



Published in final edited form as:

J Subst Abuse Treat. 2021 October ; 129: 108372. doi:10.1016/j.jsat.2021.108372.

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

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Abstract

Introduction—The purpose of this study is to assess community pharmacists' attitudes and experiences related to naloxone dispensation and counseling in non-urban areas in New York state to better understand individual and structural factors that influence pharmacy provision of naloxone.

Materials and methods—The study conducted interviewer-administered semistructured surveys among community pharmacists in retail, independent, and supermarket pharmacies between October 2019 and December 2019. The 29-item survey ascertained pharmacists' demographic and practice characteristics; experiences and beliefs related to naloxone dispensation; and attitudes toward expansion of pharmacy services to include on-site public health services for persons who use opioids. The study used Chi square tests to determine associations between each characteristic and self-reported naloxone dispensation (any vs. none).

Results—A total of 60 of the 80 community pharmacists that the study team had approached agreed to participate. A majority were supportive of expanding pharmacy-based access to vaccinations (93.3%), on-site HIV testing, or referrals (75% and 96.7%, respectively), providing information on safe syringe use (93.3%) and disposal (98.3%), and referrals to medical/social services (88.3%), specifically substance use treatment (90%). A majority of pharmacist respondents denied negative impacts on business with over half reporting active naloxone

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Authors' Contributions: CFL, BT, CB, DM, HML made substantial contributions to the conception and design; SZW made significant contributions to the writing of the methods and results as well as conducting data analysis; all co-authors were involved with the interpretation of data and drafting the manuscript.

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dispensation (58.3%). Pharmacists dispensing naloxone were more likely to be multilingual ($p<0.03$), and to specifically support on-site HIV testing ($p<0.02$) than those who were not dispensing naloxone.

Discussion—Community pharmacists were highly favorable of naloxone dispensation in rural and small metro area pharmacies in NY, and those fluent in additional language(s) and supportive of on-site HIV testing were associated with active naloxone dispensation. While active naloxone dispensation was low, pharmacists appear supportive of a “frontline public health provider” model, which could facilitate naloxone uptake and warrants large-scale investigation.

Conclusion—Rural and small metro area pharmacists are generally favorable of naloxone dispensation.

Keywords

Opioid use disorder; Naloxone; Pharmacies; Vulnerable populations

1. Introduction

Unintentional poisoning from opioids remains a major public health challenge in non-urban areas of the United States (Rigg, Monnat, & Chavez, 2018). Public health experts have implemented several preventive strategies to address opioid overdose, including prescription drug monitoring programs, provider education on safe opioid prescribing, pharmacy participation in drug take-back campaigns, and expanding layperson access to the opioid antidote naloxone (Mueller, Walley, Calcaterra, Glanz, & Binswanger, 2015).

Overdose education and naloxone distribution (OEND) offers an effective approach to reduce opioid overdose fatalities among people who use opioids (PWUOs) and patients prescribed chronic opioid analgesics (Naumann, Ranupurwala, Austin, et al., 2019; Abouk et al., 2019). OEND comprises education in recognizing an overdose, calling 911, initiating rescue breaths, and administering naloxone to rapidly displace opioid agonists from mu-receptors and avert the risk of respiratory depression. OEND programs have been successfully implemented in community settings, emergency rooms, primary care, specialty addiction treatment, and pain management programs (Enteen et al., 2010; Sherman et al., 2009; Tobin, Sherman, Beilenson, Welsh, & Latkin, 2009). Due to its limited safety concerns, naloxone has been increasingly utilized by peers, caregivers, and first responders likely to witness an overdose. However, expansion of OEND in non-urban areas is limited relative to increases in opioid-overdose fatalities (Faul et al., 2015; West, Powers, Hockett, Farley, & Cantone, 2019).

Leveraging the ubiquity of non-urban area community pharmacies with OEND offers a breakthrough strategy to rapidly scale access to PWUOs. More than 90% of Americans live within 2 miles of a pharmacy and most adults visit a pharmacy at least monthly (69%) (Health, 2017). Pharmacists are also the most trusted and accessible health care professional per national surveys (Mossialos et al., 2015). Indeed, increasing evidence supports the integration of chronic disease management and preventive health interventions in community pharmacy settings (McMillan et al., 2013; Mossialos et al., 2015).

