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Reducing Opioid Prescribing by using the Center for Disease Control Guidelines

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Walden University

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Walden University

College of Nursing

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Christina Peters

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Walden University
2023

Abstract

Reducing Opioid Prescribing by using the Center for Disease Control Guidelines

by

Christina Peters

MS, Walden University, 2014

BS, Central Methodist University, 2012

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2023

Abstract

Opioid abuse is a serious national health crisis resulting in overdose and increased mortality in chronic pain patients. The purpose of this evidenced-based, quality improvement (QI) project was to improve primary care provider's (PCP) awareness of The Center for Disease Control and Prevention's (CDC) opioid prescribing guidelines to reduce opioid prescribing at this project site. The Donabedian model of structure, process, and outcome was used as the framework for this QI project. Lewin's change management model of unfreezing and freezing was used as a guide to implement organization change by creating problem awareness, seeking alternative methods, and integrating the new project training into practice. The practice-focused question supported the evidence that using a standardized checklist could reduce the number of opioids prescribed by PCPs. The second question explored if using the CDC checklist would reduce the number of opioids prescribed by PCPs in this primary care setting during a 12-week project period. The PCPs were trained using the CDC opioid prescribing guidelines during a half day training. Demographic surveys and pre- and post intervention surveys were used to collect data from six PCPs. Data from pretraining survey was compared to the post training survey questions using a paired sample *t* test done in Microsoft excel. Over a 12-week period, there was a 1.3% reduction in chronic pain patients on opioids. The decrease in opioid prescribing may make a positive social change by potentially reducing the incidence of overdose and death in chronic pain patients.

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Section 1: Nature of the Project

Introduction

This project aimed to reduce opioid prescribing by training the primary care providers (PCPs) on the use of the Centers for Disease Control and Prevention (CDC) pain management guidelines, which were already in place at the practice site. Opioid abuse and misuse are a severe national public health crisis (CDC, 2021c). In 2019, 50,000 people in the United States died from opioid-involved overdoses (CDC, 2021b). At least 2 million people have an opioid use disorder involving prescription opioids (National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division, 2017). Coordinated efforts from multidisciplinary teams will need to be established in order to decrease the number of patients with opioid use disorders and implement evidence-based policies (National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division, 2017). This evidence-based Doctor of Nursing practice (DNP) quality improvement project (QI) aimed to reduce the prescribing of opioids at this practice site by the practice site training the PCPs on the CDC pain management checklist.

Walden University (2020) stated knowledge is more valuable when promoting positive social change. Social change occurs when learned knowledge is applied to improve human and social conditions by using ideas to promote the developmental growth of individuals or organizations (Walden University, 2020). The doctoral project's potential positive social change implications included reducing opioid prescribing and reducing opioid-related deaths by the project site training the PCPs on the CDC pain management checklist.

Problem Statement

PCPs in this primary care setting were not using the CDC's evidence-based opioid guidelines, which can significantly reduce opioid prescribing in chronic pain patients. According to the medical director, there was no record of alternative medications trialed before prescribing opioids in many cases (Personal communication, March 31, 2021). Therefore, the PCPs at this project site were overprescribing opioids (Personal communication, March 31, 2021).

The gap in practice was the overprescribing of opioids for chronic pain patients at this project site. This project's site medical director stated, "The PCPs are not using the CDC pain management checklist for opioid prescribing" (Personal communication, March 31, 2021). My field site preceptor stated that, "out of the population served by this DNP project site, the total number of patients with a chronic pain diagnosis is 237 and 143 are on opioid therapy" (Personal communication, March 31, 2021). This QI project successfully reduced opioid prescribing at this project site by the project site retraining the PCPs on the use of the CDC guidelines. In addition, the overprescribing and inappropriate prescribing of opioids increased the risk of addiction and opioid-related deaths (World Health Organization, 2021).

According to the National Institute of Drug Abuse (NIDA, 2020), opioid deaths, not including methadone, increased 40% from 2017 to 2018. There were 1,132 opioid-related deaths in Missouri in 2018 (Department of Health and Senior Services, 2021). In 2019, 1,583 opioid-related deaths occurred in Missouri (CDC, 2021b). The field site coordinator at this project site stated that in March 2021, "Only 33% of PCPs in this project site were prescribing opioids appropriately." (Personal communication, March 31, 2021).

Medical providers' becoming more aware of opioid guidelines has significantly reduced opioid prescribing (DHSS, 2019). The project site training PCPs on the CDC guidelines for opioid prescribing improved their awareness of the CDC guidelines and enhanced knowledge of alternative therapies, which are now being used before prescribing opioids. This evidence-based QI project improved nursing practice at this project site and improved the use of the CDC pain management checklist to reduce opioid prescribing.

Purpose Statement

In this evidence-based DNP QI project I sought to improve awareness of CDC guidelines on opioid prescribing to reduce opioid prescribing at this project site. The gap in practice in this DNP QI project was the overprescribing of opioids for chronic pain patients, which may have been related to the PCP's lack of awareness of the CDC opioid prescribing guidelines, which was already in use at this project site. Evidence in the literature supports the benefit of using pain management checklists to reduce opioid prescribing in chronic pain treatment in the outpatient primary healthcare setting (Gurley et al., 2020). PCPs overprescribing opioids may be related to a gap in knowledge of the CDC pain management guidelines or understanding of the risks associated with opioid use (Gray et al., 2021). Pain management checklists are a tool that can be used as a guideline for proper pain management techniques leading up to opioid prescribing and reducing opioid prescribing.

The following project question was used as a guide for this DNP QI project: Does implementing a quality improvement project or using the CDC checklist for providers (medical doctors [MD], nurse practitioners [NP], and physician assistants [PAs]) in the primary care setting reduce the number of opioids prescribed? The practice focus questions were as follows:

Will the literature support using a standardized checklist to reduce the number of opioids prescribed by PCPs? Will using the CDC checklist reduce the number of opioids prescribed by PCPs in this primary care setting? Evidenced-based QI training on the pain management checklist for chronic pain patients was reviewed to address the gap in practice. With this evidence-based QI project I aimed to reduce opioid prescribing in this practice site by using a pain management checklist.

Nature of the Doctoral Project

The sources of evidence collected to meet the purpose of this doctoral project included consulting the Walden University librarian to access search engines for BioMed Central, PubMed, and Ethos. In addition, I received permission to use the John Hopkins literature review matrix (Appendix A). The abstracts were read to ensure relevance to this QI DNP project. The remaining articles were appraised using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) literature review tool. The high to moderately graded studies were included in this literature synthesis. The Walden University QI manual for this DNP project and the help of a pain management specialist was used to shape this project.

With this evidence-based QI project I sought to lower/reduce the amount of opioid prescribing by the project site retraining PCPs on the CDC guidelines checklist and evaluated the impact of retraining the PCPs on the CDC pain management checklist on reducing opioid prescribing in chronic pain patients. Walden University's (2020) manual for QI evaluation (2020) guided and informed this QI project in evaluating the impact of training providers on the use of a pain management checklist. The Donabedian model of structure, process, and outcome informed this evidenced-based QI project. The providers were asked to fill out a demographic

and pre-survey in Survey Monkey© to assess PCP's views on the pain management checklist and steps they used before prescribing opioids. The PCP's training was done via Zoom using the CDC pain management checklist. After the project site trained the PCP's, a post survey was conducted on Survey Monkey© to determine if the training increased the likelihood of the PCPs using the pain management checklist and if there is any change in their views on prescribing. Over 12 weeks, a continuous evaluation occurred to evaluate whether training the PCPs on the pain management checklist decreased opioid prescribing.

Significance

The stakeholders of this project included healthcare organizations, patients, healthcare providers, medical doctors, nurse practitioners, and physician assistants. Additional stakeholders consisted of pain management specialists. In addition, the stakeholders may be impacted by addressing the overprescribing of opioids by seeing a decline in opioid-related overdoses and death.

Access to healthcare, such as appropriate mental health care and appropriate programs for opioid use disorders, is a critical aspect of reducing opioid use (American Medical Association [AMA], 2021). The AMA (2021) collaborated with various stakeholders to enact several dozen laws and regulations to increase medication access to treat opioid use disorder. According to Cardarelli et al. (2017), transitioning pain management guidelines into practice may improve the PCP's knowledge regarding appropriate and safe management of chronic pain.

Prescription opioid misuse costs the United States approximately \$78.5 billion a year (CDC, 2021d). These costs include healthcare costs, lost productivity, addiction treatment, and criminal justice involvement (CDC, 2021c). This QI project may reduce the financial burden of

opioid overdose and opioid-related deaths if it successfully reduces opioid prescribing. Therefore, this QI project could be used in other primary care practices to reduce opioid prescribing.

The project site retraining PCPs on the pain management checklist may support social change by reducing opioid prescribing to reduce opioid-related overdose and death. Walden University strives to create a positive social change through research, leadership, and translation of research into evidence-based practice (Walden University, 2020). The significance of this DNP QI project on nursing practice is that there is improved knowledge of appropriate escalation of pain medications and standardization of pain management guidelines.

Summary

This section introduced the QI project, identified the problem statement, the purpose of the project, described the nature, and explained the significance of the DNP, QI project. Section 2 discussed the problem identified in the DNP, QI project. In addition, this section describes the practice-focused question, the Donabedian model, the Kurt-Lewin change theory, and the relevance of this DNP project to nursing practice. Lastly, this section discusses the role of the DNP student and project team.

Section 2: Background and Context

Introduction

The problem identified in this DNP QI project was overprescribing opioids in outpatient primary care practice. However, there was a lack of knowledge of evidence-based practice guidelines for prescribing opioids. PCP's overprescribing opioids may have been related to a gap in knowledge of the CDC pain management guidelines or understanding of the risks associated with opioid use, such as physical dependence, sedation, and respiratory depression (Gray et al., 2021). Opioid abuse and misuse are a severe national public health crisis (CDC, 2021c). In 2019, 50,000 people in the United States died from opioid-involved overdoses (CDC, 2021b) or one out of every five persons between the ages of 24 to 34 years old (Babu et al., 2019). According to the NIDA (2020), opioid deaths, not including methadone, increased 40% from 2017 to 2018. There were 1,132 opioid-related deaths in Missouri in 2018 (DHSS, 2021).

The practice-focused question for this QI project was as follows: Will training the providers on the CDC opioid guidelines reduce the number of opioids prescribed in this primary care setting? I aimed to conduct a QI evaluation on the effectiveness of a pain management checklist for reducing opioid prescribing. This section explains the concepts, models, and theories that guided this DNP project. In addition, this section discusses the relevance of the DNP project to nursing practice, the role of the DNP student and project team, and the local background and context.

Concepts, Models, and Theories

The Donabedian model was chosen for the procedural steps in this DNP QI project. The Donabedian model has been used as a framework for health care quality since 1966 (Binder et

al., 2020). The steps in the model include structure, process, and outcome. The Donabedian model explains that quality research and research findings emphasize measurement, analysis, management, and governance (Berwick & Fox, 2016).

