

Public perceptions of naloxone use in the outpatient setting

Jordan O. Smith, PharmD¹

Scott S. Malinowski, PharmD²

Jordan M. Ballou, PharmD³

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Abstract

Introduction: Naloxone has become an important component of preventing deaths from opioid overdose. Although studies have confirmed its cost-effectiveness, naloxone is rarely prescribed proactively in case of accidental overdose. The perception still exists that a reversal agent may enable patients with opioid use disorder to continue abusing opioids without fear of death from overdose. This study was designed to determine the general public's knowledge of naloxone and their perceptions about receiving a naloxone prescription with opioid use.

Methods: Participants were recruited through Amazon Mechanical Turk (MTurk), where a link directed participants to an electronic survey. Participants were included if they were 18 years of age or greater and currently living in the United States. Participants were paid \$0.10 USD via Amazon MTurk upon completing the survey.

Results: Four hundred five participants successfully completed the survey, and 61% were aware that there is a medication available to treat opioid overdose. The majority of participants responded positively to the idea of acquiring naloxone. Responses were evenly split for agreeing and disagreeing with the statement "naloxone is only necessary for people who abuse opioids." Although 51% of respondents believed that having naloxone available enables people who abuse opioids, 88% agreed that naloxone is beneficial for people who accidentally overdose on opioids. A majority believed that naloxone should be made available upon request to anyone concerned about opioid overdose.

Discussion: Participants were generally aware of the availability of an opioid reversal agent and responded positively to 3 different methods of acquiring naloxone through their prescriber or pharmacist.

Keywords: naloxone, opioid, opiate, overdose, pharmacy

¹ (Corresponding author) Postgraduate Year 1 Pharmacy Resident, North Florida/South Georgia Veterans Health System, Gainesville, Florida, jordanosmith14@gmail.com. Previous: Student Pharmacist, University of Mississippi School of Pharmacy, University, Mississippi, ORCID: <https://orcid.org/0000-0003-2669-2204>; ² Clinical Associate Professor, University of Mississippi School of Pharmacy, University, Mississippi, ORCID: <https://orcid.org/0000-0002-1094-2099>; ³ Clinical Assistant Professor, University of Mississippi School of Pharmacy, University, Mississippi, ORCID: <https://orcid.org/0000-0001-8177-5315>

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Introduction

Accidental death from opioid use has increased to epidemic proportions over the past 15 years.¹ The opioid reversal agent, naloxone, has become an important component of addressing and preventing deaths by opioid overdose.¹ Although many studies have confirmed the cost-effectiveness of naloxone as a reversal agent to opioid overdose, naloxone is rarely prescribed proactively

in case of accidental overdose.¹ Unintentional poisonings are more likely to involve prescription medications; however, the perception still exists that a reversal agent may enable patients with substance abuse disorder to continue abusing opioids without fear of death from overdose.^{2,3} In a study by Green et al,² 38% of providers were supportive of the idea of a naloxone prescription for patients undergoing treatment of chronic pain, an additional 38% were confused or ambivalent about the need for a naloxone prescription in this patient population, and 25% of providers were strongly opposed to this idea.

Several studies⁴⁻⁷ have assessed community pharmacists' knowledge and readiness to provide or recommend naloxone to patients. These studies^{5,6} found that community pharmacists who felt more confident in identifying overdose risks are more willing to initiate naloxone dispensing. The American Medical Association⁸ recommends that pharmacists should have an expanded role in providing naloxone to decrease opioid overdose death. Although there is research on the views of medical professionals about expanding access to naloxone and research from opiate users, to our knowledge, there is currently no published literature describing the general public's knowledge of availability of an opioid overdose reversal agent or patients' perceptions of receiving a naloxone prescription.

The purpose of this study was to describe the general public's knowledge of the availability of the opioid reversal agent naloxone. This study also assessed perceptions of receiving naloxone via prescription directly from a prescriber, as a pharmacist's recommendation to the prescriber, or from a pharmacist dispensing naloxone under a standing order. It was hypothesized that the general public is aware that there is a medication on the market used as a reversal agent to opioid overdose and that they would respond positively to nontraditional methods of acquiring naloxone.

Methods

This study was conducted in September 2017. Participants were recruited through Amazon Mechanical Turk (MTurk).⁹ Amazon MTurk is an online, streamlined platform that utilizes crowdsourcing technology to quickly and efficiently recruit participants from a diverse population of more than 500 000 people.¹⁰ Participants are recruited to complete a human intelligence task (HIT), which is a self-contained task that participants can accept, complete, submit, and collect a reward for completion.¹¹ Approval ratings are assigned to each MTurk worker, or participant, based on the number of tasks accepted and completed.¹¹ MTurk workers are predominantly from the

United States (57%) and female (55%).¹² Self-reported worker education ranges from high school to an advanced degree with annual incomes of less than \$10 000 to greater than \$70 000.¹² Thirty-eight percent of workers reported being employed full-time, 31% reported part-time employment, and 31% reported unemployment.¹²

Amazon MTurk filters were set to only include participants located in the United States who had a HIT approval rate of at least 95%. Participants had to be at least 18 years of age. A link was posted on the Amazon MTurk HIT that directed verified and consenting participants to the Qualtrics (www.qualtrics.com; Provo, UT) electronic survey. Participants were provided with a consent statement on the first page of the survey. Continuing on with the survey implied their understanding and agreement to participate. Participation was voluntary and anonymous. Participants were excluded if they did not complete the survey.