Although surveys among pharmacists and PWUOs have yielded high acceptability for expanding access to naloxone in pharmacies, key barriers persist. Notably, pharmacists have noted stigma, limited time and training, inadequate reimbursement, perceived lack of patient interest, and logistical concerns (i.e., clinical workflow) as remaining barriers to dispensing naloxone (Bakhireva et al., 2018; Green et al., 2017; McAuley et al., 2016; Nielsen, Menon, Larney, Farrell, & Degenhardt, 2016). State expansion of opioid overdose prevention programs have overcome some reported implementation barriers; however, challenges cited in recent studies include stigma, cost of naloxone, and support for direct dispensing of naloxone by pharmacists (Winstanley et al., 2016; Abouk et al., 2019).

The New York State (NYS) Opioid Overdose Prevention Program (OOPP) aims to overcome barriers to OEND expansion, including cost and logistical concerns pertaining to naloxone dispensing, by establishing standing orders of naloxone in pharmacies with or without a patient-specific prescription from clinicians, local health departments, and the state Harm Reduction Coalition. The medication is covered under Medicaid Fee-For-Services and most commercial health plans for any individual who requests it. In 2017, the naloxone Co-Payment Assistance Program (N-CAP) was enacted to provide state funds to cover patient co-pays accompanying naloxone prescriptions. Pharmacists also offer patients receiving naloxone a printed handout covering risk factors for opioid overdose, signs of opioid overdose, and overdose response steps and other information (e.g., how to get refills, how and where naloxone should be kept, and importance of sharing this information with family/friends). Despite similar mandates nationally, evidence from real-world practice is needed to assess opioid overdose prevention programs and inform future interventions for larger scale impact. The purpose of this investigation is to describe the attitudes, beliefs, and experiences related to naloxone dispensation and level of interest in providing other pharmacy-based public health services for PWUOs in rural and small metro areas of New York State.

2. Methods

2.1 Study design

We conducted a mixed-methods study between October and December 2019 among licensed community pharmacists in six counties in New York State's mid-Hudson region. The goal of the study was to capture community pharmacists' attitudes, beliefs, and experiences related to naloxone dispensation and the provision of other pharmacy-based public health services for PWUOs. The study conducted convenience sampling of OOPP-registered pharmacies (n=144) across pharmacy types (i.e., retail, independent, supermarket) in high- and low-opioid overdose areas to elicit a range of responses regarding OEND provision for PWUOs. The study team identified community pharmacies using Google Maps and [whitepages.com](https://www.whitepages.com) and approached pharmacists during regular work hours. If pharmacists were interested in participating in the study, study staff obtained written consent and scheduled an in-person interview. The first author conducted semistructured surveys lasting approximately 10–20 minutes. The study defined rural and small metro areas using the U.S. Department of Agriculture rural-urban commuting area codes (Department of Agriculture, 2019). The study defined chain pharmacies as 10 or more pharmacy locations (National Community Pharmacists Association, 2020).

The research team based the survey on our prior research, which had focused on pharmacists' perceptions of expanding pharmacy practice into harm reduction and treatment services for PWUOs (Fuller et al., 2007). The study compensated each pharmacist study participant with a \$30 gift card at the end of the interview. The Institutional Review Board at the Nathan S. Kline Institute for Psychiatric Research, Research Foundation of Mental Hygiene, at The New York State Office of Mental Health approved the study.

Analytic plan—The 29-item semistructured survey covered three primary areas: 1) pharmacists' demographic and practice characteristics, including gender (female/male), race/ethnicity (White/Asian, South Asian or Pacific Islander/Other), language spoken (English only/Other), years in practice, pharmacy type (chain/independent), and job role (owner/managing pharmacist/staff pharmacist); 2) attitudes about the pharmacist's role in providing public health services such as vaccinations, HIV testing, and referrals; resources on safe syringe disposal and use; referrals to medical and social services and to drug treatment programs in their pharmacy (supportive/not supportive); and 3) naloxone-related experiences and beliefs, including support for sale of naloxone in the pharmacy (yes/no), belief that pharmacists should play a bigger role in opiate overdose prevention (yes/no); the quantity of naloxone dispensed to patients with a prescription or covered under the NYS OOPP standing order in an average month; opinions on whether registering for NYS OOPP has contributed to loss of business (yes/no), theft and crime by naloxone customers, or increases in the number of prescriptions filled (yes/no); and their opinions whether selling naloxone increases opioid use (yes/no), or reduces the risk of opioid overdose (yes/no). We also assessed past month customer questions or counseling topics pertaining to naloxone (e.g., risk factors of opioid overdose, recognizing opioid overdose, naloxone response steps, insurance coverage) and naloxone customer characteristics (e.g., PWUOs, caregiver, health care provider). The study ascertained the measure of naloxone prescription dispensation as the number of naloxone kits dispensed in an average month and recoded the number as binary variable (any/none) for all association tests.

