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“I Felt Like a Superhero”: The Experience of Responding to Drug Overdose Among Individuals Trained in Overdose Prevention

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Abstract

Background—Overdose prevention programs (OPPs) train people who inject drugs and other community members to prevent, recognise and respond to opioid overdose. However, little is known about the experience of taking up the role of an “overdose responder” for the participants.

Methods—We present findings from qualitative interviews with 30 participants from two OPPs in Los Angeles, CA, USA from 2010–2011 who had responded to at least one overdose since being trained in overdose prevention and response.

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Results—Being trained by an OPP and responding to overdoses had both positive and negative effects for trained “responders”. Positive effects include an increased sense of control and confidence, feelings of heroism and pride, and a recognition and appreciation of one’s expertise. Negative effects include a sense of burden, regret, fear, and anger, which sometimes led to cutting social ties, but might also be mitigated by the increased empowerment associated with the positive effects.

Conclusion—Findings suggest that becoming an overdose responder can involve taking up a new social role that has positive effects, but also confers some stress that may require additional support. OPPs should provide flexible opportunities for social support to individuals making the transition to this new and critical social role. Equipping individuals with the skills, technology, and support they need to respond to drug overdose has the potential to confer both individual and community-wide benefits.

Keywords

Overdose; injection drug use; qualitative methods

In 2010, poisoning deaths (the majority of which are attributable to drug overdoses) were the second leading cause of unintentional death in the United States (Centers for Disease Control and Prevention, 2005). In 2010, age-adjusted death rates for drug poisoning in the US ranged from 3.4 to 28.9 per 100,000 population (Centers for Disease Control and Prevention, 2012b). Among people who inject drugs (PWID), overdose (usually related to heroin) is the leading cause of death (Sporer, 1999; Tyndall et al., 2001), even surpassing HIV-related morbidity (Tyndall et al., 2001). Community studies in the US and elsewhere estimate that between one quarter to over half of PWIDs have ever experienced a drug overdose (Bradvik, Hulenvik, Frank, Medvedeo, & Berglund, 2007; Latkin, Hua, & Tobin, 2004; Philbin et al., 2008; Pollini, McCall, Mehta, Vlahov, & Strathdee, 2006; Seal et al., 2001; Sergeev, Karpets, Sarang, & Tikhonov, 2003; Sherman, Cheng, & Kral, 2007).

In the absence of other clinical interventions, the recommended response for bystanders witnessing an opioid overdose is to provide rescue breathing and summon emergency medical assistance. However, PWID report considerable barriers to calling emergency help, mostly centered on a fear of police involvement (Bennett, Bell, Tomedi, Hulsey, & Kral, 2011; Davidson, Ochoa, Hahn, Evans, & Moss, 2002; Lankenau et al., 2012; Tobin, Davey, & Latkin, 2005). In an effort to address the barriers that exist to seeking timely medical care and, more broadly, to respond to the growing epidemic of opioid overdose deaths, many communities have begun implementing overdose prevention programmes (OPPs) to train PWIDs to respond to opioid overdose (Bennett et al., 2011; Enteen et al., 2010; Galea et al., 2006; Gilbert et al., 2011; Maxwell, Bigg, Stanczykiewicz, & Carlberg-Racich, 2006; Seal et al., 2005; Strang et al., 2008; Tobin, Sherman, Beilenson, Welsh, & Latkin, 2008; Wagner et al., 2010). These programmes include instruction on how to prevent opioid overdose (e.g., by not mixing drugs, not combining opioids and alcohol, and using less after a period of abstinence) and how to respond effectively to witnessed overdoses (i.e., by safely stimulating the victim, safely calling for emergency medical services, administering rescue breathing, and administering naloxone). Naloxone (brand name Narcan) is an opioid antagonist that reverses the effects of opioids and allows the patient to resume breathing. Naloxone has no other uses, no dangerous side effects, and no effect on patients who have not used opioids (Sporer & Kral, 2007).

In the US, OPPs have historically been developed at the local level, usually implemented by not-for-profit organizations or state or local health departments (Centers for Disease Control and Prevention, 2012a). As of 2012, 188 community-based OPPs were active in 15 US states and the District of Columbia (Centers for Disease Control and Prevention, 2012a).

These programmes have trained over 50,000 individuals as “overdose responders” since the first programme began in 1996 and have received reports of at least 10,171 overdose reversals using naloxone (Centers for Disease Control and Prevention, 2012a). An evaluation of a state-supported OPP in Massachusetts found that communities that implemented overdose education and naloxone distribution had significantly reduced overdose death rates compared to communities without such programs (Walley et al., 2013). At the individual level, participants in OPPs have been found to increase their knowledge about naloxone and overdose (Green, Heimer, & Grau, 2008; Wagner et al., 2010). Trained responders also report using more recommended behaviours in response to witnessed overdoses after being trained (Galea et al., 2006; Seal et al., 2005; Tobin et al., 2008; Wagner et al., 2010), though some structural and situational barriers exist to implementing some response techniques (e.g., when one’s naloxone is confiscated or lost; Lankenau et al., 2012).

Though OPPs are a relatively new intervention, they share similarities with other public health interventions that rely on training bystanders to respond to a medical emergency. Cardiopulmonary Resuscitation (CPR) training is one such intervention. CPR training is offered to bystanders who might witness an individual experiencing cardiac arrest. Like OPPs, CPR training teaches laypeople to recognize the medical crisis and to respond with appropriate pre-clinical care. CPR has been found to significantly improve the chances of survival for cardiac arrest victims (Sasson, Rogers, Dahl, & Kellermann, 2010). CPR trainings have been offered in broad community settings (Vaillancourt, Stiell, & Wells, 2008) as well in more targeted groups such as those most likely to witness cardiac arrests (e.g., family members of patients with heart disease; Dracup, Guzy, Taylor, & Barry, 1986). There has been concern that teaching CPR to family members of patients at risk for cardiac arrest might lead to deleterious psychological outcomes among the family members, such as increased depression or anxiety, or an increased sense of burden associated with the new responsibility (Dracup et al., 1986). Results from two randomized controlled trials conducted with cardiac patients and their family members found statistically non-significant trends pointing towards increased anxiety, depression, and hostility among family members trained in CPR (Dracup, Moser, Guzy, Taylor, & Marsden, 1994; Dracup, Moser, Taylor, & Guzy, 1997). Two other studies found reductions in anxiety among trained family members three months after CPR training (McLauchlan et al., 1992) and higher levels of perceived control among trained spouses one month after CPR training (Moser & Dracup, 2000).

