Feature

Promoting Opioid Awareness Through a Union-Based Peer Training Model

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Abstract

Work factors, including physical job demands, appear to be risk factors for opioid overdoses. We collaborated with unions representing workers in high-risk occupations and offered resources to develop tailored educational interventions for their members. An ironworkers' local, a statewide nurses' union, and a Teamsters local union participated, at levels higher than we had anticipated. The three unions trained 285 workers, including apprentices, stewards, and those nearing retirement. Short surveys assessed pre- and post-training knowledge, attitudes, confidence in helping others, and related domains. Seventy percent of respondents reported heavy or very heavy physical demands at work, and one-half had experienced work-related pain. After training, participants reported more knowledge about opioids, less concern about stigma related to help-seeking, and more ability to provide help to a co-worker struggling with opioids. Peers with recovery experience provided a unique contribution to training. Tailored job-specific and peer-delivered educational interventions may be able to reduce the potential impact of opioids on working people.

Keywords

opioids, training, union work force

Introduction

The opioid epidemic has claimed the lives of over 450,000 people in the United States, 1999–2018.[1,2] Analysis of death certificates of those who have died of opioid overdoses has shown that individuals in occupations with high physical demands and injury risks have a high relative risk of overdose compared to occupations and industries with lower injury risks.[3] For example, workers in construction and extraction occupations were found to have seven times the risk of opioid overdose relative to "all workers" in a Massachusetts analysis.[4] Numerous work factors such as job strain, employment in construction and extraction occupations, unemployment and economic conditions, lack of sick days, heavy lifting, seasonal work, and workers' compensation claims have been linked to opioid use disorder and opioid-related overdose deaths of workers.[3,5–9] For example, Choi reported prevalence ratios for opioid use disorder of 2.0 for psychosocial job strain and 2.2 for frequent heavy lifting.[5] Although further epidemiologic research is being conducted to examine the mechanisms of these associations, public health prevention efforts should be targeted toward working populations who face such risk factors, as part of a comprehensive response to the crisis.[10]

Opioid awareness training has been developed for prescription providers, patients who may receive opioids, and/or emergency responders and others who could reverse an overdose with naloxone.[11–14] The National Safety Council reports that 26 percent of employers provide educational programs on prescription opioids to at least some of their employees.[15] Training content generally focuses on overdose prevention and awareness of the harms of stigma related to substance use disorder, rather than prevention of exposure to risk factors leading to opioid use. The National Safety

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Council and the National Institute for Environmental Health Sciences (NIEHS) Worker Training Program have developed worker-oriented opioid hazard awareness curricula.[16] A report on the NIEHS's Worker Training Program found that their training had a positive impact on worker knowledge and comfort level in talking about treatment issues.[17] Currently, there are no descriptions in the literature of educational interventions targeted to workers who are at "high-risk" because of the nature of their work. The *Total Worker Health*® (TWH) concept directs health promotion and education efforts to take into account the obstacles and facilitators of work force health that are present through the conditions of work.[18]

As part of its comprehensive response to the opioid epidemic, the Massachusetts Department of Public Health funded the Center for the Promotion of Health in the New England Workplace (CPH-NEW) and the Massachusetts Coalition for Occupational Safety and Health (MassCOSH) to develop, pilot and evaluate a peer-led opioid awareness training program with unionized workers in Massachusetts. CPH-NEW is a TWH Center of Excellence that conducts research in collaboration with diverse working populations to understand and address work hazards such as shift work, overtime and physically-demanding work in relation to various health outcomes. MassCOSH is an advocacy and education organization for the promotion of worker health and safety in Massachusetts. MassCOSH's diverse programs include a focus on youth and immigrant workers, public sector workers and workers affected by the opioid crisis.

The goal of the project was to promote opioid hazard awareness among people in high-risk jobs, to empower them to avoid exposure to opioids and to seek help for themselves and others struggling with addiction. Specifically, we aimed to engage three unions with occupations at high risk for injury and opioid overdose; to co-develop curriculum, training materials and assessment surveys with union representatives; to train a pair of trainers from each union; and to have each pair conduct a minimum of three trainings with members, reaching a total of 120 workers. Based upon the research team's extensive experience in worker health and safety training, we expected that each union would tailor its training to the needs and resources of its members and to be led by peers, meaning workers or union staff with similar work and/or life experiences as the members. Peer-led training has been utilized to build credibility and reduce discomfort with sensitive subject matter, resulting in greater likelihood of trainee action/behavior change following training.[19,20] We report on the success of our ability to recruit unions and members within each union for training; the extent to which each union customized its training to optimize effectiveness; and the overall uptake of this effort to disseminate information within a philosophy of worker empowerment. We evaluated whether the training program succeeded in fostering skills and attitudes that could contribute to upstream prevention of opioid addiction and overdose deaths in working populations.

