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Naloxone Perspectives from People who Use Opioids: Findings from an Ethnographic Study in Three States

Miriam Boeri, Ph.D.,
Associate Professor, Bentley University

Aukje K. Lamonica, Ph.D.
Associate Professor, Southern Connecticut State University

Abstract

Background—Naloxone is an opioid antagonist that can reverse an opioid overdose. Increased opioid-related mortality rates led to greater distribution of naloxone without a prescription and administration of naloxone by laypersons. This study fills a gap in knowledge of naloxone experiences among active users of opioids living in suburban communities.

Purpose—The purpose of this article is to provide nurse practitioners (NPs) with an in-depth understanding of current naloxone use practices on people who experience overdose events. The specific aims are to compare access to naloxone among diverse suburban towns, to examine administration differences across settings, and to understand perspectives on naloxone experiences from people who are actively using opioids.

Methodological Orientation—The data for this analysis were drawn from an ethnographic study in the suburban towns around Atlanta, Georgia; Boston, Massachusetts; and New Haven, Connecticut. Short surveys and in-depth interviews were collected. Inductive methods were used to compare data across settings.

Sample—The sample of 106 included 48% female, 62% white, 24% African American/Black, 13% more than one race, and 21% Hispanic/Latinx. The mean age was 41.35.

Conclusions—Differences between study settings in access to naloxone, administration frequency, and delivery systems were found. Findings suggest more education and training is needed in overdose prevention and harm-reduction intervention. Studies on delivery systems need to address the increase in fentanyl-related overdoses.

Implications for Practice—NPs can help to target distribution of naloxone in local communities, facilitate collaboration with harm reduction services, and provide evidence based education and training to laypersons.

Introduction and Background

Naloxone hydrochloride is an opioid antagonist that can reverse an opioid overdose and prevent unintentional deaths. Clinical studies support the effectiveness of naloxone for

Contact Author: Miriam Boeri, Associate Professor, Sociology Department, Bentley University, mboeri@bentley.edu, 781-891-2438 (office), 678-899-2451 (cell).

preventing opioid mortality (Chimbar & Moleta, 2018; Volkow, Frieden, Hyde, & Cha, 2014). Overdose education and naloxone distribution by health providers, emergency medical services (EMS), and pharmacists increased as states enacted new laws permitting wider distribution of naloxone to people using opioids, their family, and their friends, called "laypersons" (Devries, Rafie, & Polston, 2017; Heavey, Burnstein, Moore, & Homish, 2018). Community-based distribution of naloxone kits to laypersons has been shown to reduce overdose death rates (Kerensky & Walley, 2017; Strang et al., 2019). National reports indicate that deaths involving all opioids continued to increase in 30 of 50 states, suggesting a gap in understanding of where and how to focus distribution efforts (Lewis, Vol, & Fishman, 2017; Scholl, Seth, Kariisa Wilson, & Baldwin, 2019). The purpose of this article is to provide knowledge of current naloxone use practices in suburban areas so nurse practitioners (NPs) can address this public health problem with greater insights on training and distribution needs.

Although naloxone distribution to laypersons is increasing, there are differences across states regarding who can legally distribute and administer naloxone, where naloxone is obtained, and the formulation and delivery systems provided. Naloxone can be administered through a variety of routes or delivery systems including intramuscular (IM) injection, nasal spray using a multi-step syringe and nasal atomizer, needle-free nasal spray, and an auto-injector (Gupta, Shah, & Ross, 2016; Kerensky & Walley, 2017; Ryan & Dunn, 2018). Research on comparable effectiveness of delivery systems has generated some debate (Lewis et al., 2017; Strang, McDonald, Tas, & Day, 2016). While IM delivery was once viewed as more effective (Clarke, Dargan, & Jones, 2005; Zuckerman, Weisberg, & Boyer, 2014), recent studies recommend nasal delivery systems over IM delivery for distribution to laypersons (Avetian, Fiuty, Mazzella, Koppa, Heye, & Hebbar, 2018; Heavey et al., 2018). The rising price of new "user friendly" naloxone delivery products increased public health costs for naloxone, jeopardizing more widespread distribution (Chimbar & Moleta, 2018; Gupta, Shah, & Ross, 2016; Lewis et al., 2017).

