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Predicting pharmacy naloxone stocking and dispensing following a statewide standing order, Indiana 2016

B.E. Meyerson^{a,b,*}, J.D. Agle^{a,c,h}, A. Davis^{d,e}, W. Jayawardene^{a,h}, A. Hossⁱ, D.J. Shannon^{a,b}, P.T. Ryder^f, K. Ritchie^g, and R. Gassman^{a,c,h}

^aIndiana University School of Public Health-Bloomington, 1025 E. 7th St., Bloomington, IN 47405, USA

^bRural Center for AIDS/STD Prevention, Indiana University, 801 E. 7th St., Bloomington, IN 47405, USA

^cIndiana Prevention Research Center, Indiana University, 501 N. Morton St. Suite 110, Bloomington, IN 47404, USA

^dHIV Center for Clinical and Behavioral Studies, Columbia University Medical Center and New York Psychiatric Institute, 1051 Riverside Dr. #15, New York, NY 10032, USA

^eSocial Intervention Group, Columbia University School of Social Work, 1255 Amsterdam Ave., New York, NY 10027, USA

^fLarkin University College of Pharmacy, 18301 N. Miami Ave. Suite 1, Miami, FL 33169, USA

^gButler University College of Pharmacy and Health Sciences, 4600 Sunset Ave., Indianapolis, IN 46208, USA

^hInstitute for Research on Addictive Behavior, Indiana University, 501 N. Morton St. Suite 104, Bloomington, IN 47404, USA

ⁱIndiana University Robert H. McKinney School of Law, 530 W. New York St., Indianapolis, IN 46202, USA

Abstract

Background: While naloxone, the overdose reversal medication, has been available for decades, factors associated with its availability through pharmacies remain unclear. Studies suggest that policy and pharmacist beliefs may impact availability. Indiana passed a standing order law for naloxone in 2015 to increase access to naloxone.

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*Corresponding author at: Indiana University School of Public Health – Bloomington 1025 E. 7th St., Bloomington, Indiana 47405, USA. bmeyerso@indiana.edu (B.E. Meyerson).

Contributors

Meyerson, Agle, Shannon, Ryder, Ritchie and Gassman conceived of the study and developed the instrument. Meyerson obtained funding for the study and directed all aspects of the study. Agle and Shannon gathered the data. Agle, Jayawardene, Shannon, Davis and Meyerson conducted the data analysis. Meyerson led the manuscript development. Meyerson, Hoss, Jayawardene and Agle revised the manuscript. All authors contributed to and approved the submitted and revised manuscript.

Conflict of interest

All authors declare no conflict of interests to report.

Objective: To identify factors associated with community pharmacy naloxone stocking and dispensing following the enactment of a statewide naloxone standing order.

Methods: A 2016 cross-sectional census of Indiana community pharmacists was conducted following a naloxone standing order. Community, pharmacy, and pharmacist characteristics, and pharmacist attitudes about naloxone dispensing, access, and perceptions of the standing order were measured. Modified Poisson and binary logistic regression models attempted to predict naloxone stocking and dispensing, respectively.

Results: Over half (58.1%) of pharmacies stocked naloxone, yet 23.6% of pharmacists dispensed it. Most (72.5%) pharmacists believed the standing order would increase naloxone stocking, and 66.5% believed it would increase dispensing. Chain pharmacies were 3.2 times as likely to stock naloxone. Naloxone stocking was 1.6 times as likely in pharmacies with more than one full-time pharmacist. Pharmacies where pharmacists received naloxone continuing education in the past two years were 1.3 times as likely to stock naloxone. The attempted dispensing model yielded no improvement over the constant-only model.

Conclusions: Pharmacies with larger capacity took advantage of the naloxone standing order. Predictors of pharmacist naloxone dispensing should continue to be explored to maximize naloxone access.

Keywords

Naloxone access; Opioid overdose reversal; Pharmacy practice; Public health law

1. Introduction

Opioids have become a national priority in the United States, largely because opioid overdose (OOD) is now a leading cause of death for Americans under 50 years of age (CDC, 2017a,b). The rate of OOD quadrupled between 1999 and 2015 and reached a point where 91 Americans died daily (CDC, 2017a). Part of the federal government's response was to identify access to the OOD reversal medication naloxone as part of a tripartite approach to reducing OOD (Kim et al., 2016).