Structure referred to resources and administration, such as equipment availability and staff availability (Binder et al., 2020). Process described the culture and professional cooperation needed to produce the intended outcome (Binder et al., 2020). The outcome was competence development and goal achievement of the intended project. Informed PCPs will understand the importance of evidence-based practice guidelines and a pain management checklist to reduce opioid prescribing.

The process referred to implementing the CDC guidelines for opioid prescribing and utilizing the pain management checklist to reduce opioid prescribing. The outcomes to evaluate the efficiency of the quality improvement intervention were changes in the percentage of opioid prescribing after training and implementation of the pain management checklist at the outpatient clinic. Recommendations to improve the current state of nursing practice in this area include using guidelines for opioid prescribing (CDC, 2021a). The CDC (2021a) has created opioid prescribing guidelines to assist primary clinicians in prescribing opioids outside of active cancer treatment. The opioid prescribing guidelines are available to any primary clinician on the CDC's website. The CDC developed the guidelines using the GRADE framework. Recommendations were made based on a systematic review of the scientific evidence while considering benefits and harms. Strategies used previously to address the gap in practice included implementing the pain management checklist at the practice site.

Lewin's Change Theory

Lewin's three-step change management model has been used to transform care at the bedside (Wojciechowski et al., 2016). Complex adaptive systems must respond to the constantly changing environment to maintain equilibrium (Wojciechowski et al., 2016). Lewin's change process proposes that restraining forces influence individuals and groups to maintain stability. Making organizational changes requires execution using the three-step model. These steps include unfreezing (creating problem awareness), changing (seeking alternative methods), and refreezing (integrating and stabilizing the new equilibrium; Wojciechowski, 2016).

At this clinical project site, a concern was the high percentage of opioid prescribing by the PCPs, a status quo that needs unfreezing. Implementation of QI training and encouraging the use of pain management checklists facilitated moving to the next step of reducing the prescribing of opioids. As PCPs used the evidenced-based practice pain management checklist, the percentage of opioids prescribed by PCPs decreased.

Relevance to Nursing Practice

In the United States, estimated overdose deaths from opioids increased from 50,963 in 2019 to 69,710 in 2020 (CDC, 2021b). Inappropriate use of opioids was responsible for three-quarters of all drug overdose deaths (Devitt, 2021). The increase in opioid-related deaths is multifactorial. Opioid overdose is a common cause of opioid-related deaths (AMA, 2021).

Recommendations to improve the current state of nursing practice in this area included using guidelines for opioid prescribing developed by the CDC (2021a). CDC created these opioid prescribing guidelines to assist primary clinicians in prescribing opioids outside of active cancer treatment. The opioid prescribing guidelines are on the CDC website and are available to any

primary clinician. Strategies used previously to address the gap in practice include implementing the pain management checklist at this project site.

Most PCPs at this clinical project site were not following the CDC's recommended guidelines for opioid prescribing. Clinical practice guidelines can ensure patients access safer, more effective treatment while reducing the number of people who suffer from opioid use disorder or overdose from these drugs (CDC, 2021a). The gap in practice in the literature is the overprescribing of opioids (Devitt, 2021). In this evidence-based DNP QI project I aimed to improve nursing practice and address the gap in practice by promoting the PCP's use of the CDC recommended guidelines for opioid prescribing to reduce the number of opioids prescribed.

Local Background and Context

In 2017, there were 951 opioid-related deaths in Missouri. St Louis, Missouri, ranked the highest in opioid-related deaths with an opioid prescribing rate of 75 (Missouri DHSS Bureau of Vital Statistics & Bureau of Health Care Analysis and Data Dissemination, 2017). The field site preceptor stated that, "out of the population served by this DNP project site, the total number of patients with a chronic pain diagnosis is 237 and 143 are on opioid therapy" (Personal communication, March 31, 2021). This high percentage of opioid prescribing may have been related to the PCP's lack of evidence-based practice guidelines on opioid prescribing.

Role of the DNP Student

I am an NP who works in primary care with acute and chronic pain patients. I was concerned about the high opioid prescribing rates in chronic pain patients at this project site, and the national level. My role in this project was leader and project manager. I used evidence-based literature to create and tailor this project as a project manager. I was directly involved in

developing this evidence-based QI project utilizing my leadership skills. In addition, I developed my leadership skills by being the project manager and reviewing the project sites training of the PCPs on using the pain management checklist. In addition, a literature review of the CDC opioid prescribing guidelines has provided me with the evidence-based practices that influence the development of this DNP project.

My leadership skills assisted me in creating this DNP project's objectives and goals. My clinical expertise as a developing nursing scholar helped me evaluate if the project sites training on the CDC guidelines on opioid prescribing reduced opioid prescribing. My motivation for this doctoral project included the high percentage of opioids prescribed to patients who may not be aware of the risks of overdose and PCP's lack of knowledge of other treatments and non-opioid medication to help relieve pain.

Role of the Project Team

This DNP, QI project was completed by collaborating with this practice site's medical director (field site preceptor), pain management specialist, and the IT department director. I coordinated this project with the medical director to include timely project implementation and data review. Before starting the project, I explained the purpose, goals, implementation, and data collection techniques to the medical director and the IT department director. The project site's medical director introduced this DNP, QI project to the PCPs one month before initiation. In addition, I collaborated with the medical director and IT department director to collect pre-data from the medical record regarding the number of chronic pain patients who were currently on opioids vs. those who were on alternative methods for six months before initiating this DNP project. Finally, I worked with the IT department director and the pain management specialist to

monitor the opioid prescribing of the PCPs to help analyze the opioid prescribing percentage before, during, and three months after the training on using the CDC's recommended opioid guidelines. Finally, I met with the medical director and the IT department director one week before the DNP, QI project implementation, and weekly during the DNP project to see if the provider training on the CDC opioid guidelines and pain management checklist assisted in reducing opioid prescribing. This DNP project aimed to determine if the project site training the PCPs on the CDC guidelines for opioid prescribing reduced the percentage of opioids prescribed.

Summary

As mentioned in section 2, this DNP, QI project used the Donabedian model and Kurt Lewin's change theory. Training the PCPs on the use of the CDC guidelines on opioid prescribing reduced the overprescribing of opioids at this project site. Reducing opioid prescribing may also decrease medical costs for opioid overdose, and reduce the incidence of opioid-related overdoses, and death. Section 3 discussed the current opioid crisis, the literature review collection method, and how the results were analyzed in the QI project regarding opioid prescribing and the reduction in prescribing after the PCP is training on the CDC guidelines for opioid prescribing.

Section 3: Collection and Analysis of Evidence

Introduction

Opioid abuse and misuse are a current crisis in the United States. Adults prescribed opioids have a greater risk of overdose than other medications (NIDA, 2020). However, many PCPs lack the knowledge of the evidence-based practice guidelines on prescribing opioids and overprescribing opioids (Barth et al., 2016). However, these primary care providers may not be aware of the nonopioid alternative to treating pain outlined in the CDC guidelines.

This evidence-based quality improvement DNP project aimed to address the gap in practice at this project site by the project site training the PCPs on using the CDC guidelines on opioid prescribing. Statistics at the project site showed that 60.3% of patients with a chronic pain diagnosis were on opioid therapy (Personal communication, March 31, 2021). In addition, the project site statistics supported the evidence that PCPs needed to be made aware of the CDC guidelines for opioid prescribing to reduce the incidence of opioid-related overdose and death.

The CDC (2021a) published guidelines for opioid prescribing to provide recommendations for primary care providers prescribing opioids for non-cancer-related chronic pain. Barth et al (2016) examined why PCPs do not follow recommended guidelines. The results of the systematic review were that the PCP's reasoning for not following the clinical practice guidelines included a lack of knowledge of the guidelines, absence of motivation for change, and agreement with the contents (Barth et al., 2016).

The evidence in the literature review and statistics guided the development of this QI project on opioid prescribing at the practice site. This section I explain the alignment of the

practice-focused question with the project purpose, define the key terms of the project, reveal the sources of evidence, describe the data collection methods and the research method, and describe how the data was analyzed.

Practice-Focused question (s)

At a primary care site in St Louis, Missouri, 60.3% of patients with a chronic pain diagnosis were on opioid therapy (Personal communication, March 31, 2021). The high opioid prescribing rates provided a gap in practice, indicating that the PCPs were not following the CDC's recommended guidelines on prescribing opioid therapy. The following practiced-focused question guided this DNP QI project: Will quality improvement training on PCPs using the CDC recommended guidelines on opioid prescribing reduce the number of opioids prescribed at this practice site? This evidence-based practice QI training informed the PCPs on using the CDC guidelines on opioid prescribing at this project site. This project approach aligned the practice-focused question to the project by training providers on the use of the guidelines to reduce opioid prescribing. In addition, the CDC (2021a) guidelines on opioid prescribing gave the providers resources to reduce opioid prescribing.

Sources of Evidence

The sources of evidence gathered were peer-reviewed journal articles with topics closely related to opioid prescribing and checklists. I used the John Hopkins literature review matrix to evaluate and organize the reports. The articles that met the criteria were selected. The abstracts were read to ensure relevance to this DNP QI project. I consulted with a Walden University librarian to access search engines for peer-reviewed articles from 2016 to 2021; CINAHL, MEDLINE, CORE, directory of open access journals, Bielefeld Academic Search Engine,

CDC, Digital Library of the Commons, BioMed Central, PubMed, and Ethos. Key search terms included *pain management; opioid, alternative therapy to opioids, reducing opioid prescribing, use of pain checklist, primary care knowledge of pain management checklist, and CDC guidelines on prescribing opioids*. With permission from the John Hopkins University (Appendix A), a literature matrix was used to organize and analyze the supporting evidence gathered from a comprehensive review of the literature. The project site has electronic medical records, which provided baseline and follow-up data on the percentage of patients with a chronic pain diagnosis on opioids vs. chronic pain patients on alternative therapies. The baseline and follow-up data assisted in determining if the QI training on the pain management checklist successfully reduced opioid prescribing.

Literature Review Evidence

I completed an extensive literature review that identified the sources of evidence that supported the relevance of this DNP QI project to the nursing practice. The literature review showed that there are several barriers to reducing opioid prescribing. These barriers included inadequate professional education, PCP's perception of treating chronic pain patients, barriers to pain management, benefits of utilizing a pain management checklist, and opioid prescribing practices.