Most studies show that naloxone is safe to administer in community settings by laypersons with minimal training (Heavey et al., 2018; Irvine et al., 2018). Withdrawal symptoms have been reported as the main adverse effects of naloxone, but withdrawal can be deadly without appropriate medical management (Darke, Larney, & Farrell, 2016; Kim & Nelson, 2015). Respiratory complications and adverse interactions with poly-substance use can also result in undesirable outcomes if dosage and delivery is ineffective (Clarke, Dargan, & Jones, 2005; Kim & Nelson, 2015; Zuckerman, Weisberg, & Boyer, 2014).

Training on naloxone administration is not consistent. For example, there is a contradiction on when rescue breathing is recommended between the training manuals provided by the U.S. and Canada, and only the Canadian manual distinguishes opioid intoxication from opioid overdose (British Columbia Centre for Disease Control, 2019; Substance Abuse and Mental Health Services Administration, 2018). Such differences can be critical in an overdose event.

Little is known about naloxone experiences and perspectives from individuals who are actively using opioids. Moreover, such research is often conducted in urban communities,

resulting in less knowledge of drug use patterns in suburban areas. Studies show the demography and geography of opioid use shifted from racial/ethnic minority, poor, and disadvantaged urban populations to white, middle class, and non-urban (Cicero et al., 2014). Drug use patterns and risk behaviors are dependent on social context (Ciccarone, & Bourgois, 2003; Silverstein, Daniulaityte, Martins, Miller, & Carlson, 2019), but there is limited knowledge of overdose risk environments and naloxone practices in suburban settings.

Data from a study on active users of opioids living in suburban towns in three different states were used in this paper. The aims of the analysis were to provide a comparison of access to naloxone across these settings and a better understanding of naloxone-related perspectives from people living in the suburbs who used opioids. The knowledge gained from people who are administered or administering naloxone can inform NP training and education and provide insights for developing more effective overdose intervention practices.

Methods

Study Design

The data for this analysis were drawn from the Suburban Opioid Study. The goal of this study was to fill the gap in understanding of opioid use patterns in suburban communities, where overdose mortality rates were increasing (Cicero et al., 2014). At the time of analysis for this paper, 155 interviews had been collected and 106 were included in the analysis. Drawing a small sample from a larger study for qualitative analysis has been shown to provide critical insights on specific aspects of the opioid crisis (Silverstein et al., 2019).

Data were collected between June 2017 and July 2019. The study sites were the suburban towns around Atlanta, Georgia; Boston, Massachusetts; and New Haven, Connecticut. These states were selected because each state had diverse opioid rates and different policies and practices regarding how opioid overdose was addressed (see Table 1). For anonymity, the names of towns have not been revealed and field locations are referred to in this paper as the suburbs of Atlanta, Boston, and New Haven.

Field Settings: Opioid Overdose and Access to Healthcare by State

The diversity of the three field environments provided data to identify how access to healthcare affected opioid use patterns, practices, and experiences of people living in the suburbs in three states with different policies (see Table 1). At the time of data collection, national reports indicated opioid overdose mortality rates were higher for people who identified as white than for other races; higher among people 25–34 years old, and higher among large fringe metropolitan areas (i.e., suburbs) than in other geographic areas (Centers for Disease Control and Prevention, 2017). Death rates (per 100,000) due to opioids were increasing in all three field sites.

Access to healthcare is instrumental for facilitating access to naloxone. Massachusetts was the only state with public-funded healthcare (MassHealth). Connecticut had no state publicly healthcare but opted in the Affordable Care Act's Health Insurance Exchanges and Medicaid

expansion. Georgia did not choose the Medicaid expansion (Kaiser Family Foundation, 2019).

Laws on naloxone distribution vary by state and were changing during the time of data collection. Community-based distribution of naloxone to laypersons started in the late 1990s, often without legal authority (Davis, Carr, Southwell, & Beletsky, 2015). Policy sanctioning distribution of naloxone without a prescription and training laypersons in naloxone administration increased as the opioid epidemic continued across all states. Table 1 shows differences between study states by overdose mortality rates and relevant naloxone policies.

