

University of Portland Pilot Scholars

Nursing Graduate Publications and Presentations

School of Nursing

5-2019

Improving Provider Adherence to the Safe Prescribing of Opioids Standard: An Education and Reminder Intervention

Pavan Grewal

Follow this and additional works at: https://pilot scholars.up.edu/nrs_gradpubs

Part of the [Interprofessional Education Commons](#), [Nursing Commons](#), and the [Substance Abuse and Addiction Commons](#)

Citation: Pilot Scholars Version (Modified MLA Style)

Grewal, Pavan, "Improving Provider Adherence to the Safe Prescribing of Opioids Standard: An Education and Reminder Intervention" (2019). *Nursing Graduate Publications and Presentations*. 32.
https://pilot scholars.up.edu/nrs_gradpubs/32

This Doctoral Project is brought to you for free and open access by the School of Nursing at Pilot Scholars. It has been accepted for inclusion in Nursing Graduate Publications and Presentations by an authorized administrator of Pilot Scholars. For more information, please contact library@up.edu.

Improving Provider Adherence to the Safe Prescribing of Opioids Standard: An Education and
Reminder Intervention

Pavan Grewal, FNP, MN

University of Portland Doctor of Nursing Practice Program

NRS 662: Dr. Anjanette Raber

April 15, 2019

The opioid epidemic is a crisis of opioid misuse characterized by higher incidences of substance use disorder, overdoses, and deaths in Canada (Belzak & Halverson, 2018). In Canada during 2017, ten people died each day from opioid related incidences such as overdose which is greater than deaths from motor vehicle collisions in the previous year (Government of Canada, 2018; Belzak & Halverson). British Columbia has one of the highest overdose and mortality rates from opioids in Canada (Belzak & Halverson). In 2017, 12% of Canadian (N = 3, 998) overdose deaths were in the Fraser Valley Region that contains about one fourth of British Columbia's population (Fraser Health Authority (FHA), 2018). The overwhelming number of incidences have resulted from both illegal use and over prescribing of opioids.

This project was conducted in a clinic in the Fraser Valley Region with primary care providers who prescribe opioids. The Fraser Valley Region has a high rate of people living with chronic noncancer pain which is strongly linked to the opioid related incidences in the region (FHA, 2018). The College of Physicians and Surgeons of British Columbia (CPSBC) (2018) recently revised their standard for "Safe Prescribing of Opioids and Sedatives" to mitigate the contribution of problematic prescriptions, such as over-prescribing of opioids and lack of risk assessments by providers. An important part of the standard states providers must inform chronic noncancer pain patients of the risks and benefits of opioids and one way is through completing opioid treatment agreements (OTAs). The OTA serves as an agreement signed by patients and providers once the patient is informed of the use and potential harms of the prescription by the provider.

The primary care clinic for this project serves a large population of patients on long-term opioid therapy (LTOT) for chronic noncancer pain. Prior to this project, the providers infrequently completed OTAs with patients decreasing their adherence to the CPSBC standard.

The standard specifically holds providers ethically responsible to complete comprehensive assessments and documentation when prescribing or refilling LTOT. The purpose of this project was to improve provider adherence to the College of Physicians and Surgeons of British Columbia standard through completion of OTAs using a two-part education and clinical reminder intervention.

Background

Chronic Noncancer Pain

Chronic noncancer pain includes any condition with pain occurring for three months or more not associated with malignant disease (Busse, Craigie, Juurlink et al., 2017). Chronic noncancer pain is a challenging condition to treat as it can interfere with activities of daily living and quality of life leading to increased health resource utilization, such as prescription medications including opioids (Busse et al., 2017). Patients with chronic noncancer pain are commonly prescribed LTOT and have a higher risk to develop tolerance, dependency, or addiction making them vulnerable to opioid related incidences, to the extent of mortality (National Institute on Drug Abuse, 2018).

In Canada 15% to 19 % of adults have chronic noncancer pain for which many are treated with opioids by providers to improve quality of life (Anderson, Zlateva, Khatri et al., 2015). However, providers may not adequately address the associated risks of LTOT including tolerance, dependency, addiction, abuse, poisoning, overdose, impaired function, accidents, injuries, and diversion, all contributing to the opioid epidemic (College of Physicians and Surgeons of Alberta, 2017). Chronic noncancer pain and associated treatment cost more than heart disease, cancer, and Human Immunodeficiency Virus combined estimated at greater than

\$6 billion per year in treatment and another \$37 billion related to sick days and job loss (Finestone, Juurlink, Power et al., 2016).

Provider Practice & Opioids

The opioid epidemic resulted from several factors, one being providers' prescribing practices (Howlett, 2018). There has been a drastic increase in opioid prescribing with a high number of refills over the past three decades. Thirty years ago, providers did not regularly prescribe opioids for chronic noncancer pain nor understand the harms related to long-term prescribing. In 1996, Canada's federal government approved prescribing the opioid OxyContin to relieve moderate to severe pain for all patients which changed the model for the treatment of chronic noncancer pain. OxyContin was marketed as a drug with lower risk of abuse and dependence due to its long-acting and time-release formula compared to shorter acting opioids. By the 2000's, addiction to OxyContin was on the rise and healthcare plans stopped covering the opioid. Providers then began prescribing available shorter acting opioids such as morphine and fentanyl to already established LTOT users and new patients suffering with chronic noncancer pain. This resulted in a new class of drug addiction in society due to wider spread use of prescription opioids (Howlett).