Though they are a comparatively new type of intervention, some investigators have also examined the effects of participating in OPPs on training participants. In two qualitative studies, OPP participants report enhanced confidence and self-esteem after being trained (Maxwell et al., 2006; Sherman et al., 2008), positive psychological changes that might translate into other pro-health behaviors. In fact, two studies have found that participating in an OPP appears to be associated with reports of favorable changes in drug use behavior. For example, in a prospective study, Seal and colleagues (2005) reported a statistically significant decrease in the frequency of heroin injection among trainees over the six month study period. Wagner and colleagues (2010) found that half of the participants in an OPP reported that their drug use decreased in the three month period following the training.

Taken together, the findings from research on the effects of CPR training and OPPs suggest that participating in such trainings might have meaningful effects not only for the patients in the community, but also for the trained “responders” themselves. However, a more comprehensive understanding of the psychological and social effects of being trained and subsequently responding to a medical crisis (i.e, a drug overdose) is needed. Particularly for PWIDs, who generally occupy a marginalised and stigmatised role in society, the act of taking up a new social role as an “overdose responder” could be accompanied by both

positive effects that should be reinforced and negative emotions that may require additional support.

In this paper we explore the experiences of 30 PWIDs who participated in an OPP and used their new skills to respond to overdoses in their community. In this analysis we use the sociological concept of the “social role” to examine the processes through which people take up and occupy the role of “overdose responder”. Social roles, in their most basic form, refer to the ways in which people are expected to behave given their “status” in a society – for example a person might have a status of “father” with respect to one child and a status of “uncle” to another, his social role in each case is the behavior expected of him with respect to those two different children. Individuals in society take up social roles through their interactions with others, and may occupy multiple roles that are shaped by various social contexts (Goffman, 1959, Lopata 1994). In this case, we examine the interactions amongst PWIDs, the training programs, peers, and bystanders at overdose events, with the goal of understanding the experience of becoming an overdose responder in this community.

Methods

Setting

This analysis is based upon data collected for a larger study designed to evaluate OPPs offered by two community-based syringe exchange programmes (SEPs) in Los Angeles, California, USA. The OPPs included instruction on how to prevent overdose, recognise the symptoms of an overdose, and implement appropriate response techniques including giving rescue breathing, calling for emergency medical services, and administering naloxone (Maxwell et al., 2006). Training curricula included both a didactic instructional component and a hands-on component in which participants used a CPR dummy and engaged in role-playing exercises to practice the response techniques. Participants who successfully completed the training met with a medical provider and received a small nylon bag containing two or three 1cc doses of naloxone with a prescription attached, syringes for intramuscular injection, alcohol wipes, latex gloves, a rescue breathing mask, and a small instructional card summarising the response techniques and containing programme contact information.

Recruitment and Eligibility

Recruitment occurred between December 2008 and March 2010. We used convenience sampling at the SEP sites to enroll both persons who had received OPP training and untrained persons. The study interviewer approached potential participants in the waiting areas of the two programmes and used a brief screening survey to determine eligibility, based on the following criteria: aged 18 years, self-reported injection drug use in the past 30 days, enrolled as a client of either SEP, and witnessed an overdose within the past 12 months. Among trained participants, the witnessed overdose had to have occurred after receiving overdose prevention training (training status and date of training was confirmed using programme records). We recruited a total of 106 participants (76 untrained, 30 trained). We conducted this analysis using qualitative data from the 30 trained participants who, by design, had all witnessed an overdose and responded in some way since being trained. The Institutional Review Board at Children’s Hospital Los Angeles approved all study procedures.

Data Collection

The study interviewer conducted interviews using an instrument containing both closed-ended and open-ended questions. In the sections used for this analysis, participants were asked to describe in detail the most recent overdose that they had witnessed. Follow-up

probes included questions about the effect of responding to that overdose on their sense of self, their sense of themselves in their community, and on others' perceptions of them. The instrument was programmed with Techneos Entryware 6.3 (Techneos Systems Inc., 2009) and administered by the interviewer on a laptop computer while simultaneously being recorded with a digital recorder to capture qualitative responses. The interviewer conducted the interviews in programme offices or in semi-private settings (e.g., coffee shops or park benches) at the participants' discretion. Participants received \$25 cash remuneration and were provided with referrals for services (including the overdose prevention training programme, if they were untrained) at the completion of the interview

Analysis

Audio recordings were transcribed verbatim and transcripts were loaded into ATLAS.ti version 6.2.27 (Scientific Software Development, 2011) for organisation and coding. We employed an exploratory and inductive coding process. Two authors read the transcripts in their entirety and developed a series of open codes and memos to characterize emergent themes and document initial impressions (Miles & Huberman, 1994). We organized these codes into a codebook that we then applied to the entire set of transcripts and the memos were further developed to describe the content and relationships among the themes. We output the data from ATLAS.ti and organised the thematically coded data into a set of higher-order conceptual categories. All names used in this report are pseudonyms.

Results

Sample characteristics

Respondents in this sample were predominantly older (median age 42 years; interquartile range [IQR]: 31–47; range: 21–59), mostly male (60%), homeless (57%) and had been injecting drugs for an average of 19 years. By design, all participants had witnessed at least one overdose within the past year and since being trained. The median number of witnessed overdoses in the participants' lifetimes was 8.5 (IQR: 4–12; range: 2–100), while the median number of witnessed overdoses in which participants had tried to help was 5.5 (IQR: 3–10; range: 1–20). Ninety-three percent of respondents believed they had saved someone's life by responding to an overdose.

