If We Build It, Will They Come? Perspectives on Pharmacy-Based Naloxone Among Family and Friends of People who use Opioids: A Mixed Methods Study

Susannah Slocum

West Virginia University

Jenny E. Ozga

West Virginia University

Alexander Y. Walley

Boston Medical Center

Robin A. Pollini (✉ Robin.Pollini@hsc.wvu.edu)

West Virginia University

Rebecca Joyce

West Virginia University

Research Article

Keywords: naloxone, pharmacies, standing order, opioid overdose

Posted Date: December 23rd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-1167901/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at BMC Public Health on April 13th, 2022. See the published version at <https://doi.org/10.1186/s12889-022-13078-z>.

Abstract

Background: Expanding access to the opioid antagonist naloxone to reduce overdose mortality is a public health priority in the United States. Naloxone standing orders (NSOs) have been established in many states to increase naloxone dispensing at pharmacies, but increased pharmacy access does not ensure optimal uptake among those likely to witness an overdose. In a prior statewide purchase trial, we documented high levels of naloxone access at Massachusetts pharmacies under a statewide NSO. In this study, we characterize barriers to pharmacy-based naloxone uptake among potential opioid overdose “bystanders” (friends or family of people who use opioids) that may be amenable to intervention.

Methods: Eligible bystanders were Massachusetts residents ≥ 18 years of age, did not use illicit opioids in the past 30 days, and knew someone who currently uses illicit opioids. We used a sequential mixed methods approach, in which a series of semi-structured qualitative interviews (N=22) were conducted to inform the development of a subsequent quantitative survey (N=260).

Results: Most survey participants (77%) reported ever obtaining naloxone but few (21%) attempted to purchase it at a pharmacy. Qualitative participants revealed that barriers to utilizing the NSO included low perceived risk of overdose, which was rooted in misconceptions regarding the risks of prescription opioid misuse, denial about their loved one’s drug use, and drug use stereotypes; inaccurate beliefs about the impact of naloxone on riskier opioid use; and concerns regarding anticipated stigma and confidentiality. Many participants had engaged in mutual support groups, which served as a source of free naloxone for half (50%) of those who had ever obtained naloxone.

Conclusions: Despite high levels of pharmacy naloxone access in Massachusetts, few bystanders in our study had attempted to obtain naloxone under the NSO. Low perceived risk of overdose, misinformation, stigma and confidentiality were important barriers to pharmacy naloxone uptake, all of which are amenable to intervention. Support groups provided a setting for addressing stigma and misinformation and provided a discreet and comfortable setting for naloxone access. Where these groups do not exist and for bystanders who do not participate in such groups, pharmacies are well-positioned to fill gaps in naloxone availability.

Background

Deaths from drug overdose have reached historic levels in the United States, with provisional data estimating more than 93,000 overdose deaths in 2020, a 29% increase over the prior year [1]. In 2019, the most recent drug-specific data available, 71% of overdose deaths involved at least one opioid; these included synthetic opioids other than methadone (primarily fentanyl; 73%), heroin (28%), and/or prescription opioids (28%) [2]. Interventions that reduce opioid overdose risk, and accompanying interventions to improve emergency response when these overdoses occur, are critical components of ongoing efforts to reduce overdose mortality.

Expanding access to the opioid antagonist naloxone is a safe and cost-effective method to reduce opioid overdose deaths [3], and there is evidence that expanding naloxone distribution significantly reduces community-level overdose mortality rates [4, 5]. In April 2018, the US Surgeon General recommended that anyone who is prescribed high-dose opioids; misuses prescription opioids; uses illicit opioids; is a family member or friend of someone with an opioid use disorder (OUD); or is a community member likely to come into contact with someone at risk of opioid overdose should obtain naloxone [6]. While naloxone distribution should be prioritized for people who use illicit opioids, as they are most likely to witness and respond to overdoses [7], those who do not use opioids but may witness an overdose constitute an important target population for naloxone distribution as well. Furthermore, educating the non-using network of people who use drugs about overdose response may help reduce stigma and improve societal overdose response.

Historically, naloxone's status as a prescription medication in the US has served as a barrier to its widespread distribution [8]. To overcome this barrier, all 50 states and the District of Columbia now allow naloxone dispensing at pharmacies via a naloxone standing order (NSO) or similar mechanism [9]. These mechanisms allow pharmacists to dispense naloxone without a patient-presented prescription. Although there is evidence that NSOs significantly increase naloxone access [10–12], pharmacy participation in these programs appears to vary widely, with availability ranging from 21-93% at pharmacies across states and localities including Alabama, Georgia, Massachusetts, North Carolina, Tennessee, Texas, and Philadelphia [13–21]. Notably, Massachusetts has demonstrated high rates of pharmacy-based naloxone access; a statewide phone survey showed that 90% of pharmacies had naloxone in stock [17], and a statewide purchase trial conducted by our study team successfully completed naloxone purchases at 81% of retail pharmacies [13].

Massachusetts provides an optimal setting for exploring whether persons at high likelihood of witnessing an overdose will utilize pharmacies as a source of naloxone where a NSO has been effectively implemented. Massachusetts has been a leader in both community-led and state-sponsored efforts to expand naloxone access, beginning in 2007 with a statewide overdose education and naloxone distribution (OEND) program that ramped up naloxone distribution through syringe services programs (SSPs), support groups, and other community programs. A subsequent study demonstrated that the OEND program was associated with reductions in overdose mortality [5]. Nonetheless, retail pharmacies are well-positioned to fill continuing gaps in naloxone coverage, particularly among persons who do not use illicit drugs and therefore may not avail themselves of SSP-based naloxone distribution and those who are not able or willing to utilize other naloxone distribution points.

In addition, although existing US research has explored perspectives on naloxone from pharmacists and pharmacy staff [18, 22–30], other healthcare providers [31–35], law enforcement [36–42], and the general public [43–45], there remains a gap in knowledge regarding the perspectives of family members and friends of people who use illicit opioids, despite the high likelihood that they will be called upon to respond to an overdose [46]. In this study, we examine the willingness of these potential overdose

“bystanders” to obtain naloxone under the Massachusetts NSO program and characterize specific knowledge, attitudes, and beliefs that may serve as a barrier to pharmacy-based naloxone uptake.

Methods

This study is derived from the second phase of a multi-phase, sequential mixed-methods study designed to examine implementation and utilization of the Massachusetts NSO from the perspective of people who use illicit opioids (PWUIO), bystanders, and pharmacists. In Phase I, we conducted a statewide naloxone purchase trial that found naloxone to be highly available at retail pharmacies [13], and used a pharmacist survey and multiple focus groups to assess barriers and facilitators to NSO implementation [25]. In Phase II, we used semi-structured qualitative interviews and a subsequent survey to examine barriers and facilitators to utilizing the NSO from the perspective of people who do not use illicit opioids but have a relationship with someone who does (potential overdose “bystanders”). Results from the Phase II qualitative and quantitative study phases were triangulated and mixed-methods results are reported here.

