevention is a public health strategy that aims to prevent disease or injury before it ever occurs. This is accomplished by preventing exposures to hazards that cause disease or injury, altering unhealthy or unsafe behaviors that can lead to disease or injury and addressing mental health issues that can affect physiological outcomes. Secondary prevention is trying to detect a disease early and prevent it from getting worse; this can include focusing on reducing the impact of injury or disease at the time it occurs. For opioids, it includes giving workers information at the time of injury on how to speak to their healthcare providers about opioid use and alternative pain treatment.¹³ Tertiary prevention attempts to reduce the impact of an ongoing disease or injury to help prevent long lasting impacts¹⁴; for opioids, it includes increasing employer-sponsored access to mental health and substance use treatment and recovery programs and the availability of naloxone in the workplace.

To date, employers, unions, recovery groups, government officials, and researchers have not pursued a strong primary prevention approach to address the root causes of the ongoing opioid crisis. In this commentary, we attempt to outline areas where primary prevention can be implemented and enhanced in the workplace, as well as address the urgent need to fund and conduct research and interventions focused on the workplace that strike at the root of the ongoing opioid epidemic. Our recommendations below are highlighted using bullet points.

Punitive Workplace Policies and a Culture of Underreporting

Under Federal Executive Order 12564, the Drug-Free Federal Workplace, implemented in 1986 required all federal agencies to implement drug free workplace programs featuring drug testing and punitive zero tolerance policies, dealing with SUDs as a disciplinary issue.¹⁵ This has led to stigmatizing workers with SUDs, subjecting them to discriminatory and differential treatment by supervisors and peers⁷ and fear of job loss or suspension from workers who test positive on a drug test.^{3,7} These drug-free workplace policies treat SUDs as primarily a discipline problem and do not recognize that opioid use disorder is a chronic recurring brain disease that requires access to treatment and recovery resources.¹⁶ Worksite programs that are punitive and stigmatizing do not

foster a culture where workers are comfortable coming forward for help or care.

- Rather than zero tolerance policies and terminating employment of workers who have SUDs, employers should adopt an approach of eliminating stigma and maintaining relations with workers who need treatment, including support of their re-entry into the work force. A “recovery-friendly workplace model” is important in helping workers with SUD get back into the work force. Current government efforts have focused on the recovery friendly workplace model exclusively and have not addressed these other workplace issues from both a drug use prevention and occupational health standpoint.^{17,18}

Other gaps in knowledge and development of related interventions include the impact of (1) reforming punitive workplace-based drug policies, (2) addressing workplace culture that discourage workers from coming forward for assistance due to stigma or fear of job loss, (3) providing information to injured workers on how to speak with providers about opioids and alternative pain treatment, and (4) accomplishing increased employment-based access to treatment and recovery for mental health and substance use problems.

Continued Musculoskeletal Disorders and a Lack of Proper Ergonomics

Musculoskeletal disorders (MSDs) such as lower back pain, neck and shoulder pain, wrist strain, and tendonitis are among the leading causes of work-related disability that are associated with prescription opioid use.¹⁹ There were 325,270 MSDs reported by public and private employers in 2019; 30% of all reported cases with days away from work.²⁰ Research has demonstrated that occupational injuries, illnesses and stress-related physical and emotional pain leads to prescription and potential illegal opioid use.^{7,21–24} Furthermore, substantial evidence-based research has demonstrated that industries with physically demanding occupations and those without access to paid sick leave have higher rates of SUDs, including construction, mining, entertainment, healthcare, recreation, and food services.^{2,11} Nevertheless, many employers and unions still may not see the connection between unhealthy working conditions, workplace injury and illness and opioid use or addiction; work-related pain and injury often are unreported out of fear of consequences, such as retaliation, decreased job security, and being laid off. For workers who are fortunate enough to be provided with employer-supported treatment, they often return to the same hazardous job that led to injury or stress and contributed to

their use of opioids in the first place. The U.S. Government Accountability Office estimated 50% underreporting of workplace injuries and subsequent opioid use in a Congressional report.²⁵ These factors may partially explain why organizational leaders have not generally invested time and resources to analyze these trends and correlate them with SUDs.⁷

