

Application of Opioid Risk Tool in the Management of Patients with Chronic Non-Cancer Pain
in the Primary Care Setting

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Dedication

I dedicate this quality improvement project to my son (Isaiah Kwakwa Dadson), my daughter (Sandra Afia Dadson), and my wife (Philomena Dadson).

Abstract

Problem: The opioid epidemic in the United States is increasing at an alarming rate. Many people lose their lives every day for abusing or misusing prescription opioids. Patients can be screened for risks of opioid abuse or misuse prior to being prescribed opioids. This DNP project was planned, implemented, and evaluated by a student-led quality improvement team who implemented the Opioid Risk Tool in one primary care clinic with the goal of identifying patients at risk for opioid-related aberrant behaviors. **Methodology:** The DNP student led a team of five health care staff in a local clinic to use the Opioid Risk Tool. Five PDSA cycles were completed during the implementation phase. Data was tracked using run charts. **Results:** During the implementation phase, 378 patients were seen in the clinic, with 165 (44%) of those patients screened for potential aberrant behaviors related to opioid use. Of the 165 patients screened, 101 (61%) needed opioid therapy for treatment of noncancer-related chronic pain, with 37 patients (22%) identified as medium-to-high risk for opioid misuse. The goal of the project was to screen at least 20 (48%) appropriate patients each week; however, an average of 18 (44%) patients were screened weekly. The median percentage of patients screened with the Opioid Risk Tool was 44%, with weeks seven, eight, and nine being above the median of 44%. **Conclusion:** The DNP project student leader recommends that primary care practices implement a policy requiring primary care providers to use a validated tool, such as the Opioid Risk Tool, to screen every patient with chronic pain unrelated to cancer before opioid treatment is initiated.

Keywords: opioid epidemic, opioid risk tool, pain interventions, opioid misuse, adverse consequences, opioid abuse, opioid diversion

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Chapter One: Overview of the Problem of Interest

The opioid epidemic in the United States is increasing at an alarming rate. Many people intentionally or unintentionally lose their lives every day for abusing or misusing prescription opioids (Alexander, Kiang, & Barbieri, 2018; National Institute of Drug Abuse [NIDA], 2018). Several interventions have been put in place by the federal, state, and local governments, but the problem seems to persist. It is, therefore, important to identify patients with chronic non-cancer pain who may be at risk for prescription opioid abuse. Afterward, appropriate and safe pain control interventions could be initiated. Long-term opioid use by patients suffering from chronic non-cancer pain has been shown to have a positive relationship with opioid abuse, misuse, overdose, and addiction; therefore, primary care providers are advised to utilize opioid risk mitigation practices (Chaudhary & Compton, 2016).

Current evidence indicates that most health care providers in the United States (U.S.) do not use the Opioid Risk Tool for screening before initiating opioids to patients with chronic non-cancer pain (Webster & Webster, 2005). Several screening and diagnostic instruments have been developed that clinicians may use to predict substance abuse among patients. One example of the opioid risk assessment tools that have been used in the primary care setting is the Opioid Compliance Checklist (Jamison et al., 2016). The risk category of patients who may abuse or misuse opioids can be identified by screening them. Therefore, the DNP student led a team to screen patients with chronic non-cancer pain with the Opioid Risk Tool to identify patients who were at risk for opioid-related aberrant behaviors.

The Opioid Risk Tool is a five-question, self-administered evaluation tool that could be completed within 1 minute. The tool needs to be completed on a patient's initial visit and prior to initiating opioid treatment. It evaluates the patient's personal and family history of substance

abuse, age, history of preadolescent sexual abuse, and for the presence of certain psychiatric challenges. The risk scores are categorized into three. Zero to 3 means low, 4 to 7 means medium, and eight or higher denotes high risk. Please see Appendix A for a copy of the Opioid Risk Tool.

Although primary care providers use the Opioid Risk Tool or other forms of screening tools to identify high-risk patients before prescribing opioids, it is infrequent (Webster & Webster, 2005). Evidence suggests that patients who are identified by the Opioid Risk Tool and found to be at high risk for opioid-related aberrant behaviors are susceptible to opioid misuse, addiction, and/or abuse (Webster & Webster, 2005). Practically, it could be very difficult or almost impossible for clinicians to identify potential patients who may be at risk for abusing opioids without using any standardized screening method. Given the state of the opioid epidemic in the U.S., responsibility for intentional opioid risk screening before prescribing opioids to patients with chronic non-cancer pain could begin with primary care providers.