Development of the Revised Standard

Canada has the second highest rate per capita of opioid prescriptions in the world (Belzak & Halverson, 2018). In 2017, 3,998 people died from opioid related causes (Government of Canada, 2018). British Columbia has the highest rate of deaths related to opioid overdoses at 37% of the national average equaling 1,482 deaths in 2017 (Government of Canada). The Fraser Valley Region, accounts for 33% of British Columbia's opioid related deaths, which is one of the highest rates in the province (FHA, 2018). This rate increased by 130% from 2015 to 2017.

Additionally, there were 6,630 ambulance attended and over 5,000 Emergency Department visits with suspected overdoses in the Fraser Valley Region in 2017 (FHA). The clinic for this project was in the heart of the Fraser Valley Region with primary care providers attending patients vulnerable to opioid misuse.

Primary care providers such as physicians are principal prescribers of opioids for chronic noncancer pain and must follow best practice guidelines to reduce patient risks (Khalid et al., 2015). In response to the opioid epidemic, Canadian physicians and medical regulators recognize the problem and are more involved in initiatives such as developing new guidelines (Unger, 2018). For example, the Canadian opioid practice guideline for chronic noncancer pain by the National Pain Centre at McMaster University was recently updated to improve the patient's safety from opioid misuse and combat the epidemic (Anderson et al., 2015). This new 2017 guideline is more comprehensive with multiple recommendations for physicians to mitigate patient risks from prescription opioids compared to the previous 2010 guideline (McMaster, 2017).

In June 2018, the provincial CPSBC, British Columbia's physicians' licensing college, followed McMaster University's lead and revised their previous Safe Prescribing of Drugs with Potential for Misuse/Diversion guideline to a standard called Safe Prescribing of Opioids and Sedatives. Some changes on the standard included strengthened language to ensure equal treatment of patients, greater clarity about dosage, tapering, and discontinuing opioids, and emphasis on documenting discussions with patients about the risk, storage, and disposal of the high-risk drugs (Unger). The standard states providers must use appropriate and available strategies to mitigate risk of harm when prescribing or renewing opioids through reviewing medication profiles, considering random urine drug testing, and documenting recommendation of

take-home naloxone to patients at risk of respiratory depression taking opioids (CPSBC, 2018). Specifically, number three of the standard indicates providers must fully inform their patients of the risks and benefits including a “documented discussion of rationale for a treatment regimen, expectations and goals of patient and physician, alternative treatment strategies, and a plan for the eventual possible discontinuation of the medication” (p. 2). This project’s focus was provider adherence to number three of the CPSBC standard.

Problem, Aim, & Objectives

Opioid treatment agreements are documented discussions explaining the risks and benefits of using LTOT for the diagnosed condition ensuring patients have enough information to provide consent agreeing to the prescribed opioid (McMaster University, 2017). The OTA is an organized template prompting providers at the point of care to inform the patient about the opioid without missing important aspects. The intended benefits of OTAs include clarification of expectations for patients and providers and provision of specific information around the nature of the opioid, goals, and management (McMaster, 2017).

The aim of this project was to increase provider adherence to the CPSBC standard of informing patients about their LTOT use through completing OTAs with a two-part education and clinical reminder intervention over eight weeks of implementation. The objectives of the project over eight weeks were:

1. To determine providers’ pre- and post- knowledge of the opioid epidemic, CPSBC Safe Prescribing of Opioids and Sedatives standard, and OTAs after an education session on the topics.
2. To increase overall post-intervention provider adherence to the CPSBC standard through completion of OTAs.

Literature Review

A literature review was conducted through databases Pubmed, Medline, and CINAHL for interventions used to increase provider adherence to clinical guidelines (See Appendix A for Database Search History). Studies greater than eight years old, conducted outside of North America, and irrelevant to the Population, Intervention, Comparison, Outcome and Time (PICOT) were excluded. The literature review included the latest evidence on provider adherence to clinical guidelines.

Clinical guidelines are defined as “systematically developed statements to assist practitioners’ decisions about appropriate health care for specific clinical circumstances” (Fischer, Lange, Klose et al., 2016, p. 1). They are valuable tools organizing the best evidence to support clinical decision making, improve quality of care, improve patient outcomes, and reduce cost. In health care, guideline adherence constitutes desirable provider behavior correlated with positive patient outcomes. Guideline adherence is best achieved when targeting provider and workflow level barriers through multifaceted interventions (Fischer et al.).

Barriers to Guideline Adherence

Fischer et al. (2016) stated barriers to guideline adherence strongly determine whether providers will follow clinical guidelines. Provider level barriers are related to the provider’s knowledge and attitudes whereas workflow level barriers are related to guideline factors such as the process of developing a guideline and external factors linked to the availability of resources. Guideline adherence is best achieved when specific provider and workflow level barriers are identified and interventions are tailored to reduce or remove them (Fischer et al.). For example, education is a tailored intervention understood to reduce or remove the provider level barrier, lack of knowledge, to improve guideline adherence by raising awareness and increasing

knowledge. Alternatively, clinical reminders are a workflow level intervention minimizing contextual barriers thereby making it easier to adhere to guidelines. Effective provider adherence is optimally achieved by combining both provider and workflow level interventions such as education and a clinical reminder which are described below (Fischer et al.).

Provider level interventions. Common provider focused interventions included dissemination and education of the guideline (Fischer et al.).

Dissemination of guidelines. Dissemination allows providers to have access and gain awareness of the guideline (Fischer et al., 2016). Prior to dissemination, guideline developers may modify guidelines by changing the language and shortening the length for greater clarity. Standard guideline dissemination strategies included distributing through email, paper, and during education sessions (Fischer et al.).