Recently, state statutes and regulations expanded prescribing and dispensing authority to increase naloxone access (Davis and Carr, 2015; Prescription Drug Abuse Policy System, 2017). In some states, naloxone can now be dispensed without a medical license and a prescription (Davis and Carr, 2017). As of this writing, all but three states have enacted legislation allowing others, beyond first responders or medical professionals, to distribute and/or administer naloxone (The Network for Public Health Law, 2016; Davis and Carr, 2017). Such legal approaches equip communities with a powerful tool to save lives of those experiencing OOD.

Community pharmacies are primary partners in naloxone distribution (Nielsen and Van Hout, 2016). This is especially true for communities burdened with high need and low levels of public health resource because pharmacies are ubiquitous, staffed with professionals trained in medication therapy management, and are often perceived as non-stigmatizing and normalizing (Amesty et al., 2012; Lutnik et al., 2012; Meyerson et al., 2013). Though, as

Zaller et al. suggested, there may be perceptions among people who inject drugs (PWID) that pharmacy staff would be stigmatizing (2013). Pharmacies may play an even greater public health role, particularly for PWID, due to the paucity of public health resources for PWID health. This is definitely the case in Indiana, where syringe access policy has met several barriers (Meyerson et al., 2017).

While few pharmacies stocked naloxone as recently as 2009 (Hammett et al., 2014), a ten-fold dispensing increase occurred in retail pharmacies from 2013 to 2015 (Jones et al., 2016). Given the potential for pharmacies to help reduce OOD, there is growing interest in understanding their precise role in naloxone access, whether that of education, consultation, dispensing, or identification of likely naloxone beneficiaries (Bailey and Wermeling, 2014; Freeman et al., 2017). This is especially important for services to PWID given the potential for stigma (Zaller et al., 2013; Hammett et al., 2014; Green et al., 2017b).

Like many U.S. communities, Indiana's struggle with opioid addiction is compounded by a dearth of public health resources (Trust for America's Health, 2016). Uniquely, in 2015, Indiana was the location of the largest HIV outbreak in decades associated with injection drug use (Conrad et al., 2015). That year, in recognition of persistent OOD, Indiana enacted law to increase access to an "overdose intervention drug," called naloxone, by permitting prescribing and dispensing without a medical exam and without patient-specific prescriptions through standing orders issued by health care providers (P.L. 32–2015). The following year, the statute was amended to require that the State Department of Health "ensure that a statewide standing order... is issued" (P.L. 6–2016). The Department of Health established a process in which individuals and entities that dispense, administer, or acquire naloxone can register annually online as required under the statutory code (Ind. Code 16-42-27-2(e)(1)). Registered dispensing entities can distribute naloxone to opioid users, family members, friends, or other individuals or entities to help prevent OOD. Six other U.S. states (MD, NC, NM, PA, TX, WY) have similar state-wide standing order laws (Davis and Carr, 2017), and over 40 states have non-patient specific standing orders (Davis and Carr, 2017; Hawk et al., 2015). In Indiana, naloxone entities must provide education and training about naloxone, how to use it, and to call 9-1-1 immediately before administering it. Entities must also provide addiction treatment information and referrals to treatment programs (Ind. Code 16-42-27-2(a)).

Within four months of Indiana's 2015 standing order enactment, only 4 Indiana pharmacies registered with the state as dispensing naloxone (Smith, 2015). A rapid 21-month increase in community pharmacy registration occurred: by 2016, 347 dispensing entities were registered with the state, and by October 2017, 452 community pharmacies were registered entities (Indiana State Department of Health, 2015). At face value, one might suppose the standing order facilitated pharmacy naloxone stocking and dispensing. One might also suppose that registration as a naloxone entity meant that the pharmacies actually stocked naloxone. These suppositions are as yet unclear, as are questions about other determinants of pharmacy naloxone stocking and dispensing.

Studies among pharmacists elsewhere have attempted to understand naloxone dispensing, but this is especially true for those when naloxone was available only via prescription.

