

Survey of Southern Wisconsin Needle Exchange Clients Regarding Opioid Overdose and Naloxone Use

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ABSTRACT

Background: Factors surrounding opioid overdose and naloxone use must be explored from the user perspective in order to more effectively combat the current opioid crisis.

Methods: AIDS Resource Center of Wisconsin needle exchange clients were surveyed regarding overdose victim demographics, interventions, experience with naloxone, and overdose outcomes.

Results: Most respondents (102/108, 94.4%) reported either experiencing or witnessing an overdose. While naloxone was often used (64/102, 62.7%), other recommended interventions, such as calling 911 (44/102, 43.1%) and rescue breathing (31/102, 30.4%) often were not. Potential legal consequences were cited as a major barrier for contacting emergency medical services (42.3%).

Discussion/Conclusion: There appears to be a need for education and/or policy change to facilitate appropriate overdose prevention and use of emergency medical services in the setting of opioid overdose.

INTRODUCTION

The opioid crisis continues to intensify in the United States and Wisconsin. Nationally, heroin-related deaths increased 5-fold between 2010 and 2017.¹ In Wisconsin, opioid overdose deaths more than doubled between 2010 and 2017.² In Dane County alone, there were 7 times more heroin-related mortalities in 2016 than 2007.³

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However, from 2013 to 2014, while rates of heroin use remained stable or increased, heroin-related deaths in Dane County actually decreased 30%, likely, at least in part, due to the distribution of lay naloxone (Narcan).⁴ Naloxone is an opioid antagonist that reverses the effects of opioids, thereby correcting life-threatening opioid-induced respiratory depression. Community-based training programs for layperson naloxone distribution and administration have become one of the leading public health interventions used to decrease overdose mortality rates among people who inject drugs.⁵

In 2014, Wisconsin passed the Heroin, Opiate Prevention and Education (HOPE) legislative package. This legislation allows emergency responders to carry and administer naloxone, provides overdose witnesses with limited immunity from criminal prosecutions when seeking assistance for overdose from emergency services, and expands naloxone access to nonmedical personnel or laypeople.⁶

With the passage of HOPE legislation allowing for lay possession and administration of naloxone in Wisconsin,⁷ it is important to evaluate the current experience, knowledge, practices, and perceptions of drug users to appropriately target educational and distribution efforts. The Opioid Overdose Prevention and Naloxone Use Survey aims to clarify education and resources needed for drug users and overdose witnesses.

METHODS

We conducted a cross-sectional study utilizing The Opioid Overdose Prevention and Naloxone Use survey. The survey tool

aims to identify the circumstances regarding naloxone use by nonmedical personnel and the factors that contribute to opioid overdose. The tool was developed through reference to literature regarding opioid overdose risk factors, incorporation of commonly understood social determinants of health (eg, income, sex, education), and description of overdose events and intervention circumstances in other communities and studies. Survey items were further refined through discussion with the community outreach program serving as the study site (AIDS Resource Center of Wisconsin).^{5,8,9} English-speaking clients who received naloxone, clean needles, and/or participated in naloxone training through either the Community Pharmacy in Madison, Wisconsin or one of the two AIDS Resource Centers of Wisconsin (ARCW) mobile needle exchanges in Dane and Milwaukee counties were asked to complete the survey.

The ARCW mobile needle exchanges are vans that drive to and meet with clients in order to provide clean injection supplies. From June 1, 2016 to December 31, 2017 – a similar timeline to that of survey distribution – 7,951,575 syringes were distributed throughout Wisconsin, including 2,086,806 syringes in Dane and Milwaukee counties.

Respondents were considered eligible if they were a client of the needle exchange services. If the client had either experienced or witnessed an overdose, they were asked to complete the entire survey; if they had not experienced or witnessed an overdose, they were directed to the optional demographics section prior to survey termination. Because the vans are mobile throughout their respective counties, clients/survey respondents were scattered geographically throughout Dane and Milwaukee counties.

The survey was available online between July 2016 and July 2017. Business cards with a link to the survey were distributed with clean needle kits in Dane County for the duration of the survey period and in Milwaukee County from January 2017 until July 2017.

To penetrate the largest possible audience, a paper version of the survey also was offered in conjunction with ARCW services at both the Dane and Milwaukee county mobile needle exchanges during the summer months when a research staff member was available for in-person survey administration. Over the 12-month survey period, 66 surveys were collected in person; 54 were collected online.