Education. Providing effective and engaging education on the guideline improves provider knowledge (Fischer et al., 2016). Education in form of lectures and workshops showed small effects on improvement of a desired clinical practice change among providers (Gagne et al., 2013). An effective method of education was active learning which includes educational meetings, small group education, and one on one training (Gagne, Huse, McDavid et al., 2013). Such active learning strategies allow for feedback from the recipient(s) and mixing both interactive and didactic sessions showed as most effective in achieving provider engagement and adherence to guidelines. Additionally, providing active learning education in combination with other interventions targeting provider guideline adherence were significantly more effective than any type of education alone (Gagne et al.).

Workflow level interventions. Workflow level interventions prompt health professionals to perform actions and adhere to guidelines. One common workflow level intervention includes clinical reminders.

Clinical reminders. Common clinical reminders allow for completion of health forms, screening tests, or diagnostic tests at the point of care by providers (Backman et al.). The adoption of electronic medical record systems in health care during the past decade have made automated electronic clinical reminders a popular intervention for provider adherence to guidelines (Backman et al.). However, Shojania et al. (2010) found automated electronic clinical reminders have *small to modest* improvements in alerting providers to complete clinical tasks at the point of care. A more effective process to remind providers to complete tasks is facilitated by clinic staff such as medical office assistants (Wilkinson, Champion, & Sabharwal, 2013). Medical office assistants are valued staff members in primary care clinics with an important role to remind providers to complete forms or follow guidelines. This process between the two professions is successful because medical office assistants help providers save time by reminding them to complete tasks that could have been missed (Wilkinson et al.).

In conclusion, the literature supported a multifaceted intervention targeting reduction of provider and workflow level barriers to improve provider adherence to guidelines. The multifaceted intervention could include a combination intervention including education and a clinical reminder reducing both provider and workflow level barriers. Education, when delivered via active learning, increases provider level awareness and knowledge of the guideline whereas the clinical reminder, when delivered by medical office assistants, decreases contextual barriers, both of which could successfully gain provider adherence to guidelines when combined.

Methods

Design

This practice improvement project was conducted for eight weeks from January to March of 2019 evaluating the effectiveness of a two-part intervention consisting of education and a clinical reminder. The design was a pre- and post- knowledge survey (secondary outcome) and chart review of OTA completion (primary outcome). An OTA was included if it was signed by the patient and provider.

Setting & Population

The setting for the project was a private primary care clinic with physician providers in the densely populated urban city center of Surrey, British Columbia. The purpose of this clinic was to address health care needs for patients across the lifespan. Some common patient presentations at the clinic included management of chronic diseases and addictions.

Study Participants

The participants included eight primary care providers at the clinic. The focus of the project was provider adherence to their standard to safely prescribe opioids for patients through completing OTAs. Opioid treatment agreements completed on patients 18 years or older, on LTOT for a duration of three months or longer, who have a diagnosis of chronic pain, and who have no OTA on record when presenting for a clinical appointment were included in the project. Patients on LTOT for other reasons than chronic pain, such as cancer or addictions and those who had their opioid discontinued or diagnosed with acute pain were excluded.

Implementation

The Quality Implementation Framework provided the foundation for the implementation of this project. The Quality Implementation Framework offered an organized and systematic

guide through a series of steps and activities in four phases which enhance quality implementation to achieve the desired outcome of improved provider adherence (Meyers, Durlak, & Wandersman, 2012). The framework indicates quality implementation is best achieved when delivered in phases consisting of multiple activities such as assessment, collaboration, negotiation, monitoring, and self-reflection (Meyers et al.). By using this framework, it was proposed there will be improved understanding of strategies to gain provider adherence. This project used the Quality Implementation Framework phases of planning, intervention part one and two, and evaluation to guide implementation.

Planning. In the planning stage, the problem which was seldom completion of OTAs by providers was identified through a microsystem assessment of the clinic, an interview with the medical director, and a workflow analysis by shadowing provider and patient encounters. The problem was then prioritized, and data was extracted from the electronic medical record for September to November of 2018 determining the pre-intervention rate of patients with documented OTAs, which was 4.9%.

Intervention. The intervention stage included two parts: an education component and a clinical reminder component. Providers and two medical office assistants received education on the opioid epidemic, revised standard, OTAs, and roles and responsibilities with a case exemplar and time for questions. Staff received paper copies of the revised 2018 CPSBC standard and RxFiles OTA. Following the education, the providers were given a written consent detailing the project and all eight signed agreeing to participate. One barrier identified in the planning stage was the providers' lack of knowledge on specific opioid related information. Therefore, a three-question knowledge survey on the components covered through the education was administered

in this stage to identify providers' level understanding before and after following the session (See Appendix B for Knowledge Survey).

The second part of the intervention stage included the clinical reminder supporting implementation of the OTA. The investigator conducted a prospective chart review twice per week on scheduled patients generating a list of patients who required an OTA. This list of assigned patients was sent to one of the two designated medical office assistants who then delivered the clinical reminder to the providers prior to the patient's appointment. The medical office assistant printed the auto-filled OTA with the patient's name from the electronic medical record, placed it in the designated provider's mailbox, and sent an electronic message "reminder" for each assigned patient. It was assumed once the medical office assistant sent the reminder, the provider would review the OTA with the patient. During this part of the intervention, ongoing monitoring of the project occurred to ensure the medical office assistants were delivering the reminder.