Raisch et al.'s small study of pharmacists in seven states found general support for naloxone dispensing with a prescription (Raisch et al., 2005), yet Hammett's review of studies from six countries (including the U.S.) found barriers to dispensing including legality perceptions, store chain practice/policy, and pharmacist stigmatizing attitudes (Amesty et al., 2012; Hammett et al., 2014). Zaller's 2013 study among Rhode Island pharmacy staff and PWID found support among pharmacists and PWID for a naloxone pharmacy intervention, though it clearly indicated the need for pharmacist education about naloxone (Zaller et al., 2013). Two studies found general support for dispensing naloxone but discomfort with actively identifying patients who might benefit from it (Bailey and Wermeling, 2014) and concerns about confidentiality (Zaller et al., 2013).

A more robust 2015 study among Kentucky pharmacists found that 54.0% were willing to dispense with a valid prescription; however, community pharmacists were more concerned than those in other practice settings with the frequency of pharmacy visits by customers seeking naloxone and with Kentucky's collaborative practice policy implementation (Freeman et al., 2017). That same year, a study by Green et al. among Massachusetts and Rhode Island pharmacists echoed concerns over dispensing logistics and included concerns about opioid safety management (Green et al., 2017a,b). Other studies report continued discomfort dispensing naloxone without a prescription. A 2016 West Virginia study found that only 20.4% of community pharmacists were comfortable dispensing naloxone without a prescription (Thornton et al., 2017). That same year, Nielsen et al.'s Australian study found that while 90.3% were willing to dispense naloxone with a prescription, only 40.8% were willing to dispense without one (Nielsen et al., 2016). Unfortunately, none of these studies associated attitudes with reported dispensing behaviors.

As these pharmacy-based naloxone studies happened during earlier periods of state policy evolution, our understanding remains limited regarding factors associated with pharmacy naloxone stocking and dispensing under a statewide standing order. Thus, we sought to understand the perceived impact of the Indiana standing order and to identify salient factors associated with pharmacy naloxone stocking and dispensing.

2. Materials and methods

A cross-sectional census of managing pharmacists in Indiana's 850 community pharmacies was conducted from July-September 2016. The sample was identified by a match of licensed managing pharmacists provided by the Indiana Board of Pharmacy (February 2016) with retail pharmacies provided by Hayes Directories, Inc. (December 2015, Mission Viejo, CA).

The study used an online survey platform. Survey invitations were mailed by post directly to each managing pharmacist at their pharmacy and included an initial letter, study description, a survey link with a QR code for smartphone access, and a \$5 bill as a pre-incentive. Two cycles of follow-up occurred with non-respondents (Agle et al., 2017). The study was deemed exempt by the Indiana University IRB.

Survey items included questions about pharmacist demographics, practice settings, pharmacy policy and practice, pharmacist education and practice, attitudes about and

comfort levels regarding naloxone stocking and dispensing, and beliefs about the role of pharmacists in HCV and HIV prevention, treatment, and in the health of people who inject drugs (PWID). A focus was on PWID because of the tremendous need by this sub-population of opioid users for public health services, as demonstrated by Indiana's HIV outbreak and the lack of clarity about stigma towards PWID from pharmacists. The survey also asked pharmacists their beliefs about the impact of the recently enacted standing order. Finally, pharmacists indicated whether they had been asked by customers, medical professionals (nurses or physicians), or other pharmacists about naloxone during the past 2 years.

The survey was assessed for face validity and revised by a team of cross-disciplinary experts based on a pre-test with a small sample ($n = 5$) of non-managing pharmacists using trigger questions to assess comprehension, information retrieval, and judgment/recall. Survey data were matched with the most recent available county-level secondary data describing community level markers for naloxone need: opioid overdose mortality rates (2002–2013) (Indiana State Epidemiologic Outcomes Working Group, 2014), medical underservice area designation (HRSA, 2016), and county progress toward syringe exchange policy adoption (Meyerson et al., 2017). These served as surrogate indicators of community need together with whether a pharmacist was asked by customers, pharmacists, or other medical professionals about naloxone. The use of OOD mortality rates as a community need indicator has precedent (Stopka et al., 2017). The use of medical underservice area indicated the need for health services generally in a community and the unique role a pharmacy might play in the health of the population. Finally, whether pharmacists were asked about naloxone was a recommendation of the research team's pharmacy practice members, based on their experience that community need is often indicated at the community pharmacy counter.