Setting

In 2014, the Massachusetts Department of Public Health expanded its efforts beyond the aforementioned OEND program by empowering pharmacies to voluntarily obtain a standing order to dispense “naloxone rescue kits” consisting of two naloxone doses and a standardized naloxone pamphlet. This was followed by a requirement that all pharmacies obtain a standing order by December 1, 2017 [47], and then a statewide standing order that covered all pharmacies went into effect on October 4, 2018 [48]. The state’s standing order allows naloxone to be dispensed to “any person at risk of experiencing an opioid-related overdose, as well as...family members, friends or other persons in a position to assist individuals at risk of experiencing an opioid-related overdose.” The 2018 NSO also requires all pharmacies to maintain “a continuous, sufficient supply of naloxone rescue kits, or other approved opioid antagonist medication, to meet the needs of the community” [48].

Bystander Qualitative Interviews

Recruitment. We partnered with a Massachusetts-based non-profit support network for parents and family members of persons with a substance use disorder (SUD) to recruit eligible participants. Recruitment efforts focused on the North and South Shore areas of Massachusetts in accordance with the parent study’s overall geographic recruitment strategy, which focused on two regions with similarly high overdose fatality rates. Study staff attended support group meetings to explain the study and invite participation, and potential participants were screened in person or by follow-up phone call. Eligibility criteria were ≥ 18 years of age, not using illicit opioids (e.g., heroin, street fentanyl, pharmaceutical opioids not prescribed for their use) in the past 30 days, having a close relationship with someone who currently uses illicit opioids, and willingness to provide informed consent.

Data collection. Between April and July 2018, we conducted 22 semi-structured interviews (7 South Shore region, 15 North Shore region). Interviews were conducted in locations that were mutually agreed upon by participants and research staff and included coffee shops, private homes, and a private office within an SSP. Qualitative interviews included a brief quantitative section in which participants self-reported demographics and their experience with naloxone acquisition, overdose training, and overdose response. The in-depth interview consisted of an open-ended conversation, allowing for emergence of new information. We used a topic guide to ensure coverage of broad predetermined areas of inquiry including overdose risk perceptions and experiences, naloxone knowledge and attitudes including accessing naloxone in pharmacies and other settings, and experiences with health services, including how perceived and experienced stigma may influence willingness to access naloxone in different settings (e.g., “In general, how do you think people view naloxone/Narcan?”). Interviews were digitally recorded and typically lasted 60-90 minutes. Participants were reimbursed \$40 for their time. All procedures were approved by West Virginia University’s Institutional Review Board.

Data analysis. Interview recordings were transcribed verbatim and verified and sanitized by research staff. Participant names were replaced with pseudonyms to protect privacy. Themes were identified through a close reading of transcripts. A preliminary coding scheme was generated based on the primary domains of the interview guide (deductive) and emergent themes (inductive). A codebook was developed from the coding scheme and further emergent themes. Codes were arranged in a hierarchical structure by parent codes (e.g., naloxone) and subcodes (e.g., pharmacies, other sources). The codebook was piloted by two independent coders across six bystander interview transcripts, comparing coding for consistency and refining the codebook as required. After the codebook was finalized, the remaining transcripts were coded by the first author in consultation with the principal investigator.

For the current analysis, we examined attitudes towards naloxone as well as actual and anticipated experiences with obtaining naloxone under NSO. The authors read through the segments assigned to naloxone and segments otherwise coded that overlapped with naloxone codes; these included the deductive codes “pharmacy,” “other sources,” and “overdose” and the inductive codes “stigma,” “family dynamics,” “addiction,” and “denial.” Additional memos were written for these segments to identify cross-cutting themes and generate a deeper understanding of the data.

Bystander Quantitative Surveys

Recruitment and data collection. Between February and July 2020, 260 bystander surveys were completed. Eligibility criteria were the same as those for qualitative interviews. Survey participants were recruited from a range of community support groups that serve opioid bystanders and via social media platforms (Facebook, Instagram). Survey questions were informed by the bystander qualitative interviews previously described and included questions on naloxone sources, access and utilization; attitudes and beliefs toward substance use; social supports; and overdose and drug treatment navigation experiences. All questions were presented in a multiple-choice format with categorical response options. Surveys were interviewer-administered to participants over the phone and entered into REDCap software

(projectredcap.org). Surveys took approximately 30 minutes to complete. All participants were sent \$40 electronically for survey completion, either via Amazon gift card or PayPal payment.

Data analysis. Descriptive statistics were used to summarize findings across the aforementioned question categories. Analyses were performed using R statistical software version 3.5.1 (r-project.org).

Data triangulation. We used themes identified from interview transcripts to understand and expand upon findings from the quantitative survey regarding bystander knowledge, attitudes, and beliefs toward naloxone, as well as facilitators and barriers to naloxone access generally, and more specifically to pharmacy-based naloxone. Specific text excerpts were selected from interview transcripts to provide context for, and build upon, quantitative findings.

Results

Participant Characteristics

Overall, demographic characteristics were comparable across bystanders who completed the qualitative interviews and quantitative survey. Qualitative participants (N=22) were majority female (63%), White/Caucasian (95%), and the median age was 54 years (interquartile range (IQR) = 46 to 61 years). Survey participants (N=260) were also majority female (66%), White/Caucasian (92%), and the median age was 53 years (IQR = 37 to 61 years). Most qualitative participants had one or more adult child (63%), close friend(s) (14%), sibling(s) (14%), or a spouse/partner (9%) that used illicit opioids. The median number of people qualitative participants knew who were at risk of an opioid overdose was 13 (IQR = 6 to 30). For quantitative surveys (N=260), most participants had one or more adult child (34%), close friend(s) (45%), other family member(s) (17%), sibling(s) (13%), a spouse/partner (6%), and/or a parent(s) (3%) that used illicit opioids. The median number of people that survey participants knew who used opioids was 10 (IQR = 4 to 30), of which a median of 2 (IQR = 1 to 6) were self-reported as “close” relationships.

Naloxone uptake and utilization of NSO

Bystander survey outcomes are shown in Table 1. A majority of those surveyed (77%) reported that they had ever purchased or otherwise obtained naloxone, half of whom had received it from a support group. A minority of survey participants obtained it from SSPs (20%) and other health services settings (20%). Only 21% reported ever attempting to purchase naloxone at a pharmacy, though most (68%) were aware of the NSO. Almost all qualitative participants (95%) also reported acquiring naloxone on at least one occasion, which occurred mostly through support groups (66%) and less frequently through SSPs (14%) and pharmacies (4%).

Barriers to naloxone uptake by bystanders

Qualitative interviews revealed barriers to accessing naloxone fell into two categories: those regarding naloxone generally and those specific to pharmacy naloxone. For general naloxone access, barriers

included participants' perceived need for and attitudes and beliefs toward naloxone. Notably, qualitative participants reported that support groups were not only an important access point for naloxone but played a critical role in dismantling psychological barriers preventing them from acquiring the medication.