Massachusetts was an early adopter of state sanctioned naloxone distribution to laypersons through clinics and other healthcare facilities and community-based harm reduction services (http://www.drugpolicy.org/issues/harm-reduction). Harm reduction services provided syringe exchanges in most suburban towns in Massachusetts, and they added naloxone training and distribution to their services in the suburbs. Naloxone was distributed by harm reduction services in Connecticut only in the larger cities; people living in the suburbs obtained naloxone from pharmacies or clinics.

In Georgia, harm reduction services were distributing naloxone along with their syringe exchange only in the city of Atlanta (https://atlantaharmreduction.org/). State data collected in Georgia revealed that from 2016 to 2017 there was a 17% increase in heroin-involved overdose deaths, and a 53% increase in fentanyl-involved overdose deaths (Georgia Department of Public Health, 2017). In December 2017, Georgia legalized over-the-counter sale of naloxone and authorized distribution of naloxone kits to laypersons by community-based services and other non-medical providers. When data collection started in Georgia in June 2017, participants in the study said that naloxone was not available without a prescription.

Ethnographic Fieldwork

Ethnographic fieldwork provides direct observation of emerging opioid use patterns and new insights for interventions among high-risk populations (Bairan, Boeri, & Morian, 2014; Ciccarone, & Bourgois, 2003). Ethnographic fieldworkers in this study included the two principal investigators (authors of this paper), a field coordinator, and research assistants trained in ethnographic methods. The fieldwork was aided by community consultants, who are people in the community who have knowledge of use patterns and settings of opioid use (Boeri & Shukla, 2019; Page & Singer, 2010).

Participant recruitment started with ethnographic fieldwork. Targeted and purposive sampling methods were used to increase knowledge of emerging findings and ensure diversity in race and gender (Watters & Biernacki, 1989). The criteria for inclusion included: misusing opioids (e.g., prescription opioids, heroin and other morphine-based analgesics and synthetic opioids) in the last month; being 18-years-old or older; and residing in a suburban area. During fieldwork, investigators visited healthcare facilities, treatment clinics, and harm reduction centers and talked with people on the streets, in parks, and other public spaces.

Fliers or cards with the study contact information were left in strategic areas, such as clinics and convenient stores.

Data Collection and Instruments

Ethnographic fieldwork was enhanced with a mixed-methods design incorporating interviews and surveys (Creswell & Clark, 2007; Plano, 2010). The instruments consisted of a brief survey on demographics and drug use trajectories set in the context of a life history timeline, and an in-depth audio-recorded interview. Questions on the survey and interview guide were expanded as emerging phenomena were discovered, a strength of qualitative research (Charmaz, 2014). The phenomenon revealing a lack of naloxone access in the suburbs emerged during initial fieldwork in the Atlanta field site. The following questions were added to the survey.

Have you ever experienced overdose?

Have you ever been administered Naloxone?

In what setting was Naloxone administered?

Who administered the Naloxone?

Have you ever administered Naloxone to someone else?

Do you have access to Naloxone?

How did you get access to it?

Interviews were conducted in homes, private offices, library rooms, parks, and on the street. The Institutional Review Board (IRB) from the investigators' academic institutions approved the study, and a "Certificate of Confidentiality" was obtained from a federal agency to protect study data from subpoena. Participants were given a consent form to read before the interview that explained study procedures, risks and benefits. At no point was the participant asked to provide identifying data, such as name, address, or phone number. The audio-recorded interviews were transcribed with instructions to delete any identifying material that may have been said inadvertently. All data were anonymized.

Participants received $40 for their time at the end of the interview. Interviews lasted between two to four hours. Long interviews are typical in qualitative research (Fontana & Frey, 1998). A participant-focused interview style was used in which a semi-structured interview guide provided questions, but participants were free to take the interview in different directions (Shaw, 2005). Sensing our nonjudgmental attitude, participants often expressed appreciation for allowing them to tell their life stories and share details they had never told anyone.

Analysis

Grounded theory informed the investigation and analysis (Charmaz, 2014; Glaser & Strauss, 1967). Grounded theory is responsive to subjective meanings revealed by participants during

the interview and interpretation that emerges during analysis. Using an inductive method, data analysis and data collection are conducted simultaneously.