Positive Effects

Participants described a number of positive effects that were associated with being trained as an overdose responder and responding to overdoses. Most used words such as “inevitable” to explain the experience of witnessing overdose in their everyday lives. They attributed this to a sense that drug overdose is a “normal” part of the life of a drug user. After being trained in overdose prevention, however, respondents expressed a new sense of confidence in their ability to deal with the frequent overdoses that they witnessed. Some also experienced a sense of heroism after using their skills to save an overdose victim. And, many noted that others recognized their new expertise, which reinforced their new role as an “overdose responder” in the community.

Increased confidence/gaining control—Though overdose was often described as an “everyday thing”, it was typically described as stressful and sometimes frightening. Through their participation in the overdose prevention training, participants learned new skills and obtained a medication - naloxone - that allowed them to bring control to otherwise out-of-control situations. Being trained and feeling confident in their ability to respond to an overdose helped the participants to feel empowered in the situation, in contrast to previously feeling helpless. While they still sometimes used older and potentially less effective “home remedies” to attempt to revive the victim (e.g., applying ice, cold water, or inflicting pain),

trainees now also had knowledge of more effective techniques (e.g., sternum rub, used to stimulate the victim without causing harm) and most also had naloxone. Here, Felicity emphasizes that it was not the new knowledge alone that increased her confidence, but also that she had “the medicine” (i.e., naloxone) she received at the OPP training:

I'm just glad I can help. That made me feel really good, like I was more in control in the situation... That it wasn't just all on me, whether my knowledge was good enough, but I had the medicine that was really gonna do the trick... Because not always can you bring somebody out of that with your knowledge. Sometimes they did too much. It's beyond your control. And you need that medicine to get 'em out of it. I think it's a great idea you guys give that stuff out. (Felicity)

Clive also talked about how he managed the chaotic nature of the situation, and how having naloxone made him less worried about the outcome:

I wasn't scared. I'm pretty calm in every situation. But you just gotta keep your head on straight, that you don't mess up and they don't die... But it wasn't hard to use and as long as you kinda know what you're doing, it's pretty easy. [You have] a lot less worry with the Narcan [naloxone]. Cause you know it's there and hopefully the antidote. (Clive)

As we have reported previously (Lankenau et al., 2012), not all participants in this sample of trained respondents administered naloxone during the overdose event they described. Some respondents no longer had their naloxone that they received at the training because it had been lost or stolen. In some cases authorities had confiscated the naloxone, even though it is legal to possess with a prescription. Others did not use it because other response techniques (e.g., stimulation) elicited a response and the victim was revived. However, even in the absence of naloxone, many respondents were able to implement other response techniques they learned at the training, such as rescue breathing. Sandy said she initially had some concern about giving rescue breathing, but the hands-on practice using the CPR dummy in the training alleviated her concerns, “Once I took the class, I felt more confident. Like I could do it. Cause we got to practice. Like, the practicing made me feel more confident.” Some participants also said that they would like to receive a refresher training to review the skills that they learned in the original training.

Heroism and pride—Participants described a range of positive feelings that resulted from helping to rescue an overdose victim, which were sometimes described in terms of heroism:

I felt like a superhero or something, you know? You know how a superhero come and save the day? So you feel like you did something righteous and unselfish.... And that's how you feel when you have to save somebody's life and you're able to do it, and utilize new techniques that you know. And a life is saved. It gives you a good feeling. (Charles)

I guess in that crowd, I became, I looked like a hero. I don't wanna act like, or feel like a hero. But they were, like, thanking... In a thanking way. That made me feel good for, you know, for the day, that I did something cool for somebody. (Paul)

In these descriptions, we see the value that participants placed on their ability to save lives. They described themselves not only as heroes, but also as valued members of their community who are capable of and recognized for their good deeds. This identity runs counter to prevailing stereotypes of drug users as immoral, irresponsible, or uncaring. Often, participants explicitly contrasted themselves with others who fulfilled those negative stereotypes:

I see myself as kind of the type of person that, if I see someone that has overdosed and they really need help, I'm not gonna do like everybody else and walk past. I'm not gonna just sit down and let 'em die. I'm gonna try to get 'em some help.
(Quentin)

Particularly if they had long histories of drug use and witnessed overdoses throughout their lives, some described scenarios in which others dragged overdose victims outside and left them to die, or scenarios in which people simply stepped over an overdose victim on the sidewalk. Like Quentin, most participants in this study specifically rejected that type of behaviour and identified themselves as the “kind of people who help”. One participant, who initially said that he had only participated in the training to earn a small incentive payment, said that after being trained he carried his naloxone with him every time he went to parts of town characterized by drug use and overdose. These two examples demonstrate some of the complexity of the responder role. Some people, like Quentin, already identified as caretakers or helpers, which may have motivated them to become trained. For them, the training added knowledge and skills to their existing role. For others, such as the man who initially only participated to receive the incentive but subsequently adopted a more active role as a responder, the transition into the social role is more clearly observed. In both cases, however, the trainees are actively adopting the role of responder. This was not the case for all trainees, however. Some individuals who participated in the OPP did not appear to fully take up the role of responder during the period of this study, even if they did respond to an overdose after being trained.

Earning recognition from others/acknowledging expertise—As a result of acting in a way that re-affirmed or promoted a new identity as a responder or caretaker, some participants described receiving approval from others (usually other drug users, but also from official people like paramedics, police officers, or case managers). Though few participants described having in-depth interactions with paramedics at the scene of the overdoses, there were a few who reported positive encounters with paramedics or police officers. For example, Phil explains:

See, the police, and I realize this now, the police and especially the paramedics, they want you to save a life. They don't want nobody to die. And I don't think there's anybody out there in the world that would disapprove of somebody using Narcan. So I mean, they [the paramedics who responded to the call] were pretty well satisfied about what I did. (Phil)

Approval from other drug users, usually bystanders at the overdose, was more common. Paul described the response he received after responding to an overdose:

They were like, patting me on the back, like “Hey, that's cool.” And some guy gave me a forty ounce of beer. Another guy gave me, like, five bucks. (Paul)

Charles, who previously described how he felt like a “superhero” when he responded to an overdose, felt that responding to the overdose allowed people to see him in a different light - not as just a drug user, but as a competent, responsible person:

When a whole lot of people are around, they see you at work [to respond to an overdose], it's like “Wow, look at this dude! This dude's shooting heroin and doing this and that, but look at him in a whole other element.” It's like, I put on my cape and it was like [thumps chest], like I just went right to what I needed to do. There wasn't no hold up. (Charles)