Methods

MassCOSH identified potential local unions for participation based on significant impact of the epidemic on their members, high-risk occupations as identified in a Massachusetts study of opioid overdose by occupation and injury,[4] potential resources to bring to the project, and combined representation of a diverse work force, as well as a relationship with MassCOSH. Ironworkers Local 7, the Massachusetts Nurses Association (MNA), and the Teamsters Local 25—the first three unions that were approached—accepted our invitation to participate. Union leaders recruited members and union staff to participate as trainers in the project and trainers were paid a stipend for their participation.

The Ironworkers Local 7 recruited two working ironworkers to be trainers who were leaders in the union and who were eager to help others with substance issues based on their own recovery experiences and their experience with the Local's sponsored Alcoholics Anonymous (AA) meeting. The Apprentice Training Coordinator was recruited later to deliver the didactic part of the training. Two senior MNA staff members, both experienced trainers, one of whom was the program coordinator of the MNA's Peer Assistance Program, became the peer trainers for this effort. The Teamsters Local 25 point-persons for the project were a union health plan based social worker and coordinator for TeamstersCare along with the Local 25 Training Director. Several other Teamsters Local 25 and TeamstersCare staff participated in the development of the project, including the coordinator of the Teamster Local 25 "Refer and Follow Up Team" (R.A.F.T.) Alcohol/Substance Abuse Recovery Program. The Teamsters staff recruited four shop stewards from three divisions/sectors of the union to be trained as trainers.

We assisted the recruited unions to develop training that was perceived by them to be important, relevant, and feasible. We provided draft materials but did not mandate training content, venues, participants, or formats. Instead, we supported each union in tailoring the suggested topics and adding their own to reflect the needs and resources of each union. We facilitated a training development process consisting of (1) an initial meeting to discuss needs, resources, and context for development of the training; (2) a report to the union training team reflecting a summary of that meeting and suggested training topics; (3) a two-hour train-the-trainer session with all of the union trainers present;

(4) support and review of planned training presentations and activities; and (5) training evaluation and feedback on trainings.

Evaluation was designed to measure changes in knowledge and perception of skills and attitudes pre- to post-training among training participants. Because each training site designed its own training, we could not construct a standardized evaluation instrument keyed to specific elements of training content. Instead, we asked more general questions regarding self-assessment of opioid awareness, fears related to help-seeking, and willingness, confidence, and ability to help others. Questions were developed for this project by the researchers based on project goals of knowledge gains, interest and confidence in assisting others, and decrease in stigma. Pre-surveys consisted of 20 questions, including demographics as well as items about work-related pain and opioid prescriptions. Eight questions addressed trainee knowledge, concern about the impact of opioids on their trade/profession, confidence and ability in helping others with opioid issues, and potential worries in talking to an employer or co-worker about opioid use. Post-surveys had nineteen questions, including questions about the quality of the training and suggestions for improvement (ranking 5 as the best quality and 1 as the worst). (Both surveys are available online at: www.uml.edu/Research/CPH-NEW/Research/Related-Research-Projects.aspx#MaDPH-opioid.) Pre- and post- training surveys were completed in the training setting and took approximately five minutes each to complete. They were anonymous and thus could not be matched by participant.

In addition, we conducted informal post-training interviews with the trainers and union staff involved in organizing the training sessions to discuss the process and results. We also compiled project staff members' own reflections and recommendations. Trainers were interviewed by phone and asked to reflect on the train-the-trainer process, the development of the content, the support received from the research team, changes that had occurred or they wished to occur at their local union, and personal reflections on the experience. Notes were taken on these interviews and the findings are summarized below.

The project's human subject research protocol was approved by the University of Massachusetts Lowell Institutional Review Board (approval memo #18–011). Participants provided oral informed consent for participation.

Data Management and Analysis

In the pre- and post-training survey datasets, labor union was categorized by reviewing job titles. Participants' ages ranged from 18 to 78 and the median age was 43. Tenure was categorized as $\geq$20 years, $<$5 years, and $\leq$1 year. Dichotomous variables were created to collapse response categories (Table 1).

Table 1. Survey Questions and Dichotomized Response Categories.