Inadequate Professional Education on Prescribing Opioids

In the United States, providers who are not certified in pain management specialists prescribe most opioid pain medications (Pearson et al., 2016). Pearson et al. (2016) reported a knowledge deficit in pain management. Pearson et al. (2016) conducted a study among 219 PCPs and tested their knowledge on prescribing opioids for chronic pain. A 50-question survey

was given in which 18 questions were focused on pain management with opioids. The proportion of correct responses to the seven medicolegal opioid questions was 74% and 67% on the 11 clinical opioid questions. This study showed the PCP's lack of knowledge in prescribing opioids (Pearson et al., 2016). Price et al. (2021) reported a national online survey with 2,000 health care providers on exposure to educational information on opioid prescribing. There were five individual abuse-deterrent formulation questions regarding opioids, and the correct responses from the health care providers were only 9% to 55.3%, depending on the type of provider (Price et al., 2021). These findings indicated a difference in educational exposure and knowledge of opioid prescribing among different provider groups. Chiasson et al. (2020) evaluated an 11-hour integrative pain management online course for resident knowledge on chronic pain management. One hundred twenty-five healthcare providers completed this study. Only 63% of the participants passed the pain management pretest on the first attempt. The study reported medical knowledge of the healthcare providers improved by 23.8% in the experimental group and was unchanged in the controls (Chiasson et al., 2020). This study proves there is a knowledge deficit regarding proper prescribing of medications in pain management that education can improve.

Shipton et al. (2018) performed a systemic review of pain management content, teaching, and assessment in medical schools. Evaluation of pain medicine curricula has been reviewed at 383 medical schools in Australia, New Zealand, United States, Canada, the United Kingdom (UK), and Europe (Shipton et al., 2018). Ninety-six percent of medical schools in the UK and United States had no dedicated courses in pain management (Shipton et al., 2018). In another report by Hudspeth (2016), approximately 50% of PCPs who prescribe medication had no formal pain management education. A QI training on the use of the CDC guidelines improved the PCP's knowledge on prescribing opioids.

PCPs Perception on Treating Chronic Pain Patients and Barriers to Pain

Management

The PCP's perception of chronic pain could influence the treatment of chronic pain patients. Loeser and Schatman (2017) reported a qualitative study that noted that most medical students had a negative perception about treating chronic pain patients due to difficulty with treatments. Polacek et al. (2020) completed a qualitative interview study via telephone ranging from 40-60 minutes to explore healthcare professionals' perceptions of challenges to chronic pain management. Sixteen healthcare professionals who manage chronic pain took place in the study. The study concluded that the sample's perception was primarily limited to opioid reduction and not the use of strategic planning for these chronic pain patients (Polacek et al., 2020). Rice et al. (2018) used institutional ethnography to study 19 primary care providers' experiences and perceptions of treating patients with chronic pain. The study resulted in PCPs shifting their work from providing treatment and care to policing their patients for malingering and opioid abuse (Rice et al., 2019). Desveaux et al. (2019) performed an exploratory qualitative

study of 22 family physicians to examine their views on opioid prescribing and chronic pain management. This study concluded that the number of years in practice influenced the family physician's response to emergent evidence (Desveaux et al., 2019). Initiatives need to train primary care providers on the skills necessary to discuss pain management with their patients and de-escalation of opioids (Desveaux et al., 2019).

Rice et al. (2018) performed a qualitative study on healthcare providers' experience in treating patients with chronic pain. Thirteen open-ended interviews reported that physicians' opinions about chronic pain patients became progressively hostile throughout medical training, which caused the providers to lose empathy for chronic pain patients (Rice et al., 2018). Chen et al. (2018) completed a survey using online questionnaires to gauge providers' attitudes toward chronic pain patients. The survey revealed multiple reasons providers are not satisfied with treating chronic pain patients (Chen et al., 2018). The reasons included the lack of longitudinal care and inappropriate medication for chronic pain-causing dependency (Chen et al., 2018). Chen et al. (2018) also reported that the study proved that additional chronic pain-specific training was associated with increased care provider confidence in treating chronic pain. The numerous studies above show that some primary care providers are dissatisfied with caring for chronic pain patients. Some of these studies also provide insight on provider satisfaction with treating chronic pain patients be improved with pain management training. If PCPs are given the proper tools and knowledge to treat chronic pain patients, perceptions of treating chronic pain patients may improve (Chen et al., 2018).

Benefits of Using a Pain Management Checklist

Using a standardized checklist includes the positive downstream effects of decreased opioid use (Gurley et al., 2020). Gurley et al. (2020) initiated a quality improvement study that implemented a pain management checklist in the emergency department to streamline and improve the quality of care for patients. The results concluded that the checklist limited opioid usage and abuse, limited emergency department (ED) visits and overcrowding for patients who visited the ED for chronic pain management (Gurley et al., 2020). Pace et al. (2018) presented a literature review in clinical toxicology regarding a study to determine the impact of the pathway for administering opioids in the ED and the prescribing of opioids for home use after discharge. The study concluded a decrease in opioid prescribing by ED providers for chronic pain patients after implementing the pain pathway (Pace et al., 2018).

Sheppard Pratt health systems in Maryland implemented the SAFE pain checklist (Goga et al., 2019). This program was designed to reduce opioid use in older adults with chronic pain. The lean methodology interventions led to zero new opioid orders during the study period, significantly decreasing opioid prescribing compared to previous years (Goga et al., 2019).

The Characteristics and Effectiveness of Interventions for the frequent Emergency department-utilizing patients with chronic non-cancer pain: A systematic review is a review that synthesizes the available evidence on interventional strategies/pain checklists/policies to reduce opioid prescribing and administration in the emergency department (Wong et al., 2020). The pain checklist successfully reduced the number of opioids prescribed and administered in the emergency department (Wong et al., 2020). In addition, the CDC (2021a) created opioid prescribing guidelines to ensure patients have access to safer, more effective pain control while

reducing the number of people who use opioids. The scholarly evidence supports the need to use a pain management checklist to reduce opioid use and the potential for opioid-related deaths.

Opioid prescribing practices

The rise in opioid prescribing in primary care practices presents a public health challenge (Alderson et al., 2021). Alderson et al (2021), a quasi-experimental controlled interrupted time series analysis, studied the effects of evidence- and theory-informed feedback intervention on opioid prescribing for non-cancer pain in primary care. The study included 446 primary care practices that prescribed opioids. Comparative feedback was given after the study, and there was noted to be a decrease in opioid prescribing. In addition, Alderson et al (2021) reported a wide variation in opioid prescribing practices at the different primary care practices, suggestive of prescribing practices being driven by clinician habits rather than patient needs.

Kiang et al (2020) performed a retrospective observational study on the opioid prescribing patterns among medical providers in the United States. A yearly average of 669,495 providers wrote 8.9 million opioid prescriptions to 3.9 million patients from 2003 through 2017 (Kiang et al., 2020). This study concluded that providers were prescribing considerable amounts of opioids, which persisted over time, with over half of both appearing in adjacent years (Kiang et al., 2020). In another study, Lozada et al (2020) performed a retrospective cross-sectional study of Medicare Part D enrollee prescription data. The objective was to identify prescription opioids over prescribers by comparing prescribing patterns of primary care physicians, NPs, and PAs. The study concluded that among 222,689 primary care providers, 3.8% of MDs, 8.0% of NPs, and 9.8% of PAs met the definition of overprescribing (Lozada et al., 2020). In the study,

1.3% of MDs, 6.3% of NPs, and 8.8% of PAs prescribed an opioid to at least 50% of patients. Kim et al (2018) performed a literature review to identify indicators of inappropriate opioid prescribing. Five electronic databases were searched, and 41 articles were studied to determine studies related to inappropriate opioid prescribing (Kim et al., 2018). Fourteen studies identified high-daily-dose opioid prescriptions, 14 identified co-administration of benzodiazepines and opioids, ten identified inappropriate opioid prescribing in geriatric populations, eight identified other patient-specific factors, and four identified opioid prescribing for the wrong indication. Four studies identified factors such as initiation of long-acting opioids in opioid-naive patients as indicators of inappropriate opioid prescribing (Kim et al., 2018). A retrospective cohort study was conducted from July 1, 2012, to June 30, 2018. This study evaluated all adult patients who presented to two studies EDs for a pain-related complaint and received an analgesic prescription upon ED discharge (Gleber et al., 2020). This study concluded that opioid prescribing decreased from 37.76% to 13.29% over the six years (Gleber et al., 2020). During the same study period, there was a noticeable increase in non-opioid medications from 6.12% to 11.33% (Gleber et al., 2020). The opioid prescribing practices vary by provider and organization. The use of opioid education and the new guidelines on opioid prescribing has assisted in reducing opioid prescribing (Gleber et al., 2020).

Participants

This project site was an outpatient medical clinic in St Louis, Missouri. Six primary care providers participated in this DNP, QI project. These PCPs include (2) MDs, (3) NPs, and (1) PA. The inclusion criteria for this project were that all PCPs work at this project site and have a drug

enforcement agency (DEA) license. The exclusion criteria for the PCPs were that they must be a prescribing provider. The invitation to the QI training was given via email.

Procedure

I obtained consent from this project site's medical director to implement this DNP, QI project. The Donabedian model was used in this project. The steps in the Donabedian model included structure, process, and outcomes. The first step in the Donabedian model is structure. During this stage, I discussed the DNP, QI project at our bi-weekly provider meeting one month before the start date of the DNP project. Next, I worked with the patient management provider to assist in designing the project. After institutional review board (IRB) approval in week 1 of the project (Appendix B), I distributed an information flier on the DNP project (D) via email to invite all PCP participants. The information flier contained the project title, the purpose of the QI training, proposed dates, and my contact information. There were not any sign-up sheets as the project site QI training was voluntary. In addition, the participants were given a half-day for training by the project site. The time of the QI training was from 9–11 AM. The QI training was administered at the project site.

The demographic and pre-project surveys were administered during the QI training. Each participant was provided with a number to ensure anonymity. The demographic survey contained questions related to the age and gender of the provider, years in practice, provider credentials, type of experience, including primary care, hospital medicine, and addiction medicine. The pre survey included questions related to opioid prescribing, prior therapies before prescribing opioids, and knowledge of the CDC guidelines on opioid prescribing.

The next stage in Donabedian model is the processes stage. This step refers to the PCP's training on using the CDC guidelines for opioid prescribing. In week 2, I met with the medical director and pain management specialist and reviewed the data at the project site, including the current number of patients with a chronic pain diagnosis on opioids vs. chronic pain patients without opioids for 6 months before implementing the DNP, QI project.

The quantitative data on the current number of chronic pain patients on opioids vs. those on non-opioid treatments was placed in a comparative table (Table 1). The PCP's training on the CDC guidelines for opioid prescribing occurred at a provider meeting in week three. A poster board on the CDC guidelines on opioid prescribing was used during the provider training (Appendix H). Week 4, a question, and answer (QA) session was conducted via zoom to answer any PCP's questions before the DNP, QI project. The project was initiated in week 4. Week 5-11 once-week meetings via zoom was conducted with the medical director to track new chronic pain diagnoses, the number of opioids prescribed within that week, and the number of patients who were taken off opioids or whose opioid dose was reduced. Finally, I recorded the data from the weekly meeting with the medical director (Table 1) to assist in comparing the pre and post QI training data.