Charles goes on to say that this experience might help others believe in him more or treat him with more respect, which could translate into other positive developments, like employment: “Oh, that's that old boy right there, he's just the dude, man. Give him a couple

days work, dude.” Like Charles, Clive thought that his successful use of naloxone would encourage people to see him differently - as someone who can be trusted:

They thought it was pretty cool that we had it [naloxone] and we actually used it. There’s a difference between having it - I mean, it’s good just to have it. But when you actually use it, it’s a whole other story (Clive)

Particularly among those who had responded to overdoses in public settings before, respondents said that others in the community now looked to them for help in the event of overdoses. For example, Claire said, “If someone’s overdosing, people will come and get me. Some people will come running from down the block. ‘There’s someone overdosing! Come help fast!’” This approval from others helped to reinforce and solidify their new social role in the eyes of others – a critical part of the socialization process that shapes social roles. Charles and Clive also showed how this new role might be leveraged into other forms of social capital – specifically, into opportunities for work. These positive experiences were reinforcing, as participants’ new roles were validated by others and integrated into their identities as helping people – identities often forged in contrast to others who were regarded as unhelpful or, even, immoral.

Negative Emotions

Though positive emotions were common, participants also reported a range of negative emotions that were both diverse and complicated. Some participants described feeling burdened, regret, fear, and anger. These negative emotions appear to be largely associated with the stressful nature of witnessing and responding to overdoses, though they might be heightened when individuals take up the responsibility for responding to overdoses in their community.

Burden and regret—Being a person others sought out for help in the event of an overdose not only conferred a new sense of empowerment, but also a new set of burdens. In the following passage, Felicity talks about how being an overdose responder has created added responsibility:

Everybody comes to get me right away, because they know I’m not gonna walk away from it. And that’s not really a good thing, either. That puts a lot on me. ‘Cause I can’t just, I can’t handle it. It’s really draining. I just wish they’d leave me alone sometimes. But then again, I don’t wanna see nobody die either. So I always go. (Felicity)

Though none of the overdose victims in this study were reported to have died, many participants knew people who had died of drug overdose in the past. Among these individuals, there was a sense of regret that they were unable to prevent those deaths, which highlights the recurring strain associated with witnessing multiple overdose deaths throughout one’s lifetime.

I wish that I could’ve had this [naloxone] six months before my buddy went away [died]. I came back from work and I found candles and flowers [in the stairwell]. It was a good friend of mine....I know if I would’ve been there and I would’ve had that little thing [the naloxone], it wouldn’t have happened. You know? (Paul)

Quentin talked about his regret associated with the death of a dear friend who was “like a dad” to him, “I had already had one friend die on me. Because I didn’t see the signs.” After attending the training, though, he was better equipped to recognise the overdose: “With her [the subsequent overdose], I saw the signs. With her, I knew she was in trouble.” Quentin’s narrative highlights some of the ambivalence or conflict experienced by responders. He felt both regret at not being able to help previously and increased confidence in his ability to

recognize an overdose after being trained. Paul also highlights the opposing feelings - happiness at being able to help this time, but regret that he was unable to help before, “It made me feel good that it worked on the person and then I did it, you know? But it made me feel sad that I didn’t have that chance when others [overdosed].” PWIDs who have been exposed to multiple overdose deaths throughout their lives may in fact be experiencing a type of reoccurring trauma, which might indicate a need for additional support to enhance coping resources.

Fear and anger—Despite increased confidence developed through participating in the OPP, Felicity also talked about the unpredictable nature of an overdose, “You never feel like you’re doing the right thing. I don’t care how many of them you do, you just don’t know if it’s gonna work. It’s scary. You never know if it’s gonna work.” Tina also described being fearful when she responded to an overdose, but says that the confidence she gained in the training helped buffer that fear:

But it’s like obviously not someone’s choice to overdose, you know? But that’s what I thought about. It was a little scary. But that’s also why I took the training and stuff because I’ve seen – I’ve heard a lot of stories of people going out [overdosing]. And I knew it was gonna happen sooner or later around me. And it did. (Tina)

As illustrated above, Tina tried to avoid blaming the overdose victim for the event. However, others felt angry with the victim for overdosing, or disappointed in the victim for not knowing his/her limit. Some expressed that the victim “should have known better” than to overdose. In these cases, participants usually attributed the overdose to the victim being abstinent before the overdose (usually from being in jail or drug treatment), or to being “greedy” and using more heroin than he/she should.

Cutting Social Ties

Some respondents reported cutting ties to the overdose victims, which appeared to be an attempt to cope with the stress and anger associated with witnessing and responding to overdoses. This seemed particularly true when the respondents had responded to multiple overdoses from the same person:

And we kept telling him, “That’s what you get for drinking and... I stopped hanging around with him because it was always the same thing. His tolerance was too weak. He had three overdoses at that same place. (Carlos)

Others said that after responding to the most recent overdose they restricted their drug using network to one or two intimate people, usually a spouse, partner, or trusted friend – people whom they trusted to help them in the event of an overdose. Still others tried to educate their peers about the risks for overdose:

I told him just like this “I keep telling you son of a bitch, that you can’t drink vodka and shoot heroin. That’s a deadly combination.” They don’t understand how deadly it is. I’ve seen too many people die behind that shit. (Mary)

Though not all of the respondents discussed cutting social ties as a coping mechanism for reducing exposure to overdoses, those who did seemed to be describing an effort to reduce their exposure to particularly risky network members who had a propensity to overdose repeatedly.

Discussion

The precedent for people who use drugs to play an active role in health-related matters for themselves and their communities has a long history rooted in the emergence of the viral hepatitis and HIV epidemics (Aitken, Kerger, & Crofts, 2002; Broadhead et al., 1998; Carruthers, 2007; Crofts & Herkt, 1995; Friedman et al., 1992; Grund et al., 1992; Wood et al., 2003). Scholars have commented on the role of this involvement in creating a new public image for drug users: that of “public health allies” serving not as victims or patients, but as collaborators (Henman, Paone, Des Jarlais, Kochems, & Friedman, 1998; Stoller, 1998). Henman and colleagues (1998) describe a “growing awareness [among drug users] of their own autonomous capacity to limit the harm caused by injection drug use” (p. 403), and “an ‘empowering’ of the drug injector in which drug use *per se* is becoming depathologized and replaced by an emphasis on choice in social behavior” (p. 403). Our findings suggest that OPPs might be tapping into the same capacity within communities of PWIDs to minimise harm and promote pro-social behaviour through a process that encourages some trainees to occupy new social roles as “overdose responders.”