Questions	Dichotomized response categories
How would you rate the physical demands of this job?	Very heavy and heavy demands vs moderately heavy and light demands
How would you rate your knowledge about opioid-based pain medications?	Very good and good knowledge vs. very poor and poor knowledge
How would you rate your knowledge of how the opioid epidemic is impacting workers in your profession?	Very good and good knowledge vs. very poor and poor knowledge
How confident do you feel about your ability to inform a co-worker about the risk factors that might result in opioid use disorder?	Very high and high confidence vs. low and very low confidence
How confident do you feel that you could help a co-worker facing a problem with opioid use?	Very high and high confidence vs. low and very low confidence
How concerned are you about the impact of opioids on workers in your profession?	Very concerned vs. somewhat and not concerned
How worried would you be about the consequences of asking your employer for time off for to get medical care and support for a substance use disorder (SUD)?	Very worried vs. somewhat and not worried

For those reporting work-related pain versus no pain in the pre-training surveys, frequencies of associated outcomes (reporting to employer, seeking medical care, filing workers' compensation claims, and receiving opioid prescriptions) were compared. We also quantified differences in (1) pre-training knowledge and beliefs between those with heavy versus light physical job demands, (2) pre-training knowledge and beliefs between those with and without work-related pain, and (3) pre-training versus post-training knowledge and beliefs. Chi-square tests were used to test for statistically significant differences. We used SAS 9.4 software for all analyses.

Results

Union Engagement in Training Development

Because of our emphasis on tailored approaches, the process resulted in three different training strategies at the three unions. The needs and resources assessment at each union uncovered specific and dynamic risk factors faced by members at each union. For example, the MNA decided early on to focus its training on communicating issues around licensing and substance use. That said, the broad topics covered by each union were relatively similar to our initial recommendations. Each of the unions identified heavy physical work demands and work pressures as an important topic. Another common theme was promoting existing resources for union-based support for members who self-identify as needing help. Trainers requested additional background on the opioid epidemic in Massachusetts and its impact on workers, including the role of work-related injury and pain.

They were also interested in learning relevant pedagogical techniques such as the development of case studies and motivational interviewing. The "train-the-trainer" meeting reviewed these topics, built solidarity and support among the trainers, and addressed perceived training challenges. Each union brought significant resources to this project including commitment at the highest levels of the union, dedication of staff time, openness in sharing personal recovery stories, facilities, recruiting members, training time, food and refreshments, and experienced trainers.

The Teamsters Local 25 elected to train stewards to be able to provide effective support and resources to their members through one-on-one and "break-time" training. In effect, this was also a peer train-the-trainer approach. Another specific goal of the training was to empower stewards to be able to serve effectively as intermediaries between members and the Teamsters' Local 25 employee assistance program (TeamstersCare) and the R.A.F.T. peer recovery support program. Twenty-one invited stewards—trade show installers, package handlers and deliverers, truck drivers, public works laborers, and warehouse workers—voluntarily participated in a four-hour training on a Saturday morning. The TeamstersCare staff developed a slide deck on background of the epidemic, risk factors for Teamsters Local 25 members (including work injury and pain), impact on Teamsters Local 25 members and the union, and the resources available to members of the Teamsters Local 25. The union president opened the training to emphasize the importance of the effort by the trainers. The four trainers then led small group break-out sessions that fostered open communication and strengthened skills and confidence related to assisting members dealing with substance issues. The Teamsters Local 25 training focused on opioids but also aimed to support stewards in helping members with related issues, such as use of other substances, depression, and managing health needs in general. Handouts included materials about TeamstersCare, the Teamsters Local 25 Peer Assistance Program (R.A.F.T), Learn to Cope, and Shatterproof's guide to stigmatizing language to avoid.

The MNA developed a two-hour continuing nursing education credit-approved course offered through their Labor School for any nurse who elected to take it, including non-union members and retirees. This training was delivered in four workshops in locations across Massachusetts in April and May of 2018 and reached 137 nurses from diverse healthcare settings. Although the focus of the training was on opioids, the topics also included marijuana and alcohol, the MNA Peer Support Program, related licensing issues, and human resource and legal issues. The heart of the training focused on how to address issues of problematic substance use by peers in light of the severe consequences that nurses face if discovered—specifically in Massachusetts, the loss of their license to practice. The training format included dinner, a slide presentation and some discussion, and then break-out for discussing case studies with report back.