In week 11, the post survey questionnaire was conducted via Survey Monkey©. The link for Survey Monkey© was sent to the participant's email. The demographic survey was analyzed using SPSS. The pre- and post-survey was examined by creating a pie chart in Microsoft Excel to analyze percentage changes in providers' use of the CDC guidelines on opioid prescribing after the QI training.

In week 12, the final project data and results were distributed to the medical director and participants via a zoom meeting. The data included the pre-project demographic survey, post project survey, and DNP, QI project study results. The last step in the Donabedian model is the outcome. The desired outcome of this project was to reduce opioid prescribing by training the PCPs on using the CDC guidelines for opioid prescribing. Two weeks after completing this DNP, QI project, I presented the final study data to the stakeholders, including the project site owner, medical director, pain management specialist, collaborating pharmacy, medical doctors, nurse practitioners, and physician assistants.

The validity of the study results was counteracted by using the various method collection techniques. These collection methods included the pre-project demographic survey, post-project survey, and the medical director's EMR data, which cannot be altered. In addition, the medical EMR data and the data results ensured the study reduced the risk of bias being introduced into the project results. Using the EMR data, the medical director provided the reliability of the collected data.

Protections

According to Allen (2017), participant relationships can be complex negotiations and include rapport building and engagement. Strategies for recruiting and developing working relationships with participants included frequent contact and engagement with the PCPs and asking questions during the project implementation. After IRB approval from Walden University, a summary of the QI project was given to the participants, including the purpose and duration of the project. The PCPs were assigned a number to preserve anonymity for the training and their demographic and pre/post surveys. Demographic and pre/post surveys were administered

securely on Survey Monkey©. According to the Walden University guidelines for privacy and confidentiality, all data collected for the DNP project will be kept in a locked cabinet for 5 years. No potential ethical issues were identified due to no patients participating in this DNP project. The IRB ensures that all Walden research complies with the University's ethical standards and US federal regulations (Walden University, 2020). Therefore, the IRB plays a vital role in this DNP; QI project by ensuring the DNP, QI project is ethical.

Analysis and Synthesis

The systems used to organize, record, track, and analyze the DNP, QI evidence include Microsoft Excel and SPSS. I used the data from pre-post-training surveys plus the post training EMR data provided by the field site preceptor to analyze whether opioid prescribing decreased. The medical EMR data and the data results ensured the study reduces the risk of bias being introduced into the project results. Using the EMR data, the medical director will provide the reliability of the collected data. The procedures for managing outliers and missing information were completed using appropriate statistical methods and sensitivity analysis in the data analysis phase. The demographic survey was analyzed using SPSS to determine the pre- and post-training opioid prescribing rates using Table 3. The data was tracked to see a change in opioid prescribing from pre- to post-training.

Summary

Section 3 outlined the introduction to the DNP QI project, practiced-focused questions and the sources of evidence. This section also addressed the relationship of the evidence to explain how the analysis of evidence will address the practiced-focused question and databases and search engines used to discover the peer-reviewed research articles. The operational data,

including the nature of the data, relevance to the nursing practice, and data collection methods, were explained. Finally, the procedure for gaining access to the data and permission to access the operational data was concluded. Finally, the participants and techniques used to collect the DNP, QI project evidence were discussed.

Section 4: Findings and Recommendations

Introduction

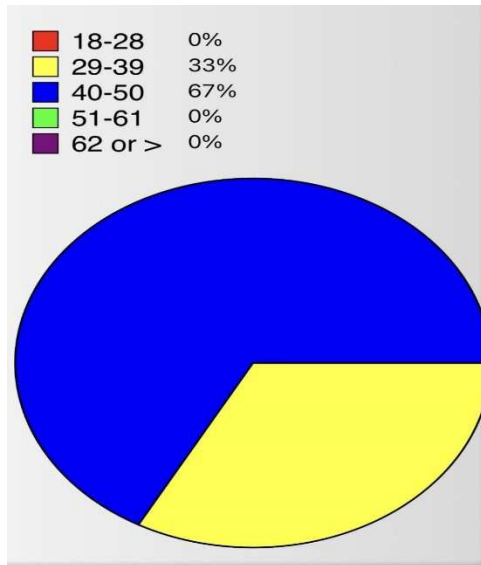
During the planning of this evidence-based QI project, the gap in practice at the project site was the lack of knowledge of evidence-based practice guidelines for prescribing opioids and the overprescribing of opioids. This DNP evidenced-based QI project was developed to improve awareness of CDC guidelines on opioid prescribing in order to reduce opioid prescribing at this project site. The PCPs implementation of the CDC guidelines could decrease opioid prescribing and potentially decrease opioid abuse/misuse and the incidence of opioid overdose. Participation in this study was voluntary. Prior to the QI training, I recorded the number of chronic pain patients who were prescribed opioids. The project site used a poster presentation to train the PCPs on the CDC guidelines for opioid prescribing in patients with chronic pain. After the provider training, I monitored the percentage of chronic pain patients who were prescribed opioids for a period of 12 weeks. In this QI project, six participants voluntarily completed the demographic, pre-, and post-training survey. There were no PCP exclusions for this DNP-QI project. The six participants included two medical doctors, three nurse practitioners, and one physician assistant. I inserted the data collected through SurveyMonkey© into Microsoft Excel 2016 using tables and pie charts.

Findings and Implications

The project participants' demographic data (see Figures 1-5) includes participants' age, gender, and years in practice, professional credentials, and type of experience.

Figure 1

Project Participants Years of Age

**Figure 2**

Gender of Project Participants

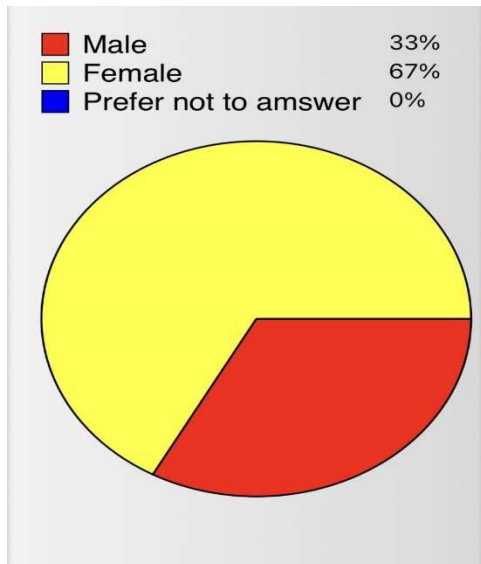


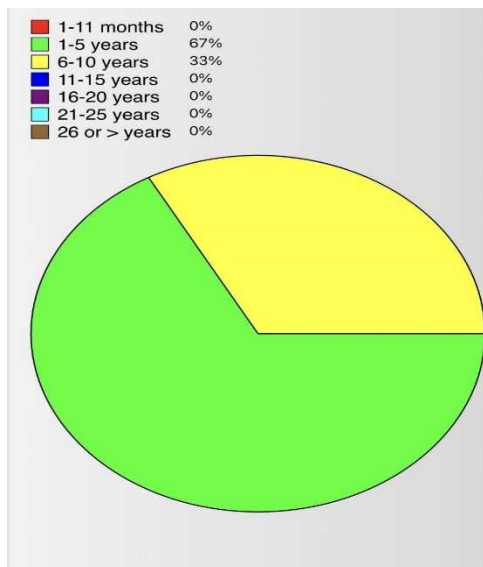
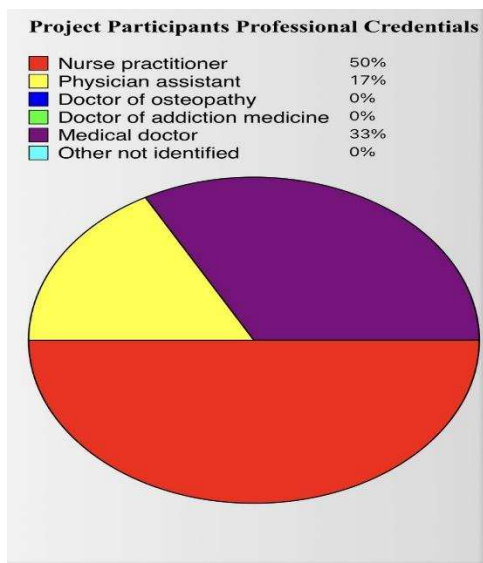
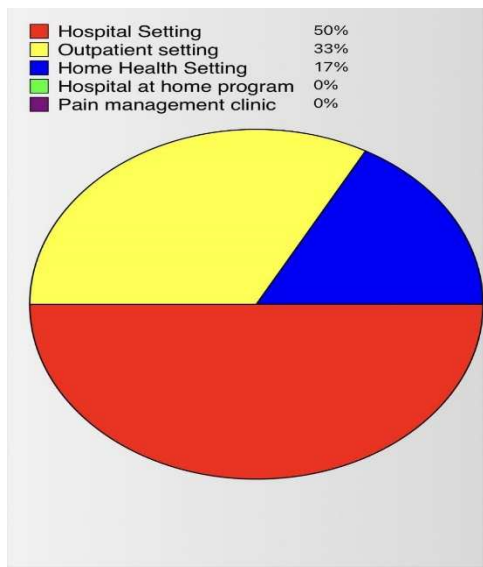
Figure 3*Project Participants Years of Professional Practice***Figure 4***Project Participants Professional Credentials*

Figure 5

Project Participants Practice Setting Experience



Pretraining Survey

The pre survey included questions related to opioid prescribing, prior therapies before prescribing opioids, and knowledge of the CDC guidelines on opioid prescribing. Table 1 represents participants' responses during the retraining survey. Participants were asked to answer yes or no to each question. There was high recognition of the CDC guidelines for opioid prescribing at the practice site ($n=4$, 67%), however only half routinely used the CDC opioid guidelines in the project site setting. Most of the PCPs routinely prescribed alternative therapies such as yoga or physical therapy prior to prescribing opioids. A high percentage of PCPs did routinely prescribe no opioid medications and reviewed medical records for appropriate diagnostics prior to prescribing opioids. Most of the PCPs performed diagnostic imaging prior to prescribing opioids. Half of the PCPs did not feel they had adequate education in pain management to care for patients with chronic pain. Most PCPs felt the training on the CDC guidelines for opioid prescribing would make them feel more confident when treating chronic pain patients. A small percentage routinely referred the patients to specialists such as pain management when opioids were prescribed. These results show a gap in practice exists and training the PCPs on the CDC guidelines for opioid prescribing is needed to reduce opioid prescribing and reduce patient mortality.