This is particularly important because socially marginalised groups, such as homeless persons, often lack access to social roles that allow them to develop self-worth (Snow & Anderson, 1987; Stephens, 1991). In this study, we observed a group of similarly marginalised individuals who underwent overdose prevention training and responded to overdoses in their community. As a consequence, many experienced a sense of heroism, satisfaction, increased self-esteem, and improved self-worth associated with their new role. In this role, identities as caretakers were developed or re-affirmed, while negative stereotypes often applied to PWIDs were rejected. Others have found that some OPP participants report a reduction of drug use after participation, which may in part be a result of the positive emotional changes observed here (Seal et al., 2005; Wagner et al., 2010). If these positive effects of being trained in overdose prevention translate into a reduction in overdose risk among trainees due to reduced drug consumption, mathematical modeling suggests that the impact of the intervention on morbidity and mortality among PWIDs would be dramatically enhanced (Coffin & Sullivan, 2013).

However, some also experienced tension in the responder role, since there were also emotions such as guilt, fear, stress, and anger that resulted from responding to overdoses. For example, some participants in this study experienced a new sense of burden associated with becoming recognised in their community as someone who can help. This experience is similar to the reports from studies with family members trained in CPR, who sometimes developed an increased sense of responsibility for the lives of their at-risk family members, which resulted in a host of negative emotions (Dracup et al., 1986). Laypeople who assume a responder role, whether it is for CPR or overdose prevention, might need additional support from peers and other community members, including the service providers who offer trainings, to cope with the responsibility of helping to save lives.

Consistent with the theoretical understanding of social roles, the salience of the “responder” role appeared to vary amongst study participants (Stephens, 1991). For some, the new role of “responder” was very salient, and they described being sought out by others for their expertise and ability to help. Many of these individuals had responded to multiple overdoses, both before and after being trained. For them, the role of responder appeared to become part of their day-to-day lives and one that was recognised by others in their community. For others, particularly those who had not had the opportunity or who had not chosen to respond to many overdoses, the responder role might be less central to their identity. For these individuals, responding to overdose might be more of a limited action, or they may be earlier in the process of assuming a new social role. It is important to keep in mind that the role of

overdose responder is just one of many roles that individuals occupy and not all trained responders will identify this way. In the current study, we were unable to examine the number of overdoses that participants had responded to since being trained since our questions primarily focused on the most recently observed overdose, though other research suggests that some trainees respond to multiple overdoses while others do not (Wagner et al., 2010). More research will be needed to more thoroughly explore which factors predict whether PWIDs assume the role of responder.

Our findings have important implications for how OPPs can be most effectively implemented. In addition to focusing on the new skills and knowledge transfer, training programmes should also acknowledge that they are, either implicitly or explicitly, training people to take on the role of responder and should prepare participants for the possibility that this can be accompanied by both positive and negative emotions. Allowing sufficient time for questions and discussion during the trainings could help prepare participants for the potentially stressful nature of responding to drug overdoses. Trainings should also acknowledge that not everyone in the community will immediately accept the trainees in their new role. While negative experiences are not likely to be equally distributed among all training participants, our findings suggest that they are important for some participants and need to be acknowledged.

It is important to note that the positive and negative emotions described herein appear to have slightly different etiologies. The positive and empowering effects of developing increased confidence and a sense of control, for example, appear to be more strongly tied to the skills and knowledge (and naloxone) obtained through the training. The feelings of heroism and pride appear to originate from the process of successfully responding to an overdose and being recognised for that accomplishment. The feelings of stress, fear, and burden, on the other hand, seem to be most strongly tied to the overdose events themselves. For some, those negative emotions may be buffered by the positive emotions that are also experienced as a result of implementing the effective response techniques. For others, the stressful nature of responding to overdose may result in cutting social ties to risky individuals, which is discussed in more detail below.

The primary recommendation that stems from the current findings is that trainees might achieve even more successful outcomes, both in terms of preventing their own potential overdoses and in responding to witnessed overdoses, if they are provided with ample social support from peers, training programmes, and other health professionals. It has been suggested that one of the factors that influences the salience of a role is the degree of support by others for the role (Stephens, 1991). Increased social support, then, might help trained responders maintain their newly assumed role. Though it is likely that many PWID will be able to cope with these emotions on their own without intervention, programmes should consider providing opportunities for trainees to discuss experiences of overdose in both formal and informal settings. Informal conversations when trainees return to the program for refills of naloxone or to report an overdose reversal may prove sufficient for some, whereas others may prefer to offer more formalized one-on-one meetings or peer group discussions. Integrating discussion of overdose prevention into other services (e.g., opioid substitution therapy and other drug treatment programs, incarceration discharge planning and reintegration services, primary health care, pharmacies) could provide opportunities to reinforce skills and discuss experiences in other settings.

One way that some participants coped with the stressful aspects of responding to overdoses was to cut ties with individuals perceived to be at high risk for experiencing subsequent overdoses. This appeared to be an attempt to minimize future exposure to another stressful experience. These findings are reflected in an analysis of social network data collected from

30 trained respondents and 76 untrained respondents, in which participants trained by the OPP appeared to be over-represented in the group that reported having zero drug using contacts (Wagner et al., 2012). This phenomenon could be protective for the trainees, particularly if it results in individuals shifting their social networks to include fewer drug using peers and more pro-social influences (Rhoades et al., 2011; Wenzel et al., 2009). However, it could also diminish the network's overall capacity to respond to overdose. Trained responders will be less likely to be rescued if they overdose while using drugs alone, and those who have been trained will be less likely to witness overdoses. Several approaches for increasing drug using networks' capacity to prevent overdose deaths could be considered. First, as mentioned previously, opportunities for enhanced social support, in the form of informal one-on-one or group sessions to discuss experiences, might help responders cope with the stressful nature of overdose events and might increase their willingness and ability to continue responding. Second, train-the-trainer models in which responders are offered additional training on how to communicate effectively with their peers about overdose prevention might increase the diffusion of information through networks, decreasing the probability of overdose within the network. Third, network-based approaches in which highly connected or influential individuals in the network are recruited for more intensive training might help ensure that those most likely to witness overdoses are reached. Finally, increasing the capacity of training programs to reach more individuals at risk for overdose would provide redundancy in case some trained individuals leave the community.