Background Information

The use of opioids for the treatment of pain has been in existence since time immemorial, but its prescription became widespread in the 1990s (National Institute of Drug Abuse [NIDA], 2018). Unfortunately, opioids, as effective as they are in treating pain, could be addictive when used in the long-term (NIDA, 2018). Thus, clinicians need to prescribe opioids judiciously to save lives. Although easy access to illicit drugs, which may be obtained from the streets and other illegal sources contribute to the alarming loss of lives in the United States (U.S.), the proliferation of prescription opioids has a significant role to play in the opioid abuse epidemic (Shipton, Shipton, & Shipton, 2018).

According to Shipton et al., 2018, “it has become clear that aggressive opioid prescription practices play the biggest role in opioid-related behaviors and contribute to an epidemic of abuse of opioid prescriptions (p. 24).” Evidence suggests that opioid prescription is highest in North America (i.e., United States, Mexico, and Canada), and it is lowest in Australia and the European countries (Shipton et al., 2018). For example, in the U.S., 74% of opioid misusers received the medication from friends or family members who, in turn, acquired opioids from their clinicians (Shipton et al., 2018). Canada's health care providers prescribe more opioids (including morphine equivalents) than any other country in the world (Shipton et al., 2018).

Significance of Clinical Problem

Prevalence of prescription opioid misuse. The misuse of opioids has been in existence as long as drugs have been around (Ostling et al., 2018). Prescription opioid misuse is a public health crisis in the U.S. According to Curran et al. (2018), 11.5 million people reported misusing prescription opioids in 2017. This statistic represents more misusers of prescription opioids than 948,000 heroin users during the same time period (Curran et al., 2018).

The severity of consequences. The NIDA (2018) reported that 115 Americans lose their lives every day from an opioid overdose, sourcing from prescription pain relievers, heroin, and fentanyl. The trend continues to escalate. There was an increase of 30% in opioid overdoses from July 2016 through September 2017 (Curran et al., 2018). More people died from opioid overdoses in 2015 in the U.S. than every past year, claiming as many as 52,404 lives (Schiavon et al., 2018).

Financial burden. According to NIDA (2018), the U.S. spends \$78.5 billion a year to manage opioid-related issues, which include the costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement. Approximately 21% to 29% of patients who receive

opioid prescriptions for chronic pain, misuse them, and about 12% of these persons develop an opioid use disorder (NIDA, 2018). Evidence shows that as much as 80% of persons who use heroin, first misused prescription opioids (NIDA, 2018). Opioid abuse has become a public health crisis, resulting in an increased incidence of neonatal abstinence syndrome as a result of pregnant women misusing opioids (NIDA, 2018).

Drug-related aberrant behavior. Aberrant behavior was defined as "irregular behavior that deviates from what is considered normal" ("Aberrant Behavior," 1998). Patients' drug-related aberrant behaviors include (1) using additional opioids, (2) prescription forgery (3) selling prescription drugs, (4) recreational opioid use, (5) resistance to dose changes or alternative therapy, (6) alcohol combined with opioids, (7) reporting "lost" prescriptions, (8) habitual "no shows," and (9) using opioids treat to anxiety, not pain (Webster & Webster, 2005).

Effectiveness of the Opioid Risk Tool

The Opioid Risk Tool as a screening tool has demonstrated efficacy in identifying low-, moderate-, or high-risk individuals. A study by Webster and Webster (2005) found that for patients who fell under the low-risk category, 17 out of 18 (94.4%) did not display an aberrant behavior. For those patients with a high-risk group, 40 out of 44 (90.9%) did display deviant behaviors. The authors used *c* statistic to validate the Opioid Risk Tool as it assesses both sensitivity and specificity at the same time. The concordance statistic for males and females were 0.82 and 0.85, respectively. The high-risk group had the most substantial potential to abuse opioids within 12 months of opioid use (Webster & Webster, 2005). Primary care providers are well-positioned to use the Opioid Risk Tool to identify patients at high risk for opioid misuse so that appropriate interventions could be initiated.

Question Guiding Inquiry (PICO)

Population. The target population was adult patients with chronic non-cancer pain, aged 18 years or older. Ethnic consideration was not a factor in this project; all racial and ethnic backgrounds were inclusive. Patients with acute pain were excluded because the Opioid Risk Tool was designed for a population with chronic non-cancer pain.

