

Final report

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Introduction

Drug overdose is a nationwide epidemic affecting thousands of Americans every year. In 2017, 67.8% (47,000 of 70,200) of drug overdose deaths occurred from an opioid.¹ The Centers for Disease Control and Prevention has shown a 5-fold increase in opioid overdose deaths from 1999 to 2016 in the United States.² In Illinois, the number of opioid prescriptions has declined by approximately 1.2 million from 2013 to 2017; however, the number of opioid-related deaths has increased by more than 2,300.³

To combat this opioid epidemic, in September 2015, Illinois enacted legislation to expand access to the opioid antagonist naloxone. Through a standing order, pharmacists can dispense naloxone to patients at high-risk of opioid overdose without a prescription from their provider.⁴ To participate in this program, pharmacies and pharmacists must be licensed in Illinois. In addition, pharmacists are required to complete an Accreditation Council for Pharmaceutical Education (ACPE) accredited training approved by the Illinois Department of Human Services (IDHS).⁴ This training covered a list of comprehensive topics on opioid overdose and naloxone. Additionally, pharmacists are required to understand the Illinois Naloxone Standardized Procedure document.⁴ This document includes information on opioid overdose, naloxone administration and importance of emergency response after administering naloxone to an overdose victim.⁴ Pharmacists can print and keep this document with them for future reference.

Despite efforts to engage pharmacists in naloxone dispensing, implementation of this naloxone standing order authority remains low. The number of opioid related deaths are increasing every year and pharmacists can make a recommendation for naloxone with each opioid dispensing. Limited program participation to-date suggests that barriers to naloxone dispensing remain. Studies assessing these barriers are sparse. However, Carpenter et al. identified pharmacists' comfort level in discussing naloxone as a common barrier.⁵ Whitley H. identified an active learning diabetes simulation had a significant impact on student pharmacists' comfort level with patient interaction and empathizing with patients who have diabetes.⁶ Graves RL. Et al. also identified multiple barriers to naloxone access in pharmacies, lack of knowledge of naloxone by pharmacists.⁷ Witry MJ. et al. identified active learning for medication adherence to be statistically significant ($P < 0.001$) on student pharmacists' comfort level, knowledge and confidence.⁸ Collier IA. et al. identified active learning practice simulations to be statistically significant ($P < 0.001$) on student pharmacists' education and counseling skills.⁹

To overcome this barrier, the communication technique training is designed to be an interactive, active learning training to incorporate the knowledge gained by pharmacists into simulated counseling sessions.

Primary objective:

To determine the effectiveness of a communication technique training using a scenario-based active learning approach for pharmacists on the dispensing rates of naloxone in patients receiving high-risk opioids

Secondary objective:

To characterize factors affecting naloxone dispensing patterns and workflow variables that may impact naloxone dispensing such as:

- 1) Pharmacist's demographic data
- 2) Study location and hours

Methods

Study Design:

- A multi-site prospective pre and post intervention study conducted from February 2019 to May 2019 in an urban/suburban community pharmacy grocery chain (Jewel-Osco, Albertsons Companies) in the Chicago region.

Inclusion Criteria:

- Pharmacists working at any of the selected Jewel-Osco pharmacy study locations
- Pharmacists who completed ACPE approved training by IDHS
- Pharmacies that dispense greater than or equal to 1200 prescriptions per week which includes at least 50 prescriptions for opioids greater than or equal to 50 mg morphine dose equivalents per day
- Pharmacies that have dispensed two or less naloxone units in the last year

Exclusion Criteria:

- Pharmacists with less than one year of work experience
- Pharmacists who declined to participate in this study

Communication Technique Training (Appendix 1):

- Institutional Review Board (IRB) was obtained in February 2019.
- Six study locations at Jewel-Osco were selected based on the script volume for opioids greater than or equal to 50 mg morphine dose equivalents and number of naloxone units dispensed.
- A recruitment email was sent to the six study locations stating the purpose of the study and the role of participants in the study. Following the recruitment email, the study locations were notified of the day and time a week prior to the communication technique training intervention.
- In February 2019, the training was scheduled at each of the six locations during shift overlap time of the participants.
- During each visit at the study locations, the consent process was completed with each participant at the beginning of the training intervention.