Table 1*Participants' Retraining Baseline Survey of Opioid Prescribing Practices and Awareness of CDC Guidelines on Opioid Prescribing*

Question	Yes	No
1. Are you aware of the Centers for disease control and preventions (CDC) opioid prescribing guidelines that are in place at this project site?	4 (67%)	2(33%)
2. Do you routinely use the project sites pain management checklist when prescribing pain medications to chronic pain patients?	3 (50%)	3 (50%)
3. Do you prescribe alternative therapies such as yoga, physical therapy, occupation therapy, meditation, hot/cold compresses; massage therapy prior to prescribing any pain medications?	4 (67%)	2(33%)
4. Do you routinely prescribe Tylenol, ibuprofen, gabapentin, SSRI's, lidocaine patches, pain relief creams, or other non-opioid medications prior to prescribing opioid medications to chronic pain patients?	5 (83%)	1 (17%)
5. If a patient is on opioid pain medications, do you routinely review their medical records for supporting documentation for chronic pain dx such as radiology studies?	5 (83%)	1 (17%)
6. Do you perform diagnostic studies such as x-rays, CT, and MRI prior to prescribing non-opioid and opioid pain medications?	4 (67%)	2(33%)

7. Do you feel that you have adequate education in pain management to provide care for chronic pain patients?	3 (50%)	3 (50%)
8. Do you feel training on the CDC guidelines on opioid prescribing would benefit you or make you feel more confident in treating chronic pain patients?	5 (83%)	1 (17%)
9. Do you refer the patient to a pain specialist or other specialist such as orthopedics, neurology when opioid pain medications are prescribed?	2 (33%)	4 (67%)

Table 2 represents participants' responses during the post training survey. Participants were asked to answer yes or no to each question. After the PCP's training on the CDC guidelines, all the PCPs were aware of the CDC guidelines on opioid prescribing and are prescribing alternative no opioid medications prior to prescribing opioids. Most of the PCPs were using the project sites CDC guidelines pain management checklist and are prescribing alternative therapies prior to prescribing opioids. After the CDC guidelines training on opioid prescribing most of the PCPs were reviewing medical records for supporting documentation prior to prescribing opioids. All the PCPs were performing diagnostic studies prior to prescribing opioids. Most of the PCPs referred patients to specialists when prescribing opioids and felt as if they have adequate pain management education to take care of chronic pain patients. All the PCP's feel the training on the CDC guidelines for opioid prescribing made them feel more confident in treating chronic pain patients and plan to use the CDC Guidelines in place at the practice site.

Table 2

Participants' Post training Survey of Opioid Prescribing Practices and Awareness of CDC Guidelines on Opioid Prescribing

1. Are you aware of the Centers for disease control and preventions (CDC) opioid prescribing guidelines that are in place at this project site?	6 (100%)	6 (0%)
2. Do you routinely use the project sites pain management checklist when prescribing pain medications to chronic pain patients?	5 (83%)	1 (17%)
3. Do you prescribe alternative therapies such as yoga, physical therapy, occupation therapy, meditation, hot/cold compresses; massage therapy prior to prescribing any pain medications?	5 (83%)	1 (17%)
4. Do you routinely prescribe Tylenol, ibuprofen, gabapentin, SSRI's, lidocaine patches, pain relief creams, or other non-opioid medications prior to prescribing opioid medications to chronic pain patients?	6 (100%)	6 (0%)
5. If a patient is on opioid pain medications, do you routinely review their medical records for supporting documentation for chronic pain dx such as radiology studies?	5 (83%)	1 (17%)
6. Do you perform diagnostic studies such as x-rays, CT, and MRI prior to prescribing non-opioid and opioid pain medications?	6 (100%)	6 (0%)
7. Do you feel that you have adequate education in pain management to provide care for chronic pain patients?	5 (83%)	1 (17%)
8. Do you feel training on the CDC guidelines on opioid prescribing has benefited you or made you feel more	6 (100%)	6 (0%)

confident in treating chronic pain patients?		
9. Do you refer the patient to a pain specialist or other specialist such as orthopedics, neurology when opioid pain medications are prescribed?	5 (83%)	1 (17%)
10. Do you see yourself utilizing the project sites pain management checklist based on the CDC guidelines on opioid prescribing after the project sites provider training?	6 (100%)	6 (0%)

Comparison of Pre- and Post training Survey

There was evidence the training on the CDC guidelines for opioid prescribing at this practice site increased the confidence in the PCPs to care for chronic pain patients. For Question 1, 67% of the PCPs at the practice site were aware of the CDC prescribing guidelines prior to the CDC training compared to 100% post training. For Question 2, 50% of the PCPs used the pain management checklist prior to the CDC guideline training compared to 83% after the training was completed. Prior to training, 67% of the PCPs prescribed alternative therapies compared to 83% after the training. The results of Question 4 showed improvement in PCPs prescribing alternative medications prior to prescribing opioids. Most PCPs reported they routinely prescribe alternative medications prior to the training compared to 100% after the training. The results of Question 5 were unchanged pre- and post-training. According to Question 6, only 67% of the PCPs performed diagnostic studies prior to prescribing opioids compared to 100% after the training. Question 7 revealed half of the PCPs felt they had adequate pain management education to provide care for chronic pain patients compared 83% after the CDC guideline training. Question 8 results showed 83% of the PCPs compared to 100% felt the training on the CDC guidelines made them feel more confident when treating chronic pain patients. There was a significant increase in referrals to pain management according to Question 9. A small percentage (33%) of the PCPs referred patients to pain management prior to the CDC guideline training versus 83% after the training. After the training, the post survey results reflected that 100% of the PCPs see themselves using the pain management checklist that was already in place at the practice site.

Reducing Opioid Prescribing by using the CDC Guidelines

Table 4 shows that the opioid prescribing decreased during the 12 weeks of the project implementation when compared to the baseline data over a period of 6 months prior to the project implementation. Provider A's opioid prescribing decreased by 1%, provider B's opioid prescribing decreased by 2%, provider D's opioid prescribing decreased by 40%, and provider E's decreased by 8% after the CDC guidelines training. Provider C's opioid prescribing increased by 4% and provider F's increased by 6%. There were 144 chronic pain patients on opioids prior to the project site training the PCPs on the CDC guidelines on opioid prescribing and 141 on opioids after the training. The results of the project show that training the PCPs on the CDC guidelines for opioid prescribing which were already in place at the practice site successfully decreased opioid prescribing for some PCPs while other PCPs continued to prescribe opioids. The final percentage comparisons by the medical director showed that opioid prescribing decreased by 1.3% after training the PCPs on the CDC guidelines. The conclusion from the implementation of this QI project implies training the PCPs on the CDC guidelines has the potential to clout quality medical care and improve outcomes for chronic pain patients. The QI project's literature review conclusions were emulated in this project, signifying that multiple interventions and PCP trainings need to take place to successfully implement a practice change at this project site.

The goal of this evidenced-based practice QI project was to impact social change by educating the PCPs on the use of the CDC guidelines. The project goal was also to assist in reducing opioid prescribing and reducing mortality and morbidity of chronic pain patients making them less at risk for overdose and death.

Table 3

A Quality Improvement Project on Reducing Opioid Prescribing by using the CDC Guidelines: DNP project timeline

Providers in the project	Provider A	Provider B	Provider C	Provider D	Provider E	Provider F
Number of patients with chronic pain diagnosis	67	64	34	28	25	19
Number of patients on non-opioid medications	24	20	13	14	12	10
Number of patients on opioid medications	43	44	21	14	13	9
Percentage of patients on opioid medications	64%	69%	61%	50%	52%	47%
Week 1 opioids prescribed	1/13	0/8	0/6	0/11	0/6	1/7
	0/13	0/8	0/6	1/11		
De-escalated					0/6	0/7
Week 2 opioids prescribed	0/17	1/26	0/4	0/4	0/3	0/4
De-escalated						

	1/17	2/26	0/4	0/4	0/3	0/4
Week 3 opioids prescribed	1/24	1/17	0/11	0/3	0/5	0/2
De-escalated						
	2/24	1/17	0/11	0/3	0/5	1/2
Week 4 opioids prescribed	1/13	0/13	1/13	1/10	0/11	1/6
De-escalated						
	0/13	0/13	0/13	1/10	2/11	0/6
Week 5 opioids prescribed	0/11	0/14	1/9	0/5	0/4	0/3
De-escalated						
	1/11	1/14	1/9	1/5	0/4	0/3
Week 6 opioids prescribed	0/15	1/17	0/7	0/9	0/9	0/5
De-escalated						
	1/15	0/17	0/7	0/9	0/9	0/5
Week 7 opioids prescribed	2/21	0/19	0/12	0/7	0/4	0/3
De-escalated						
	1/21	0/19	0/12	0/7	0/4	0/3
Week 8 opioids prescribed	0/20	0/14	0/6	1/7	0/8	0/7
De-escalated						
	0/20	1/14	0/6	0/7	0/8	0/7
Total number of	5	3	2	2	0	2

opioids prescribed after CDC guideline training.						
Total number of patients whose opioids were deescalated after provider training.	6	4	1	3	2	1
Percentage of patients on opioids after provider training.	63%	67%	65%	46%	44%	53%

Table 4*Pre- and Post intervention Data*

	# Chronic pain patients on Opioids	# Chronic pain patients not on opioids	Percentage change on # of chronic pain patients on opioids.
Preintervention	144	93 (59.5%)	
Post intervention	141	96 (60.8%)	-1.3%

Recommendations

The project site's opioid prescribing rate for chronic pain patients was 59.5% of the chronic pain patients were not on opioids prior to the CDC guidelines training. This percentage leaves a high percentage of chronic pain patients on opioid therapy. Due to the national opioid crises, there is a need for the PCPs to use evidenced-based practice guidelines to reduce the prescribing of opioids. This evidenced-based QI project focused on decreasing opioid prescribing by training the PCPs on the CDC guidelines for opioid prescribing. All providers voluntarily participated in the project. Post assessment results demonstrate improved awareness of the CDC guidelines on opioid prescribing. Within the project sites EMS there is not an alert system to remind PCPs of the CDC guidelines. Having a system in place to remind PCPs to complete urine drug screens, check the prescription drug-monitoring program or trial reduce opioids would be beneficial. This QI project could be replicated in similar settings to improve the PCPs implementation of the CDC guidelines on opioid prescribing for chronic pain patients to reduce opioid prescribing.

Contribution of the Doctoral Project Team

Team integration was a vital component of successful implementation of this DNP QI project. The medical director, I.T team and all the PCPs were willing to participate in this project. The project site was willing to provide time slots for the meeting, so the PCPs were able to devote their attention to this project. The medical director was responsible for providing time slots for the PCPs to participate in a project and provide the training on the CDC guidelines. The Medical director and the I.T department were responsible for collecting the weekly project data and reporting it during our weekly meetings. The project team played a vital role in the adoption

of the CDC guideline training to improve PCP's awareness and confidence in opioid prescribing.

There are no further plans to extend the DNP project.

Strengths and Limitations of the Project

Strengths of this project includes the participation of all the PCPs in the project site. Limitations of this project included the small sample of PCPs (6) which were involved in the project. Post training results demonstrated improved awareness of the CDC guidelines and improved use after the training was completed. Some of the PCPs continued to prescribe opioids during the project implementation. This does not necessarily mean they are not following the guidelines as each patient needs to be treated on an individual basis and the patient may have been appropriately escalated.