Intervention. The Opioid Risk Tool developed by Webster and Webster (2005) to screen patients with chronic pain unrelated to cancer was used to identify at-risk patients for opioid misuse. Permission to use the tool was granted by the developers of the tool. Please see Appendix B for a copy of the permission letter. During the tool implementation, all patients who presented with chronic non-cancer pain at the project site were screened using the tool's paper format. Completed forms were scanned into the patient's medical records for the clinician's review to determine the appropriateness of opioid for the patient based on the score and/or other clinical factors. The DNP student leader conducted staff training on the use of the Opioid Risk Tool.

Persons who tend to misuse opioids obtain them through prescriptions but do not adhere to clinician instructions (Centers for Disease Control and Prevention [CDC], 2017). Thus, the CDC (2017) developed a guideline for prescribing opioids for chronic pain. These include using opioids only when benefits outweigh risks, starting with the lowest effective dose of immediate-release opioids, and reassessing benefits and risks before increasing the dose. The other one is using state-based prescription drug monitoring programs that may identify patients at risk for addiction or overdose (p.1).

Comparison. Before the implementation of this project, there was no standard opioid risk screening tool at the project site. Thus, the outcome of this project was compared to the use

of no opioid risk screening tool. Or the results could be compared to those reported in similar quality improvement studies.

Outcome. The outcome of the project was to see that the project site would screen at least four patients encountered per any full-time work day. The desired effect expected to see from the implementation of this project was the willingness of the project site to continue screening patients with the Opioid Risk Tool even after the DNP project was completed. The DNP project was not meant to deny patients with effective pain management interventions but to ensure safety and, at the same time, help control pain with other useful and safer regimens.

Summary

The purpose of this DNP project was to implement an Opioid Risk Tool that might identify patients with chronic pain unrelated to cancer who might be at risk for opioid-related aberrant behaviors. Evidence shows that patients who are identified to be at high risk for opioid-related aberrant behaviors are susceptible to misuse, abuse, or divert opioids. The DNP project was a descriptive quality improvement intervention designed to screen patients with chronic non-cancer pain using the Opioid Risk Tool to identify those who might be at risk for opioid-related aberrant behaviors in the primary care setting.

Primary care providers are in the best position to utilize the Opioid Risk Tool in screening patients. The outcome of the DNP project was to see that the project site would continue to screen at least four patients with chronic non-cancer who presented for at any given day. The desired effect of the DNP project was for the project site to continue to screen patients with the Opioid Risk Tool even after the DNP project was completed. It was believed that when patients who were at high risk for opioid-related aberrant behaviors were identified, close monitoring would be initiated if those patients had to receive opioid treatments. If those patients

could not be effectively managed by the project site, they would be referred to pain management clinics for therapy or non-opioid therapy would be initiated as needed.

Chapter Two: Review of the Literature Evidence

A literature review is essential before conducting a quality improvement project on opioid misuse screening tools in primary care settings. Reviewing the literature helps researchers access studies already reported on the topic of interest. A literature review is a process to identify how issues of interest have been explored, what evidence is available, the use of evidence in clinical settings, or if literature gaps emerge (Ward-Smith, 2016). This review is divided into the following sections: (a) Methodology, (b) Literature review findings, (c) Limitations of the Literature review process, (d) Discussion, (e) Advantages and disadvantages of findings, (f) Utilization of results in practice, and (g) Summary.

Literature Appraisal Methodology

A review of the literature was conducted to find evidence on using an Opioid Risk Tool to manage patients with chronic non-cancer in the primary care setting. Databases used included the Cumulative Index of Nursing and Allied Health Literature (CINAHL) Complete, Medline via PubMed, and Nursing & Allied Health (ProQuest). Subject headings used for the search were *opioid risk tools, opioid risk screening tools, opioid-related aberrant behaviors, chronic non-cancer pain management, opioid prescribing in primary care settings, opioid risk screening, opioid risk prevention tools, opioid addiction, opioid misuse, and opioid use and its benefits.*

Sampling strategies. Nursing & Allied Health (ProQuest) yielded the most relevant articles for this review. Using the phrase "opioid risk screening tools" in the database resulted in 4, 026 items. After applying the inclusion criteria *adults, 2013-2018, English language, and scholarly journals*, only 117 articles were obtained. Abstracts of all the 117 articles were reviewed. Exclusion criteria eliminated studies involving cancer patients who were treated with opioids. After applying exclusion criteria, 20 articles were retained for a thorough review.

Evaluation criteria. Standardized criteria were used to ensure that relevant evidence was used to support the project. Inclusion and exclusion criteria were applied. The inclusion criteria of date parameters limited articles within five years except for those with classic primary sources. Materials had to be peer-reviewed on opioid use and limited to the English language. Participant age was limited to 18 years old or older.