Perceived need for naloxone

Among surveyed bystanders who had never obtained naloxone (23%), a majority reported that they didn't think they needed it because they rarely or never saw their loved one at risk of overdose. In the qualitative interviews, three related themes emerged regarding bystanders' assessment of their loved ones' risk of overdose and the need for naloxone: opioid formulation (specifically prescription pills versus heroin), denial around the severity of their loved one's drug use, and pre-existing stereotypes about the behavior and appearance of people at risk of overdose.

In terms of the first theme focused on opioid formulations, several participants perceived little to no overdose risk when they knew their loved one was misusing prescription pills but was not known to be using heroin. They expressed that their risk underestimation was tied to their own fear of losing their loved one, for which denial became a coping mechanism. For instance, Clare (age 51), whose adult son was in recent recovery from heroin, told us that early in his drug use she did not take home a free naloxone kit offered by her support group. When asked why she had thought her son was not at risk of overdose, she said, *"I guess I didn't think he was using. I thought he was just using Percs [Percocets]"*, indicating that her risk perception was stratified by opioid formulation.

Rita (age 50), whose husband used prescription pills but was not known to use heroin, did not perceive that she would need naloxone for him:

I've never thought it in my head that I needed it for my husband. It was always for somebody else...I don't know why I don't think he would [overdose]. I don't know if it's because it's not heroin and it's not- you know he's not shooting up. He's not. You know maybe because in my head that's so much worse, and that's um, I don't know (laughs). I honestly don't. And then there's part of me that thinks maybe I just don't wanna- I don't wanna think about it, you know ... I just kind of put it in the corner.

Others echoed similar accounts of denial, speaking on the ongoing process of coming to terms with the reality of drug use in their family. Maggie (age 48), whose son was in and out of recovery, was asked why she thought some people who should have naloxone didn't have it. She recalled her own denial in an earlier stage of her son's drug use:

So I guess, you have blinders on - just um, being in denial of somebody's using, which most families are I would say at the beginning of everybody's use. You know? Um, yeah. I would say if you see your kid smoking a joint, get some Narcan. You know?

Many qualitative participants reported that the continuation of their denial was enabled by their loved one's efforts to conceal their drug use. For instance, Bruce (age 73) whose son was in and out of recovery for heroin/fentanyl, spoke about his struggle with denial, *"I think they all are, uh, they're very sharp at shading the truth and not telling the truth and helping you remain in denial."*

Pre-existing stereotypes surrounding the appearance and behavior of PWUO additionally interfered with bystanders' ability to pick up on signs of drug use, which inhibited their perceived need for naloxone. Katerina (age 23), whose older brother was actively using heroin, reported that early in his drug use her brother's appearance didn't align with her idea of people at risk of overdose: *"I didn't think of my brother as at risk [of overdose] or anything. I thought that injection drug users were, you know, homeless people living on the street. I didn't think that they were people living functional lives, with families who might have grown up in a nice place."*

Most qualitative participants had used support groups and noted that they played an important role in accepting the severity of their loved one's drug use and the need for naloxone. Indeed, support groups were a critical naloxone access point for many; half (50%) of the survey participants who reported ever obtaining naloxone got it from a support group. Such social support normalized bystanders' experiences and decreased isolation and secrecy. Support groups also provided education about the neurobiology of addiction. As stigma diminished through group participation, bystanders reported that their attitudes towards naloxone were more accepting and their perceived need for the medication increased.

Bystander attitudes and beliefs about naloxone

Most qualitative participants held positive attitudes and beliefs about naloxone as reflected in the words of Saul (age 61): *"I know many, many, many, many parents who carry it. I think it is absolute lifesaver, it's one of the best investments we can possibly make at the federal, state, and local levels."* Similarly, most surveyed participants disagreed or strongly disagreed with the following statements derived from the prior qualitative interviews: "Naloxone is just a band-aid on the drug problem" (76%); "Knowing naloxone is available makes people who use drugs act more irresponsibly" (72%); and "Knowing naloxone is available encourages drug use" (83%). Qualitative interviews revealed that those who were unsupportive of naloxone believed it encouraged reckless drug use and discouraged recovery: *"It's a tricky thing because you know, people they want to chase that best high they can get, and if they're using too much and know that they have Narcan to put them back, then we couldn't ever stop them from using"* (Phoebe, age 56) and *"I don't mean to sound crude but I'm just saying, if you see more of your loved ones, you know, passing away or dying because of that, wouldn't you be more susceptible of not doing it [using opioids]?"* (Rita, age 50).

Along these same lines, several qualitative participants reported that they had naloxone at home but concealed it from their loved ones, as they felt it would be construed as a "crutch" or a "backup plan." Perhaps supporting this idea, only half (57%) of surveyed bystanders who had ever obtained naloxone reported that everyone in the home knows where their naloxone is and how to use it. One interview participant, Audrey (age 54), recounted a situation in which her son returned to her house after overdosing

the previous day and indicated to her that he wanted to use again. She worried that she was enabling him to keep using drugs:

.. .but I don't like ... the mental thought that it's a backup plan kind of thing almost. Like, 'Oh, just keep doing heroin. I've got my Nar- I've got Narcan.' You know what I mean? I don't think that's a good idea. And that's what I did.

Barriers to utilizing pharmacies as naloxone source

A minority (21%) of surveyed bystanders had ever tried to purchase naloxone at a pharmacy without a prescription, with the majority (87%) of those attempts resulting in a purchase. Of those who had made purchases, most (74%) reported feeling comfortable going to the counter to ask for it and 80% had expected to be treated with respect by pharmacy staff. However 40% reported that were worried about what pharmacy staff would think of them and 44% expressed concerns about confidentiality.

For surveyed bystanders who had never tried purchasing naloxone from a pharmacy without a prescription (79%), the most common reason was that they already have a reliable, free naloxone source (42%) and thus felt no need to acquire it through pharmacies. This finding was echoed in the qualitative interviews, in which most participants reported getting free naloxone from support groups. Interview participants also spoke of a lack of knowledge surrounding the NSO, which served as a barrier to utilizing pharmacies for naloxone purchase. For instance, Delilah (age 62), whose nephew was in recovery, questioned whether every pharmacy had a standing order:

I don't even understand how you get it from the pharmacy... Like can I just go into a pharmacy and say, 'I wanna purchase a Narcan?' Or do I need to go to my physician and get a prescription? ... Like what is a standing order? ... a lot of people don't even know what that is, you know? That's what I don't really understand. And is it like every pharmacy that has a standing order? So like, does every pharmacy in the city of Gloucester have a standing order? Every pharmacy in the city of Peabody, or is it just this Walgreens and this CVS that you can go to? Like— nobody knows.