Standards addressing ergonomics at the federal and state level are one means of primary prevention for SUDs. Currently, there is no enforceable Occupational Safety and Health Administration (OSHA) ergonomics standard despite the fact that MSDs are consistently the leading cause of work-related lost time injuries and illnesses in our country.²⁶ Having a standard in place would require employers to identify jobs, work processes, and tools that lead to MSDs—which have been frequently treated with opioids. For example, healthcare workers are at increased risk of MSDs from patient lifting and transferring tasks that could be readily controlled with safe patient handling programs.^{27–29} Even though safe patient handling programs have been proven to increase patient safety and are cost saving, few states have adopted safe patient handling standards due to anti-regulatory lobbying by healthcare associations³⁰—an example of primary prevention being purposely hindered. Clearly, this gap needs to be addressed to prevent misuse and addiction and the resultant strain on workers, communities, employers, and the economy.

- Primary prevention, by addressing MSDs and implementing proper ergonomics should also reduce workers' compensation, healthcare, social security, and other disability costs that are consequences of work-related injuries and illnesses.

Workplace Psychosocial Factors

A significant amount of training is needed for employers and regulators who currently fail to recognize the impact of psychosocial factors—the interrelation of social factors and individual behavior—in the workplace. Poor mental health and demanding work factors increase stress, which in turn can lead to psychosomatic disorders, are all intrinsically tied to the cycle of opioid use. Fatigue from extended hours of work, mandatory overtime, or non-traditional work shifts (e.g., healthcare, construction) are factors that can lead to self-medication with substances.³¹ Both public- and private-sector workplaces are resistant to reforming stringent working conditions and hierarchical organizational cultures.^{32,33} Yet, a stressful work organization can increase the risk of acute traumatic injuries and MSDs leading to opioid prescription use and addiction. Furthermore, stressful work increases the risk of

common psychological disorders, such as anxiety and depression, and may lead to self-medication with alcohol or drugs.^{34–37} While COVID-19 has stimulated conversation about the mental health of workers and the impact of psychosocial factors, few employers provide related training, including training on prevention of SUDs in the workplace.

Other organizational factors, such as lean production and lean staffing models in many high-risk industries further exacerbate psychosocial factors of work (e.g., stress) on workers leading to higher rates of injury and illness and the first step in the cycle of opioid prescription and misuse.^{32,33} Workplace violence is another leading cause of workplace injury and workers who are physically assaulted may be prescribed opioids for pain, as well experience psychological trauma.³⁸ Reducing workplace violence incidents can be accomplished by assessments of workplace violence hazards, implementing comprehensive workplace violence prevention policies and, again, providing training on psychosocial factors in the workplace.³⁸

- Research that builds the evidence that training and organizational modifications can reduce negative work factors that impact worker mental health should be identified, funded and conducted and used to develop primary prevention interventions in tackling the opioid crisis.

Government Funding Is Not Being Directed to SUD Primary Prevention

Federal and state initiatives on tertiary prevention of SUDs, such as peer recovery navigators and recovery friendly workplace initiatives that include return-to-work initiatives, overcoming stigma, and getting employers to hire people in recovery, are critically important and must continue. Significant funding has been directed to support recovery friendly workplace programs and other financial incentives have been offered, such as the \$2000 New York State tax credit for New York State (NYS) employers to hire people in recovery⁴⁰; yet funding for primary prevention has not been available. Federal and state agencies must also address the root of the problem by funding research and interventions aimed at primary prevention of workplace injuries and stress, as well as supporting initiatives aimed at reforming workplace.⁴⁰

A primary mission of the Occupational Safety and Health Act is education and assistance. To date, OSHA has not provided funding, and only minimal guidance for employers, unions, and workers who are significantly impacted by this crisis. The OSHA website only provides links to third-party information.⁴¹

OSHA's training grants have not supported development and delivery of training aimed at the opioid crisis in the workplace.