Several participants said that practicing rescue breathing on CPR dummies and engaging in role-playing exercises during training helped solidify their knowledge and skills, which increased their confidence when they had to put the skills into practice. This confidence, in turn, appeared to translate into experiences with witnessed overdoses that were more positive overall, and served as a buffer for the stress that can accompany responding to an overdose. Offering trainings that allow ample time for role playing and skill development have the advantage of preparing participants to use their new skills under stressful conditions (Lankenau et al., 2012) and may help reinforce this confidence among those who have taken up the role of overdose responder. But overly long, structured or scheduled trainings can also increase barriers to participation for some people, particularly those who may be ambivalent about participating or who may not readily take up the role of responder. On the other hand, shorter trainings can increase OPPs' capacity to train more people and decrease some barriers to participation, but might also be limited in their ability to provide sufficient time for questions and skills development. Many OPPs operate with little or no funding. Particularly in these cases, staff time and programmatic resources might be severely limited, forcing OPPs to make difficult compromises in terms of resource allocation. Providing booster sessions when trainees return for naloxone refills is one way to help solidify skills.

These findings should be considered in light of some limitations. Because all participants were both trained and had responded to an overdose since being trained, it is difficult to differentiate the effects of training versus response. Whether people who respond to overdoses are formally trained by OPPs or not, the stressful and chaotic nature of a medical crisis such as drug overdose is likely to confer some emotional stress. Importantly, our findings are limited to a sample of mostly homeless drug injectors who primarily inject heroin. The experience of people using prescription opioids and those responding to overdoses in that population will likely differ and will require additional research. Data were collected from two programmes in a large US metropolitan area, so conclusions might not be representative of the experiences of OPP participants in other communities. Data were based upon self-report, which can be affected by social desirability bias, recall bias, and reporting errors. Finally, we specifically asked people to recount their most recent overdose

experiences, which might overestimate the salience of these events in the context of their daily lives and might not be representative of the entirety of their experience responding to overdoses.

Conclusions

Criticisms of overdose prevention programmes have sometimes focused on the fact that such programmes appear to provide a “safety net” for drug users (Ashworth & Kidd, 2001) and remove the negative consequences of drug overdose. Respondents in this study provide a somewhat different perspective. Our findings suggest that the experience of building competence and increasing perceived control during an overdose, becoming recognised as a caretaker in one’s community, and experiencing a host of positive emotions associated with saving a life might also contribute to an increased sense of self-worth among some of society’s most marginalised members, resulting in the uptake of a new prosocial role as “overdose responder.” Our findings also suggest that the experience of becoming an overdose responder is complex and can encompass a host of emotions, some of which might require additional support from peers and service providers. We emphasize, however, that our findings do not remove the imperative to train as many people as possible to respond to overdose and administer naloxone, even when only brief trainings are feasible. The literature on the social and emotional impacts of CPR training does not suggest that family members of high-risk individuals should not be trained in CPR, even if training might cause distress, since the potential of the training to save a life is rightly considered of higher importance. Likewise, on the same ethical grounds, our work should not be taken as a justification to withhold overdose prevention training and naloxone distribution from those who are not willing or able to participate in multi-hour trainings, since the needs of each community will differ and will dictate the most feasible training approach that maximizes benefits while minimizing negative social and emotional sequelae. Equipping PWIDs with the necessary skills, technology, and support to respond to the epidemic of drug overdose in their community has the potential to confer both individual and community-wide benefits. Flexible program implementation that meets the needs of local communities, organisations, and individuals will be critical to maximizing the success of these efforts.

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References

- Aitken CK, Kerger M, Crofts N. Peer-delivered hepatitis C testing and counselling: a means of improving the health of injecting drug users. *Drug Alcohol Rev.* 2002; 21(1):33–37. [10.1080/09595230220119327](https://doi.org/10.1080/09595230220119327) [PubMed: 12189002]
- Ashworth AJ, Kidd A. Take Home Naloxone for Opiate Addicts. Apparent Advantages May be Balanced by Hidden Harms. *BMJ.* 2001; 323(7318):935. [PubMed: 11693144]
- Bennett AS, Bell A, Tomedi L, Hulsey EG, Kral AH. Characteristics of an Overdose Prevention, Response, and Naloxone Distribution Program in Pittsburgh and Allegheny County, Pennsylvania. *Journal of Urban Health.* 2011 epub ahead of print. [10.1007/s11524-011-9600-7](https://doi.org/10.1007/s11524-011-9600-7)