A modified form of grounded theory was used for the analysis of the qualitative data, meaning only parts of the transcript were coded and not a line-by-line analysis. Both authors coded the transcripts using NVivo for qualitative data management. The codes and conceptual linking of codes were discussed to develop categories that best represented what participants were portraying, resulting in numerous variations of codes and categories. Transcripts were double-coded until a coding framework was developed that provided an effective representation of naloxone experiences from the perspectives of participants.

Ideas emerging from the analysis represent an interpretation of the data in relationship to written field observations and conversations (Atkinson, 2006). For example, after investigators discovered that participants did not have access to naloxone in the Atlanta suburbs, the lack of access motivated the investigators to add naloxone questions to the survey and semi-structured interview guide. Naloxone questions were added in September 2017. Because naloxone questions were included in the survey after data collection had already started in the Atlanta suburban field site, the number of participants in the Atlanta naloxone sample are fewer than in the suburban New Haven and suburban Boston naloxone samples. All participants who were asked naloxone survey questions or who discussed naloxone in their in-depth interviews were included in what is called the "naloxone sample."

Quality control of the data involved cross-checking quantitative and qualitative data. This resulted in excluding ten interviews from the quantitative analysis. Four interviews were excluded from the qualitative analysis when quality control of this data found too many inconsistencies.

Another type of quality control was performed during ongoing comparative analysis between what participants were saying and what was learned during ethnographic fieldwork. New information was verified with subsequent interviews in the same area. Reports of where participants accessed (or did not access) naloxone were confirmed by observation of healthcare services in the area, as well as Internet searches for naloxone distribution points. No incidents of false reports by participants regarding how they obtained naloxone kits, what the kits contained, and lack of access were found.

Results

Observational Findings

In June 2017, ethnographic fieldwork began and interviews were initiated with active opioid users in suburban Atlanta, Georgia. During the first month of data collection, a wave of opioid overdoses in the area was reported (Suzuki & El-Haddad, 2017). Observational field research and interview data revealed that naloxone was not available to the majority of people using opioids living in the Atlanta suburbs. The naloxone delivery system distributed to laypersons in the city of Atlanta at that time was the intramuscular (IM) injection kit. The package included instructions to call 911 with text and graphic instructions on how to use the IM syringe and how to administer Cardiopulmonary Resuscitation (CPR). Two IM

syringes and two 0.4 mg/ml vials of naloxone were in each kit. The discounted wholesale cost of the IM syringe kit was $2.40 each.

Data collection in the Boston suburbs started in September 2017. The Massachusetts Department of Public Health had already invested in widespread distribution of needle-free nasal spray naloxone through social services and medical clinics across the state, including harm reduction services located in suburban towns. During ethnographic fieldwork investigators visited clinics and community-based services and verified what type of naloxone was distributed. The kit distributed in Massachusetts was the 0.4 mg naloxone nasal spray with the brand name Narcan®. The discounted wholesale cost of the nasal spray kit was between $20 and $40 each. Costs for naloxone fluctuated during the time of the study. Investigators learned NPs were working in clinics and with some harm reduction services, but participants did not mention being administered naloxone by NPs.

Data collection in the suburbs of New Haven began in October 2017. Study participants in suburban New Haven had access to naloxone from far fewer sources than in suburban Boston. A harm reduction service operated in New Haven but did not serve the participants in suburban areas at that time. The majority of active users in the New Haven suburban field site received naloxone kits from methadone treatment facilities. Both IM and naloxone nasal spray kits were available. A few were able to access naloxone from their primary care physicians. One NP confirmed that the clinic where she worked administered naloxone, but she had never administered it and did not receive training nor distribute it to laypersons.

Naloxone Sample: Demographics

Table 2 shows the demographics for the naloxone sample (N=106), which included 51 females, representing 48% of the sample. The mean age was 41.35. Whites were the majority of the sample (62%); 24% were African American/Black; 13% reported more than one race; and one reported to be American Indian. Hispanic/Latinx make up 21% of the sample. In the naloxone sample, 23% did not finish high school; 44% have a high school diploma or GED; 25% have some college; and 8.5% achieved a college degree. Nearly 74% of the sample injected drugs.