Rx Files opioid treatment agreement. The OTA chosen for implementation was adapted from the McMaster National Pain Centre and taken from RxFiles, a Canadian academic detailing program, that provides objective and comparative drug information to providers (RxFiles, 2014; See Appendix C for Opioid Treatment Agreement). The OTA must be completed one time with patients taking LTOT. The OTA is generally intended to be completed on initiation of LTOT but can be completed on following appointments as an outstanding task. Through this project, providers were reminded to complete an OTA with LTOT patients if outstanding.

Evaluation. The final stage was evaluation including data collection and analysis of the provider adherence rate to OTAs compared to the project's objective. The objective was to increase the adherence rate to the CPSBC standard through completing OTAs. In this stage we

analyzed whether there was a large impact by the intervention on improving provider adherence. This stage also included reflection on the lessons learned and determination of sustainability of the practice change.

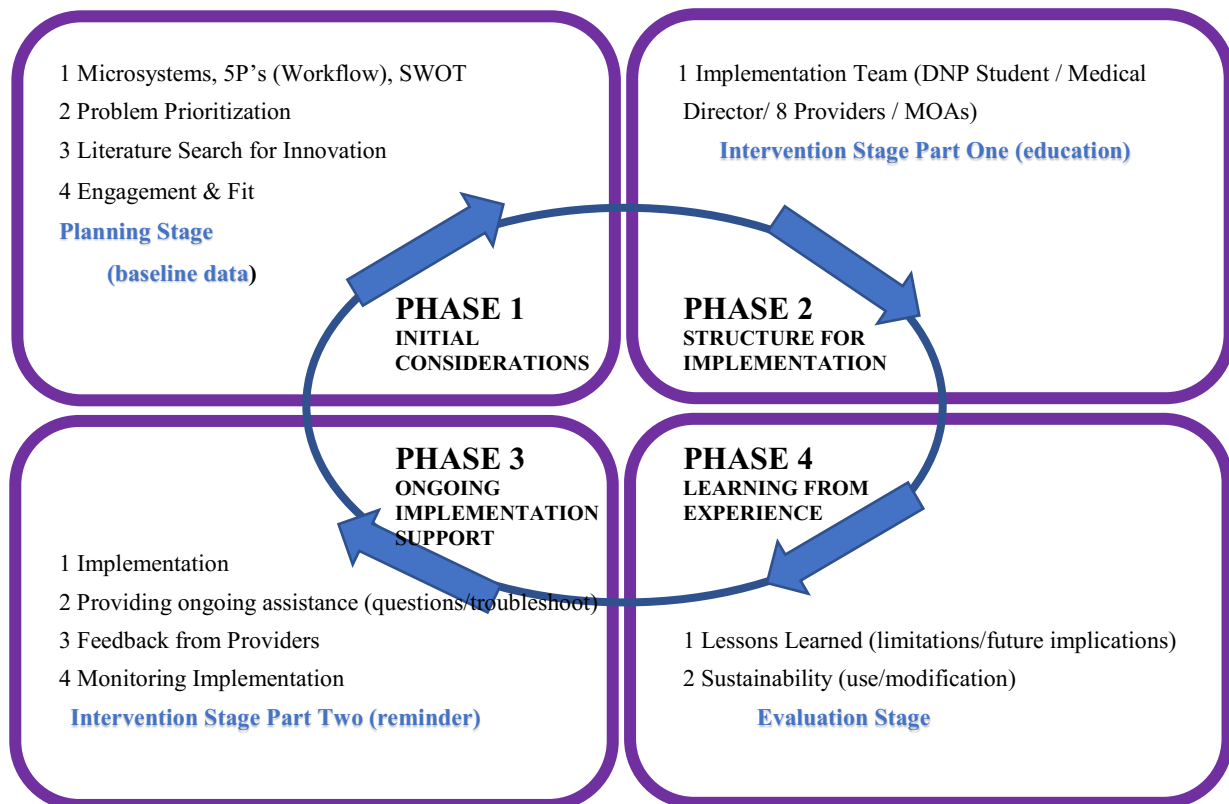


Figure 1. The QIF underpinned the project in its four phases. The three stages of implementation are highlighted in blue (planning, intervention, evaluation) and logically fit into the four phases of the QIF.

Ethical Considerations

Institutional Review Board approval was obtained from the University of Portland in early December of 2018. Written consent was obtained from all eight participants after the education session in early January of 2018. Data collected from the electronic medical record including the patients on LTOT requiring OTAs were de-identified and analyzed in the aggregate

in terms of overall rates to maintain patient confidentiality. The pre- and post- knowledge survey was anonymously completed by the provider participants.

Data Collection

A three-question knowledge survey was administered by paper to the providers right after the education to determine the change (See Appendix B for Knowledge Survey). The survey score for each question pre- and post- knowledge ranged from 1 (none) to 4 (high). The pre- and post-intervention data, which was the number of completed OTAs, was extracted through completing an electronic medical record chart review on the patients who received the reminder. The investigator reviewed the electronic medical record to determine whether an OTA was completed with eligible patients on LTOT by the providers.

Data Analysis

Data were analyzed using Excel for both descriptive and inferential statistics. Provider completion of OTAs prior to and following the intervention were recorded on Excel spreadsheets. An alpha level of .05 was used to determine significance throughout. A pre- and post- knowledge survey determining the change in providers' knowledge of the education provided was analyzed for significance using a Wilcoxon signed-rank test. This test was used given the small sample size and non-normal distribution of data. The primary outcome was analyzed using a Chi-Square test evaluating if there was a statistically significant association between the two-part intervention (education session and clinical reminder) and provider adherence to OTA completion.