The study produced descriptive statistics for pharmacists' demographic characteristics, attitudes, and naloxone-related experiences and beliefs consisting of counts with proportions or means with standard deviations, where appropriate, to show their distribution in our sample. The research team did not size this exploratory study for significance testing. To better understand the context of active OOPP participation among our sample, we assessed bivariable associations using Chi-squared tests of association and a 5% level of significance to identify salient attitude, beliefs, and experiences related to any naloxone dispensation to provide insight for future largescale studies that aim to increase uptake and impact of this important public health policy.

3. Results

The study team approached 80 community pharmacists, each in different pharmacies, of whom, 60 completed the survey (response rate 75%). More than half of the participating pharmacists reported dispensing naloxone (58.3%). The average monthly median of the total sample was 2 (interquartile range 0,2) and among those actively dispensing naloxone, the median was 2 (interquartile range 0,3). Pharmacists' demographic and practice

characteristics are presented in Table 1. Respondents were mostly female (51.7%), white race (53.3%), and practiced as a staff pharmacist (66.7%). About 60% of pharmacists spoke only English; of them, only 47.2% reported dispensing naloxone compared to 75% of those who spoke other languages, $p < 0.05$. The average number of years in practice was estimated to be 18.5 years (SD=14.1; range: [0.33, 49]). Three-quarters of community pharmacies were chain pharmacies (n=44, 73.3%); of those, 78.5% and 21.4% were located in retail and grocery settings, respectively. Most respondents were unsure when their pharmacy registered with the state opioid overdose prevention program (78.3%). The majority of respondents estimated levels of illicit substance use to be “very high” (8.3%), “high” (33.3%), or moderate (25%) in the surrounding neighborhood of their pharmacy. Pharmacists who dispensed naloxone did not differ by other pharmacy or pharmacists’ characteristics.

Table 2 describes naloxone-related beliefs and experiences of pharmacists in OOPP-registered pharmacies, and the relationship of these characteristics with naloxone dispensation. The overwhelming majority of pharmacists shared positive beliefs about pharmacy naloxone dispensation, including support for OOPP (93.3%), belief that a pharmacist should play a bigger role in overdose prevention (86.7%), did not believe that naloxone dispensation increases opioid use (28.3%), sends a message that opioid use is ok (40%), and believed that naloxone reduces opioid-related overdose (88.3%). Most pharmacists participating in OOPP indicated no loss of business related to OOPP participation (85%), no instances of theft or crime (actual or suspected) by persons requesting naloxone (80%), and more than a third believed that there was an increase in number of prescriptions filled (35%). There were no significant differences between OOPP-registered pharmacists who dispensed versus those who did not with respect to naloxone-related beliefs and experiences. When conversations occurred with naloxone customers, most common topics included health insurance coverage (23.3%), how to administer naloxone (21.7%), signs of opioid overdose (15%), and risk factors for opioid overdose (n=10%) (*data not included in table*).

Finally, Table 3 presents pharmacy attitudes toward provision of expanded public health services in pharmacies, and whether support for these services correlated with naloxone dispensation. Most respondents were supportive of expanding pharmacy-based access to vaccinations (93.3%), referrals to free HIV testing and on-site HIV testing (96.7% and 75%, respectively), informational resources on safe syringe use (93.3%) and disposal (98.3%), and referrals to medical/social services (88.3%) and treatment for substance use disorders (90%). When asked about public health materials or referral information available in their pharmacies, only two offered informational pamphlets on harm reduction services, and only one offered informational pamphlets for local opioid use disorder (OUD) treatment programs.

A significantly higher proportion of pharmacists who distributed naloxone supported on-site HIV testing (66.7%) compared to those who did not support this public health screening service (33.3%; $p < 0.023$). There were no other significant differences between OOPP-registered pharmacists who dispensed naloxone versus those who did not with respect to support for other pharmacy-based public health services.