Demographic differences across the three field sites included a higher percentage of African American/Black participants in the Atlanta suburban field site, and a higher percentage of Hispanic/Latinx participants in the Boston suburban field site than the other two sites. The mean age was highest in the Atlanta sample and lowest in the Boston sample. The Boston participants generally had a higher level of education and a greater number who injected drugs than the other two field sites. The sample is similar to the demographics of the suburban areas, although as a qualitative study, the sample is not meant to be representative.

Descriptive Findings: Overdose, Administration, and Access

Table 3 shows the results of the descriptive analysis performed for the 106 people in the naloxone sample. As shown in Table 3, 60% had experienced an opioid overdose in their lifetime, and 50% said they had been administered naloxone. Almost half (46%) had administered naloxone to others. The data show the majority (77%) of participants had access to naloxone. Although there was little difference between study field sites in the

percentage of those who overdosed, Massachusetts surpassed the other study sites in access to naloxone, as well as having naloxone administered or administering naloxone to others.

Table 3 shows where participants reported naloxone was administered, by whom, and where naloxone was accessed. In the Boston suburbs, naloxone was most often administered by a drug-using friend (peer) in a home or public environment, such as the street or under a bridge. In both Atlanta and New Haven suburban sites, naloxone was administered most often by an EMS provider or other medical professional in an ambulance or hospital. NPs were not mentioned. Most participants in suburban Atlanta and Boston field sites accessed naloxone at harm reduction services, while the New Haven suburban participants most often obtained naloxone from a treatment facility. The Boston suburban participants had more variety in where to access naloxone than participants in other field sites.

Qualitative data describing the lived experiences of participants add insight to situations of differing naloxone access, administration practices, and naloxone delivery systems, thus providing a better understanding of how to address the current crisis. Quotes used to represent themes are verbatim, except for words such as "like," and "you know," which were deleted when said repeatedly. Pauses heard in the original interview are indicated by two hyphens, whereas an ellipsis, shown as …, indicates words were omitted that do not change the meaning of the sentence. Words inserted in brackets replace pronouns, articles, or terms that were meaningless without the additional context.

Qualitative Findings: Insider Knowledge

Access and Lack of Access.—At the beginning of data collection, few participants had access to naloxone in suburban Atlanta sites. The consequence of not having access meant family and friends did what they could to address what appeared to be an overdose situation. A 60-year-old African American woman described how her husband reacted to her overdose events: "He put me in the shower … and he was like come on, get up, wake up, wake up, and he kept smacking me and everything."

A few participants revealed that they called 911 when they witnessed a peer who had overdosed, but some were unaware of the 2014 Georgia 911 Medical Amnesty Law, that protected them from arrest for a drug offense if they were calling for an overdose event. A 27-year-old white male described what happened when he witnessed an overdose:

> He immediately fell to the ground, hit his head, wasn't breathing. And I jumped in, started giving CPR to make sure blood and oxygen was still getting to his organs, and she was freaking out. I had to yell at her, call 911 or he is going to fucking die! She called 911, and then ran out of the house.

This young man stayed with his friend while the EMS gave him Narcan and took him to the hospital. He had never heard of the Amnesty Law.

Those who obtained naloxone from the harm reduction services in Atlanta had used it on their peers and said they had saved lives. But most participants in the Atlanta field confirmed a lack of knowledge on where to obtain naloxone. A 26-year-old white man who had

recently left the hospital after an overdose event, that almost left him dead, said that he was not provided naloxone when he was discharged and did not know where to obtain it.

One 23-year-old white woman, who understood the necessity for opioid users to have naloxone said:

> We need to be responsible about it, but we never actually got it. But we definitely talked about it -- honestly, I didn't know where to get it. I think you can get it at CVS [a pharmacy]. I'm not sure. I don't know.

Some expressed complete lack of awareness of overdose reversal drugs. When asked whether she had heard about naloxone, one 47-year-old white female in the Atlanta sample responded, "Can't say I have."