Results

Knowledge Survey

Overall, among the seven providers who completed the three-question knowledge survey, findings demonstrated significant improvement ($p = .017$) in the providers' average knowledge on the three parts (opioid epidemic, CPSBC standard, and OTAs) after ($M = 3.7$; $SD = 0.33$) compared to before ($M = 2.4$; $SD = 0.53$) the education session. Providers gained similar range of knowledge in all three parts of the education (see Table 1).

Table 1

Change in Provider Knowledge

Education Components	Pre-Education	Post-Education	SD	p
The opioid epidemic in the Fraser Valley region.	2.4	3.7	0.45	0.014
The updated CPSBC Safe Prescribing of Opioids and Sedatives standard (2018)	2.4	3.6	0.50	0.011
Opioid treatment agreements.	2.4	3.9	0.35	0.026
Average	2.4	3.7	0.43	0.017

Note. SD = standard deviation; p = significance level

Provider Adherence Rate to Completing OTAs

A Chi-Square test was conducted to determine the association between the two-part intervention and provider completion of OTAs documented in the electronic medical record. The results demonstrated a significant association between receiving the education and clinical reminder intervention and completion of OTAs ($\chi^2(1) = 30.45, p < .05$). A greater proportion of patients had OTAs completed post-intervention compared to pre-intervention (See Table 2).

Table 2

Observed Frequencies

OTA	Pre-Intervention	Post-Intervention	Total
No OTA	116 (95.1%)	35 (63.6%)	151
Yes OTA	6 (4.9%)	20 (36.4%)	26
Total	122	55	177

Note. The parenthesis indicates percent rate of provider adherence to completing OTAs.

A total of 6 out of 122 pre-intervention patients (4.9%) had an OTA completed in comparison to 20 out of 55 post-intervention patients (36.4%). Therefore, provider adherence rate to number three of the CPSBC standard through completing OTAs post-intervention was 36.4%.

Resources and Cost

The investigator ensured a cost-effective practice change throughout the project. Therefore, there were minimal resources used or cost to this project. A free OTA tool was used for the project. A local electronic medical record expert, who did not charge a fee, directed us to an existing report query to gather relevant baseline data. A lunch was provided by the project's clinic corporation during the education session. No participants were reimbursed financially for involvement in this practice change project.

Discussion

The goal of this project was to improve provider guideline adherence to the CPSBC opioid prescribing standard for chronic noncancer pain patients on LTOT. This project was conducted with a two-part intervention including an education session and clinical reminder over eight weeks with the objective to increase adherence to the standard through completion of OTAs. At the end of the project, the 36.4% completion rate compared to the baseline 4.9% completion showed there was a significant improvement in provider adherence to their standard.

The literature supports using multifaceted interventions targeting provider and workflow level barriers as most successful to gain provider adherence. The barriers at the clinic included lack of provider knowledge on the revised standard and forgetfulness to complete the OTA. The results were congruent with the evidence as the two-part (multifaceted) intervention of education and the clinical reminder seemed to reduce these two barriers by improving provider knowledge and remembering to complete OTAs.

The Quality Implementation Framework was used to guide the implementation of this project. The framework was successful in guiding the project in phases reducing barriers along the way. Ongoing assistance to the providers and medical office assistants was an important part

for success when the project went live with the clinical reminder and OTA. For example, providers at the clinic routinely covered each other's patients providing opioid prescriptions and uncertain whether to complete the OTA with patients not listed under them. It was established by the investigator all providers must complete their own OTA even when providing coverage. This was fundamental to clarify because if providers interpreted OTAs as only necessary to be completed by the most responsible provider, the results could have been inaccurate.

Ultimately, all phases in the Quality Implementation Framework were equally important to attain adherence by providers. The framework guided reflection and measurement of project impact. It was determined the two-part education and reminder intervention had a large impact on improving provider adherence to their standard through completing OTAs.

The project findings were beneficial because providers could mitigate opioid related risks by completing OTAs and decrease problematic prescriptions, which contribute to the opioid epidemic. It is the provider's ethical responsibility to inform patients on the opioid and one way is through completing the OTA. The OTA also is a good way to open conversation with the patient to understand their risk of problematic use such as vulnerability to opioid misuse. This way providers gain awareness of the patient's problem and better strategize interventions to reduce risk.

Limitations

There were four major limitations in this project. The first limitation was the inability to distinguish between the two parts of the intervention in terms of effect on provider adherence. With the education intervention, although a knowledge survey was administered to compare pre- and post- knowledge scores after the session, the actual effect on provider adherence to complete OTAs was undetermined. The data gathered and analyzed included pre-screened patients with

an upcoming appointment requiring an OTA whom the providers received reminders for. In the duration of the project, it was undetermined whether providers completed OTAs on eligible patients without the reminder intervention such as for those newly initiated on LTOT or missed in screening. It was beyond this project to isolate the two interventions as it was not more controlled with a comparison group. Providers attitudes and feelings towards the two-part intervention in terms of effectiveness were also not evaluated post-intervention which may have been beneficial to reduce barriers and develop more effective interventions for the future.