- Bradvik L, Hulenvik P, Frank A, Medvedeo A, Berglund M. Self-reported and observed heroin overdoses in Malmoe. *Journal of Substance Use*. 2007; 12(2):119–126.10.1080/14659890601178667
- Broadhead RS, Heckathorn DD, Weakliem DL, Anthony DL, Madray H, Mills RJ, Hughes J. Harnessing peer networks as an instrument for AIDS prevention: results from a peer-driven intervention. *Public Health Reports*. 1998; 113(Suppl 1):42–57. [PubMed: 9722809]
- Carruthers S. The organization of a community: community-based prevention of injecting drug use-related health problems. *Substance Use and Misuse*. 2007; 42(12–13):1971–1977.10.1080/10826080701533302 [PubMed: 18075921]
- Centers for Disease Control and Prevention. Community-based opioid overdose prevention programs providing naloxone - United States, 2010. *MMWR*. 2012a; 61(6):101–105. [PubMed: 22337174]
- Centers for Disease Control and Prevention. Death rates for drug poisoning, by state of residence, United States, 2010. *MMWR*. 2012b; 61(48):995.
- Coffin PO, Sullivan SD. Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal. [Research Support, N.I.H., Extramural]. *Ann Intern Med*. 2013; 158(1):1–9.10.7326/0003-4819-158-1-201301010-00003 [PubMed: 23277895]
- Crofts N, Herkt D. A history of Peer-based Drug-user Groups in Australia. *Journal of Drug Issues*. 1995; 25(3):599–616.
- Davidson PJ, Ochoa KC, Hahn JA, Evans JL, Moss AR. Witnessing heroin-related overdoses: the experiences of young injectors in San Francisco. *Addiction*. 2002; 97(12):1511–1516. [PubMed: 12472634]
- Dracup K, Guzy PM, Taylor SE, Barry J. Cardiopulmonary resuscitation (CPR) training. Consequences for family members of high-risk cardiac patients. *Arch Intern Med*. 1986; 146(9):1757–1761. [PubMed: 3753116]
- Dracup K, Moser DK, Guzy PM, Taylor SE, Marsden C. Is cardiopulmonary resuscitation training deleterious for family members of cardiac patients? *American Journal of Public Health*. 1994; 84(1):116–118. [PubMed: 8279597]
- Dracup K, Moser DK, Taylor SE, Guzy PM. The psychological consequences of cardiopulmonary resuscitation training for family members of patients at risk for sudden death. *Am J Public Health*. 1997; 87(9):1434–1439. [PubMed: 9314793]
- Eenteen L, Bauer J, McLean R, Wheeler E, Hurliaux E, Kral A, Bamberger J. Overdose prevention and naloxone prescription for opioid users in San Francisco. *Journal of Urban Health*. 2010; 87(6):931–941. [PubMed: 20967505]
- Friedman SR, Neaigus A, Des Jarlais DC, Sotheran JL, Woods J, Sufian M, Sterk C. Social Intervention Against AIDS Among Injecting Drug Users. *British Journal of Addiction*. 1992; 87(3):393–404. [PubMed: 1559038]
- Galea S, Worthington N, Piper TM, Nandi VV, Curtis M, Rosenthal DM. Provision of Naloxone to Injection Drug Users as an Overdose Prevention Strategy: Early Evidence from a Pilot Study in New York City. *Addictive Behaviors*. 2006; 31(5):907–912. [PubMed: 16139434]
- Gilbert, L.; El-Bassel, N.; Terlikbayeva, A.; Yegeubayeva, S.; Platais, I.; Wu, E.; Amirov, B. Advancing an Evidence-Based, Integrated HIV and Overdose Prevention Intervention for Injecting Drug-Involved Couples in Kazakhstan. Paper presented at the Society for Social Work and Research; Tampa, FL. 2011. <http://sswr.confex.com/sswr/2011/webprogram/Paper14452.html>
- Goffman, E. *The Presentation of Self in Everyday Life*. Garden City, NY: Anchor Books; 1959.
- Green TC, Heimer R, Grau LE. Distinguishing Signs of Opioid Overdose and Indication for Naloxone: An Evaluation of Six Overdose Training and Naloxone Distribution Programs in the United States. *Addiction*. 2008; 103(6):979–989. [PubMed: 18422830]
- Grund JP, Blanken P, Adriaans NF, Kaplan CD, Barendregt C, Meeuwssen M. Reaching the unreached: targeting hidden IDU populations with clean needles via known user groups. *Journal of Psychoactive Drugs*. 1992; 24(1):41–47. [PubMed: 1619521]
- Henman AR, Paone D, Des Jarlais DC, Kochems LM, Friedman SR. Injection drug users as social actors: A stigmatized community's participation in the syringe exchange programmes of New York City. *AIDS Care*. 1998; 10(4):397–408.10.1080/09540129850123939 [PubMed: 9828960]