Outcomes of interest included pharmacy naloxone stocking and pharmacist dispensing. Naloxone stocking was measured by the question: "Does your pharmacy currently stock Naloxone, the opioid overdose reversal medication?" Pharmacist naloxone dispensing was measured by the question: "Have you dispensed Naloxone to patients/customers in your current pharmacy?"

Based on pharmacy naloxone studies, we hypothesized that the standing order would be associated with pharmacy naloxone stocking and pharmacist dispensing. Because stocking and dispensing was not evaluated prior to the law's implementation, we used pharmacist perceptions as proxy variables, asking: "Indiana now has a standing order for Naloxone" (a) "Does this policy increase the likelihood that your pharmacy will stock Naloxone?" and (b) "Does this policy increase the likelihood that you and your pharmacy staff will dispense Naloxone?"

At the community level, we hypothesized that pharmacies experiencing inquiries about naloxone in the past 2 years would be more likely to stock and dispense it. This was measured by the question: "In the last 2 years, have you or your pharmacy staff been asked about naloxone for the prevention of opioid overdose?" Responses were dummy coded as 'Asked by any of those groups/Not asked by any of those groups.' We also suspected that pharmacy type (e.g., chain, mass merchandising, food store, or independent) might affect

stocking and dispensing practices, as might the number of pharmacists working at a given location.

At the individual/pharmacy level, we hypothesized that pharmacies would be more likely to stock and dispense naloxone if pharmacists themselves were comfortable dispensing it. Specifically, we asked about scenarios listed in Table 1. These scenarios were developed by our research team based on likely and legal scenarios and were grounded in pharmacy experience by three of the research team members (Shannon, Ryder, and Ritchie). Responses were dummy coded as ‘Comfortable with any of the options listed above/Any other response.’ Finally, we hypothesized that pharmacies would likely stock naloxone if managing pharmacists received continuing education about ‘Naloxone for opioid overdose reversal’ in the last 2 years.

To model pharmacist naloxone dispensing, we included two independent variables not incorporated in the stocking model: 1) whether the pharmacy stocked naloxone, and 2) pharmacist perception of their role as resources for PWID health. This was measured with the item: “Pharmacists/pharmacies are an important resource for injection drug users who may not have access to healthcare in the community.” Response options were: *Strongly agree*, *Somewhat agree*, *Neither agree nor disagree*, *Somewhat disagree*, and *Strongly disagree*, and they were dummy coded as ‘Somewhat or strongly agree/Neutral, disagree, or strongly disagree.’

The primary analysis was intended to be binary logistic regression models and estimation of odds ratios (SPSS v.24). However, calculating relative risk is more appropriate than calculating adjusted odds ratios when the outcome is common (Greenland, 2004). Thus, because more than half of pharmacies stocked naloxone, the analysis for pharmacy stocking naloxone (SAS v 9.4) was accomplished using a modified Poisson approach to estimate the relative risk and confidence intervals by using robust error variances (Zou, 2004). We retained the binary logistic regression approach for pharmacist naloxone dispensing. A single variable regression model was also run to test whether perception about the standing order would predict naloxone stocking and dispensing. Variables were dummy coded to avoid model over-specification. Prior to running each model, sets of predictor variables were tested for multicollinearity using an exclusion cut-off of VIF = 2.5 or higher (Midi et al., 2010).

3. Results

3.1. Descriptive statistics

The study included 284 full responses for a response rate of 33.4% (see Table 1). The sample was primarily white, non-Hispanic, and evenly split by gender. Over half (60.6%) of pharmacists reported receiving continuing education about naloxone in the past 2 years.

Chain pharmacies were practice locations for 56.3% of pharmacists, which generally mirrored Indiana’s distribution of pharmacies. Respondents practiced in 72.8% of Indiana counties, and 78.5% were located in areas with populations > 250,000 (not shown in table).

A majority of pharmacists (72.5%) believed that the newly enacted naloxone standing order would increase the likelihood of their pharmacy stocking naloxone. Slightly fewer (66.5%) believed it would increase the likelihood that they or their staff would dispense it; however, both sentiments were highly correlated, $r(282) = 0.7, p < .001$.