The second limitation was a small sample size of providers and short duration of the project. The post-intervention OTA patient group (N=55) was less than half the pre-intervention group (N=122) which was a less representative distribution of the population. One reason for the smaller post-intervention result was due to screening limited to twice per week and encounters requiring OTAs being missed for the reminder intervention due to last minute appointments. The short eight-week duration of the project also threatened the validity and reliability of results. A longer duration project may have allowed for more post-intervention OTA encounters to increase validity and reliability.

The third limitation in this project was individual provider adherence rates were not the focus. The adherence rate results were reported as the mean of all providers. The rates could have varied significantly between providers swaying the results, probably due to multiple provider variables, which were not evaluated through this project.

The fourth and final limitation was the challenge to identify why providers failed to complete OTAs despite having the education and clinical reminder intervention. Although identifying the reason for each case was beyond this project, the reasons may have included the following. During the second part of the intervention stage of implementation, providers were

uncertain to complete OTAs with patients they were providing coverage for. Providers may have intentionally ignored or refused completing OTAs in the period until it was clarified by the investigator that each provider must complete their own OTA. Even after clarification providers may have continued to ignore or refuse to complete OTAs for other provider's patients especially if solely refilling the opioid rather than initially prescribing or attending to a concern unrelated to pain.

Another reason was the documentation within the electronic medical record lacking clarity with some encounters but were included in the data. As an attempt to gain the best data, each provider's documentation of the unclear encounters was reviewed such as those listed as taking opioids for less than three-months and those not given a chronic noncancer pain diagnosis. The unclear encounters included in the data limited the validity and reliability of results. To note, there was also only one investigator reviewing data creating room for interpretation mistakes which may have decreased the project's accuracy.

Providers also did not consistently complete OTAs based on the reason for and time per appointment. It was noted providers failed to complete OTAs with patients booked for appointments for 10 minutes or less and reasons unrelated to pain or an opioid prescription. This challenge was conveyed by a provider and the suggestion was to re-book the patient for a following appointment to complete the OTA. Evaluation of whether providers re-booked patients was outside of the scope for this project.

Implications for Practice

The results of this practice improvement project demonstrated increased provider awareness, knowledge, and confidence from the two-part intervention to gain adherence the CPSBC standard through OTAs. Although the staff successfully integrated the OTA into

workflow for the project, it is uncertain whether medical office assistants will continue to remind the providers without a designated investigator reviewing charts and whether providers will continue completing OTAs without a reminder. It is recommended a program champion, such as a medical office assistant, be appointed to screen for upcoming appointments of encounters requiring OTAs. The reminder by the project champion may only be required for a short duration until the providers permanently change their behavior to complete OTAs as a routine workflow process.

It is also recommended for providers to stay up to date on opioid related guidelines/standards. One way is through continuing education which helps sustain the change. It was evident by the pre- and post- knowledge survey education was necessary to learn about revisions on opioid prescribing guidelines which reinforced the importance of completing OTAs. Staff must also be satisfied with the practice change for sustainability. Future projects should include post intervention survey(s) to gain knowledge on the attitudes and feelings of staff satisfaction with the new process. Staff must be valued through implementation and an idea is having a project leader such as the medical director to motivate, provide support to, and gain feedback from staff consistently through any practice change initiative. By having an effective leader, staff feedback is welcomed, and better strategies targeting provider and workflow level barriers are developed to gain provider adherence.

Conclusion

The importance of quality interventions to improve the management of chronic noncancer pain patients on LTOT in primary care clinics is challenging but necessary for providers to mitigate the opioid epidemic in Canada. This project consisted of a two-part intervention including education and a clinical reminder, delivered by medical office assistants to

the provider, to improve adherence to number three of the revised CPSBC standard for the safe prescribing of opioids. The mandatory recommendation on number three of the standard is to complete comprehensive risk assessments with chronic noncancer pain patients and one way to meet this is by completing OTAs. An OTA is an easy to follow document initiated by the provider serving as a contract with patients on LTOT outlining risks and benefits of opioids. By participating in the two-part intervention, the providers showed increased knowledge on the epidemic, standard, and OTA and significant improvement in adherence to their standard through completing OTAs. This project demonstrated the collaboration between providers and medical office assistants who took initiative to change a practice with the effort to mitigate the crisis of opioid related incidents to enhance patient safety.

References

- Anderson, D., Zlateva, I., Khatri, K., Ciaburri, N. (2015). Using health information technology to improve adherence to opioid prescribing guidelines in primary care. *The Clinical Journal of Pain, 31*(6), p. 573-579
- Backman, R., Bayliss, S., Moore, D., & Litchfield, I. (2017). Clinical reminder alert fatigue in healthcare: a systematic literature review protocol using qualitative evidence. *Systematic reviews, 6*(1), 255. doi:10.1186/s13643-017-0627-z
- Belzak, L. & Halverson, J. (2018). The opioid crisis in Canada: A national perspective. *Health Promotion and Chronic Disease Prevention in Canada: research, policy and practice, 38*(6), p. 224-233.
- Busse, J. W., Craigie, S., Juurlink, D. N., Buckley, D. N., Wang, L., Couban, R. J...et al. (2017). Guideline for opioid therapy and chronic noncancer pain. *Canadian Medical Association Journal, 189*(18), p. E659-E666.
- College of Physicians and Surgeons of Alberta. (2017). Advice to the profession, prescribing: drugs with potential for misuse or diversion. Retrieved from e
- College of Physicians and Surgeons of British Columbia. (2018). Practice standard: Safe prescribing of opioids and sedatives. Retrieved from <https://www.cpsbc.ca/files/pdf/PSG-Safe-Prescribing.pdf>
- Finestone, H. M., Juurlink, D. N., Power, B., Gomes, T., & Pimlott, N. (2016). Opioid prescribing is a surrogate for inadequate pain management resources. *Canadian Family Physician Medecin de Famille Canadien, 62*(6), 465-8.