This project site made up 6 PCPs, a larger sample size could allow further analysis of further demographics including if years of clinical experience and type of clinical practice setting influenced the prescribing rate of opioids. Another limitation of the study was the amount of time for the project implementation as a longer project time span may have shown if the PCPs remained using the CDC guidelines after the initial project period. Recommendations for future projects addressing similar

Summary

The gap in practice, identified as the overprescribing of opioids for chronic pain patients at this project site was addressed through training the PCPs on the use of the CDC guidelines. Intense planning and collaboration took place to create successful implementation of this DNP QI project. Implementation of this QI project resulted in the project site PCPs adopting the use of the CDC guidelines that were already in place at this practice site. This resulted in a decreased

percentage of patients (1.3%) who were on opioids at the end of the project. Future recommendations to consider include training all the PCPs to implement the CDC guidelines on opioid prescribing to improve the patients' medical care, improve quality of life and reduce the risk of opioid related overdose.

Section 4 outlined the local problem for the DNP project and identified the gap in practice. A summary of sources of evidence and how the evidence was obtained, and the analytical strategies were concluded. The findings of the DNP, QI project resulting from the analysis and synthesis of the evidence were revealed. Any unanticipated outcomes or resulting implications were discussed. Potential implications for positive social change were revealed. Lastly, the proposed solutions were identified that addressed the gap in practice. Section 5 will discuss the project dissemination plans including the plans for publishing the DNP project, the purpose of the DNP QI project and the most important outcome of the DNP project.

Section 5: Dissemination Plan

At the project site, there was a sizable percentage (60%) of chronic pain patients on opioids. The purpose of the QI project was to decrease opioid prescribing by improving awareness of CDC guidelines on opioid prescribing to reduce opioid prescribing at this project site. According to Marin-Gonzalez et al. (2016), effective dissemination and communication are vital to ensure the research has a social, political, and economical impact.

After graduation for my DNP, I plan to publish this quality improvement project on reducing opioid prescribing by using the CDC Guidelines to ProQuest. This project was disseminated to the project site medical director, IT team, pain management physician, nurse practitioners, physician assistant, and the medical doctors. I presented the project findings and recommendations to the medical director and the PCPs during the Zoom meeting. As a leader, I could also present this project at various medical conferences to raise awareness on the need to educate PCPs on the need to use the CDC guidelines to reduce opioid prescribing. This project could also be disseminated to the American Academy of Nurse practitioners, the medical association, and to scholarly medical journals. I also plan to disseminate the project findings at multiple medical conferences including the Pri-Med Midwest primary care conference, internal medicine for primary care conferences. I would like to publish it in the journal.

The PCPs at this practice site were not following the CDC guidelines on opioid prescribing. The purpose of this project was to have the project site train their PCPs on the CDC guidelines for opioid prescribing to assist in reducing opioid prescribing at this practice site. The most important outcome of this evidence-based QI DNP project was the PCPs using the CDC guidelines on opioid prescribing when treating chronic pain patients.

Analysis of Self

The last 2.5 years have improved my professional leadership skills and fostered my professional growth. I have been working with the medical directors at the project site as well as evaluating scholarly sources of evidence. I have been involved in analyzing project data, analyzing clinical practice guidelines, and facilitating the use of evidence-based practice guidelines at this project setting. During the evidence-based QI project in my role as a project manager, I was able to use my knowledge from my diverse background to assist in solving clinical practice problems thus decreasing mortality and morbidity of chronic pain patients. This project experience assisted me in identifying my long-term professional goals as a nurse leader and has given me the opportunity to grow confident as a nurse scholar.

As a family nurse practitioner, I have worked with various populations including geriatrics and those from rural health locations. I have seen many populations that are affected by poverty and substance abuse. My idea for this QI project became evident while working in an underserved community. I identified a large population of chronic pain patients on opioids who had not tried alternated medications. This DNP QI project has improved my knowledge of how opioids are abused and the need to be careful when prescribing opioids. Some people require opioids to be able to function, however PCPs need to be able to recognize those individuals who need opioids versus those who are at risk of abusing opioids. This project has also given me the opportunity to grow as a scholarly leader and develop independence with project planning and implementation.

One of the challenges during implementation of this project was the project site only being open for a year and most of the PCPs being new to the practice. The other difficult

challenge was finding the days to hold the meetings where all the PCPs could attend. If all the PCPs could not be in attendance for the training or the meetings this could create a lack of knowledge for the PCPs as well as not having important provider feedback. All the PCPs who participated in the project had diverse backgrounds and many did not have a lot of experience with chronic pain patients. The biggest challenge was the IT department having time to assist in tracking the data. Solutions to these challenges were performing Zoom meetings on days in which all the PCPs were working, and open time slots were given to the providers where they did not have to see patients. All PCPs were allowed to give their views on the project implementation and final data.

Insights that were gained during this project included the capacity for adjusting to change. This project required countless hours of literature review, research on quality improvement projects, and the amount of knowledge gained during this project was unparalleled. I did not realize opioid abuse and the overprescribing of opioids was as prevalent until I started researching the data for this DNP QI project.

Summary

As a DNP nurse scholar, my role was the translation of research into practice. This was completed by using the DNP QI projects findings to support the reduction in opioid prescribing. Dissemination of this project to stakeholders is particularly important in reducing mortality and morbidity of chronic pain patients.

Over the past 15 years the number of overdose deaths from prescription and illicit opioids has doubled from 21,089 in 2010 to 42,249 in 2016 (U.S. Department of Health and Human Services, 2022). Chronic pain patients who are on higher doses of opioids are at higher

risk of unintentional overdoses (U.S. Department of Health and Human Services, 2022). Evidence supports the need for reducing opioid prescribing in chronic pain patients to reduce the risk of overdose. Educating PCPs on proper opioid prescribing and risk associated with opioids is a key role in preventing mortality and reduced the prescribing of opioids at this project site. The IT department and the medical director made obtaining the clinical data accessible during the project implementation. Donabedian model of structure, process, and outcome applied to training the PCPs on the CDC guidelines for opioid prescribing. The most important outcome of this DNP project was the project site adopting the retraining of the PCPs on the CDC guidelines to assist in decreasing opioid prescribing.

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Appendix A: Literature Review Matrix

Table A1

Literature Review Matrix

Author/Date	Theoretical/Conceptual Framework	Research Question(s)/Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for future research	Implications for practice
Alderson,SL., Farragher,TM., Willis, T., Carder, P., Johnson, S., Foy, R. (2021)	The effects of an evidence - and theory-informed feedback intervention on opioid prescribing for non-cancer pain in primary care: A controlled interrupted time series analysis.	What are the effects of comparison feedback intervention with persuasive messaging and action planning on opioid prescribing in the primary care setting?	A controlled interrupted time sensitive analysis.	Comparative feedback and action planning reduced opioid prescribing in the primary care setting.	Repeated comparative feedback offers a promising and efficient population level approach to reduce opioid prescribing in primary care.	Encourage prescribing non-opioid medications for the treatment of pain.	Opioid prescribing for non-cancer pain is rising and considering providing training on non-opioid pain medications may assist in reducing the opioid epidemic.
Chen, E., Tsoy, D., Upadhye, S., & Chan, T. M. (2018)	The Acute Care of Chronic Pain Study: Perceptions of Acute Care Providers on a social media-based Investigation.	To establish the reasoning for dissatisfaction of treating chronic pain patients in the ED.	Social media-based investigation. Online questionnaires.	Primary care providers have negative views on patients who suffer from chronic pain.	Numerous factors influencing care providers' dissatisfaction with treating chronic pain in the ED including the lack of longitudinal care and inappropriate medication of	Acute care provider dissatisfaction may be improved with chronic pain management training.	Examining the perceptions of acute care providers, the treatment of chronic pain may reveal factors impacting care

					chronic pain resulting in dependency.		provider dissatisfaction with treating chronic pain in the ED.
Chiasson, A., Brooks, A., Ricker, M., Levenson, P., Chen, M., Maizes, V. (2020)	Educating Physicians in Family Medicine Residencies About Nonpharmacologic Approaches to Pain: Results of an Online Integrative Course	Does an integrated pain management course affect resident and faculty attitudes on chronic pain?	Online integrative informational study.	An online IPM course as an effective and scalable intervention for residents and primary care in response to the current opioid crisis and need for better management of chronic pain providers.	IPM course can serve as a vital component in a broad strategy to educate clinicians about nonpharmacological tools for managing chronic pain	Testing scalability in formats that lead to improved completion rates, implementation in nonacademic settings,	Evaluating the effectiveness of pain management education on reducing opioid prescribing.
Desveaux, L., Saragosa, M., Kithulego da, N., Ivers, N. (2019).	Opioid prescribing and barriers to safer prescribing practices and differences in the primary care setting.	What are the barriers to safer opioid prescribing practices in the primary care setting?	Exploratory qualitative study design with Semi Structured interviews.	Used thematic analysis to identify themes in the data. More than 15 years in practice may influence the practice pattern.	Number of years in practice influences FPs' response to emergent evidence, requiring initiatives to include strategies tailored to individual beliefs.	There is a need to identify how to improve safe prescribing practices while reducing opioid prescribing.	Increasing primary care provider's awareness of the opioid epidemic and available resources to prevent provider burnout.
Gleber, R., Vilke, G., Castillo, E., Brennan, J., Oyama, L., Coyn, C. (2020)	This article discusses how the opioid crisis relates to emergency room physician opioid prescribing practices.	What are the trends in emergency room physician opioid prescribing during opioid crises?	Informational article. Opioid prescriptions decreased from 37.76% to 13.29% over the six-year study period.	Opioid prescriptions decreased from 37.76% to 13.29% over the six-year study period. Increase in non-opioid medications	ED physicians are prescribing less opiates and increasing the amount of non-narcotic analgesic prescriptions	Not a research article.	Influence on patients' perception of pain with non-narcotic medications.

					from 6.12% to 11.33% and an increase in "no prescription" from 56.12% to 75.37%.		
Goga, J., Michaels, A., Zisselman, M., DePaolo, A., Khushalani, S., Walters, K., Poloway, A., Roca, R., Kopp, M. (2019)	Reducing opioid prescribing by implementing the SAFE algorithm at a geropsychiatry unit.	Does the implementation of the SAFE algorithm reduce opioid prescribing in older adults?	Informational article.	Used lean methodology to identify the root causes for noncompliance to evidence-based practices for patients in the geropsychiatry unit treated for osteoarthritis or chronic back pain.	The prescribing rate of new opioids for osteoarthritis and chronic back pain decreased and the prescribing rate for evidence-based medications increased after implementation of the SAFE PAIN algorithm.	Generalized guidelines on opioid prescribing in the elderly.	Correlational incidence of non-opioid medications and the effects on the mental state of the patient.
Gurley, K., Onyeli, C., Burstein, J., Grossman, S. (2020)	How does the use of a pain management pathway reduce emergency room visits?	Does a pain management pathway streamline care and improve care for patients with opioid addiction and abuse?	Small sample size may create bias in the results.	Quality assurance project.	This strategy may limit opioid use and abuse and limit ED visits and overcrowding for patients who frequently present to the ED for chronic pain management.	Deterring opioid seeking behaviors and overuse of the ED for prescribing of opioid medications.	Increasing primary care providers and emergency room physicians' ability to work together to create a pain management plan for patients.
Hudspeth, R. S. (2016)	Addressing gaps in knowledge of standards of care for opioid prescribing.	What is the current process for ensuring primary care providers who prescribe	Informational article.	Pain management education is an important aspect of safe opioid prescribing practices.	Informational site.	Increasing the availability of free pain management workshops for primary care providers who	Knowledge of safe opioid prescribing practices for providers who prescribe opioids.