Less than half of pharmacists (47.9%) were comfortable dispensing naloxone in any of the scenarios listed in Table 1, even as 76.8% agreed that pharmacists can be an important resource for PWID who may not have access to healthcare in the community.

3.2. Regression model: Pharmacy stocking naloxone

Just over half (58.1%) of pharmacies stocked naloxone. A test of the full regression model with all six predictor variables against a constant-only model indicated an improvement in model fit according to change in quasi-likelihood under the independence model criterion (QIC) from 1212.9 to 1129.3. No predictor variable exceeded a VIF of 2.5.

As shown in Table 2, chain pharmacies were 3.2 times as likely to stock naloxone compared to other types of pharmacies (in aggregate), and pharmacies with more than one full-time licensed pharmacist were 1.6 times as likely to stock naloxone compared to those with one full-time pharmacist. In addition, pharmacies where the managing pharmacist had received continuing education on naloxone within the past 2 years were 1.3 times as likely to stock naloxone compared to those where that was not the case. No other predictor variables significantly contributed to the model.

Based on the theoretical importance of the standing order in Indiana, a single-variable regression model was also run with stocking naloxone as the dependent variable and perception of the standing order as the sole predictor variable. In the single-variable model, the perception that the standing order made it more likely that a pharmacy would stock naloxone was a significant predictor (unadjusted relative risk = 2.0, 95% CI: 1.5–2.7), but, as noted, it became non-significant when included in the full model.

3.3. Regression model: Pharmacist naloxone dispensing

While over half of pharmacies stocked naloxone, and a majority of pharmacists held beliefs supportive of naloxone's benefit for PWID health, only 23.6% of managing pharmacists dispensed it at their current pharmacies. A test of the full regression model with all seven predictor variables against a constant-only model was significant ($\chi^2 = 45.0, p < 0.001$), and $-2LL$ improved from 310.3 to 265.3. The Hosmer and Lemeshow Goodness-of-Fit Test was not violated ($p = .8$). None of the predictor variables exceeded a VIF of 2.5. Correct classification by the constant-only model with a cut value of 0.500 was 76.4% (with 0% of the pharmacists personally dispensing naloxone correctly identified), while the full model correctly classified 77.5% of cases (with 4.5% of pharmacists personally dispensing naloxone correctly identified). This was an unimpressive improvement.

In the full model, only two independent variables were significant: pharmacists being asked about naloxone by any group ($B = 1.1, AOR = 3.0, p = .002, 95\% \text{ CI: } 1.5\text{--}6.0$) and the pharmacy currently stocking naloxone ($B = 1.6, AOR = 4.8, p = .001, 95\% \text{ CI: } 1.9\text{--}12.3$). As before, a single-variable regression model was also run with having dispensed naloxone as

the dependent variable and perception of the standing order as the sole predictor variable. This model did not yield any improvements over the constant-only model.

4. Discussion

This study advanced our understanding of factors predicting pharmacy naloxone stocking; however, it was unable to do so for naloxone dispensing. The selected independent variables explained a large and significant portion of variance in whether a community pharmacy stocked naloxone, and the primary factors were type of pharmacy (chain), having more than 1 full-time pharmacist, and that the managing pharmacist receive continuing naloxone education within the past 2 years. However, the proxy measure of the standing order's impact, while significant in a standalone regression model, did not contribute significantly in the full model. Further, dispensing naloxone seemed to have almost entirely different predicting variables than stocking. As noted, a paucity of research has investigated the interplay between these variables. We offer some provisional assessments based on our findings to guide future studies.

First, prior to this study, there was evidence that more pharmacies began to stock naloxone after the implementation of the state standing order. Interpreted in isolation, pharmacist belief that the standing order might increase naloxone stocking was associated with naloxone stocking. However, the full model suggested that the standing order's contribution to variance in stocking naloxone was subsumed by structural aspects, especially the type of pharmacy and the number of full-time pharmacists. Thus, it may be the case that while state law facilitated naloxone stocking, one or more factors shared by larger and/or more systematized pharmacies was important in determining who stocked it. It is unclear whether this finding represented organizational capacity for change, such as tolerance for fiscal risk of a large-scale practice modification suggested by Doucette et al. (2012); whether it represented differential approaches to government policy by larger pharmacy groups, as suggested by Roberts et al. (2005); or whether it was the result of some other underlying factor such as the cost of naloxone as observed by Zaller et al. (2013). This last point is important because pharmacies must charge the full cost of naloxone. Even as cost reduction options exist, such as naloxone coupons, it is not clear how widespread such coupons are and who has access to them. Further, there are other naloxone distributors such as public health related programs, schools, or first responders; all of which might have access to subsidized or even free naloxone through grants and can therefore distribute it at significantly reduced cost or free of charge. While we are aware of these grants for naloxone distribution in Indiana and elsewhere, the geographic extent and adequacy of such subsidized access is not yet clear.