Given that a large proportion of participants had never attempted to obtain naloxone from a pharmacy, we asked interview and survey participants to imagine a hypothetical pharmacy purchase to learn about what they anticipated. Although most surveyed participants (90%) reported that they would feel comfortable going to the pharmacy counter to ask for naloxone, bystanders across data collections anticipated confidentiality concerns and stigma.

As an example, Katerina (age 23) spoke of not wanting to purchase naloxone in a pharmacy because of concerns about future negative consequences:

I don't know, like, my rights walking into the pharmacy to buy it. I don't know if they're like, 'Who's this for?' And then, you know, an officer shows up at my brother's door. Like, I don't know. Like, I could see how someone would be scared that that's going to happen. Cause like, you're buying it. You're buying it because someone uses illegal drugs. It's just like, a weird thing.

Many others who were interviewed shared Katerina's concerns about loss of confidentiality in the pharmacy, and 64% of those surveyed reported that they believe confidentiality concerns keep people from acquiring naloxone from pharmacies. Confidentiality concerns were often closely tied to perceived secondary stigma around having a family member or partner who used drugs. Some surveyed bystanders (35%) reported that they were worried what pharmacy staff would think of them when they ask for naloxone, and most (87%) indicated that they believe stigma concerns kept people from getting naloxone. Many interview participants also worried about possible confidentiality violations if the pharmacy staff were members of the community. For example, Maggie (age 48) spoke about her discomfort with going to her regular pharmacy for naloxone because she worried the technician would gossip about her to other community members: *"I think she [pharmacy technician] might know some of my friends, you know? So it's like, uh, is she going to go around and say, 'I saw so-and-so's mother here buying Narcan.'"*

Edwin (age 49) who had many close friends at risk of overdose, knew his local pharmacist's discriminatory attitude towards people who use drugs from prior encounters and did not feel that pharmacy would be a reliable resource for someone seeking naloxone:

I just know that there's this one pharmacy here ... And the lady that runs it is a fucking asshole. And I just don't go there unless I absolutely have to. She doesn't believe in addiction, she's told me that. And, it's just I would never go in there and ask her for Narcan, 'cause I imagine she'd make it very difficult.

Some surveyed participants reported not wanting to have a naloxone purchase on their insurance or medical record(s) (25%) and 30% stated that they would be more likely to purchase naloxone at a pharmacy if it were offered over the counter. Several interviewed participants thought that over-the-counter naloxone would offer more discretion to customers who were embarrassed or who anticipated judgement and discrimination. Saul (age 61) explained:

So much of it goes back to stigma, right? People are afraid to go, you know, up and even ask. It would be much better if it was just on the shelf, that's for sure, we could just go and grab it. It's in with all your groceries, or whatever it is that you're buying, and people aren't regu- you know, ringing it up, they're not gonna give it second, a second thought.

While making naloxone available over-the-counter may address concerns about medical records and patient embarrassment, it could increase out of pocket cost and would eliminate pharmacist counseling about overdose response.

Discussion

In this study, we explored naloxone uptake among potential overdose "bystanders" – a group identified by the US Surgeon General as being a priority for naloxone distribution [6] – and the factors that influence their utilization of Massachusetts' widely implemented NSO program. Our findings revealed that a substantial minority of bystanders are not equipped with naloxone because they do not believe their loved ones' overdose risk is severe enough, either because they do not inject, they use pills not heroin, or

because opioid use has not destabilized their life enough. Among those equipped with naloxone, the majority had received it from support groups, not pharmacies, and their reasons included convenience and concerns about stigma and confidentiality. This work contributes to the limited literature on naloxone uptake among persons who do not use illicit opioids but have a high likelihood of witnessing an opioid overdose.

Naloxone has been documented to be readily accessible at pharmacies in Massachusetts to people at risk of overdose and opioid bystanders [13], yet many bystanders are uncomfortable due to fear of being stigmatized and have easy access to it through other more acceptable sources. Previous research indicates that bystanders who access and are trained to use naloxone have positive outcomes in terms of increased knowledge, confidence, and frequency of overdose reversals [49, 50]. A majority of participants in this study reported having naloxone; however, few had obtained it from a pharmacy despite broad awareness of the NSO. Our qualitative findings suggest that the ways in which bystanders perceive others' overdose risk may have a substantial impact on seeking naloxone, and that these perceptions are built upon a complex web of misconceptions, denial, and drug use stereotypes.

We found misconceptions in how bystanders perceive the relative risk of different opioid formulations. Bystanders reported that they initially lacked knowledge around overdose risk when their loved one was misusing prescriptions, and some reported thinking that heroin could only be administered by injection. While illicit fentanyl and heroin are involved in the majority of opioid overdose deaths [51], 30% of deaths during the period of data collection involved a prescription opioid [52]. Bystander perspectives on relative risk of opioid formulations are further complicated by the evolving risk factors of the drug market, specifically the increasing prevalence of counterfeit prescription pills that often contain illicitly manufactured and potent fentanyl [53, 54]. Ultimately, opioid overdose risk assessment should focus on polysubstance use that may involve combinations of prescribed and illicit opioids, as well as benzodiazepines and other substances [55]. Providing bystanders with information that will enable them to more adequately judge their loved ones' risk, specifically as it relates to prescription misuse, polysubstance use and the risks of the black market supply, are essential for maximizing bystanders' naloxone saturation and potential for overdose reversals.

In addition to misconceptions, we found that denial was frequently mentioned as influencing bystanders' assessment of overdose risk. Periods of denial frequently are experienced by people who face life altering circumstances [56–58], and learning that a loved one is living with substance use disorder (SUD) is an example of such a disruptive event [59]. Indeed, many bystanders experience a period of denial after learning of their loved one's substance use [60]. Of concern, however, is when denial leads to unintended negative consequences. In this vein, participants in our study who reported an initial period of denial were largely unwilling to acquire naloxone, as they believed it was unneeded. Thus, bystanders' experiencing denial around their loved one's overdose risk may inadvertently not be prepared to respond to an opioid overdose. Further exploration of whether denial interacts with misconceptions around the risk of different opioid formulations may be helpful for creating effective interventions to increase naloxone uptake among bystanders.

Our data also revealed that stereotypes about PWUIO influenced overdose risk perceptions. For some bystanders in our study, such stereotypes kept them unaware or in denial of opioid misuse when the appearance and behavior of their loved one contradicted these stereotypes, which then negatively affected naloxone acquisition. It is well established that public stigmatization of people who use drugs manifests in pervasive stereotypes and is increasingly recognized as a serious public health concern [61–63]. In this study, bystanders also experienced secondary stigma based on their loved ones' drug use that affected their willingness to access naloxone in a pharmacy, particularly in smaller communities where they were more likely to encounter people they knew. Further research into how family members enact drug-related stigma and how it affects their relationship with loved ones is needed to understand how stigma influences bystander response to overdoses. A better understanding of the role of stigma in this context would also help develop appropriate social messaging and supports around opioid-related risks.