		opioids are competent?				prescribe opioids.	
Kiang, M., Humphreys, K., Cullen, M., Basu, S. (2020)	Examining the prescribing patterns of medical providers in the United States.	To examine the distribution and patterns of opioid prescribing in the United States.	Retrospective observational study.	Most Opioid prescriptions written by providers are under the recommended threshold. Suggesting most opioid prescribers are cautious in their prescribing. Suggesting most opioid prescribers are cautious in their prescribing. Suggesting most opioid prescribers are cautious in their prescribing.	Most prescribers are cautious when prescribing opioids.	Ethical pain management obligations.	Appropriate opioid prescribing should be centered on patient needs, improving patient care, and reducing patient risk not enforcing a threshold for prescribing .
Kim, B., Seonaid, Nolan., Beaulieu, T., Sharansky, S., Ti, L. (2019)	A Narrative Review.	Informational article on definition of inappropriate opioid prescribing.	To identify indicators of inappropriate opioid prescribing.	The literature review identified multiple indicators of inappropriate opioid prescribing including prescribing high daily doses of opioids, concurrent benzo uses and geriatric related indicators.	There are various literature review articles, which define criteria for inappropriate prescribing of opioids.	The best way to define inappropriate opioid prescribing.	Identify inappropriate opioid prescribing criteria to inform and improve opioid prescribing practices.
Loeser, J., Schatman	Chronic pain and the management of pain and	Why is pain management education	Informational article.	The focus has shifted from	Healthcare for chronic pain patients in the	How to educate providers on	How to improve the

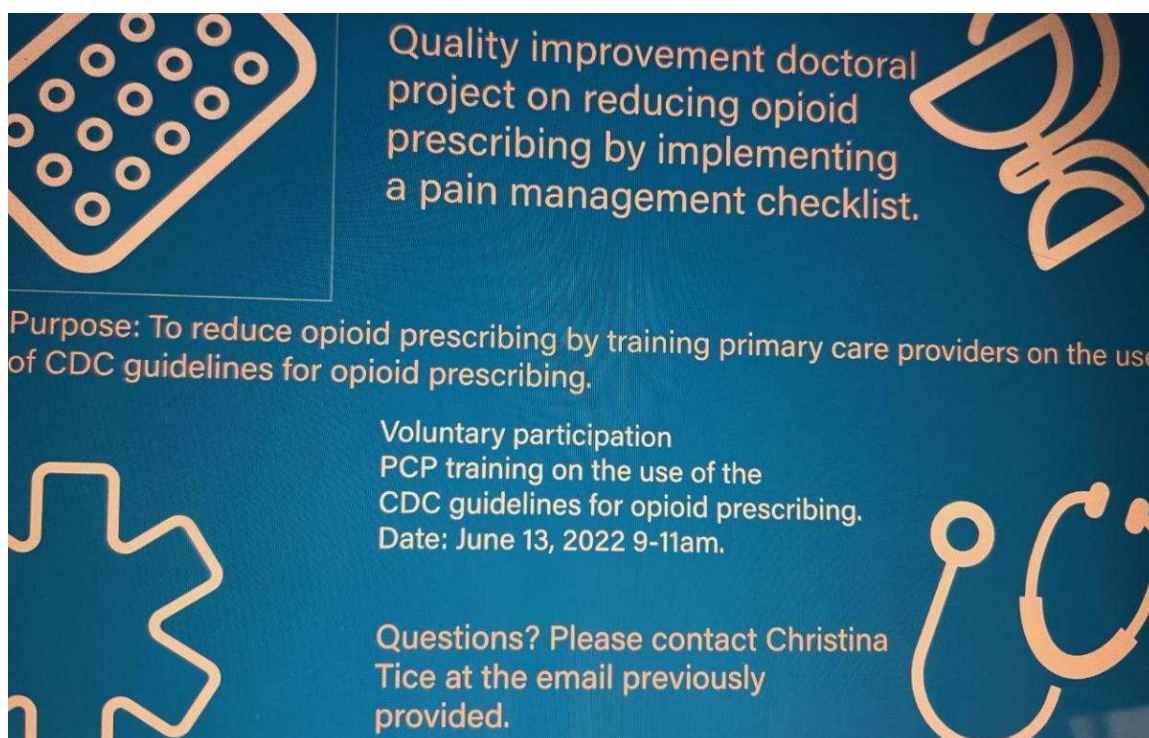
, M. (2017)	examining the lack of provider education when dealing with chronic pain patients.	for providers so poor?		chronic pain management to preventing opioid addiction.	United States in ineffective and expensive.	pain management.	management of pain.
Lozada, J., Raju, M., Goodwin, J., Kuo, Y. (2020)	Examining the opioid prescribing practices of nurse practitioners, physician assistants, and physician prescribing patterns.	To identify prescription opioid overprescribing by comparing prescribing patterns of primary care physicians (MDs), nurse practitioners (NPs), and physician assistants (PAs).	Cross-sectional analysis.	Efforts to reduce opioid overprescribing should include targeted provider education, risk stratification, and state legislation.	Most NPs/PAs prescribed opioids in a pattern like MDs, but NPs/PAs had more outliers who prescribed high-frequency, high-dose opioids than did MDs.	Do MDs receive more pain management education than NP's or PA's?	What efforts would successfully reduce the overprescribing of opioids by providers?
Pace, C., Shah, S., Zhang, A., Zosel, A. (2018)	Examining a pain management pathway's effect on opioid prescribing.	To determine the impact of the pathway for administration of opioids in the ED as well as the prescribing of opioids for home use after discharge.	Retrospective pre- and post-intervention time series study.	The use of a pain management pathway successfully reduced opioid prescribing.	After the implementation of a chronic pain management pathway in an ED, there is an opioid administered to patients with chronic pain in both the ED and prescriptions on discharge. In patients presenting with acute pain, there was no change in administration or prescription of opioids.	Controlling the opioid epidemic.	Would utilizing a pain management pathway in other outpatient areas assist in reducing opioid prescribing?
Pearson, A. C., Eldrige, J. S., Moeschler, S. M., & Hooten,	Opioids for chronic pain: a knowledge assessment of non- https://doi.org/10	Does non-pain specialist have a knowledge deficit regarding	Pain management and lack formal training for primary	Providing focused educational content on pain management may	Health care providers demonstrated gaps in knowledge about the use	Ethical obligations in the management of pain.	Assessing provider knowledge on pain management may provide an

W. M. (2016)	pain specialty providers.	pain management?	care providers.	improve provider knowledge regarding pain management. Many providers treating pain are not pain management experts.	of opioids for chronic pain.		educational opportunity to design future educational models and improve the patient's pain management experience.
Polacek, C., Christopher, R., Mann, M., Udall, M., Craig, T., Deminski, M., Sathe, N. (2020)	Healthcare professional's perception on challenges when treating chronic pain patients.	What are healthcare professional's perception of challenges to chronic pain management?	Qualitative interview study.	Multiple challenges to chronic pain management. The lack of systemic approaches to pain management fosters variations in care.	Approaches to chronic pain are more focused on reducing opioid use than treating chronic pain. This underscores the need for adequate chronic pain treatment.	Targeted pain management approaches, which improved patients, pain while reducing opioid prescribing.	Healthcare professional education on chronic pain management.
Price, S., O'Donoghue, A., Rizzo, L., Sapru, S., Aikin, K. (2021)	Evaluating the effects of pain management education on opioid prescribing.	Lack of training among healthcare professionals to safely prescribe opioids is a contributing factor to the opioid crisis.	National Survey	HCPs' exposure to opioid educational information was associated with less opioid prescribing for chronic pain.	HCPs had limited knowledge about abuse-deterrent formulations, but PCPs had greater knowledge than other groups. HCPs had an increased likelihood of prescribing opioids to fewer patients in the last 3 months relative to the prior 12 months if they worked in a state or county clinic vs a solo	Improving provider's access to pain management education.	Incorporating chronic pain management education into provider's education.

					or group practice type.		
Rice, Kathleen., Ryu, J., Whitehead, C., Katz, J., Webster, Fiona. (2018)	Link between chronic pain patients and medical trainee's perception of caring for these patients.	What are the perceptions of medical trainees on treating patients with chronic pain?	Qualitative study.	Most interviewees described the management of chronic pain as challenging and unrewarding	Specifically, because chronic pain is subjective and incurable, listening and communication become crucial for patient care.	Medical education in chronic pain management.	Offer education to improve skills for treating chronic pain patients.
Shipton, E. E., Bate, F., Garrick, R., Steketee, C., Shipton, E. A., & Visser, E. J. (2018)	Identifying pain management education in medical schools.	Do medical schools incorporate pain management in their curriculum?	Systemic review	Pain medicine was mostly incorporated into medical courses such as anesthesia or pharmacology, rather than presented as a dedicated pain medicine module. Ninety-six percent of medical schools in the UK and USA, In addition, 80% of medical schools in Europe had no compulsory dedicated teaching in pain medicine.	Pain medicine education at medical schools internationally does not respond to societal needs in terms of the prevalence and public health impact of inadequately managed pain.	Ethical obligations for incorporating pain management in provider education.	Regulations regarding pain management curriculum in healthcare professional education.