Via the survey, age, sex, and demographic data were collected as well as current or previous prescription opioid use. The knowledge items were presented in *yes*, *no*, or *unsure* answer format. Perception items were statements with subsequent Likert-type responses in which participants indicated their level of agreement. The survey provided a brief information primer on opioids and naloxone to reduce confusion during the survey.

Participants were paid \$0.10 USD via Amazon MTurk upon successfully completing the survey HIT by copying and pasting a randomized code generated for them at the end of the survey. Using the Raosoft® online sample-size calculator (http://www.raosoft.com/sample_size.html; Seattle, WA) for survey research with parameters set for a 5% margin of error and a 95% confidence level, the sample size needed was 377 participants.

Descriptive statistics were used to describe and summarize the data collected and the frequency of responses for each survey item. The University of Mississippi's Institutional Review Board reviewed and approved this study in August 2017.

Results

The Amazon MTurk HIT for the survey was published on September 5, 2017, and was completed on September 7, 2017. The average time to complete the survey was 3 minutes, 24 seconds. Four hundred ten participants met inclusion criteria and provided consent. Five individuals did not complete the survey, leaving 405 participants included in this study. Participant demographics are presented in Table 1. The participant population was 68% female, and most were 31 to 50 years of age.

TABLE 1: Demographics of the study (N = 405)

	No. (%)
Age, y	
18-30	139 (34.3)
31-50	203 (50.1)
51-70	59 (14.6)
71 or older	4 (1.0)
Sex	
Female	277 (68.4)
Male	126 (31.1)
Prefer not to answer	2 (0.5)
Currently residing in the United States	405 (100.0)

A majority of participants believed that the current risk of opioid overdose in the United States is either “definitely a problem” or an “epidemic.” Of the 222 participants who self-reported current or previous opioid use, 54% perceived themselves to be at no risk of overdose while considering their most recent opioid usage. Among all respondents, 61% had either heard of naloxone or were aware that there is a medication available to treat an opioid overdose.

Participants were asked how they would respond to being offered a prescription for naloxone along with their opioid prescription; results are summarized in Table 2. The majority of participants responded positively to the idea of acquiring naloxone via a prescription from their doctor, by having their pharmacist call their doctor to request a prescription, or obtained via a standing order by their pharmacist (47%, 45%, and 52% responding positively, respectively). Naloxone-use perception responses are summarized in Table 3. Responses were evenly split for agreeing and disagreeing with the statement “naloxone is only necessary for people who abuse opioids.” Although 51% of respondents believed that having naloxone available enables people who abuse opioids, 88% of

TABLE 2: Perceptions of acquiring naloxone (N = 405)

	No. (%)		
	I Would React Positively	I Would React Negatively	Unsure
How would you react if the doctor who prescribed your prescription opioid also gave you a prescription for naloxone (just in case)?	190 (47)	132 (33)	83 (20)
How would you react if your pharmacist asked if he or she could call your doctor for you to recommend that your doctor write a prescription for naloxone along with your opioid prescription?	184 (45)	150 (37)	71 (18)
How would you react if your pharmacist dispensed naloxone under a standing order (an agreement between a pharmacist and an authorized prescriber to dispense certain medications under clearly defined circumstances) along with your opioid prescription?	212 (52)	105 (26)	88 (22)

participants agreed that naloxone is beneficial for people who accidentally overdose on opioids. Twenty-eight percent of participants were neutral or unsure that a naloxone prescription should accompany every opioid prescription, but a majority (62%) of participants agreed that naloxone should be made available upon request (without a prescription) to anyone concerned about opioid overdose.

Discussion

As of July 1, 2017, 42 states in the United States (all except Oregon, Idaho, Nebraska, Kansas, Oklahoma, South Carolina, West Virginia, Connecticut) and the District of Columbia allow pharmacists to dispense naloxone under a standing order.¹³ Pharmacy retail corporations, such as CVS and Walgreens, have adopted policies in addition to state-specific laws. CVS offers naloxone without a prescription in 43 states (excluding Delaware, Hawaii, Maine, Michigan, Nebraska, Oklahoma, and Wyoming) and Walgreens in 46 states (excluding Delaware, Hawaii, and Wyoming—there are no Walgreens stores in North Dakota).¹⁴

On October 26, 2017, President Donald J. Trump declared the opioid epidemic a “national public health emergency” under the Public Health Services Act. This designation directs federal agencies to provide more grant money to combat the opioid epidemic. According to the initiative fact sheet,¹⁵ this action “allows for expanded access to telemedicine services” and “helps overcome bureaucratic delays and inefficiencies in the hiring process,” but does not mention promoting awareness of, or access to, naloxone.