4. Discussion

Our findings reveal high acceptability for naloxone dispensation and expansion of pharmacy practice to include public health services such as referrals to harm reduction, OUD treatment, and social services for PWUOs among rural and small metro area community pharmacists in NY State. Self-reported naloxone dispensing among respondents in this survey (58.3%) was higher than similar surveys among pharmacists in Alabama (30.3%; Sission et al., 2019) and New Mexico (23.6%; Bakhireva et al., 2018), which may be attributed to expanded efforts by the New York State health department to ease restrictions and improve reimbursements for the medication.

In addition, naloxone dispensation was significantly associated with support for on-site HIV testing, as well as being multilingual, suggesting the potential to reach a more diverse population of PWUO. However, the number of pharmacists dispensing naloxone kits is likely insufficient in preventing overdose given rising opioid overdose fatalities, particularly in these nonurban areas (Rowe et al., 2016).

Pharmacists revealed a strong interest in expanding their workforce practice to include on-site HIV testing, on-site vaccinations, provision of harm reduction information, and referrals to social and medical services. These interests are consistent with previous reports of pharmacies playing a significant role in reaching medically underserved populations beyond condition-specific interventions (Crawford et al., 2011), including harm reduction. Indeed, pharmacies have introduced tiered pharmacy services and novel remuneration mechanisms to enhance chronic disease management (McMillan et al., 2013). Coupling OEND with other on-site services, such as blood pressure screenings, vaccinations, and referrals to primary care and specialty treatment, may further improve engagement with pharmacies among PWUOs (Fuller et al., 2007).

Less than half of respondents, but a notable proportion, endorsed that selling naloxone may sanction illicit opioid use (40%) and increase its use (28.3%), which highlights the importance of augmented pharmacy educational curriculum and continuing medical education to address misperceptions of OEND. The past decade of research has emphasized the importance of multifaceted trainings for improving care for PWUOs in pharmacies, including screening and brief interventions for prescription opioid misuse, stigma and OUD, naloxone dispensation, and standing order payment/insurance protocols (Cochran, Field, Lawson, & Erickson, 2013; Morton et al., 2017). Policymakers, corporate chain pharmacy leaders, and independent pharmacies need to provide protected time for pharmacist trainings and encourage interdisciplinary trainings on OUD for physicians and community pharmacists in collaborative teams (Egan et al., 2020; Mossialos et al., 2015).

Additional strategies that may partially offset community pharmacist burden with expanding OEND and referrals to care for PWUOs include: 1) training pharmacy technicians to complete basic screenings; patient counseling; and referrals to primary care, OUD treatment, or social and behavioral health services; 2) allowing patients to obtain “behind the counter” naloxone in pharmacies and registration in state-wide databases similar to FDA guidelines around pseudoephedrine, ephedrine, and phenylpropanolamine sales, increasing physician

OEND and referrals to care for PWUOs; and 3) leveraging technology-based interventions and health department hotlines that offer screenings, patient education, and navigation to improve linkages with harm reduction, addiction treatment, primary care, and social services for PWUOs.

4.1 Limitations

The generalizability of our findings may be limited by regional perceptions and experiences specific to community pharmacies in rural and small metro areas in NY State, the small sample size, and the use of convenience sampling. Independent, and other noncorporate chain pharmacies also warrant better representation. Largescale systematic surveys should confirm these pilot study findings; some are currently underway among independent, hospital, and chain pharmacists and pharmacy technicians.

5. Conclusion

While the number of naloxone kits that pharmacies dispense appears modest at best, this study indicated high acceptability for standing order naloxone dispensation, vaccinations, provision of information on harm reduction and substance use treatment, and referrals to social services for PWUOs. These data signal the need to further explore an expanded public health role for community pharmacists, particularly in rural and small metro area pharmacies where high rates of opioid use persist. Such efforts are not only practical but may help to facilitate uptake of pharmacy-dispensed naloxone.

Acknowledgments

Funding: The project was sponsored by the Center for Research on Cultural & Structural Equity in Behavioral Health, Research Foundation for Mental Hygiene, and the National Institute on Drug Abuse (K23DA042140–01A1; R21DA049166).

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Highlights:

- Respondents were favorable to giving information on safe syringe use (93.3%) and disposal (98.3%)
- Participants were willing to provide referrals to medical/social services (88.3%) and addiction treatment (90%)
- Over half of participants reported dispensing naloxone (58.3%)
- Pharmacists dispensing naloxone were more likely to be supportive of on-site HIV testing ($p<0.02$)

Table 1.