- Lankenau S, Wagner K, Silva K, Kecojovic A, Iverson E, McNeely M, Kral A. Injection Drug Users Trained by Overdose Prevention Programs: Responses to Witnessed Overdoses. *Journal of Community Health*. 2012;1–9.10.1007/s10900-012-9591-7 [PubMed: 21409491]
- Latkin CA, Hua W, Tobin KE. Social Network Correlates of Self-reported Non-fatal Overdose. *Drug and Alcohol Dependence*. 2004; 73(1):61–67. [PubMed: 14687960]
- Lopata, HZ. *Circles and Settings: Role Changes of American Women*. Albany, New York: State University of New York Press; 1994.
- Maxwell S, Bigg D, Stanczykiewicz K, Carlberg-Racich S. Prescribing Naloxone to Actively Injecting Heroin Users: A Program to Reduce Heroin Overdose Deaths. *Journal of Addictive Diseases*. 2006; 25(3):89–96. [PubMed: 16956873]
- McLauchlan CA, Ward A, Murphy NM, Griffith MJ, Skinner DV, Camm AJ. Resuscitation training for cardiac patients and their relatives--its effect on anxiety. [Research Support, Non-U.S. Gov't]. *Resuscitation*. 1992; 24(1):7–11. [PubMed: 1332164]
- Miles, MS.; Huberman, AM. *Qualitative Data Analysis: An Expanded Sourcebook*. 2. Thousand Oaks, CA: Sage; 1994.
- Moser DK, Dracup K. Impact of cardiopulmonary resuscitation training on perceived control in spouses of recovering cardiac patients. *Res Nurs Health*. 2000; 23(4):270–278. [PubMed: 10940952]
- Philbin MM, Pollini RA, Ramos R, Lozada MR, Brouwer KC, Ramos ME, Strathdee SA. Shooting Gallery Attendance Among IDUs in Tijuana and Ciudad Juarez, Mexico: Correlates, Prevention Opportunities, and the Role of the Environment. *AIDS and Behavior*. 2008; 12(4):552–560.10.1007/s10461-008-9372-6 [PubMed: 18369723]
- Pollini RA, McCall L, Mehta SH, Vlahov D, Strathdee SA. Non-fatal Overdose and Subsequent Drug Treatment Among Injection Drug Users. *Drug and Alcohol Dependence*. 2006; 83:104–110. [PubMed: 16310322]
- Rhoades H, Wenzel SL, Golinelli D, Tucker JS, Kennedy DP, Green HD, Zhou A. The social context of homeless men's substance use. [Research Support, N.I.H., Extramural]. *Drug Alcohol Depend*. 2011; 118(2–3):320–325.10.1016/j.drugalcdep.2011.04.011 [PubMed: 21601380]
- Sasson C, Rogers MA, Dahl J, Kellermann AL. Predictors of survival from out-of-hospital cardiac arrest: a systematic review and meta-analysis. *Circ Cardiovasc Qual Outcomes*. 2010; 3(1):63–81. Epub 2009 Nov 2010. [PubMed: 20123673]
- Scientific Software Development. *ATLAS.ti 6.2.27*. Berlin, Germany: 2011.
- Seal KH, Kral AH, Gee L, Moore LD, Bluthenthal RN, Lorvick J, Edlin BR. Predictors and prevention of nonfatal overdose among street-recruited injection heroin users in the San Francisco Bay Area, 1998–1999. *Am J Public Health*. 2001; 91(11):1842–1846. [PubMed: 11684613]
- Seal KH, Thawley R, Gee L, Bamberger J, Kral AH, Ciccarone D, Edlin BR. Naloxone Distribution and Cardiopulmonary Resuscitation Training for Injection Drug Users to Prevent Heroin Overdose Death: A Pilot Intervention Study. *Journal of Urban Health*. 2005; 82(2):303–311. [PubMed: 15872192]
- Sergeev B, Karpets A, Sarang A, Tikhonov M. Prevalence and Circumstances of Opiate Overdose Among Injection Drug Users in the Russian Federation. *Journal of Urban Health*. 2003; 80(2): 212–219. [PubMed: 12791797]
- Sherman SG, Cheng Y, Kral AH. Prevalence and Correlates of Opiate Overdose Among Young Injection Drug Users in a Large U.S. City. *Drug and Alcohol Dependence*. 2007; 88(2–3):182–187. [PubMed: 17110058]
- Sherman SG, Gann D, Scott G, Carlberg S, Bigg D, Heimer R. A Qualitative Study of Overdose Responses Among Chicago IDUs. *Harm Reduction Journal*. 2008; 5(1):2. [PubMed: 18218071]
- Snow DA, Anderson L. Identity Work Among the Homeless: The Verbal Construction and Avowal of Personal Identities. *American Journal of Sociology*. 1987; 92(6):1336–1371.
- Sporer KA. Acute Heroin Overdose. *Annals of Internal Medicine*. 1999; 130(7):584–590. [PubMed: 10189329]
- Sporer KA, Kral AH. Prescription Naloxone: A Novel Approach to Heroin Overdose Prevention. *Annals of Emergency Medicine*. 2007; 49(2):172–177. [PubMed: 17141138]

- Stephens, RC. *The Street Addict Role: A Theory of Heroin Addiction*. Albany, NY: State University of New York Press; 1991.
- Stoller, NE. *Lessons from the Damned: Queers, Whores, and Junkies respond to AIDS*. New York: Routledge; 1998.
- Strang J, Manning V, Mayet S, Best D, Titherington E, Santana L, Semmler C. Overdose Training and Take-home Naloxone for Opiate Users: Prospective Cohort Study of Impact on Knowledge and Attitudes and Subsequent Management of Overdoses. *Addiction*. 2008; 103:1648–1657. [PubMed: 18821875]
- Technos Systems Inc. *Entryware v6*. Vancouver, BC, Canada: Technos Systems, Inc; 2009.
- Tobin KE, Davey MA, Latkin CA. Calling Emergency Medical Services During Drug Overdose: An Examination of Individual, Social and Setting Correlates. *Addiction*. 2005; 100(3):397–404. [PubMed: 15733253]
- Tobin KE, Sherman SG, Beilenson P, Welsh C, Latkin CA. Evaluation of the Staying Alive Programme: Training Injection Drug Users to Properly Administer Naloxone and Save Lives. *International Journal of Drug Policy*. 2008; 20(2):131–136.10.1016/j.drugpo.2008.03.002 [PubMed: 18434126]
- Tyndall MJ, Craib KJ, Currie S, Li K, O’Shaughnessy MV, Schechter MT. Impact of HIV Infection on Mortality in a Cohort of Injection Drug Users. *Journal of Acquired Immune Deficiency Syndromes*. 2001; 28(4):351–357. [PubMed: 11707672]
- Vaillancourt C, Stiell IG, Wells GA. Understanding and improving low bystander CPR rates: a systematic review of the literature. *CJEM*. 2008; 10(1):51–65. [PubMed: 18226319]
- Wagner KD, Iverson E, Wong CF, Bloom JJ, McNeeley M, Davidson PJ, Lankenau SE. Personal Social Network Factors Associated with Overdose Prevention Training Participation. *Substance Use and Misuse*. 2012.10.3109/10826084.2012.720335
- Wagner KD, Valente TW, Casanova M, Partovi SM, Mendenhall BM, Hundley JH, Unger JB. Evaluation of a Comprehensive Overdose Prevention and Response Training Programme for Injection Drug Users in the Skid Row Area of Los Angeles, CA. *International Journal of Drug Policy*. 2010; 21:186–193.10.1016/j.drugpo.2009.01.003 [PubMed: 19268564]
- Walley AY, Xuan Z, Hackman HH, Quinn E, Doe-Simkins M, Sorensen-Alawad A, Ozonoff A. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis. *BMJ*. 2013; 346:f174.10.1136/bmj.f174 [PubMed: 23372174]
- Wenzel SL, Green HD Jr, Tucker JS, Golinelli D, Kennedy DP, Ryan G, Zhou A. The social context of homeless women’s alcohol and drug use. [Research Support, N.I.H., Extramural]. *Drug Alcohol Depend*. 2009; 105(1–2):16–23.10.1016/j.drugalcdep.2009.05.026 [PubMed: 19616904]
- Wood E, Kerr T, Spittal PM, Small W, Tyndall MW, O’Shaughnessy MV, Schechter MT. An external evaluation of a peer-run “unsanctioned” syringe exchange program. *Journal of Urban Health*. 2003; 80(3):455–464.10.1093/jurban/jtg052 [PubMed: 12930883]