Survey Tool

The survey consisted of 36 items. To maintain consistency, respondents were instructed to answer the questions based on the most recent overdose they witnessed or experienced personally. Information regarding circumstances surrounding the overdose included which drugs were involved, the type of location in which the overdose occurred, and relationship of the survey respondent to the person who overdosed. Information regarding response to the overdose included whether 911 was called; who responded to

the overdose; whether naloxone was administered and if so, who administered it and how many doses were needed; and whether the victim was revived. Demographic information collected for both the person who overdosed and the survey respondent included age (in range categories) and sex. For survey respondents only, demographic information collected included employment status at the time of the overdose, educational attainment, and race/ethnicity. An open response question also was included to capture “anything else that you would like us to know about your experience with opioids, naloxone (Narcan), or overdose.”

Analytical Approach

Associations between information source and 911 calls were tested using chi-square tests. No significant associations were found and those results are not reported. Therefore, descriptive counts (%) were calculated and used for quantitative analysis. Statistical analysis was performed with R 3.4.0. For qualitative results, coauthors (Baltes, Devo, and Kaiser) independently reviewed the open-ended responses and performed a conventional content analysis to identify and describe common themes.

Institutional Review

Based on review by the University of Wisconsin (UW) Health Sciences Institutional Review Board, this research qualified as exempt for continuing review and satisfied the UW-Madison’s ethical standards for the protection of human research participants.

RESULTS

Quantitative Results

In total, 108 surveys were completed and submitted. Twelve surveys were consented to online, but the participants terminated the survey prior to the collection of any information. Of the 108 completed surveys, 6 respondents had never witnessed or experienced an overdose, 24 described their own overdose, and 78 witnessed an overdose.

Respondent demographic information is detailed in the Table. Nearly half of the respondents were male (49/108, 45.4%), and more than half were white (80/108, 74.1%) and were 25 to 34 years of age (57/108, 52.8%). Less than half had attended some college but did not obtain a degree (31/108, 28.7%) and were employed at the time of the overdose (49/108, 45.4%).

Those who experienced an overdose were typically male (68/102, 66.7%) and were 25 to 34 years of age (54/102, 52.9%). In some circumstances, the person who overdosed had used alcohol (15/102, 14.7%), benzodiazepines (13/102, 12.7%), and/or cocaine/crack (12/102, 12.7%) concomitantly with heroin prior to overdosing. Of those who survived their overdose, 72.9% reported continued opioid use (70/96).

Among respondents who witnessed an overdose, the person who overdosed was often a friend (42/102, 41.2%), overdosing in a house or apartment (65/102, 63.7%). Those who most

Table. Survey Respondents Demographics (N=108)

Demographics/Characteristics	Survey Response No. (%)
Age Groups (years)	
18-24	14 (13.0)
25-34	57 (52.8)
35-44	19 (17.6)
45-54	8 (7.4)
55-64	4 (3.7)
> 64	1 (0.7)
Sex	
Female	52 (48.1)
Male	49 (45.4)
No response	7 (6.5)
Race	
Asian	1 (0.9)
Black/African American	4 (3.7)
Native American	3 (2.8)
Pacific Islander	1 (0.9)
White/caucasian	80 (74.1)
Multiple races	7 (6.5)
No response/unknown	12 (11.1)
Ethnicity	
Hispanic/Latinx	9 (8.3)
Not Hispanic/Latinx	91 (84.3)
No response/unknown	8 (7.4)
Education	
8th grade or less	4 (3.7)
High school, no degree	11 (10.2)
High school graduate	17 (15.7)
GED or equivalent	4 (3.7)
Some college, no degree	31 (28.7)
Associate degree	14 (13.0)
Bachelors degree	14 (13.0)
Graduate school	4 (3.7)
No response	9 (8.3)
Employment	
Working	49 (45.4)
Temporarily laid off/on leave	4 (3.7)
Unemployed, looking for work	11 (10.2)
Unemployed, not looking for work	21 (19.4)
Disabled	8 (7.4)
Student	3 (2.8)
No response	12 (11.1)

commonly responded to the overdose were the survey respondent (65/102, 63.7%), friends or relatives of the overdose victim (51/102, 50.0%), and emergency personnel (39/102, 38.2%).

Actions taken to reverse the overdose included calling 911 (44/102, 43.1%), performing rescue breathing (31/102, 30.4%), and naloxone administration (64/102, 62.7%). Forty-four percent (26/59) of respondents said they had not called 911 because they had resolved the situations themselves, while 49.2% (29/59) did not call because they did not want the person overdosing or themselves to suffer legal consequences. Eleven of the 44 respondents who had either witnessed or experienced an overdose and called 911 said the person overdosing was arrested (25%). In addition, 3 respondents said that both the witnesses and the person who overdosed were arrested at the scene (3/44, 6.8%).