Individual-level indicators, such as having been asked about naloxone by any group and comfort dispensing naloxone, did not significantly predict whether a pharmacy stocked it. We cannot yet determine whether this is because naloxone stocking is simply not affected by managing pharmacists or because individual managing pharmacists have less autonomy in large, chain pharmacies than they do in smaller pharmacies regardless of their comfort levels with naloxone or the degree to which they have been asked about it by community and medical/pharmacy colleagues. That said, if pharmacy type and capacity facilitated naloxone

stocking, it is also possible that managing pharmacists at these locations would not necessarily dispense it. Perhaps other pharmacists did. To learn this, a representative sample would need to be drawn from all practicing community pharmacists to avoid selection bias.

The variables that we identified did not predict whether an individual managing pharmacist dispensed naloxone with meaningful accuracy. Further, the improvement of correct classification was largely driven by whether the pharmacy stocked naloxone, which is a logical dispensing requirement. Still, fewer than half of community pharmacies stocking naloxone also had a managing pharmacist who dispensed it. Dispensing naloxone is an individual behavior, yet it is admittedly curious that dispensing had not occurred at the majority of community pharmacies. Prior research indicates that lack of dispensing might be related to factors such as negative patient profiling (Drainoni et al., 2016) or more generalized stigma related to naloxone (Zaller et al., 2013; Green et al., 2017b; Penm et al., 2017). It is not clear that education is necessarily the solution because dispensing practices in our model were not related to pharmacist perception about the importance of PWID health and pharmacist naloxone continuing education. One possibility is that dispensing behavior may partly be driven by customers rather than by pharmacists – one cannot dispense something if one is not asked for it. Additionally, if one is asked but the price is prohibitive, the customer declines to purchase. While off-label use of injectable naloxone for intranasal administration can be relatively low-cost (approximately \$40), Narcan nasal spray cost \$150 per two-dose pack in 2016, while the Evzio auto-injector two-pack cost \$4500 that same year (Gupta et al., 2016). Insurance coverage for naloxone may also be at issue. Indiana Medicaid covers naloxone under the statewide standing order, though it is not clear whether and how well private insurers cover it.

These findings lead to several follow-up questions and comments. First, this study suggests that large chain pharmacies were more likely to stock naloxone, and pharmacy type and size shared significant explanatory space with the standing order. One emerging unknown, then, is what steps can be taken to support naloxone stocking in smaller or independent pharmacies, particularly in communities with high need but low public health resource. Second, while stocking naloxone is a necessary requirement for dispensing it, this study found that it was not a sufficient one—we did not, based on our theoretical modeling, identify any single factor that might be sufficient. Third, this study did not address the broader question of what is sufficient to meet the need. It may be the case that stocking naloxone in chain pharmacies and dispensing it from around one-quarter of pharmacies is sufficient to address OOD in this state (Indiana), but it may also be the case that it is insufficient. We recommend studies examine this ‘threshold’ of access, akin to Bird et al.’s evaluation of Scotland’s national naloxone program (2015).