In response to the rising number of overdoses and fatalities due to opioids, there has been a concerted effort to reduce prescriptions for opioids for work-related MSDs and resulting pain.^{3,7,8} In one study using data from the 2010–2018 National Survey on Drug Use and Health, the projected decreases in deaths were 0.3% due to prescribing reductions, 15.4% due to naloxone distribution, and 25.3% due to treatment expansion.⁴⁸ All three of the factors evaluated take place after misuse or addiction have already occurred rather than a primary prevention approach of stopping SUDs from occurring. An unanticipated impact of the reduced access to prescription opioids has been the increased use of street heroin and other illicit opioids, frequently mixed with the highly potent fentanyl, a key contributor factor in the increase in opioid overdose deaths.^{2,16,42} It should be recognized that focusing funding entirely on tertiary prevention will not yield the results needed to abate this crisis. Tertiary prevention is aimed at workers who are already addicted and in need of treatment or recovery support. This approach does nothing to stop new cases from emerging, although work is a key to successful recovery.

- Work injury, stress, and related physical and emotional pain must be addressed or else the workplace injury/stress to addiction pipeline will continue. Financially supporting primary prevention interventions and research focused on workplace drivers is key to solving the crisis.

Potential Financial Benefits of Primary Prevention

The Liberty Mutual 2020 Safety Index estimates that disabling workplace injuries cost U.S. businesses more than \$59 billion dollars per year. The ten leading causes are: overexertion involving outside sources (handling objects), falls on the same level, struck by an object or equipment, other exertions or bodily reactions, roadway incidents, slip or trip without fall, repetitive motions involving microtasks, struck against object or equipment, and caught or compressed by equipment. The top five causes account for 69.5% of the total cost.⁴³ These types of injuries and illnesses are frequently treated with opioids. We should now add opioid misuse, dependence, and addiction as a significant and costly potential health effect of workplace injury and illness.

- Government and allied researchers should work with employers, labor unions, recovery organizations, and communities in conducting research and interventions addressing primary prevention of workplace injury and stress that contribute to SUDs.
- Government and allied researchers should conduct research and interventions that document the extent of cost savings that result from significant investment in bolstering primary prevention programs, such as reducing the direct and indirect costs of workplace injuries and illnesses.

Advocating for Funding and Legislative Reforms for the Primary Prevention of Opioid Use

Pharmaceutical companies have recently been sued by states, municipalities, and organizations for their responsibility in creating the United States' opioid epidemic and fueling one of the worst public health crises in recent history. Over the next several years, it is estimated that \$50 billion will be paid out to states, counties, cities and other local, tribal, and territorial governments, as well as hospitals.⁴⁴ It is of the utmost importance that this money be directed to solving the opioid crisis and not used for other unrelated purposes.

- Funding that results from these lawsuits and settlements should include support for training, research, and interventions, including those focused on primary prevention.

There are parallels to be drawn and lessons learned from the tobacco settlement funds (\$27 billion) in the late 1990s and early 2000s. Less than 4% of the tobacco settlement funds were spent on tobacco use prevention, cessation, or marketing campaigns aimed at primary prevention.^{45,46} Many states ended up utilizing their tobacco settlement funds on tertiary care, covering budget shortfalls or spending it on unrelated items, such as water projects; only a few states utilized the settlement funds at the CDC-recommended level and focused it on building public health and primary prevention capacity.^{38,39} Years later, cigarette smoking is still the leading cause of death in the United States, causing an estimated 480,000 preventable deaths annually.^{47–49} Given these facts, it is clear that the tobacco settlement money should have been used for its intended goal and poses the question if the opioid settlement money will be.

The Biden administration has increased federal funding to address the opioid crisis. In March 2021, the Biden-Harris Administration announced that the American Rescue Plan would include \$4 billion to enable the Substance Abuse and Mental Health

Services Administration (SAMHSA) and Health Resources and Services Administration (HRSA) to expand vital behavioral health services, sustain the use of telehealth, reduce inequities, and even offer mental health services to those incarcerated.⁵⁰ While this is a positive step, the allocation of these funds are predominantly focused on treatment and recovery resources. Workplace funding has been targeted for helping workers in recovery return to work. This announcement included no explicit funding for primary prevention interventions or research.⁵⁰

In 2017, \$20 million from the U.S. Department of Labor Education and Training Division was allocated as part of a new pilot grant program to address the health and economic impacts of SUDs, addiction, and overdose through the provision of training and other services to workers and employers in affected communities.⁵¹ These grants were given to states with a high opioid overdose experience and funded tertiary interventions—getting workers with SUDs into treatment and recovery programs so they can re-enter the work force and providing training and incentives to employers to hire people in recovery.⁵¹ While this is important work intended to help reduce labor and work force shortages, it does not reach those who are currently employed and may be exposed to working conditions that could lead to SUDs.