We also found that bystanders held misconceptions about naloxone, echoing previous research [64, 65], and these misconceptions inhibited naloxone uptake. Specifically, some bystanders believed naloxone encourages riskier drug use and/or discourages recovery. Although this is one of the first studies to document bystander attitudes toward naloxone, prior research has documented attitudes and misconceptions about naloxone among pharmacists [18, 22–25, 27, 28, 30, 33, 66–70] and the general public [43, 45, 71]. Additionally, some medical providers are reluctant to prescribe naloxone based on beliefs that treating SUD and overdose prevention are mutually exclusive [31, 34]. While beliefs about naloxone causing higher risk drug use are widespread, they are largely unfounded. In fact, research indicates that acquisition of naloxone by PWUIO does not increase risk behaviors [72] and may actually decrease risky drug use [73]. Misconceptions gravely impact support for naloxone, however greater understanding about OUD is associated with greater support and acceptance of harm reduction programs, including naloxone distribution [64], indicating that interventions that increase compassionate awareness of OUD may positively impact naloxone uptake.

The majority of participants who had acquired naloxone did not do so at a pharmacy, however those who did largely had positive experiences despite worries about what pharmacy staff might think of them and negative encounters with pharmacy staff. Limited pharmacy acquisition was the result of several interconnected barriers, and partly attributable to the ease with which it was accessed through support groups. First, participants' lacked confidence regarding how to access medications through the NSO. Second, participants experienced uncertainty and concern over future negative consequences of purchasing naloxone. Finally, embarrassment and confidentiality concerns were repeatedly cited as barriers to NSO utilization. Contrary to bystanders' perceptions about possible future discrimination, most pharmacists are supportive of naloxone, do not hold discriminatory attitudes towards naloxone patients, and are largely concerned that offering naloxone will offend or embarrass patients [25]. Additionally, pharmacy technicians are highly willing to provide naloxone and overdose education [29]. Universal offers of naloxone may be a useful intervention to close the gap between the perceptions of bystanders and pharmacists. Indeed, naloxone consumer groups express support for universal offers of naloxone by pharmacy staff [22], and pharmacy staff report that the policy would address their own concerns about stigmatizing naloxone consumers [25].

Mutual-help network connections allowed many bystanders in our study to overcome barriers to naloxone acquisition, decreasing self-deception and stigma while educating bystanders about risk assessment and harm reduction. Mutual support groups also served as the foundation for our recruitment efforts and were a primary source of naloxone and overdose training for our study participants. Many of our participants reported having free, reliable naloxone via support groups, which was a prominent factor in their low utilization of pharmacy-based naloxone. However, support groups are not universal nor are they evenly distributed across communities affected by the opioid crisis. Further, even in areas where support groups are available, the COVID-19 pandemic has forced cancellation or transition to online platforms that do not allow for naloxone distribution. Pharmacies therefore remain a key distribution point for naloxone, and addressing the factors that hamper NSO utilization among potential bystanders remains important for reducing opioid overdose mortality.

Limitations

Limitations for our study are largely related to the generalizability of findings. First, our sampling approach was facilitated by collaborating with local support groups, and our sample therefore reflects participation in those groups. Second, our participants largely identified as White/Caucasian, despite the fact that our targeted recruitment areas were significantly more racially and ethnically diverse and Massachusetts as a whole is 80% White/Caucasian [74]. Bystanders from racial and ethnic groups that have been historically excluded from access to high quality healthcare and harm reduction services, including Black, Latinx and American Indian/ Alaskan Native people, likely face additional barriers to accessing naloxone and intersectional stigma due to discrimination and racism that result in further inequities in overdose prevention resources. This is indicated by recent data on increases in opioid overdose mortality among non-Hispanic Black individuals [75]. Third, a majority of our participants were parents to adult children with OUD and may not be generalizable to other types of “bystanders.” Finally, Massachusetts was an early leader in implementing community- and pharmacy-based naloxone distribution programs, including community education efforts, and our findings therefore may not be generalizable to states in earlier stages of naloxone outreach and distribution efforts.

Conclusions

While naloxone is highly accessible under Massachusetts’ NSO program [13], many potential overdose “bystanders” do not utilize pharmacies as an access point for naloxone acquisition. Misconceptions about opioid overdose risk and naloxone, as well as stigmatization of PWUO and secondary stigma experienced by bystanders interfered with naloxone uptake. Mutual support groups were critical in decreasing psychosocial barriers and provided a free source of naloxone and overdose response training. Incorporating the social processes and logistical support provided in mutual support groups into pharmacy and healthcare practices has the potential to address barriers to risk assessment and increase naloxone uptake among potential opioid bystanders.

Abbreviations

NSO

naloxone standing order

OEND

overdose education and naloxone distribution

SSP

syringe services program

PWUIO

people who use illicit opioids

SUD

substance use disorder

OUD

opioid use disorder

Declarations

Ethics approval and consent to participate: The West Virginia University Institutional Review Board (IRB) approved this study. All methods were carried out in accordance with the Declaration of Helsinki and informed consent was obtained from all research participants.

Consent for publication: Not applicable

Availability of data and materials: Due to ethical restrictions, datasets generated and analyzed during the current study are not publicly available as they contain potentially identifying information of a sensitive nature. Reasonable requests for access should be directed to the corresponding author.

Competing interests: Alexander Y. Walley is the medical director of the Massachusetts Department of Public Health's Opioid Overdose and Prevention Program, and he is the signer of the statewide naloxone standing order. The authors declare no relevant conflicts of interest or financial relationships.

Funding: The National Institute on Drug Abuse (5R01DA040807) funded this study

Authors' contributions: RAP and AYW conceptualized and designed the study. RAP, AYW, SS, and RJ contributed to the development of both the qualitative and quantitative data collection instruments. SS collected all qualitative data and SS, JO and RAP created the coding scheme and analyzed and interpreted the qualitative data. RJ oversaw collection of all quantitative data and JO conducted the statistical analysis. SS and JO drafted the main manuscript text. All authors participated in data interpretation and reviewing and editing the manuscript. All authors read and approved the final manuscript.

Acknowledgements: This research would not have been possible without support from Learn2Cope support groups, the Healthy Streets Outreach Program, and the participants who were willing to share their stories with us.