The Ironworkers Local 7 trained the entire current class of more than 125 apprentices as part of their mandatory trade training curricula. The one-hour training consisted of presentation of background slides by the apprentice training coordinator followed by testimonials from the union leader-trainers and concluded with personal testimonial and endorsement of the message by Ironworkers Local 7's business manager. The slides were developed by CPH-NEW research staff in conjunction with the union trainers to focus on opioid impacts on Massachusetts construction workers, risk factors for construction workers, prevention strategies, defeating stigma, the nature of addiction as a disease, and how to talk with someone who is struggling with substance use. The slides and ironworker speakers all emphasized the power of recovery and support at the union for recovery. The leader-trainers' personal stories were the powerful heart of the training as apprentices could witness the courage and strength, as well as the vulnerability, of their union's leaders. There was an unscheduled fifteen-minute break after the testimonies which allowed for the apprentices to talk with each other in an unstructured way. Handouts included the Center for Construction Research and Training's *Opioid Hazard Alert* and *How to Talk to Your Doctor* as well as information about contacting the Local's employee assistance and benefits coordinator.[21]

Individual Training Participation and Survey Responses

Approximately 285 individuals participated in the peer-led opioid awareness trainings developed through this initiative. Approximately 63% of all attendees completed pre-training surveys. Post-training survey participation was 69%. There were no appreciable differences between pre- and post-survey participant characteristics (Table 2). The participants were almost evenly divided between men and women overall, although nurses were almost all female (95%) and ironworkers were 16% female. There was only one female trainee in Teamsters Local 25. The age range of trainees was the entire span of working years and beyond, with several nurse retirees attending the class. Nurses were much older than other participants, with a mean age of 58, while the average age of the ironworkers was 27. The range of job experience was also very broad, with about one-third new to the trade (ironworkers) and one-third having more than 20 years of experience.

In the pre-training survey, overall, seventy percent rated their jobs to have heavy or very heavy physical demands. One-half of the nurses rated their jobs as heavy or very heavy while almost all ironworkers and Teamsters did so. One-half of this diverse population of workers reported that they had experienced work-related pain that lasted one week or more within the past five years (Table 3). Teamster trainees stood out in particular, with more than eighty percent reporting such pain.

Table 2. Participant Characteristics, Massachusetts Opioid Awareness Peer Training Project. Total Participants, n = 285.

	Pre-survey		Post-survey	
Training participants	n	%	n	%
Total	178		196	
Teamsters Local 25	19	11	22	11
MNA	77	43	87	44
Ironworkers Local 7	82	46	87	44
Gender				
Male	86	49	94	48
Female	88	51	100	52
Age in years				
Low	18		18	
High	78		78	
Average	43		44	
Years in job				
>=20	61	37	68	40
<5	75	45	69	41
<= 1	54	33	53	31
Heavy/very heavy job physical demands				
All	123	69	141	73
Teamsters Local 25	17	89	18	82
MNA	39	51	47	55
Ironworkers Local 7	67	82	76	87

In addition, of the Teamster trainees who reported having worked in pain, more than 85 percent reported that they had experienced work-related pain more than once within the last five years. Given that ironworker attendees had generally less than one year in the trade, it is also remarkable that almost half reported work-related pain. Generally, one-third of those reporting such pain had experienced it frequently, that is, more than five times.

Of the trainees experiencing physical pain related to their work, 44% reported at least one incident of work-related pain to their employer, with Teamsters members more likely than other workers to report pain (Table 4). Only one-half sought medical care for the pain, with nurses more likely to do so than the other trainees.

About one-third of those with pain reported that they had filed Workers' Compensation claims. However, of those who sought medical care for any injury, fifty percent reported that they or their employer filed workers' compensation claims to cover medical expenses.

One quarter of those reporting pain on this survey said that they had received an opioid prescription. Prescriptions were received almost entirely by those who sought medical care, versus those who did not ($p = .01$). Ironworkers Local 7 trainees who sought medical care for work-related pain injuries were much more likely to receive an opioid prescription than other workers, but overall, the frequency was low.

Overall, the post-training surveys indicated positive changes in knowledge, reduction in concern about stigma related to help-seeking and increase in confidence and ability to provide help to a co-worker struggling with opioid use (Table 5). Although self-reported knowledge about opioid medications was high at baseline, it improved post-training such that 95 percent of the participants rated their knowledge good or very good. These improvements were among Ironworkers Local 7 and Teamsters Local 25 trainees. Nurses, as expected, were already very knowledgeable at baseline, and for that reason, in fact, this topic was not a part of their training.

Two questions attempted to measure knowledge of and concern about impact of the opioid epidemic within the trade or profession. Participants' knowledge about the impacts of the crisis on their profession increased for all three unions. Concern about the impact of opioids on the trade increased for the Ironworkers Local 7 and the Teamsters Local 25 trainees. The nurses reported less concern initially and concern decreased following the training.