- Funding for training, intervention, and research should also be directed at primary prevention programs within industries and workplaces, especially those with the highest rates of substance use and in the geographic locations that are most highly affected.
- Based on existing and future training, intervention, and research data, employers, researchers, labor unions, and government officials should work together to document effective methods for evaluating hazardous jobs associated with opioid use and show that implementing effective control measures can result in reduced rates of addiction.

An example of legislative reforms that could reduce work hazards and stressors—which again, are linked to SUDs—is the NYS legislature’s recent nursing home legislation. This reform requires a minimum of 3.5 hours of nurse staffing per patient per day and placed limits on profits (capped at 5%), requires 70% of revenue to be spent on direct resident care, repealed operator liability protection, and included \$32 million annually to support the reforms. These reforms were driven by the pandemic as more than 30% of the COVID-19 fatalities in NYS were in nursing homes and 25% of nursing home workers were infected. Staff shortages, low wages, and a reluctance of operators to spend money on needed personal protective equipment (PPE) and equipment were

documented as factors by the NYS Department of Health and the NYS Attorney General’s Office in separate reports.^{52,53} Although primary prevention of SUD was not the stated focus of these legislative changes, they clearly address primary prevention factors for worker injury, stress, and pain in this industry. This reform shows what is possible when government, researchers, and communities unite for public health.

Federally Sponsored Opioid Training in the Workplace

An important workplace primary prevention initiative, supported by the federal government, is the work of the National Institute of Environmental Health Sciences (NIEHS) Worker Training Program’s (WTP), part of the National Institutes of Health. The WTP established a training program entitled, “Opioids and the Workplace: Leadership Training.” The course is a full-day program, intended for top leaders from participating organizations who have influence and/or authority to change organizational policy, procedures, and culture to prevent and respond to opioid-related SUDs in the workplace. The course focuses on identifying gaps and opportunities for organizational system improvements including primary, secondary, and tertiary prevention.^{54,55} The pandemic delayed plans to pilot test the course, resulting in it being conducted only twice by June 2021, once with Organizational Resource Counselors and once with the City of Concord, New Hampshire. Training participants in both classes gave the course high ratings for-training effectiveness. An unpublished report on the six-month follow-up evaluation survey of participants in this leadership training, provided evidence of their ability to (1) recommend improvements in providing information and support to injured workers on how to talk to healthcare providers about opioids and alternative pain treatment, (2) reform organizational systems to support workers who are struggling with mental health issues or substance use, and (3) recognize work-related factors that may lead to prescription or illicit opioid use (written communication, E. Persaud, NIEHS Program Evaluator, 2021).

- The Opioids and the Workplace: Leadership Training Program should be expanded and adapted by more worker training programs throughout the United States.
- Existing resources on addressing the primary prevention of opioids, such as the one available through NIEHS WTP, should be leveraged to maximize use and reduce the need to spend resources on duplicative content.

Research and Intervention Recommendations

The National Institute for Occupational Safety and Health (NIOSH) is the nation's premier agency for occupational safety and health research. NIOSH has been doing valuable work creating a framework for addressing opioids and in conducting research that identified industries and occupations and risk factors associated with opioid overdose and misuse. NIOSH has conducted workplace health hazard evaluations of emergency responders who reported health effects when responding to opioid overdoses and collected information about recovery-friendly workplace initiatives. NIOSH has also worked on establishing methods for conducting real time sampling methods for evaluating occupational exposure to fentanyl and other opioids.⁵⁶ NIOSH has been involved in evaluating workers' compensation data to look at patterns of prescription opioid use. However, NIOSH has not conducted or funded research on primary prevention of workplace injury and stress that can lead to prescription or illicit opioid use. This important gap needs to be addressed.