This study is subject to a number of limitations. First, the response rate of 33.4% is adequate but does not preclude the possible introduction of non-response bias. At the same time, differentiation in responses between standard and rigorous recruitment procedures for a survey may not substantively affect findings (Keeter et al., 2006). Second, sample size requirements for logistic regression are complex –Peduzzi et al.’s Monte Carlo study of events per variable (EPV) for binary logistic regression found 10 EPV to be the point at which few adverse statistical effects would be observed (Peduzzi et al., 1996). Our model for

naloxone dispensing had slightly lower EPV than suggested $(7 \times 10) / .2$ —or 297 minimum subjects. To attenuate this concern, we checked a version of the dispensing model with 6 predictors (removing the independent variable with the highest correlation with another variable), which would have a minimum requirement of 254 subjects. While the removal of the variable slightly reduced correct classification (3.0% versus 4.5% of dispensing pharmacists), no other statistical issues were observed, so we retained the original model. Third, our assessment of the standing order was based on managing pharmacist perception of the standing order's effect; a concrete assessment of the order's effect would require a different study type, though managing pharmacists are among those most qualified to describe the effects of the order on pharmacy practice. As there was, to our knowledge, no study conducted in Indiana regarding naloxone stocking and dispensing before standing order enactment, this study may be the next best measure of the policy impact on pharmacy behavior, at least for chain pharmacies with more than 1 full-time pharmacist. Finally, logistic regression greatly depends on the theoretical orientation and variables utilized. Thus, this paper should not be taken to indicate that nothing effectively explains managing pharmacist naloxone dispensing behavior, but rather that we may not have selected or identified the specific factors associated with it.

5. Conclusion

Access to naloxone appears to have more to do with structural aspects, namely standing order policies that facilitate stocking by chain pharmacies with more than 1 full-time pharmacist. Factors predicting dispensing, however, continue to elude. Understanding both stocking and dispensing by community pharmacists will clarify just how community pharmacies can and are contributing to the health of PWID during these challenging times.

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Table 1

Community Pharmacy and Managing Pharmacist Characteristics, Indiana 2016 (N = 284).

Pharmacist characteristics and behavior	
Gender (Female)	143 (50.4%)
Race/ethnicity (White, non-Hispanic)	263 (92.6%)
Age	$\mu = 42.43$ (r:25–73), SD:11.7
Years in practice	$\mu = 17.1$ (r:1–51), SD:12.0
PharmD Degree	171 (60.2%)
Received Continuing Education about Naloxone in the past 2 years	172 (60.6%)
Pharmacy Practice Environment	
Type of pharmacy	
Chain	160 (56.3%)
Food store	64 (22.5%)
Mass merchandiser	49 (17.3%)
Independent	11 (3.9%)
Number of full time licensed pharmacists	$\mu = 2.24$ (SD:1.11)
Pharmacy currently stocks Naloxone	165 (58.1%)
Pharmacist asked by customers or medical providers about Naloxone in the past 2 years	147 (51.8%)
Pharmacist Beliefs	
Standing order policy will increase likelihood that my pharmacy will stock Naloxone	206 (72.5%)
Standing order policy will increase the likelihood that I and my pharmacy staff will dispense Naloxone	189 (66.5%)
I am comfortable dispensing Naloxone to:	
A family member of someone who injects opiates	93 (32.7%)
An adult friend of someone who injects opiates	80 (28.2%)
A person who injects opiates, but only if they are not requesting to purchase it repeatedly	58 (20.4%)
A person who injects opiates even if they seek to purchase it repeatedly	30 (10.6%)
A teenager (15–17 yrs of age) who is a friend of someone who injects opiates	26 (9.2%)
Any of the people in the listed scenarios (above)	136 (47.9%)
I am not comfortable dispensing naloxone to any of these people (above)	52 (18.3%)
Pharmacists can be an important resource for injection drug users who may not have access to healthcare in the community (Generally agree)	218 (76.8%)

Table 2
 Modified Poisson Model: Indiana Pharmacy Stocks Naloxone (Yes) (N = 284), 2016.

Independent Variables	Parameter Estimate	Sig.	Adjusted Relative Risk (ARR)	95% CI for ARR
Chain Pharmacy (Yes)	1.18	<0.0001	3.24	2.29–4.58
Received CE on Naloxone, Past 2 Years (Yes)	0.23	0.019	1.26	1.04–1.52
Asked About Naloxone by Any Group (Yes)	0.14	0.155	1.15	0.95–1.39
Comfortable Dispensing Naloxone (Yes)	0.07	0.337	1.07	0.93–1.23
Standing Order (More Likely to Stock)	0.16	0.199	1.17	0.92–1.48
More than One Full-Time Licensed Pharmacists	0.47	0.002	1.61	1.19–2.17