Administration.—Those who had access to naloxone often used its brand name as a verb. "Narcan'd" was used in more than one field site, indicating the term has become part of the drug use vernacular. For example, a 40-year-old white female in the Atlanta suburbs, where only IM kits were available, said, "he kind of Narcan'd himself," describing a friend giving himself a shot when he thought he was going to overdose. Similarly in the Boston suburbs, where only nasal naloxone was available, a 32-year-old white female used the nasal spray on herself to prevent an overdose that she felt was imminent. A 50-year-old Latino male in a Boston suburb described being administered naloxone nasal spray by a peer, saying, "She Narcan'd me."

Narratives on when participants used naloxone on others indicated that some were unsure when to use it. A 40-year-old white female used nasal spray on her boyfriend when he started acting strange after taking what she thought was fentanyl:

> He was literally like slurring words. He was trying to talk, but he wasn't forming full words. And he was rocking back and forth. He would lay over on the bed with his arms out, and then he'd maybe fall asleep. And then he'd, like, stand up and throw his arms up, and then he'd start beating on his chest…acting really strange.

A 43-year-old black male said he used injectable naloxone when his girlfriend turned blue:

> And I'm slapping her and moving her arm up and down and it's just dropping. I'm like, something's not good. So I said, hey, this can't hurt to try this. So I pulled her pants down a little bit and I injected her twice. I did it once, and it didn't seem to do nothing. I was like, ah, shit. And then I got nervous, and then I did the other one.

When asked if using the injectable naloxone was difficult, he replied, "It's not like rocket science; it's a basic thing. Like you've been to the doctor's, you see how they do it."

A 38-year-old white male in the Boston sample said a police officer administered naloxone to him when he was feeling faint after taking his legal methadone dose but had not taken his medications prescribed for anxiety attacks.

> I just came from a methadone clinic. And I said to my friend, I didn't have my Klonopin for a day. I need to sit down. And one of the cops came over to me and told my friend, "Stay back. I'm helping him." He pulled out the Narcan. So my

friend says, "He doesn't need Narcan." And the cop says, "Stay back," and he hits me the Narcan…He did it three times to me. It was the worse experience in my life. I was going through so much withdrawal…My mind was all fucked up.

More than a few participants expressed concern that they were administered naloxone when they had not experienced an overdose. One woman thought someone administered naloxone on her as an experiment when she did not need it.

Delivery Systems.—The qualitative data show that in the Boston suburbs, where naloxone was readily available, users did not hesitate to use the nasal spray on complete strangers. A 56-year-old white woman in the Boston sample recalled: "Like a month ago, a 20-year-old kid overdosed. He was practically dead, that's when I had to use the Narcan." She explained that after the ambulance arrived, "He made it. But they had to Narcan him four times." While having naloxone on her during this event was instrumental in saving the young man's life, her description was similar to others who said the EMS staff often used multiple doses of naloxone after victims had already been dosed by a layperson. A few thought this was because the nasal spray was not effective.

When asked about their preference for delivery systems, many preferred the nasal spray, but a few believed in the increased efficacy of the IM delivery system. They mentioned seeing EMS providers injecting naloxone and thought this was a better route of administration. A 34-year-old white man insisted injectable naloxone was better than nasal spray: "The (injectables) have more success I've heard. Obviously the intramuscular [is better] than the mist. The mist, from what I've seen, a lot of times people need to get hit two or three times." A 55-year-old white male questioned the efficacy of the needle-free nasal naloxone: "Well, it depends on which one you can use at the time and the person. Sometimes the person's not breathing, …You need the injection, because how can the person, you know, inhale the nasal."

Although naloxone is absorbed from the nasal cavity into the bloodstream, this man's perception was echoed by others, indicating a lack of awareness of the mechanism of naloxone. But even those who understood the mechanism of nasal spray were worried about blockage to absorption. A 34-year-old Latino man from the Boston sample revealed his knowledge of how naloxone is diffused:

I've seen people sprayed with it, and it doesn't create a quick-enough reaction, really. If your nose is blocked all, especially if you just sniffed a powder, it's going to be obstructed to some degree. It doesn't really work. I've seen it, people get sprayed in the nose. It's kind of…finicky.

A 52-year-old white woman explained her preference for injectable naloxone: "You don't even have to move the clothing, just stab 'em with it. I prefer it. It's quicker."