Time and resources should be invested by employers and allied stakeholders in establishing effective methods of identifying and evaluating where and what work hazards are associated with SUDs. This may be accomplished by conducting ergonomic evaluations and reassessing selection and use of environmental controls for job tasks that have patterns of injury that may lead to use of pain medication.⁵⁷ Analyzing required OSHA records (i.e., OSHA 300 logs), safety and health evaluation reports, workers' compensation, and health benefit records at the company/organization-level may elucidate patterns of opioid prescriptions.^{58,59} These evaluations should identify departments, occupations, and job tasks that experience frequent patterns of occupational injury, illness, and stress that have been treated with prescription opioids or led to self-medication. Furthermore, patterns of absenteeism may be indicative of jobs that are physically demanding, painful, and stressful and require time away from work for physical or psychological recovery.

An example of the value of research is a study of more than 100,000 workers' compensation claims in New Mexico which were associated with death records and revealed a near three-fold increase in deaths from suicide and drug overdoses among female workers and approximately 1.5-fold increase among male workers. The authors concluded, "Drug-related deaths and suicides may be important contributors to the long-term excess mortality of injured workers".⁶⁰ Determining the high-risk occupations and job hazards, and how to prevent them is a gap in the knowledge about opioids and work. Obtaining input from rank-and-file workers and worker representatives about their perceptions of job hazards

is another crucial element for establishing successful prevention programs and fostering a positive safety culture.^{61,62}

Occupational safety and health researchers are aware that gaining access to worker populations and injury and illness records can be very difficult, as companies/organizations are often reluctant to share data for fear of negative publicity. Even though methods are readily available to protect confidentiality of worker medical records, employers are often apprehensive about providing researchers with access to even de-identified compensation and health insurance records. Lack of identification and analysis of this type of data is a significant gap in understanding workplace opioid use and properly characterizing and evaluating primary causative factors for the purpose of identifying primary prevention recommendations. Suggestions for areas of future research include:

- Federal agencies, including SAMHSA, Department of Labor, and NIOSH, should fund training and intervention programs to states and localities to begin addressing primary prevention of work-related injury, illness, and stress that can lead to opioid addiction.
 - a Grants should support worker, supervisor, and leadership training. The NIEHS WTP training programs could be used as core curricula for these programs and modified and adapted as needed.
 - b Grants should support development of intervention programs where grantees can use the funding to hire personnel and establish resources to evaluate job hazards, injury experience, prescription opioid use, and interventions that address those injuries, jobs, tasks, equipment, work processes, or work organization issues.
- Federal agencies, including SAMHSA, Department of Labor, and NIOSH, should fund and conduct their own research that is focused on primary prevention of opioid use disorder related to work.
- Grants should support evaluating workers' compensation and health benefits data, absenteeism, staffing, hours of work, and worker surveys to determine risk factors and solutions.
 - a Grants should support evaluation of injury logs, workplace medical records, safety program data, worker surveys, focus groups and other methods to identify jobs, job tasks, occupational stressors, and work organization factors that are associated with prescription opioid use and addiction.
 - b Intervention research should be given a priority as it holds the best hope for preventing injuries, illnesses, and job stressors associated with opioid SUDs. NIOSH's Total Worker Health (TWH) approach, as

suggested by Shaw and colleagues could be implemented to address this issue.⁵ A holistic solution is needed for an issue that not only can take over the life of the worker while at work but all other facets of their life.

- c Research on the applicability of risk assessment as well as risk mitigation and management approaches could be explored.

Conclusions

Federal, state, local, territorial, and tribal governments, as well as advocacy groups, unions, researchers, and employers need resources and evidenced-based strategies to attack the opioid crisis at its roots with primary prevention measures. OSHA needs to approach the opioid epidemic directly because of the significant impact it has on workers and SUDs being so intrinsically tied to workplace injury. While the current tertiary programs and funding are critically important, they lack a multifaceted systems approach and overlook the most effective aspects of primary prevention. Primary prevention approaches, interventions, and research should be a national priority and funded accordingly. We must prevent SUDs and addiction at its root to put an end to this national tragedy. It is time for policymakers and all stakeholders who are committed to solving the opioid epidemic in the United States to embrace a paradigm shift to include primary prevention of workplace factors as a key component of solving the opioid epidemic.

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