- Fischer, F., Lange, K., Klose, K., Greiner, W., & Kraemer, A. (2016). Barriers and strategies in guideline implementation - a scoping review. *Healthcare (Basel)* 4(3), 36.
doi:10.3390/healthcare4030036
- Fraser Health Authority. (2018). Fraser health overdose emergency public report – December 2018. Retrieved from https://www.fraserhealth.ca/-/media/Project/FraserHealth/FraserHealth/Health-Topics/Overdose/Monthly-overdose-reports/201812_Public_OD_Report.pdf
- Fraser Health Authority. (2018). The hidden epidemic: The opioid overdose emergency in fraser health. Retrieved from https://www.fraserhealth.ca//media/Project/FraserHealth/FraserHealth/Health-Topics/Overdose/20180122_hidden_epidemic_overdose_emergency.pdf
- Government of Canada. (2018). Overview of national data on opioid-related harms and deaths. Retrieved from <https://www.canada.ca/en/health-canada/services/substance-use/problematic-prescription-drug-use/opioids/data-surveillance-research/harms-deaths.html>
- Gagne, L., Huse, I., McDavid, J. C., & Hawthorn, L. R. (2013). Concepts and issues in economic evaluation. In J. C. McDavid, I. Huse, & L. R. Hawthorn (Eds.), *Program evaluation and performance measurement: An introduction to practice* (2nd ed., pp. 145-185). California: Sage Publications, Inc.
- Howlett, K. (2018). *Canada's opioid crisis*. Retrieved from The Canadian Encyclopedia website: https://www.thecanadianencyclopedia.ca/en/article/canadas-opioid-crisis?gclid=EAIaIQobChMIg9ye59Wd3wIVtyCtBh12EQ51EAAYAiAAEgI4IvD_BwE

Khalid, L., Liebschutz, J. M., Xuan, Z., Dossabhoy, S., Kim, Y., Crooks, D. et al. (2015).

Adherence to prescription opioid monitoring guidelines among residents and attending physicians in the primary care setting. *Pain Medicine*, 16(3), p. 480-487.

McMaster University National Pain Center. (2017). The 2017 Canadian guidelines for opioids for chronic non-cancer pain. Retrieved from

http://nationalpaincentre.mcmaster.ca/documents/Opioid%20GL%20for%20CMAJ_01may2017.pdf

Meyers, D. C., Durlak, J. A., & Wandersman, A. (2012). The quality implementation framework:

A synthesis of critical steps in the implementation process. *American Journal of Community Psychology*, 50(3-4), p. 462-480.

National Institute of Drug Abuse. (2018). What are prescription opioids. Retrieved from

<https://www.drugabuse.gov/publications/drugfacts/prescription-opioids>

RX Files. (2014). About us. Retrieved from

<http://www.rxfiles.ca/rxfiles/modules/aboutus/AboutUs.aspx>

RX Files. (n.d.). Sample patient agreement for long-term opioid therapy. Retrieved from

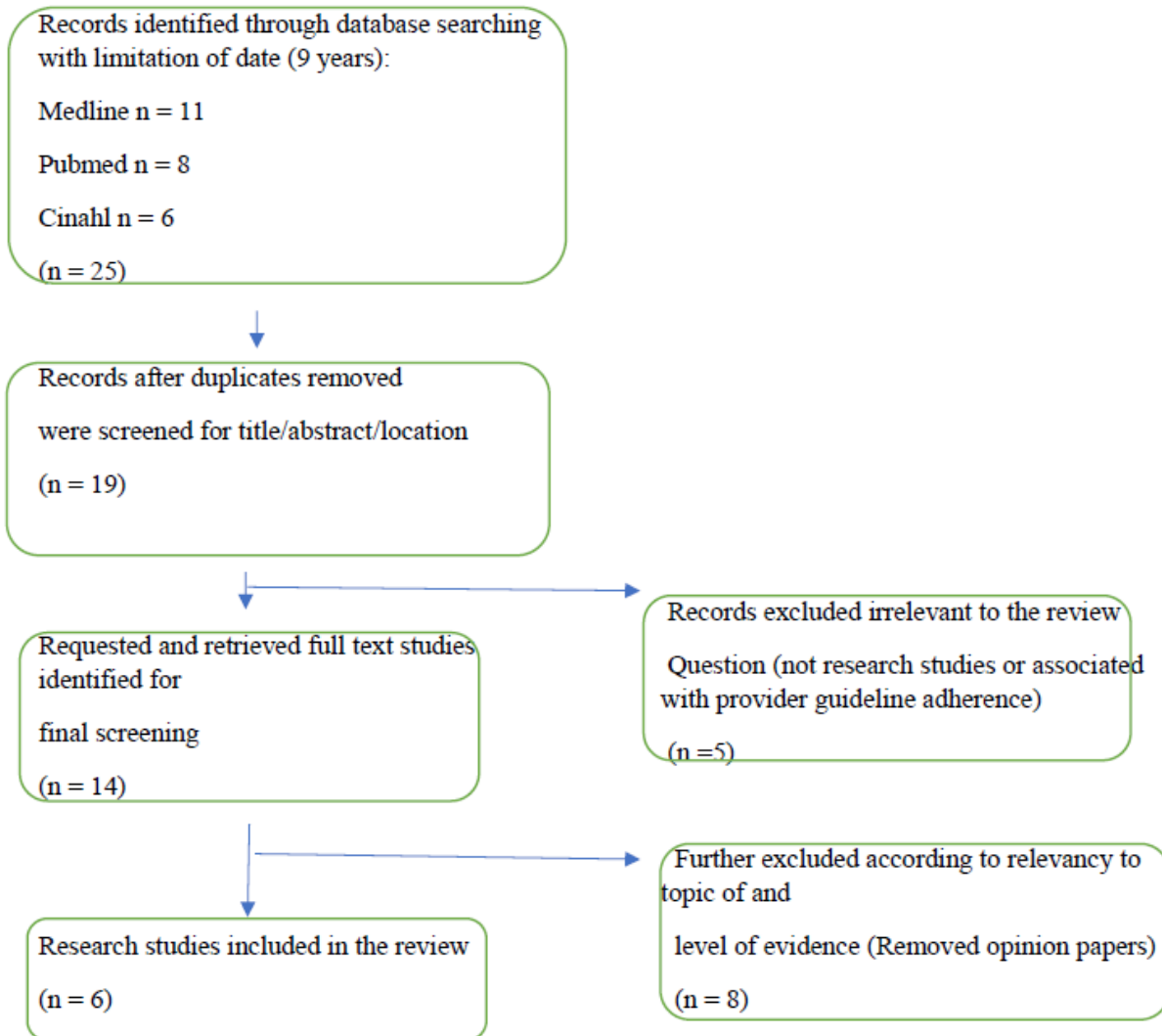
<http://www.rxfiles.ca/rxfiles/uploads/documents/Pain-CNMP-Opioid-TreatmentAGREEMENT.pdf>