Discussion

Findings from this analysis show substantial differences in access to naloxone between the three field sites. The comparably high rate of opioid users who administered naloxone to others in the Boston suburbs (73%) suggests that those at risk for overdose in this study site

had a better chance of being administered naloxone after an overdose compared to participants in other study sites. Notably, participants in the Massachusetts sample had the greatest variety in naloxone access points, while in Georgia, naloxone was accessed at one harm reduction service in the city. In the New Haven field site, most participants who were not connected to a methadone or treatment clinic were unaware of where to access naloxone. These findings indicate that it would be beneficial to increase distribution points, particularly to reach opioid-using networks.

The qualitative data revealed not only barriers to accessing naloxone but also, in some cases, people were unaware that naloxone was an opioid antagonist that could save lives. Others were confused about the efficacy of the different delivery systems. Perspectives on delivery systems revealed a not uncommon belief that intramuscular injection is better than nasal spray, a view that was supported by some participants in all three states. The recent increase in fatal overdose events due to potent synthetic opioids such as fentanyl generated public discussion on naloxone dosage and delivery systems. Research on delivery systems is mixed, and some studies appear to support the views of the participants that IM delivery is more effective (Frank & Pollack, 2017; Rzasa, & Galinkin, 2018; Zuckerman, Weisberg, & Boyer, 2014).

Participant reports of being administered naloxone when not needed raise concerns for the quality of training for laypersons and first responders. In Massachusetts where Narcan kits were widely available, some participants were showing signs of nonchalant use of naloxone, and others indicated a frantic search for illicit opioids after being revived with naloxone to avoid or ease withdrawal symptoms, a potentially harmful consequence of naloxone. These findings suggest a need for better training in identification of opioid overdose from intoxication and what actions to take before administration of naloxone.

NPs have been essential in addressing the opioid crisis. In 2016, Congress passed the Comprehensive Addiction and Recovery Act expanding DEA waivers to NPs so they could prescribe buprenorphine to help reduce overdose. The findings in this study suggest that NPs can take a more active role in the training and administration of naloxone for more effective overdose prevention and care (Andrilla, Patterson, Moore, Coulthard, & Larson, 2018).

Recommendations

While there has been a rapid increase of naloxone access by laypersons over the past few years, this study provides insights for NPs and other healthcare providers beyond access alone. In light of recent developments in naloxone distribution, administration, and delivery systems, NPs can be instrumental in implementing the following recommendations.

1. Promote a greater variety of access points, including places where healthcare providers serve a population of people who are using or misusing opioids, as well as community-based services that can reach this hidden population.

2. Facilitate more evidence based education for healthcare providers on naloxone administration and delivery systems. For healthcare providers, up-to-date knowledge of local opioid use patterns needs to be included in training on administration of naloxone.

3. Increase training for peers in opioid-using networks. This training can be provided in clinics or other healthcare settings, by street-based services, and through technology such as healthcare websites. NPs with their respected status in healthcare settings can be strong advocates for more collaboration between traditional healthcare clinics and harm reduction services, which have shown to be successful in providing naloxone to laypersons.

Limitations

There are a few limitations to this study. The findings on naloxone patterns are from suburban convenience samples and should not be regarded as representative of all suburban areas, or of urban and rural areas. Naloxone distribution is only one risk-reduction strategy, and other opioid risk mitigation strategies could be beneficial to enhance naloxone distribution, but these were not a focus of this paper.

Conclusions

The results of this community-based ethnographic study support previous calls for greater access to naloxone, overdose prevention education, treatment, and harm-reduction intervention. Finding suggest the need for targeted distribution of naloxone through street-based services, and training on different naloxone delivery systems for healthcare providers and laypersons to address the increase in fentanyl-related opioid overdose deaths. This article provides current perspectives and first-person accounts from people who experienced naloxone administration, which can increase knowledge of more effective use of naloxone in different settings. An emerging concern is the evidence of misuse or inappropriate use of naloxone, however rare. NPs are in a position to make an important impact on how patients, first responders and laypersons are trained to use naloxone safely.