Wong, C., O'Reilly, C., Teite, B., Sutherland, R., Farquharson, S., Ghosh, M., Robertson, H., Lang, E. (2020)	Exploring interventions for non-cancer related pain in emergency room visits.	What is the effectiveness of interventions in the emergency room for patients with non-cancer pain?	Systemic review	Identified interventions implemented pain policies, individualized care plans, ED care coordination, chronic pain management pathways, and behavioral health interventions. All the studies reported a decrease in ED visit frequency following their respective interventions.	Multifaceted interventions, especially those employing individualized care plans, can successfully reduce subsequent ED visits, ED opioid administration and prescription, and care-associated costs for frequent ED utilizing patients with CNCP.	Factors which contribute to frequent emergency room (ER) visits for patients with non-cancer pain and potential follows ups to avoid ER visits.	Adequate pain control in the non-cancer pain population .
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Appendix B: QI Project Informational Flyer



Appendix C: Demographic Survey

1. What is your current age range?
 - a. 18-28
 - b. 29-39
 - c. 40-50
 - d. 51-61
 - e. 62 years of age or older

2. What is your gender?
 - a. Female
 - b. Male
 - c. Prefer not to answer

3. What is your ethnicity?
 - a. Caucasian or white
 - b. Black or African
 - c. Hispanic or Latino
 - d. Native American or Alaskan Native

- e. Asian or Pacific Islander
- f. Multiracial or Biracial
- g. Race/ Ethnicity not listed above

4. How many years have you been in practice and provided care in this type of primary care setting?

- a. 1 month- 11 months
- b. 1-5 years
- c. 6-10 years
- d. 11-15 years
- e. 16-20 years
- f. 21-25 years
- g. 26 years or more

5. What are your current credentials as a provider?

- a. Nurse Practitioner
- b. Physician Assistant
- c. Doctor of Osteopathy

- d. Doctor of Addiction Medicine
- e. Medical Doctor
- f. Other

6. What type of settings have you previously worked in?

- a. Hospitalist
- b. Outpatient primary care practice
- c. Home health care
- d. Hospital at home program
- e. Pain management clinic

Appendix D: Pre training Survey

Welcome to the Quality improvement pre-training survey on Reducing Opioid Prescribing by Implementing a Pain Management Checklist.

I would like to find out some general information about the patient centered care you provide for chronic pain patients. The survey will take no more than 15 minutes to complete, and it is confidential. Your name or any identifying data will never be collected. I will never reveal your name or any identifiable data in any internal or outside sources.

The purpose of this pre-training survey is to gather the provider's insights on their current prescribing practices and views regarding pain management.

If you have any questions about the survey, please contact Christina Tice.

Please answer the following questions by choosing either YES or NO based on your experiences with prescribing pain medications to chronic pain patients.

1. Are you aware of the Centers for disease control and preventions (CDC) pain management guidelines that are in place at this project site?

YES NO

2. Do you routinely use the project sites pain management checklist when prescribing pain medications to chronic pain patients?

YES NO

3. Do you prescribe alternative therapies such as yoga, physical therapy, occupation therapy, meditation, hot/cold compresses; massage therapy prior to prescribing any pain medications?

YES NO

4. Do you routinely prescribe Tylenol, ibuprofen, gabapentin, SSRI's, lidocaine patches, pain relief creams, or other non-opioid medications prior to prescribing opioid medications to chronic pain patients?

YES NO

5. If a patient is on opioid pain medications, do you routinely review their medical records for supporting documentation for chronic pain dx such as radiology studies?

YES NO

6. Do you perform diagnostic studies such as x-rays, CT, and MRI prior to prescribing non-opioid and opioid pain medications?

YES NO

7. Do you feel that you have adequate education in pain management to provide care for chronic pain patients?

YES NO

8. Do you feel training on the CDC guidelines on opioid prescribing would benefit you or make you feel more confident in treating chronic pain patients?

YES NO

9. Do you refer the patient to a pain specialist or other specialist such as orthopedics, neurology when opioid pain medications are prescribed?

YES NO

Appendix E: Post training Survey

Welcome to the Quality Improvement post-training survey on reducing opioid prescribing by implementing a pain management checklist.

I would like to find out some general information about the patient centered care you provide for chronic pain patients after you have received the project site training on the CDC guidelines, which are already in place. The survey will take no more than 15 minutes to complete, and it is confidential. Your name or any identifying data will never be collected. I will never reveal your name or any identifiable data in any internal or outside sources.

The purpose of this post-training survey is to gather the provider's insights on their current prescribing practices and views regarding pain management after receiving the project site training on the CDC guidelines on opioid prescribing.

If you have any questions about the survey, please contact Christina Tice.

Please answer the following questions by choosing either YES or NO based on your experiences with prescribing pain medications to chronic pain patients.

1. Are you aware of the Centers for disease control and preventions (CDC) pain management guidelines that are in place at this project site?

YES NO

2. Do you routinely use the project sites pain management checklist when prescribing pain medications to chronic pain patients?

YES NO

3. Do you prescribe alternative therapies such as yoga, physical therapy, occupation therapy, meditation, hot/cold compresses; massage therapy prior to prescribing any pain medications?

YES NO

4. Do you routinely prescribe Tylenol, ibuprofen, gabapentin, SSRI's, lidocaine patches, pain relief creams, or other non-opioid medications prior to prescribing opioid medications to chronic pain patients?

YES NO

5. If a patient is on opioid pain medications, do you routinely review their medical records for supporting documentation for chronic pain dx such as radiology studies?

YES NO

6. Do you perform diagnostic studies such as x-rays, CT, and MRI prior to prescribing non-opioid and opioid pain medications?

YES NO

7. Do you feel that you have adequate education in pain management to provide care for chronic pain patients?

YES NO

8. Do you feel training on the CDC guidelines on opioid prescribing would benefit you or make you feel more confident in treating chronic pain patients?

YES NO

9. Do you refer the patient to a pain specialist or other specialist such as orthopedics, neurology when opioid pain medications are prescribed?

YES NO

10. Do you see yourself utilizing the project sites pain management checklist based on the CDC guidelines on opioid prescribing after the project sites provider training?

YES NO

Appendix F: CDC Guidelines Poster

CDC Guidelines on opioid prescribing

Chronic pain is defined as pain lasting greater than 3 months.

1. Non-pharmacologic therapy and non-opioid pharmacological therapy are preferred for chronic pain (CDC, 2016).

Consider opioid therapy only if benefits outweigh the risk (CDC, 2016).

Prior to initiation of pharmacologic therapies clinicians should confirm the patient diagnosis (CDC, 2016). This can be performed by x-ray, CT, MRI, or medical records (CDC, 2016).

Before starting opioid therapy for chronic pain, establish treatment goals with the patient including goals targeted for increasing function and making pain tolerable (CDC, 2016).

Expected outcome is reduction in pain and improvement and quality of life (CDC, 2016).

Recommendations for arthritis include weight loss, therapy, psychological therapy such as CBT and certain interventional procedures such as intra-articular glucocorticoid injection and (CDC, 2016).

Fibromyalgia-exercise therapy assists and reducing pain and improving functions. Multimodal therapy and multidisciplinary biopsychosocial rehab combining approaches (CDC, 2016).

Rheumatoid arthritis - intra-articular glucose corticoid injections (CDC, 2016).

Rotator cuff disease -sub acromial corticosteroid injection can provide short-term improvement, pain, and function (CDC, 2016).

2. Several non-opioid pharmacologic therapies assist in treating chronic pain. These medications include Tylenol, Selective antidepressants, and anticonvulsants (CDC, 2016).

Arthritis pain- Tylenol and NSAIDS (CDC, 2016).

Diabetic neuropathy and post-hepatic neuralgia- Gabapentin or Pregabalin, tricyclic antidepressants and SNRIs (CDC, 2016).

Diabetic neuropathy or fibromyalgia -SNRI Duloxetine is FDA approved for treatment (CDC, 2016).

Fibromyalgia - Pregabalin is FDA approved for fibromyalgia management. Tricyclic's and SNRI are also effective at managing pain (CDC, 2016).

Other neuropathic pain conditions – Pregabalin, gabapentin and carbamazepine, tricyclic antidepressants and SNRI (CDC, 2016).

Patients with co-occurring pain and depression will benefit from antidepressant medications (CDC, 2016).

3. Before starting opioid therapy, clinicians should discuss the risks and realistic benefits of opioid therapy and the patient / clinician responsibilities for managing therapy (CDC, 2016). Improvement in function is the primary goal of opioid therapy not complete resolution of pain. Discuss common and adverse reactions of opioids, increase risk for opioid use disorder for patient and household members (CDC, 2016). Discuss importance of periodic reassessment of opioids to ensure the medications are meeting the patient's needs. Discuss prescription drug monitoring program and whether cognitive limitations may interfere with management of opioid therapy (CDC, 2016).

4. When initiating opioid therapy clinicians should prescribe immediate release opioids instead of extended release/long-acting opioids (CDC, 2016).

5. When initiating opioids prescribe the lowest effective dose. Avoid increasing dosage to greater than 90 MME per day (CDC, 2016).

6. Long term opioid abuse normally starts with treatment of acute pain. Prescribe the lowest effective dose of immediate release opioids and prescribe no greater quantity than needed for the expected duration of pain. 3 days or less will often be sufficient (CDC, 2016). More than 7 days will rarely be needed (CDC, 2016).

7. Clinicians should evaluate benefits versus risk with patients within one to four weeks of starting opioids for chronic pain or for dose de-escalation (CDC, 2016).

Clinicians should reevaluate the benefits versus risks every 3 months or more frequently if patient's condition warrants this. If benefits do not outweigh the risk of opioid therapy clinicians should optimize other therapies and work with patients to taper opioids (CDC, 2016).

8. Clinicians should incorporate risk reduction strategies to reduce the risk of overdose for the patient. Including offering Naloxone for patients at elevated risk of overdose such as a patient history of overdose, history of substance abuse disorders or patients on a higher dose of opioids (>50 MME/day) or patients concurrently using benzodiazepines and opioids (CDC,2016).

9. Clinicians should review the prescription drug-monitoring program every three months and as needed (CDC, 2016). Clinicians should review for dangerous combinations of medications, which increases the patient's risk of overdose (CDC, 2016).

10. When patients are prescribed opioids, conditions should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs (CDC, 2016).

11. Avoid prescribing opioid pain medication in benzodiazepines concurrently whenever possible as this combination increases risk of CNS depression (CDC, 2016).

12. Clinicians should arrange or offer evidence-based treatment including medication assistant treatment with buprenorphine or methadone in combination with behavioral therapies for patients who have an opioid use disorder (CDC, 2016).

References

The Centers for disease control and prevention. (2016). CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>.

Appendix G: John Hopkins EBP Model, Tools, and Literature Review Matrix Requesting

Permission Submission



<p>Christina Tice</p> <p>1 message</p>

<p>christy tice <</p>	<p>Sun, January 9, 2022, at 1:52 PM1:52 PM</p>
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<p>To:</p>

<p>Good afternoon,</p> <p>My name is Christina Tice. I am a DNP student at Walden University. I am completing a Quality improvement evidence-based practice project on Reducing opioid prescribing by Implementing a pain management checklist in primary care to reduce opioid prescribing. I am asking permission to use the JHNEBP model and tools and the John Hopkins literature review matrix for my project.</p> <p>Thank you very much,</p> <p>Christina tice</p>

Appendix H: John Hopkins EBP Model, Tools, and Literature Review Matrix Granted

Permission

JOHNS HOPKINS EBP MODEL AND TOOLS- PERMISSION



Johns Hopkins Nursing
Center for Evidence-Based Practice

Thank you for your submission. We are happy to give you permission to use the Johns Hopkins Evidence-Based Practice model and tools in adherence of our legal terms noted below:

You may not modify the model or the tools without written approval from Johns Hopkins.