The US Surgeon General Jerome M. Adams, MD, issued an advisory on April 5, 2018, urging that more individuals routinely carry naloxone due to a high percentage (77%) of deaths occurring from opioid overdose outside of the

TABLE 3: Naloxone use perceptions (N = 405)

	No. (%)				
	Completely Disagree	Somewhat Disagree	Neutral or Unsure	Somewhat Agree	Completely Agree
Naloxone is only necessary for people who abuse opioids.	56 (14)	116 (29)	62 (15)	95 (23)	76 (19)
Only people who abuse opioids are at risk of opioid overdose.	92 (23)	121 (30)	40 (10)	90 (22)	62 (15)
Having naloxone available enables people who abuse opioids.	49 (12)	73 (18)	75 (19)	135 (33)	73 (18)
Naloxone is beneficial for patients who accidentally overdose on opioid medications.	6 (1)	13 (3)	28 (7)	114 (28)	244 (60)
A naloxone prescription should accompany every opioid prescription just in case.	50 (12)	81 (20)	112 (28)	93 (23)	69 (17)
Naloxone should be made available upon request to anyone concerned about opioid overdose.	33 (8)	43 (11)	79 (20)	121 (30)	129 (32)

medical setting and more than 50% occurring at home.¹⁶ This advisory is directed toward individuals who are personally at risk for opioid overdose as well as those with family members and friends who are at risk. Although many first responders, such as police officers and emergency medical technicians, carry naloxone, it would be beneficial for a friend or family member to administer naloxone in an emergency situation and reverse the effects until first responders arrived at the scene.¹⁶

Per the 2016 Centers for Disease Control and Prevention Guideline for Prescribing Opioids for Chronic Pain, clinicians should consider offering naloxone to patients who have a history of overdose or substance use disorder, patients who are prescribed 50 or greater morphine milligram equivalents, or patients who concurrently use benzodiazepines.¹⁷ Despite this recommendation, it seems that either a naloxone prescription is not offered to patients for whom it is recommended or the patients decline a prescription for naloxone. Naloxone education for the general public and for opioid prescribers could be the key to ensuring naloxone is available to those who may need it the most.

In light of these developments and the increasing seriousness of the opioid overdose epidemic, our study addresses previously unanswered questions regarding the general public's attitudes toward opioid reversal and it being readily available as a preventative measure. To our knowledge, this is the first study to utilize crowdsourcing technology to survey the public on their knowledge and perceptions of the opioid reversal agent naloxone.

Among the 3 different scenarios of acquiring naloxone, the situation of a pharmacist dispensing naloxone under a standing order received the highest percentage of positive responses as well as the highest percentage of unsure responses. Within the question, we explained a standing order in lay terminology as “an agreement between a

pharmacist and an authorized prescriber to dispense certain medications under clearly defined circumstances.” Although some may be encouraged that participants responded positively to this situation, participants may not have fully understood what a standing order means in the context of a pharmacist dispensing medications. However, the positive response may be due to participants feeling that there would be less personal judgment in the situation of a standing order versus naloxone being recommended by a pharmacist or prescribed by a physician.

There was a great deal of variation among responses to the perception items. Although participants were mostly aware of the availability of naloxone, an opportunity may exist for education focusing on the role of opioid reversal in the community setting. This is evidenced by the opinions regarding naloxone only being necessary for people who abuse opioids and naloxone being an enabler of opioid abusers. An additional educational effort could focus on the efficacy of naloxone as a reversal agent for patients who use opioids in a legitimate fashion but experience adverse effects, such as respiratory depression. Many participants agreed with the statement that naloxone should be made available upon request to anyone concerned about opioid overdose.

A limitation of this study is that the survey questions were not based on a validated tool. To our knowledge, there is currently no validated tool to assess knowledge or perceptions of naloxone in a lay population. Use of a crowdsourcing technology platform (Amazon MTurk) may seem somewhat unconventional but is growing in popularity, particularly with researchers in social and behavioral sciences. This platform has been validated for survey research and has been noted to produce findings consistent with traditional methods.¹⁸ Nonetheless, the potential for lack of heterogeneity, subject attentiveness, and habitual survey takers still exists.

The current study did not address issues related to access. The out-of-pocket cost would likely affect participants' perceptions. Due to the wide range of payment options (at cost, copay, covered by insurance drug benefit, etc), it was beyond the scope of this study to analyze the impact that cost of product might have on perceptions. This aspect should be considered in future studies related to naloxone usage and perceptions. Participants representing the general public were aware of the availability of an opioid reversal agent and responded positively to 3 different methods of acquiring naloxone through their prescriber or pharmacist. The results from this survey may empower prescribers and pharmacists to recommend naloxone to patients without fear of negative response. These results also suggest that the general public needs more education on the opioid epidemic and the role of naloxone in the outpatient setting.

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