References

1. **Provisional Drug Overdose Death Counts** [https://
2. **Overdose Death Rates** [https://
3. Coffin PO, Sullivan SD: **Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal**. *Annals of internal medicine* 2013, **158**(1):1–9.
4. McDonald R, Strang J: **Are take-home naloxone programmes effective? Systematic review utilizing application of the Bradford Hill criteria**. *Addiction* 2016, **111**(7):1177–1187.
5. Walley AY, Xuan Z, Hackman HH, Quinn E, Doe-Simkins M, Sorensen-Alawad A, Ruiz S, Ozonoff A: **Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis**. *BMJ (Clinical research ed)* 2013, **346**:f174.
6. **U.S. Surgeon General’s Advisory on Naloxone and Opioid Overdose**
[https://www.hhs.gov/surgeongeneral/priorities/opioids-and-addiction/naloxone-advisory/index.html]
7. Faulkner-Gurstein R: **The social logic of naloxone: Peer administration, harm reduction, and the transformation of social policy**. *Social science & medicine* (1982) 2017, **180**:20-27.
8. Evoy KE, Hill LG, Davis CS: **Considering the Potential Benefits of Over-the-Counter Naloxone**. *Integrated pharmacy research & practice* 2021, **10**:13–21.
9. NPHL TNfPHL: **Opioid misuse and overdose prevention 50-state survey**. 2021.
10. Freeman PR, Hankosky ER, Lofwall MR, Talbert JC: **The changing landscape of naloxone availability in the United States, 2011 - 2017**. *Drug Alcohol Depend* 2018, **191**:361–364.
11. Gertner AK, Domino ME, Davis CS: **Do naloxone access laws increase outpatient naloxone prescriptions? Evidence from Medicaid**. *Drug Alcohol Depend* 2018, **190**:37–41.
12. Xu J, Davis CS, Cruz M, Lurie P: **State naloxone access laws are associated with an increase in the number of naloxone prescriptions dispensed in retail pharmacies**. *Drug Alcohol Depend* 2018, **189**:37–41.
13. Pollini RA, Joyce R, Ozga-Hess JE, Xuan Z, Green TC, Walley AY: **Assessing pharmacy-based naloxone access using an innovative purchase trial methodology**. *J Am Pharm Assoc (2003)* 2020, **60**(6):853-860.
14. Stone RH, Hur S, Young HN: **Assessment of naloxone availability in Georgia community pharmacies**. *J Am Pharm Assoc (2003)* 2020, **60**(2):357–361.
15. Guadamuz JS, Alexander GC, Chaudhri T, Trotzky-Sirr R, Qato DM: **Availability and Cost of Naloxone Nasal Spray at Pharmacies in Philadelphia, Pennsylvania, 2017**. *JAMA network open* 2019, **2**(6):e195388.

16. Evoy KE, Hill LG, Groff L, Mazin L, Carlson CC, Reveles KR: **Naloxone Accessibility Without a Prescriber Encounter Under Standing Orders at Community Pharmacy Chains in Texas.** *Jama* 2018, **320**(18):1934–1937.
17. Wu C, Brown T, Moreno JL: **Access to naloxone at community pharmacies under the Massachusetts statewide standing order.** *J Am Pharm Assoc (2003)* 2020, **60**(4):647-652.
18. Sisson ML, McMahan KB, Chichester KR, Galbraith JW, Cropsey KL: **Attitudes and availability: A comparison of naloxone dispensing across chain and independent pharmacies in rural and urban areas in Alabama.** *The International journal on drug policy* 2019, **74**:229–235.
19. Egan KL, Foster SE, Knudsen AN, Lee JGL: **Naloxone Availability in Retail Pharmacies and Neighborhood Inequities in Access.** *American journal of preventive medicine* 2020, **58**(5):699–702.
20. Spivey CA, Wilder A, Chisholm-Burns MA, Stallworth S, Wheeler J: **Evaluation of naloxone access, pricing, and barriers to dispensing in Tennessee retail community pharmacies.** *J Am Pharm Assoc (2003)* 2020, **60**(5):694-701.e691.
21. Hill LG, Loera LJ, Evoy KE, Renfro ML, Torrez SB, Zagorski CM, Perez JC, Jones SM, Reveles KR: **Availability of buprenorphine/naloxone films and naloxone nasal spray in community pharmacies in Texas, USA.** *Addiction* 2021, **116**(6):1505–1511.
22. Green TC, Case P, Fiske H, Baird J, Cabral S, Burstein D, Schwartz V, Potter N, Walley AY, Bratberg J: **Perpetuating stigma or reducing risk? Perspectives from naloxone consumers and pharmacists on pharmacy-based naloxone in 2 states.** *J Am Pharm Assoc (2003)* 2017, **57**(2s):S19-S27.e14.
23. Nielsen S, Menon N, Larney S, Farrell M, Degenhardt L: **Community pharmacist knowledge, attitudes and confidence regarding naloxone for overdose reversal Community pharmacy and naloxone.** *Addiction* 2016, **111**(12):2177–2186.
24. Muzyk A, Smothers ZPW, Collins K, MacEachern M, Wu LT: **Pharmacists' attitudes toward dispensing naloxone and medications for opioid use disorder: A scoping review of the literature.** *Substance abuse* 2019, **40**(4):476–483.
25. Pollini RA, Slocum S, Ozga J, Joyce R, Xuan Z, Green TC, Walley AY: **Pharmacists' experiences with a statewide naloxone standing order program in Massachusetts: a mixed methods study.** *J Am Pharm Assoc (2003)* 2021.
26. Do V, Behar E, Turner C, Geier M, Coffin P: **Acceptability of Naloxone Dispensing Among Pharmacists.** *Journal of pharmacy practice* 2020, **33**(3):247–254.
27. Ijioma SC, Fernández EV, Gatewood SB, Carroll NV, Salgado TM: **Community pharmacists in Virginia dispensing naloxone under a standing order: A qualitative study.** *Journal of the American Pharmacists Association* 2021.
28. Burstein D, Baird J, Bratberg J, Donovan E, Soipe A, Tapper A, Case P, Walley AY, Green TC: **Pharmacist attitudes toward pharmacy-based naloxone: A cross-sectional survey study.** *J Am Pharm Assoc (2003)* 2020, **60**(2):304–310.
29. Kurian S, Baloy B, Baird J, Burstein D, Xuan Z, Bratberg J, Tapper A, Walley A, Green TC: **Attitudes and perceptions of naloxone dispensing among a sample of Massachusetts community pharmacy**