One question aimed to assess both trainee knowledge about risk factors for opioid use disorder relevant to the profession or trade and ability to teach others about these risk factors. Overall, confidence in the ability to inform a co-worker about risk factors increased from just below sixty percent to 84% ($p < .0001$). Nurses

Table 3. Frequency of Work-Related Pain in Last 5 Years: Trainees Responding to Pre-Survey.

			Frequency*					
	Yes		Once		More than Once		5x or More	
All	90	51%	25	31%	56	69%	28	35%
Teamsters Local 25	15	83%	2	15%	11	85%	5	38%
MNA	36	47%	9	27%	24	73%	13	39%
Ironworkers Local 7	39	48%	14	40%	21	60%	10	29%

*Not all respondents answered the frequency question; the percentages are of those who did answer it.

Table 4. Trainees Reporting Experiences of Work-Related Pain in Last 5 Years: Actions Taken.

	Reported injury to employer		Sought medical care for injury		Filed claim for injury		Received opioid Rx for injury	
All	40	44%*	44	49%	23	34%	16	26%
Teamsters Local 25	9	56%	6	40%	5	36%	2	15%
MNA	18	49%	24	69%	11	69%	9	56%
Ironworkers Local 7	13	34%	14	36%	7	70%	5	63%

*of those reporting work-related pain.

reported lower confidence, both initially and post-training, than the other two groups. Although risk factors were a part of the nurses' training, the focus was primarily on recognizing and responding to co-workers who were already struggling.

Before the training, a majority of each union group reported some or a lot of concern about asking for support around opioid use issues. Post-training, concern about the negative consequences of asking for help in the workplace was reduced somewhat for the Ironworkers and the Teamsters trainees but remained high for the nurses.

One question concerned the participants' confidence in assisting a co-worker, which we interpret to include knowledge, skills and interest in doing so. To some degree, the question also spoke to the participants' perception that people with substance use disorders (SUDs) can be helped through co-worker support. Baseline, such confidence was reported by just over a majority of participants. Post-training, this confidence increased measurably ($p < .0001$). Nurses reported lower gains in confidence and that, again, may follow from the issues related to licensing specific to their profession or their knowledge of the medical aspects of addiction. However, in as much as this confidence was in reference to knowledge of good resources to which to refer a co-worker, participants reported high baseline knowledge of resources and almost universal knowledge post-training.

For most pre-training knowledge and beliefs, there was no significant difference between responses for those with and without work-related pain (Table 6). Notable differences were that trainees with work-related pain were more concerned about the impact of opioids on their profession and were more confident in their ability to inform a co-worker about risk factors for opioid use disorder. Most pre-training knowledge and beliefs about opioids were not statistically significantly different between those with lighter and heavier job demands (Table 7). Those with lighter job demands reported marginally significantly better knowledge of opioid-based pain medication than those with heavier job demands, and those with heavier job demands were significantly less worried about asking their employer for time off for a substance use disorder.

Overall, trainings were perceived to be of very high quality by participants, with slightly higher ratings for the MNA training and slightly lower ratings among ironworker trainees (data not shown). Almost eighty percent of trainees rated the training quality a 5 out of 5 and none giving a rating lower than 3 out of 5. Handwritten comments were very positive and especially appreciative of the unions' attention to the issue, of the ironworker leader-trainers' personal testimony, and of the MNA trainer's skill as an instructor.

Qualitative and Process Evaluation of Union Uptake

CPH-NEW research staff interviewed eight individuals who had been involved with the development of the project: three from the Ironworkers Local 7, two from the MNA, and three from the Teamsters Local 25. Interviewees were asked to reflect on how the training met their expectations, potential improvements, support for trainers, and impacts of the project. We also asked

Table 5. Frequencies of Pre- and Post-Training Opioid Awareness, Concern about Stigma, and Confidence in Helping