- The 30-minute communication technique training intervention was conducted for each participant in the patient care room, during which participants received the communication technique pocket card.
- Utilizing the communication technique training pocket card, the participants were trained on who to consider for naloxone, counseling points on side effects of opioids, how to start a conversation on naloxone, what to say and what not say during the conversation and additional patient resources available.
- At the end of the training, simulated patient case scenarios were presented for participants to demonstrate how to approach the situation and initiate a conversation on naloxone.
- Key points covered in the patient case scenarios include:
 - Calculating the morphine milligram equivalence dose
 - Identifying patients on more than one opioid or sedating medications
 - Counseling patients on the side effects of opioids with an emphasis on opioid-induced difficulty breathing
 - Using the Epi-Pen concept to explain safety measures of recommending naloxone
 - Verbiage to use with discussing the importance of naloxone
 - Avoid the word “overdose”
 - Counsel on the importance of calling 911 after administering naloxone
- During the training, participants openly discussed their experiences and additional ways on how to approach the patient to discuss naloxone with patients.
- Pre-intervention data from August 2018 to October 2018 was analyzed in March 2019.
- Post intervention data from March 2019 to May 2019 was analyzed in May 2019.

Data Analysis:

- Data analysis was performed using the SPSS software.
- Rates of naloxone dispensing was compared pre and post training using Wilcoxon Signed Rank test for paired data.
- To assess potential variable affecting naloxone dispensing rates, demographic and workflow factors were analyzed using univariate analysis. Variables with a p-value < 0.2 were included in a logistic regression model with backward elimination.
- P-values < 0.05 was considered statistically significant.

Using the SPSS software, data analysis of variables affecting naloxone dispensing rates was performed:

- Number of naloxone units dispensed at each study location and dispensing pharmacist
- Demographic data (age, gender, years of work experience, degree) of pharmacists dispensing naloxone
- Time of day naloxone is dispensed
- Pharmacy hours of each study location

Results and Discussion

A total of 22 pharmacists out of the 25 total pharmacists at the sites (88%) were recruited at the study locations to participate in this study. The remaining three overnight pharmacists were unable to participate in the study during the intervention timeframe. Out of the 22 pharmacists, 14 were female and 8 were male pharmacists. When comparing naloxone dispensing rates pre- and post-intervention, 69% of female showed an increase in naloxone dispensing and 50% of male showed an increase in naloxone dispensing.

About 31% of the pharmacists had 2 to 5 years of work experience, 40% had more than 15 years of work experience and 22% had 6 to 10 years of work experience. When comparing naloxone dispensing rates pre- and post-intervention, only 16% of pharmacists with 2 to 5 years of work experience showed an increase in naloxone dispensing and 77% of pharmacists with more than 15 years of work experience showed an increase in naloxone dispensing.

Two out of the six study locations were 24-hour pharmacies, the other four were 8 AM to 10 PM Monday through Friday, 9 AM to 6 PM on Saturday and 9 AM to 5 PM on Sunday. Out of the 24 naloxone units dispensed, 50% were dispensed between 12 PM and 6 PM, 29% were dispensed between 6 AM and 12 PM and 20% were dispensed between 6 PM and 12 AM.

The rate of naloxone dispensing was statistically significant with a p-value 0.004 when compared pre and post training using Wilcoxon Signed Rank Test for paired data.

Table 1 shows the rates of naloxone dispensing per high-risk opioids at the study locations pre-and post- intervention

Table 1: Rate of naloxone dispensing per high-risk opioids

Study locations	Opioids dispensed pre-intervention	Naloxone units dispensed pre-intervention	Opioids dispensed post-intervention	Naloxone units dispensed post-intervention
Store A	1478	2	1345	2
Store B	638	2	552	7
Store C	965	2	880	1
Store D	543	0	473	3
Store E	917	0	841	6
Store F	1026	0	909	5
Total	5567	6	5000	24

Table 2 shows demographic information of pharmacists and variables affecting rates of naloxone dispensing

Table 2: Demographics of pharmacists and variables affecting rates of naloxone dispensing

Population	N (%)
Pharmacist <ul style="list-style-type: none">• Staff pharmacist• Overnight pharmacist• Floater pharmacist	20 (90.9) 1 (4.55) 1 (4.55)
Gender <ul style="list-style-type: none">• Female• Male	14 (63.6) 8 (36.4)
Years of experience <ul style="list-style-type: none">• 2 to 5 years• 6 to 10 years• 11 to 15 years• More than 15 years	7 (31.8) 5 (22.7) 1 (4.55) 9 (40.9)
Time of naloxone dispensing <ul style="list-style-type: none">• 6 AM to 12 PM• 12 PM to 6 PM• 6 PM to 12 AM• 12 AM to 6 AM	7 (29.2) 12 (50) 5 (20.8) 0 (0.0)

This study aimed to identify if a communication technique training improved naloxone dispensing rates. Overall findings showed a 4-fold increase in naloxone dispensing with a reduction in high risk opioid dispensing.