- technicians. *J Am Pharm Assoc* (2003) 2019, **59**(6):824-831.
30. Tofighi B, Lekas HM, Williams SZ, Martino D, Blau C, Lewis CF: **Rural and small metro area naloxone-dispensing pharmacists' attitudes, experiences, and support for a frontline public health pharmacy role to increase naloxone uptake in New York State, 2019.** *Journal of substance abuse treatment* 2021, **129**:108372.
31. Gatewood AK, Van Wert MJ, Andrada AP, Surkan PJ: **Academic physicians' and medical students' perceived barriers toward bystander administered naloxone as an overdose prevention strategy.** *Addictive behaviors* 2016, **61**:40–46.
32. Haug NA, Bielenberg J, Linder SH, Lembke A: **Assessment of provider attitudes toward #naloxone on Twitter.** *Substance abuse* 2016, **37**(1):35–41.
33. Martino JG, Smith SR, Rafie S, Rafie S, Marienfeld C: **Physician and Pharmacist: Attitudes, Facilitators, and Barriers to Prescribing Naloxone for Home Rescue.** *The American journal on addictions* 2020, **29**(1):65–72.
34. Appel G, Avery JJ, Ho K, Livshits Z, Rao RB, Avery J: **Improved Emergency Medicine Physician Attitudes Towards Individuals with Opioid Use Disorder Following Naloxone Kit Training.** *The American journal of emergency medicine* 2020, **38**(5):1039–1041.
35. Wilson JD, Spicyn N, Matson P, Alvanzo A, Feldman L: **Internal medicine resident knowledge, attitudes, and barriers to naloxone prescription in hospital and clinic settings.** *Substance abuse* 2016, **37**(3):480–487.
36. Ray B, O'Donnell D, Kahre K: **Police officer attitudes towards intranasal naloxone training.** *Drug and Alcohol Dependence* 2015, **146**(1):107–110.
37. Purviance D, Ray B, Tracy A, Southard E: **Law enforcement attitudes towards naloxone following opioid overdose training.** *Substance abuse* 2017, **38**(2):177–182.
38. Smyser PA, Lubin JS: **Surveying the opinions of Pennsylvania Chiefs of Police toward officers carrying and administering naloxone.** *The American journal of drug and alcohol abuse* 2018, **44**(2):244–251.
39. Winograd RP, Stringfellow EJ, Phillips SK, Wood CA: **Some law enforcement officers' negative attitudes toward overdose victims are exacerbated following overdose education training.** *The American journal of drug and alcohol abuse* 2020, **46**(5):577–588.
40. Murphy J, Russell B: **Police Officers' addiction frameworks and policy attitudes.** *Addict Behav* 2021, **122**:107007.
41. Wagner KD, Bovet LJ, Haynes B, Joshua A, Davidson PJ: **Training law enforcement to respond to opioid overdose with naloxone: Impact on knowledge, attitudes, and interactions with community members.** *Drug Alcohol Depend* 2016, **165**:22–28.
42. Berardi L, Bucerius S, Haggerty KD, Krahn H: **Narcan and Narcan't: Implementation factors influencing police officer use of Narcan.** *Social science & medicine (1982)* 2021, **270**:113669.
43. Haggerty LC, Gatewood SS, Goode JKR: **Public attitudes and beliefs about Virginia community pharmacists dispensing and administering naloxone.** *Journal of the American Pharmacists*

Association: JAPhA 2018, **58**(4S):S73-S77.e71.

44. Beachler T, Zeller TA, Heo M, Lanzillotta-Rangeley J, Litwin AH: **Community Attitudes Toward Opioid Use Disorder and Medication for Opioid Use Disorder in a Rural Appalachian County.** *The Journal of rural health: official journal of the American Rural Health Association and the National Rural Health Care Association* 2021, **37**(1):29–34.
45. Rudski J: **Public Perspectives on Expanding Naloxone Access to Reverse Opioid Overdoses.** *Substance use & misuse* 2016, **51**(13):1771–1780.
46. Bagley SM, Forman LS, Ruiz S, Cranston K, Walley AY: **Expanding access to naloxone for family members: The Massachusetts experience.** *Drug and Alcohol Review* 2018, **37**(4):480–486.
47. The Commonwealth of Massachusetts. Executive Office of Health and Human Services: **Policy No. 2017-03: Naloxone Dispensing via Standing Order.** In. Edited by Department of Public Health. Boston, MA: Bureau of Health Professions Licensure; 2017: 1-2.
48. The Commonwealth of Massachusetts: **Policy No. 2018-04: Naloxone Dispensing via Standing Order.** In: *The Board of Registration in Pharmacy.* Edited by Executive Office of Health and Human Services DoPH, Bureau of Health Professions Licensure. Boston, MA; 2018.
49. Holland TJ, Penm J, Johnson J, Sarantou M, Chaar BB: **Stakeholders' Perceptions of Factors Influencing the Use of Take-Home-Naloxone.** *Pharmacy (Basel, Switzerland)* 2020, **8**(4).
50. Williams AV, Marsden J, Strang J: **Training family members to manage heroin overdose and administer naloxone: randomized trial of effects on knowledge and attitudes.** *Addiction* 2014, **109**(2):250–259.
51. Manchikanti L, Sanapati J, Benyamin RM, Atluri S, Kaye AD, Hirsch JA: **Reframing the Prevention Strategies of the Opioid Crisis: Focusing on Prescription Opioids, Fentanyl, and Heroin Epidemic.** *Pain physician* 2018, **21**(4):309–326.
52. **Overdose Death Rates** [<https://>]
53. Heimer R, Hawk K, Vermund SH: **Prevalent Misconceptions About Opioid Use Disorders in the United States Produce Failed Policy and Public Health Responses.** *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America* 2019, **69**(3):546–551.
54. Lucyk SN, Nelson LS: **Novel Synthetic Opioids: An Opioid Epidemic Within an Opioid Epidemic.** *Ann Emerg Med* 2017, **69**(1):91–93.
55. Yarborough BJ, Stumbo SP, Janoff SL, Yarborough MT, McCarty D, Chilcoat HD, Coplan PM, Green CA: **Understanding opioid overdose characteristics involving prescription and illicit opioids: A mixed methods analysis.** *Drug Alcohol Depend* 2016, **167**:49–56.
56. Ogden SaK, Biebers AD: **Psychology of denial.** In. New York: Nova Science Publishers; 2010.
57. Kübler-Ross E, Kessler D: **On grief & grieving: finding the meaning of grief through the five stages of loss,** Scribner trade pbk. ed. edn. New York: Scribner; 2014.
58. Bury M: **Chronic illness as biographical disruption.** *Sociology of Health & Illness* 1982, **4**(2):167–182.
59. Barnard M: **Drug Addiction and Families.** London Jessica Kingsley Publishers 2007.