Respondents who did not call 911 were most likely to report having received information regarding opioid overdose and naloxone administration from friends who use drugs (30/59, 50.8%), while respondents who did call 911 received their knowledge from medical personnel (13/44, 29.5%) as often as they did from friends who use opioids (13/44, 29.5%).

In terms of naloxone use, nearly half (27/64, 42.2%) of the overdoses for which it was administered required 2 doses of injectable medication (60/64, 93.8%), rather than the intranasal formulation (2/64, 3.1%). (Two individuals did not know which naloxone formulation was administered [2/64, 3.1%.]) The majority of respondents stated that the naloxone took less than 5 minutes to work (56/102, 54.9%) and that no difficulties arose during its use (56/102, 54.9%). The variation of naloxone dosing and time to effect is influenced by the amount and strength of the opioid ingested or injected.⁸

Of the 108 survey respondents, 59 indicated that they had previously obtained naloxone (54.6%). Forty-one (38.0%) had never purchased it, and 38 reported receiving some for free (38/108, 35.2%), either through the ARCW or other needle exchange programs. The majority had administered their most recently acquired supply on someone else (27/59, 45.8%) or still had it (19/59, 32.2%).

Qualitative Results

The survey included an open-response question at the end for respondents to provide any relevant information that may have been missed. Upon completing a conventional content analysis, 3 major themes were identified:

- The fear of legal consequences hampers the motivation of overdose respondents to call for emergency support services.
- The increase in naloxone availability and accessibility allows for greater overdose response by laypeople.
- An increased prevalence of fentanyl-laced drugs was perceived as increasing the frequency of unintentional opioid-related overdoses.

Respondents often expressed the sentiment that worry regarding potential legal penalties made them less likely to involve police or other first responders. Many also conveyed their appreciation for the expanding availability and use of naloxone in the case of an overdose event. This appreciation was noted especially in the context of the increased incidence of dangerously modified drugs leading to unintentional overdoses. These opinions express barriers that currently exist and warrant further attention from an interdisciplinary team in order to address and potentially eliminate their impact on overdose situations.

DISCUSSION

Several general themes have been gathered from this survey. First, when an overdose occurs, individuals are more likely to try to resolve the situation themselves rather than call 911. Almost half of

respondents cited fear of arrest (either of themselves or the person overdosing) as a major factor in their decision to forgo involving first responders. Additionally, many respondents who chose not to call 911 generally received opioid overdose and naloxone education from friends who use drugs, rather than from a professional entity. Wisconsin has Good Samaritan laws, which, at the time of this survey, provided immunity from drug possession or paraphernalia charges against the person who witnesses a drug overdose and calls 911.⁶ The existence of such laws increases appropriate overdose response, particularly with the increase of fentanyl and analogs in the illicit opioid supply.¹⁰ Despite this, users and witnesses may, in fact, still be at risk for arrest. A portion of these results reflects the need for (1) education of law enforcement and (2) resources other than arrest or incarceration. Education should further include the nature of addiction, plus collaboration between law enforcement and treatment and public health sectors.¹¹⁻¹³

Second, in Wisconsin, injection drug users who have received naloxone training are more likely to report overdoses, potentially leading to higher revival rates.⁹ Given that the minority of respondents endorsed contacting EMS and that fear of legal consequences was cited as a major contributor, there appears to be room for improvement in terms of user education and, perhaps, in law enforcement and criminal justice policy and practice.

Lastly, several open-response answers cited fentanyl-laced drugs as a factor contributing to the increasing amount of opioid overdoses. This aligns with recent reports of increasing overdose deaths over the last 8 years attributable to fentanyl and analogs (66 such deaths in 2010; 288 in 2016).¹⁴ Given this alarming trend, there is clearly a need for enhanced education and preventive interventions to reduce the harm attributable to an increasing supply of synthetic opioids.

Limitations

Limitations of this study includes its relatively small sample size and mostly urban population, with respondents being limited to those receiving services from ARCW and the Community Pharmacy.

CONCLUSION

Despite a small survey sample, our findings point to a need for increased awareness of Wisconsin's Good Samaritan law and the barriers that currently exist regarding naloxone use, as well as enhanced education and preventive interventions to reduce the harm from synthetic opioids.

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