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TABLE 1:

CHARACTERISTICS OF THREE STUDY SITES

	ATLANTA GA	BOSTON MA	NEW HAVEN CT
Suburban Population[*]	5,451,907	4,180.807	732,543
Overdose mortality rates (per 100,000)[+]	13.3	33.0	27.4
Naloxone Policy by State			
Public Healthcare Insurance	No	Yes	No
Expanded Medicaid (ACA)	No	Yes	Yes
Legally sanctioned Syringe Exchange[±]	No	Yes	Yes
Legally sanctioned naloxone distribution to laypersons	Yes	Yes	Yes
Legally sanctioned naloxone distribution by laypersons	Yes	No	Yes
Legally sanctioned naloxone administration by laypersons	Yes	Yes	Yes
Naloxone distribution in suburbs	No	Yes	No

[*] US Census Bureau estimates 2018 for Metropolitan Statistical Area Population minus city population

[+] Reported state rates at time of data collection in the state

[±] Law permitting syringe exchange in Georgia was passed the year after data collection was completed

TABLE 2.

NALOXONE SAMPLE DEMOGRAPHICS: DIFFERENCES ACROSS THREE FIELD SITES

SUBURBS OF [*]	ATLANTA N=13	BOSTON N=55	NEW HAVEN N=38	TOTAL N=106
SEX (BIOLOGICAL)				
Female	6 (46.2)	25 (45.5)	20 (52.6)	51 (48.1)
Male	7 (53.8)	30 (54.5)	18 (47.4)	55 (51.9)
AGE RANGE (MEAN)	26–67 (46.23)	25–60 (39.51)	23–63 (42.34)	23–67 (41.35)
RACE				
African American/Black	6 (46.2)	5 (09.1)	14 (36.8)	25 (23.9)
American Indian		1 (01.8)		1 (01.0)
White	4 (23.1)	40 (72.7)	22 (57.9)	66 (62.3)
More than one race	3 (23.2)	9 (16.4)	2 (05.3)	14 (13.2)
ETHNICITY				
Hispanic/Latinx	2 (15.4)	16 (29.1)	4 (10.5)	22 (20.8)
EDUCATION				
Less than high school	3 (23.1)	16 (29.1)	5 (13.2)	24 (22.6)
High school/GED	4 (30.8)	24 (43.6)	19 (50.0)	47 (44.3)
Some college	5 (38.5)	7 (12.7)	14 (36.8)	26 (24.5)
Associate degree (2 yr.)	1 (07.7)	6 (10.9)	0	7 (06.6)
Bachelor degree (4 yr.)	0	2 (03.6)	0	2 (01.9)
Injected Drugs (yes)	9 (69.2)	45 (81.8)	24 (63.2)	78 (73.6)

[*] Number and percentage of participants responding in each field site

TABLE 3.

OVERDOSE AND NALOXONE PATTERNS ACROSS THREE FIELD SITES

SUBURBAN FIELD	ATLANTA N=13	BOSTON N=55	NEW HAVEN N=38	TOTAL N=106
Overdosed [*]	8 (61.5)	36 (65.5)	20 (60.4)	64 (60.4)
Naloxone was administered [*]	6 (46.2)	33 (60.0)	14 (36.4)	53 (50.0)
Naloxone administered by [+]				
EMS Provider	4	15	12	31
Drug-using friend	1	16	1	18
Family member	1	6	1	8
Doctor/Nurse	1	2	1	4
Law Enforcement	0	2	0	2
Self	0	1	0	1
Settings where administered [+]				
Hospital/ER/Ambulance	4	11	9	24
House/Home	2	14	2	13
Street/Park/Under Bridge	0	10	1	11
Methadone Clinic/Treatment	0	0	2	2
Fast Food Bathroom	0	1	0	1
Administered naloxone to others [*]	5 (38.5)	40 (72.7)	4 (10.5)	49 (46.2)
Access to naloxone [*]	10 (76.9)	49 (89.1)	23 (60.5)	82 (77.4)
Where naloxone was accessed [+]				
Harm Reduction	8	35	0	43
Methadone Clinic/Treatment	0	3	12	15
Pharmacy	0	12	2	14
Friend	2	9	3	14
Doctor	0	8	5	13
Family	0	4	0	4
Social Service Provider	0	1	0	1
Hospital	0	0	1	1

[*] Number and percentage of participants responding yes

[+] More than one category may be reported