60. Askian P, Krauss SE, Baba M, Kadir RA, Sharghi HM: **Characteristics of Co-Dependence Among Wives of Persons with Substance Use Disorder in Iran.** *International Journal of Mental Health and Addiction* 2016, **14**(3):268–283.
61. Corrigan PW, Kuwabara SA, O'Shaughnessy J: **The Public Stigma of Mental Illness and Drug Addiction: Findings from a Stratified Random Sample.** *Journal of Social Work* 2009, **9**(2):139–147.
62. Paquette CE, Syvertsen JL, Pollini RA: **Stigma at every turn: Health services experiences among people who inject drugs.** *The International journal on drug policy* 2018, **57**:104–110.
63. Corrigan PW, Kuwabara SA, O'Shaughnessy J: **The Public Stigma of Mental Illness and Drug Addiction: Findings from a Stratified Random Sample.** *Journal of Social Work* 2009, **9**(2):139–147.
64. Zeller TA, Beachler T, Diaz L, Thomas RP, Heo M, Lanzillotta-Rangeley J, Litwin AH: **Attitudes toward syringe exchange programs in a rural Appalachian community.** *Journal of addictive diseases* 2021:1–8.
65. Tas B, Humphreys K, McDonald R, Strang J: **Should we worry that take-home naloxone availability may increase opioid use?** *Addiction (Abingdon, England)* 2019, **114**(10):1723–1725.
66. Freeman PR, Goodin A, Troske S, Strahl A, Fallin A, Green TC: **Pharmacists' role in opioid overdose: Kentucky pharmacists' willingness to participate in naloxone dispensing.** *J Am Pharm Assoc* (2003) 2017, **57**(2s):S28-s33.
67. Olsen A, Lawton B, Dwyer R, Taing MW, Chun KLJ, Hollingworth S, Nielsen S: **Why aren't Australian pharmacists supplying naloxone? Findings from a qualitative study.** *The International journal on drug policy* 2019, **69**:46–52.
68. Shedd M, Bozhkova A, Kalich BA, Wilkening GL: **Evaluation of Bexar County community pharmacist attitudes toward harm reduction.** *The mental health clinician* 2019, **9**(6):383–391.
69. Stewart B, Thomas RL, Tutag-Lehr V: **Pharmacists' knowledge, support, and perceived roles associated with providing naloxone in the community.** *Currents in pharmacy teaching & learning* 2018, **10**(8):1013–1021.
70. Bakhireva LN, Bautista A, Cano S, Shrestha S, Bachyrycz AM, Cruz TH: **Barriers and facilitators to dispensing of intranasal naloxone by pharmacists.** *Substance abuse* 2018, **39**(3):331–341.
71. Smith JO, Malinowski SS, Ballou JM: **Public perceptions of naloxone use in the outpatient setting.** *The mental health clinician* 2019, **9**(4):275–279.
72. Doe-Simkins M, Quinn E, Xuan Z, Sorensen-Alawad A, Hackman H, Ozonoff A, Walley AY: **Overdose rescues by trained and untrained participants and change in opioid use among substance-using participants in overdose education and naloxone distribution programs: a retrospective cohort study.** *BMC public health* 2014, **14**:297.
73. Jones JD, Campbell A, Metz VE, Comer SD: **No evidence of compensatory drug use risk behavior among heroin users after receiving take-home naloxone.** *Addict Behav* 2017, **71**:104–106.
74. **QuickFacts Massachusetts** [<https://www.census.gov/quickfacts/MA>]

75. Larochelle MR, Slavova S, Root ED, Feaster DJ, Ward PJ, Selk SC, Knott C, Villani J, Samet JH: **Disparities in Opioid Overdose Death Trends by Race/Ethnicity, 2018-2019, From the HEALing Communities Study.** *Am J Public Health* 2021, **111**(10):1851–1854.

Tables

Table 1. Characteristics of naloxone access, source utilization, and beliefs among potential opioid overdose “bystanders” (N=260) surveyed in Massachusetts, 2020.

	Total N=260
	n (%)
Ever purchased or otherwise obtained naloxone	201 (77)
Median number of times obtained naloxone (interquartile range (IQR))	3 (2-7)
Reason(s) for not obtaining naloxone	59 (23)
Don't need it ^a	50 (85)
Not comfortable asking for it ^a	3 (5)
Don't know where to get it ^a	2 (3)
Confidentiality concerns ^a	2 (3)
Too expensive ^a	1 (2)
Places where naloxone has been obtained	201 (77)
Support group ^b	100 (50)
Pharmacy ^b	63 (31)
Syringe service/harm reduction program ^b	41 (20)
Hospital, physician's office, health clinic, health department, and/or EMT ^b	41 (20)
Treatment or recovery center ^b	38 (19)
Friend/family member ^b	14 (7)
Police department ^b	4 (2)
Fire department ^b	1 (1)
Know how to use naloxone	237 (91)
Everyone in the home knows where naloxone is and how to use it ^b	114 (57)
Have recommended naloxone to others	196 (75)

Knowledge, attitudes, and beliefs about naloxone (n (%) who strongly agree or agree)

Everyone who has a close family member or friend who uses illicit or prescription opioids not prescribed for them should have naloxone	258 (99)
I would be comfortable going to a syringe exchange/harm reduction program to get naloxone	217 (83)
Naloxone is just a band-aid on the drug problem	56 (22)
Everyone should carry naloxone, regardless of whether they know someone who uses opioids or not	190 (73)
Concern about stigma keeps people from getting naloxone	225 (87)
Knowing naloxone is available makes people who use drugs act more irresponsibly	64 (25)
Naloxone is affordable	145 (56)
Concern about confidentiality keeps people from getting naloxone at the pharmacy	166 (64)
I want to receive counseling every time I purchase naloxone at the pharmacy	111 (43)
I worry that people will judge me negatively if they find out I have naloxone	58 (22)
Knowing naloxone is available encourages drug use	39 (15)
I do not want to have a record of naloxone purchase on my insurance or medical record	66 (25)
Naloxone is still effective after its labeled expiration date	136 (52)
Aware that naloxone can be purchased at a pharmacy without a prescription	177 (68)
Have tried purchasing naloxone at a pharmacy without a prescription	54 (21)
Reason(s) for not trying to purchase naloxone at a pharmacy without a prescription	205 (79)
Already have a reliable free source ^c	87 (42)
Don't need it ^c	79 (39)
Thought a prescription was needed ^c	31 (15)

Too expensive ^c	8 (4)
Worried what people will think ^c	5 (2)
Confidentiality concerns ^c	4 (2)
Not comfortable asking for it ^c	4 (2)
Don't know where to get it ^c	4 (2)
Median number of times tried to purchase naloxone at a pharmacy without a prescription (IQR)	2 (1-4)
Have successfully purchased naloxone at a pharmacy without a prescription ^d	47 (87)
For first pharmacy purchase attempt ^e :	68 (26)
Felt comfortable going to the counter to ask for naloxone ^f	50 (74)
Expected the person at the pharmacy counter to know exactly what you were asking for ^f	60 (88)
Expected the person at the counter to treat you with respect ^f	55 (81)
Were worried what the pharmacy staff would think of you when asking for naloxone ^f	27 (40)
Were worried about confidentiality ^f	30 (44)
Got all the information needed during the purchase to confidently respond to an overdose ^f	30 (44)
Would go to a pharmacy for naloxone again ^f	54 (79)

^aPercentages calculated based on n=59 who had never purchased or otherwise obtained naloxone;

^bPercentages calculated based on n=201 who had ever purchased or otherwise obtained naloxone;

^cPercentages calculated based on n=205 who had never tried to purchase naloxone from a pharmacy without a prescription; ^dPercentage calculated based on n=54 who had ever tried to purchase naloxone at a pharmacy without a prescription; ^eIncludes pharmacy naloxone purchase attempts with and without a prescription; ^fPercentages calculated based on n=68 who had tried to purchase naloxone at a pharmacy with or without a prescription.