	Very Good/Good		
Knowledge about opioid medications	Before	After	p-value**
All	79%*	95%	<0.0001
Teamsters Local 25	63%	95%	0.0042
MNA	96%	95%	0.8926
Ironworkers Local 7	68%	94%	<0.0001
	Very Good/Good		
Knowledge of epidemic impacts on workers in your trade/profession	Before	After	p-value
All	64%	92%	<0.0001
Teamsters Local 25	68%	95%	0.0132
MNA	64%	88%	0.0002
Ironworkers Local 7	64%	94%	<0.0001
	Very Concerned		
Concern about impact on workers in your trade/profession	Before	After	p-value
All	54%	57%	0.5878
Teamsters Local 25	100%	95%	0.2162
MNA	41%	38%	0.8049
Ironworkers Local 7	56%	67%	0.2100
	Very High/High		
Confidence in informing a co-worker about risk factors	Before	After	p-value
All	58%	84%	<0.0001
Teamsters Local 25	68%	91%	0.0384
MNA	51%	74%	0.0030
Ironworkers Local 7	63%	92%	<0.0001
	Very Worried		
How worried about asking employer for time off for medical care for SUD?	Before	After	p-value
All	30%	23%	0.1605
Teamsters Local 25	17%	9%	0.3408
MNA	50%	44%	0.4863
Ironworkers Local 7	14%	8%	0.1904
	Very Worried		
How worried about asking a co-worker for support?	Before	After	p-value
All	28%	15%	0.0117
Teamsters Local 25	17%	0%	0.1670
MNA	51%	33%	0.1933
Ironworkers Local 7	9%	3%	0.0045
	Very High/High		
How confident that you could help a co-worker?	Before	After	p-value
All	55%	82%	<0.0001
Teamsters Local 25	56%	91%	0.0042
MNA	54%	70%	<0.0001
Ironworkers Local 7	71%	91%	0.0021
Know a resource to refer a co-worker for help?	Before	After	p-value
All	79%	98%	<0.0001
Teamsters Local 25	100%	100%	-
MNA	72%	95%	0.0006
Ironworkers Local 7	84%	100%	<0.0001

*All percentages are of those who responded to the question.
** All p-values from chi-squared tests of statistical significance.
Statistically significant results indicated in bold.

Table 6. Association of Work-Related Pain and Pre-training Knowledge and Beliefs.

	Work-related pain	No work-related pain	p-value
Good/very good knowledge of opioid-based pain medication	79.6%	77.8%	0.7792
Good/very good knowledge of how opioid epidemic impacts profession	65.2%	61.7%	0.6416
Very concerned about impact of opioids on profession	65.2%	42.0%	**0.0024**
High/very high confidence in ability to inform co-worker about risk factors for opioid use disorder	66.3%	49.4%	**0.0256**
Not worried about consequences of asking employer for time off/med care for substance use disorder	30.0%	37.7%	0.2848
Very worried about the consequences of asking a co-worker for support in addressing your own use of substances	31.1%	22.4%	0.1914
High/very high confidence to help a co-worker facing a problem	58.0%	51.9%	0.4256
If a co-worker asked about where to get help with concerns about opioids use, you know at least one good resource you could refer them to	81.8%	75.3%	0.3018

Table 7. Association of Pre-training Knowledge and Beliefs with Heavy Physical Demands at Work.

	Moderate/light demands	Heavy/very heavy demands	p-value
Good/very good knowledge of opioid-based pain medication	88.2%	75.2%	**0.0551**
Good/very good knowledge of how opioid epidemic impacts profession	70.6%	61.5%	0.2544
Very concerned about impact of opioids on profession	45.1%	58.2%	0.1148
High/very high confidence in ability to inform co-worker about risk factors for opioid use disorder	54.9%	60.0%	0.5483
Very worried about consequences of asking employer for time off/med care for substance use disorder	33.3%	28.1%	0.4924
Not worried about consequences of asking employer for time off/med care for substance use disorder	21.8%	38.2%	**0.0318**
Very worried about the consequences of asking a co-worker for support in addressing your own use of substances	32.7%	24.4%	0.2468
High/very high confidence to help a co-worker facing a problem	47.1%	58.7%	0.1616
If a co-worker asked about where to get help with concerns about opioids use, you know at least one good resource you could refer them to	21.6%	20.7%	0.8937

them for their perspective on the nature of a "peer" in the context of peer training. Interviewees reported very positive experiences with the project and that the project exceeded expectations for success. Project outcomes are highlighted in Table 8. The inter-union sharing was particularly appreciated. According to interviewees, the project had strengthened their union's response to the crisis and ability to reach their membership. Indeed, several ironworker apprentices reached out to the trainers for assistance in getting treatment following the class. Three entered treatment and are being supported in their recovery by the peer trainers.

Both the MNA and the Teamsters Local 25 representatives stated that the program led to an improvement in training creativity and potential to engage trainees through the introduction of the case study method.

Table 8. Project Outcomes.

- 12 peer trainers with in-place mentoring and professional development opportunities
- 285 trained workers in high-risk occupations
- Improved trainee knowledge, attitudes, and confidence in helping others
- Increased union capacity and commitment to strengthen opioid hazard awareness and peer assistance for members including new ombudsman and outreach programs
- New volunteers for member assistance
- Three trainees entered treatment

Interviewees also mentioned potential areas for improvement including more time to accomplish the training goals, support for developing on-line strategies to reach younger members, and regular/periodic trainer education programming to improve skills, keep current with knowledge, and maintain inter- and intra-union support.