During the patient case demonstration, pharmacists used the pocket card to demonstrate how they would approach the patient and initiate a conversation on naloxone. Pharmacists were very appreciative of the patient case scenario as they were able to understand what to say to the patients.

At the end of the training following the patient case scenarios, the pharmacists discussed some of their prior patient encounters, conversations and barriers. Pharmacists stated how they will use the knowledge gained from the training to continue recommending naloxone and helping patient understand the importance of naloxone. Pharmacists verbally stated that the pocket card was a great reminder for them about conversation points to discuss when recommending naloxone to high-risk opioid patients.

Looking at the results shown in Table 1, the active learning training played a vital role in naloxone dispensing. The result shows statistical significance in increase rates of naloxone dispensing post-intervention. It helped pharmacists gain additional knowledge on how to communicate with patients to help them understand the importance of naloxone. During the training, pharmacists discussed patient encounters at their pharmacies. A few weeks after implementing the knowledge gained during the training, pharmacists addressed that using the purpose of Epi-pen as an example for patients and explaining the similar concept of safety with naloxone, helped patients understand the importance of naloxone and the pharmacists'

recommendation. It shows a reduction in the number of high-risk opioid prescriptions dispensed post-intervention at the study locations but an increase in naloxone units dispensed at the same study locations. This shows that the communication technique training played an important role in increasing pharmacists' knowledge on how to communicate with patients on the importance of naloxone.

Table 2 shows a small sample size because of which gender of the pharmacist did not affect rates of naloxone dispensing. All pharmacists play a vital role in educating patients on this life-saving medication and dispense naloxone to the community. It was seen that pharmacists with less than 5 years of work experience had low rates of naloxone dispensing compared to pharmacists with more than 15 years of work experience. This allows growth for educating student pharmacists on opioids, naloxone and the role of pharmacists in dispensing naloxone. Further, active learning component can be added to classroom to help student pharmacists demonstrate the knowledge gained on naloxone. About 50% of the naloxone units were dispensed midday and 20-30% dispensed in the morning and evening, showing that majority of the patients pick up their medications during the day and does not affect rates of naloxone dispensing as pharmacies are open during the day.

Limitations

The study had a small number of participants with six locations in the western and southern Illinois region. This could have led to similar patient population in the areas within the six study locations. The 30-minute communication technique training was also conducted in person with each pharmacist which could be time consuming if implemented on a larger scale. A group training would be beneficial for pharmacists to discuss the patient case scenarios and share their patient encounters to the group. Future research should continue to assess the patient's willingness to purchase naloxone with different co-payments through insurance. Another limitation is the data collection of post intervention was a three-month period. Though the rates of naloxone dispensing increased, longer duration of the study will need to be conducted to further assess the efficacy of the intervention. Longer duration will require follow-up components for the participants that was missing in this study.

Conclusion

The communication technique training, an active learning training increased rates of naloxone dispensing. Pharmacists verbally reported that the training helped them gain knowledge on verbiage to use when talking to patients about naloxone. Given the statistical significance with increase in naloxone dispensing post communication technique training, it is possible that providing active learning training for pharmacists could lead to increased naloxone dispensing. Cost seemed to be a barrier for some patients but additional research on the barrier of cost in dispensing naloxone can be assessed. Future studies can be conducted to compare the cost of naloxone through an insurance plan and the willingness of patients to pay for a naloxone prescription. These study results can be used by pharmacy schools, associations and community pharmacies to provide additional training to educate pharmacists and student pharmacists on opioids, naloxone, our role as pharmacists to combat this opioid epidemic and help increase

patient access to naloxone. Using the statewide standing order in the United States, pharmacists can increase naloxone dispensing and provide this life saving medication to the community.

References

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Appendix 1

Topics covered in the communication technique training pocket card