Distribution of pharmacist and pharmacy characteristics among rural and small metro area pharmacists registered with NYS opioid overdose prevention program (n=60) stratified by naloxone dispensation, 2019.

Measures	Distribution, n (%)		
	All	Naloxone dispensed (<i>any vs. none</i>)	p-value
Total	60 (100.0)	35 (58.33)	
Gender			0.275
Female	31 (51.7)	16 (51.6)	
Male	29 (48.3)	19 (65.5)	
Race-ethnicity			0.106
White	32 (53.3)	15 (46.9)	
Asian, South Asian, Pacific Islander	21 (35.0)	16 (76.2)	
Other	7 (11.7)	4 (57.1)	
Languages spoken			0.032*
English only	36 (60.0)	17 (47.2)	
Other language	24 (40.0)	18 (75.0)	
Position			0.323
Staff pharmacist	40 (66.7)	22 (55.0)	
Managing pharmacist	15 (25.0)	11 (73.3)	
Owner	5 (8.3)	2 (40.0)	
Type			0.430
Chain	44 (73.3)	27 (61.4)	
Independent	16 (26.7)	8 (50.0)	

Table 2.

Naloxone-related experiences and beliefs among rural and small metro area pharmacists registered with NYS opioid overdose prevention program (n=60), stratified by naloxone dispensation, 2019.

Measures	Distribution, n (%)		
	All	Naloxone dispensed (<i>any vs. none</i>)	p-value
Total	60 (100.0)	35 (58.33)	
Support sale of naloxone in pharmacy			0.162
Yes	56 (93.3)	34 (60.7)	
No	4 (6.7)	1 (25.0)	
Believe pharmacist should play bigger role in OD prevention			0.608
Yes	52 (86.7)	31 (59.6)	
No	8 (13.3)	4 (50.0)	
Do you think that selling naloxone to PWUO:			0.594
Makes opioid use increase?			
Yes	17 (28.3)	9 (52.9)	
No	43 (71.7)	26 (60.5)	
Sends a message that opioid use is ok?			0.593
Yes	24 (40.0)	13 (54.2)	
No	36 (60.0)	22 (61.1)	
Reduces the risk of opioid overdoses?			0.089
Yes	53 (88.3)	33 (62.3)	
No	7 (11.7)	2 (28.6)	
Since registering for OOPP, pharmacist experienced:			
Loss of business			0.854
Yes	9 (15.0)	5 (55.6)	
No	51 (85.0)	30 (58.8)	
Theft/crime potentially committed by naloxone customers			0.513
Yes	12 (20.0)	8 (66.7)	
No	48 (80.0)	27 (56.2)	
Increase in number of prescriptions filled			0.337
Yes	21 (35.0)	14 (66.7)	
No	39 (65.0)	21 (53.8)	

Table 3.

Attitudes about pharmacist provision of public health services among rural and small metro area pharmacists registered with NYS opioid overdose prevention program (n=60), stratified by naloxone dispensation, 2019.

Measures	Distribution, n (%)		
	All	Naloxone dispensed (<i>any vs. none</i>)	p-value
Total	60 (100.0)	35 (58.33)	
Vaccinations			0.726
Supportive	56 (93.3)	33 (58.9)	
Not supportive	4 (6.7)	2 (50.0)	
HIV testing			0.023*
Supportive	45 (75.0)	30 (66.7)	
Not supportive	15 (25.0)	5 (33.3)	
Referral to free HIV testing			0.088
Supportive	58 (96.7)	35 (60.3)	
Not supportive	2 (3.3)	0 (0.0)	
Information on safe syringe disposal			0.233
Supportive	59 (98.3)	35 (59.3)	
Not supportive	1 (1.8)	0 (0.0)	
Information on safe syringe use			0.162
Supportive	56 (93.3)	34 (60.7)	
Not supportive	4 (6.7)	1 (25.0)	
Referrals to medical & social services			0.946
Supportive	53 (88.3)	31 (58.5)	
Not supportive	7 (11.7)	4 (57.1)	
Referrals to drug treatment			0.190
Supportive	54 (90.0)	33 (61.1)	
Not supportive	6 (10.0)	2 (33.3)	