Interviewees noted several examples of improved capacity to respond to the crisis. These included mentoring relationships between more experienced peer support providers and those who are developing skills; institutionalization of leadership on this issue and support for the members; new confidence and ability to respond to members in crisis and potentially save their jobs and lives; culture-change around open conversations about physical and mental health and substance issues; broader understanding of the role of workplace injury and pain in perpetuating the opioid epidemic among workers; and new materials in development for membership outreach at each union.

As a result of the trainings, members stepped forward to volunteer with peer assistance, union staff adopted the training to train other members, and new union outreach programs were initiated. For example, the Trade show stewards now lead "25 at 25" lunchbreak discussions and support for convention center employees facing challenges. The Ironworkers have hired a member assistance ombudsman to make sure members and members out of standing with the union get the help that they need regardless of union or insurance status. The MNA is sponsoring professional development for staff to achieve an addictions counseling certification.

There was general agreement that training in teams consisting of at least one experienced presenter and one person with a personal recovery experience would be the best approach. "Peers" with recovery experience are not always comfortable making more formal presentations, such as in lecture format with slides, which was also deemed an important part of the training. The testimony of those in recovery was viewed as important to training, but not always feasible. It was suggested that one strategy for incorporating testimonials would be to develop videos that could be included in trainings.

Discussion

The aims of this project were achieved (and exceeded) within the relatively short time frame of eight months. We trained more trainers than planned and they trained more than twice as many workers as we had aimed for. Our goals were to facilitate the development of an opioid awareness training program that could impact trainee knowledge, attitudes, and confidence in ability to help others as well as to strengthen the capacity of the unions to respond to the opioid crisis by assisting their members. The unions that participated all represented workers in high-risk occupations due to high workload, time pressure, and injury risk. Many trainees reported on the pre-training survey that they had physically demanding work and frequent musculoskeletal work-related pain, a plausible precursor to opioid use. Twenty-six percent of those reporting injuries before the training said that they had received an opioid prescription for those injuries.

Despite the diversity of the trainee population—from apprentice construction workers to retired nurses—we found consistent concern about the impact of opioids on members and significant positive changes in opioid hazard awareness pre- to post-training. The project survey results provided evidence of trainees' increased knowledge about opioids, lowered concern about stigma from seeking help, and increased confidence and ability to provide help to co-workers.

Other worker education programs related to opioids are currently under development or have been deployed.[15,17,22] Our training and evaluation strategies differed from the NIEHS's Worker Training Program's. Our project emphasized tailored peer-led training, whereas theirs was a standardized training for all trainees. However, the goals were the same—to positively impact worker knowledge and attitudes to inspire action for prevention of opioid harms. Both training experiences evaluations' support tailored opioid hazard awareness training to achieve these goals.

Although it is encouraging that awareness training can reduce stigma around help-seeking, many still understandably fear consequences for their jobs if they were to reveal SUD. Retaliation is rooted in harmful attitudes, but job insecurity also results from employment policies and economic conditions that cannot be changed through worker training. Although societal stigma is injurious in itself, the work context also entails potential economic impact by threatening job loss and loss of co-worker respect. In other words, the cost of negative attitudes may be higher in an occupational context, although unionized workers may have greater job security than non-union workers facing addiction challenges.

On the other hand, union workers can often count on other members, whom they consider to be sisters and

brothers, and the union itself, to support them in tough times. Such support could mitigate some negative workplace impacts of revealing an SUD or need for treatment if the union is positioned to defend their job and provides open discussion of the issue. However, nurses face an entirely different context for revealing an SUD to an employer: potentially losing their nursing license. Thus, it is not surprising that while the training appeared to reduce the degree of nurses' concern, concern remained high post-training. Similarly, since the nurses' training focused on the potential negative consequences of openly discussing an SUD with a co-worker who is a mandatory reporter, it is not surprising that the nurses' training increased concern about such revelations.

This study contains several limitations. Because only two-thirds of participants completed pre/post-training surveys, we cannot be sure that the survey respondents were representative of all persons who attended the training programs. Our questions were brief in number and often general. We assessed the respondents' confidence in their knowledge (good/poor), rather than specific knowledge about opioids and work. In addition, because the surveys were standardized whereas the training content was not, we cannot be sure that the questions were interpreted the same way in each training context and the surveys were not validated instruments. This intervention took place in union-sponsored settings and did not involve employers or workplaces where specific job-related factors might have been addressed.