Shojania, K. G., Jennings, A., Mayhew, A., Ramsay, C. R., Eccles, M. P., & Grimshaw, J.

(2010). Effect of point-of-care computer reminders on physician behavior: A systematic review. *Canadian Medical Association Journal*, 182(5), p. E16-25.

- Shojania, K. G., Jennings, A., Mayhew, A., Ramsay, C. R., Eccles, M. P., & Grimshaw, J. (2009). The effects of on-screen, point of care computer reminders on processes and outcomes of care. *Cochrane database of systematic reviews*, 2009(3), p. 1-67. doi: 10.1002/14651858.CD001096.pub2
- Unger, D. (2018). Safe prescribing of opioids and sedatives: It's about primary prevention. *British Columbia Medical Journal*, 60(10), p. 504-505.
- Wilkinson, K., Champion, J. D., Sabharwal, K. (2013). Promoting preventive health screening through the use of a clinical reminder tool: An accountable care organization quality improvement initiative. *Journal for Healthcare Quality*, 35(5), p. 7-19. doi: 10.1111/jhq.12024

Appendix A
Database Search History



Appendix C

Opioid Treatment Agreement

See www.RxFiles.ca for customizable form (MS-Word format) for your office.
 Direct link: <http://www.rxfiles.ca/rxfiles/uploads/documents/Pain-CNMP-Opioid-TreatmentAGREEMENT.doc>
 Adapted from www.PainCare.ca &
http://nationalpaincentre.mcmaster.ca/opioid/egop_b_app_b05.html

Sample Patient Agreement for Long-term Opioid Therapy

1. I, _____ agree that Dr. _____ will be the only physician prescribing OPIOID (also known as NARCOTIC) pain medication for me and that I will obtain all of my prescriptions for opioids at one pharmacy. The exception would be an emergency situation or in the unlikely event that I run out of medication. Should such occasions occur, I will inform my physician as soon as possible.
2. I will take the medication at the dose and frequency prescribed by my physician. I agree not to increase the dose of opioid without first discussing it with my physician. I will not request earlier prescription refills.
3. I will attend all reasonable appointments, treatments and consultations as requested by my physician. I agree to other pain consultations/management strategies as necessary.
4. I understand that the common side effects of opioid therapy include nausea, constipation, sweating and itchiness of the skin. Drowsiness may occur when starting opioid therapy or when increasing the dosage. I agree to refrain from driving a motor vehicle or operating dangerous machinery until such drowsiness disappears.
5. I understand that using long-term opioids to treat chronic pain may result in the development of a physical dependence on this medication, and that sudden decreases or discontinuation of the medication will lead to the symptoms of opioid withdrawal. I understand that opioid withdrawal is uncomfortable but not life threatening.
6. I understand that there is a small risk that I may become addicted to the opioids I am being prescribed. As such, my physician may require that I have blood, urine or hair testing and/or see a specialist in addiction medicine should a concern about addiction arise.
7. I understand that the use of a mood-modifying substance, such as tranquilizers, sleeping pills, alcohol or illicit drugs (such as cannabis, cocaine, heroin or hallucinogens), can cause adverse effects or interfere with opioid therapy. Therefore I agree to refrain from the use of all of these substances without prior agreement from my physician.
8. I understand that I should check with my physician or pharmacist before taking other medications including over-the-counter and herbal products.
9. I agree to be responsible for the secure storage of my medication at all times. I agree not to give or sell my prescribed medication to any other person. Depending on the circumstances, lost medication may not be replaced until the next regular renewal date.
10. I consent to open communication between my doctor and any other health care professionals involved in my pain management, such as pharmacists, other doctors, emergency departments, etc.
11. I understand that if I break this agreement, my physician reserves the right to stop prescribing opioid medications for me.

Date: _____

(Signature - Patient) (Signature Physician)