Generalizability of these findings could be affected by the specific unions and contexts. Each of the three unions already had a well-developed employee assistance program that involved peers and professionals. They still found that the program we offered could fill a need, but they may have been more receptive because of their prior experiences. Another important observation was that "peer training" is a nuanced and demanding concept. It was originally conceived that "peers" would be fellow workers in the trade or profession who had the respect of the membership. It then became clear that "peer" also meant a co-worker in recovery.

During the development of the training, at times we faced a challenge in maintaining a focus on upstream risk factors for opioid addiction, such as injuries. In its other activities, the MNA advances high-profile efforts to assure better, less hazardous working conditions for nurses to reduce musculoskeletal injuries and violence in the workplace. In the needs assessment phase, the trainers identified these hazards as leading to opioid use for nurses. However, for this training, they were especially concerned that members understand the nuances of being able to assist a struggling co-worker without jeopardizing their license—a "harm reduction" rather than primary prevention action. These unions had all lost members to opioid overdose and leaders and members understandably felt that responding to members in crisis was their most important aim. Other challenges included logistical coordination and scheduling, which were especially difficult at the wrap-up phase of the project. In addition, we were not able to collect enough post-training surveys from the trainers themselves to make a meaningful quantitative comparison of changes in trainer knowledge, attitudes and skills. Despite these challenges, all three unions expressed intentions to continue providing similar trainings to their members in the future.

A major strength is that the unions' significant commitment of resources and prioritization of this project made it possible and successful in a short timeframe. The approach of utilizing in-depth needs and resource assessment, and then facilitating the development of training tailored to those needs and resources, obtained a strongly positive response and effective uptake of the proposal. The same process is likely replicable and adaptable to other contexts, including those where there is not a union, if there is a committed organization and worker training opportunities. However, we did not assess the barriers and opportunities for developing and sustaining the training without public health funding.

Conclusion

Tailored opioid awareness trainings for high-risk worker populations, developed and delivered by peers, can positively impact knowledge, attitudes, and perception of ability to help others. These are concrete upstream interventions that can play a part in the overall public health response to the opioid epidemic.[10] Although our training program worked in a union setting, other worker-focused organizations can learn from our experience to deploy effective programs. However, organizational commitment is essential to the success of training programs and to the leveraging of the impact of these programs to expand organizational capacity to address the crisis.

We recommend that programs considering opioid awareness training recruit peers to deliver the training and that these peers include both experienced trainers and members with recovery experience. A contract or memorandum of understanding with the trainers can set forward clear expectations regarding pay and required participation components such as attendance at trainings, training numbers, and follow-up evaluation meetings. If possible, organizations should provide trainers with on-going support such as mentors and trainers in their own and other unions, (see, e.g., Labor Assistance Professionals www.laborassistanceprofessionals.com/). Trainers may also benefit from professional development in addictions counseling and

training, and opportunities to stay current with developments with substance use disorder policies and the opioid epidemic. Finally, it is important to recognize and reward the trainers for the emotional and time challenges of being a front-line "helper."

Organizations initiating training programs should plan for both didactic and discussion components of the trainings and assist trainers in developing case studies for discussion based on member stories and realistic problematic situations. We found that even our very tailored approaches would not reach all of the targeted populations. Different training scenarios, including on-line training, may be necessary to reach these training audiences including new workers/apprentices, temporary or seasonal or intermittent members, younger/older members, and union leadership.

We recommend that training content be tailored to the needs of the membership, and that it should include, at a minimum:

- Statistics on the impact of the opioid epidemic on nation, state, sector and union
- Risk factors faced in the trade/profession, especially injuries, lack of appropriate medical care, and job pressures
- What are opioids, how they work, what they are commonly called
- Opioid prescribing guidelines and alternative pain treatment
- Understanding how opioids change the brain; definitions of SUD and signs of addiction
- Understanding addiction as a disease and harms of stigma
- Union/organizational resources—EAPs, AA meetings, peer support people, insurance, etc.
- Union/organizational commitment to the membership, solidarity and support
- How to address issues of using at work
- Stories of members in recovery
- Confronting and motivating co-workers to get help

It is especially important to link training initiatives to development of organizational capacity and policies on substances, monitoring and improving insurance and benefits, as well as advocacy for job protections and improved conditions. Unions or other organizations sponsoring such training may wish to develop materials, info cards, videos, on-line content, newsletter articles, etc. to accompany the training.

In conclusion, peer-led tailored opioid awareness training developed by and for high-risk worker populations can be an effective component of a public health approach to addressing the opioid crisis.

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