The exclusion criteria rejected articles older than five years. Non-refereed journal articles were also excluded. Studies that involved children under 18 years old did not meet the inclusion criteria. Time constraints prohibited accessing articles in French (Quebec studies on the North American continent) because professional translator services were unavailable. Studies involving cancer patients were excluded because this population did not meet the criteria for this DNP project. Finally, articles were excluded that addressed pain medications other than opioids.

Literature Review Findings

Overview. Although part of the information retrieved was not relevant to this project, reviewing the literature yielded several essential sources of information used to support the project. One common theme perceived from almost all the articles reviewed on opioid use was that the use of opioids could be beneficial or dangerous depending on how it is used. If opioids could be used in the way they were intended, it would serve a great purpose in treating pain-related problems. Opioid has been used for the last three decades to manage both acute and chronic pain; however, many patients have been harmed by the adverse effects of opioid misuse (Kaye et al., 2017). Patients tend to misuse opioids for several reasons, including compulsive use due to addiction, self-medication, use for reward, and diversion for economic gain (Kaye et al., 2017). The chemical nature of opioids produces effects in the body that affect the brain and spinal cord, resulting in both analgesia and euphoria (Kaye et al., 2017). It is therefore essential

to predict those who may be harmed by the use of opioids due to their high-risk character of opioid misuse. For instance, patients with chronic non-cancer pain with specific characteristics such as mental health and substance use disorders are highly susceptible to misuse opioids (Webster & Webster, 2005). The misuse of opioids usually occurs when the appropriate interventions are not put in place (Kaye et al., 2017).

The history of widespread opioid prescribing. Clinicians regarded pain as an existential phenomenon, a result of aging before 1800 (Jones et al., 2018). Cocaine and opioids, which were used to treat pain, had no regulation, leading to widespread marketing and prescribing for various diseases ranging from diarrhea to toothache (Jones et al., 2018). There was a concern in the 1980s and 1990s that patients were not adequately treated with opioids in Europe and North America (Jones et al., 2018). This concern resulted in the belief that pain was undertreated. Thus, awareness was created, spearheaded by Morgan (1985) and Zenz and Willweber-Strumpf (1992) publications about *under-reliance of opioid analgesics* (Jones et al., 2018).

The World Health Organization joined the discussion in 1986 and addressed the under-treatment of postoperative and cancer pain (Jones et al., 2018). In 1995, the American Pain Society initiated the *pain as the fifth vital sign* campaign to influence adequate, standardized evaluation, and treatment of pain symptoms (Jones et al., 2018). The Joint Commission (TJC), in 2000, published standards for pain management following the recommendation from the Institute of Medicine (Jones et al., 2018). Thus, clinicians were mandated to adequately control pain by the TJC. In the wake of all these, the Federation of State Medical Boards and the Drug Enforcement Agency issued statements to lessen regulatory scrutiny over opioid prescribers (Jones et al., 2018). Pharmaceutical companies marketed the use of opioids as humane treatments

for pain and that clinicians who were reluctant to prescribe opioids to patients were labeled as inhumane (Jones et al., 2018). All these factors stated above contributed to the high rate of opioid prescribing habits among medical providers.

Geographical prevalence of opioid prescriptions. Studies suggest that the high rate of opioids prescribed by primary care providers is highest in North America and Australia. The European countries, such as Germany and the United Kingdom, do not have such high rates of opioid prescribing (Shipton et al., 2018). For instance, in the U.S., a survey conducted in 2013 showed that 74% of opioid abusers received their opioids from a single medical provider. Others did so from friends or family members, and those friends and relatives, in turn, acquired their opioids from a clinician (Shipton et al., 2018). Canada is the world's highest rate of opioid prescribing following the U.S., but Canada leads the world when the amounts of morphine equivalents dispensed are considered (Shipton et al., 2018).

Although easy access to illicit drugs that are obtained from the streets and online platforms contribute to the alarming loss of lives in the U.S., the proliferation of prescription opioids is also partly to blame (Shipton et al., 2018). According to Shipton et al. (2018), "it has become clear that aggressive opioid prescription practices play the biggest role in this phenomenon and contribute to an epidemic of abuse of opioid prescriptions (p. 24)."

Socioeconomic implications of opioid use. Certain aberrant drug-related behaviors are exhibited by patients who tend to abuse prescription opioids. Some of these deviant behaviors include the use of additional opioids than those prescribed, the tendency to forge prescriptions, the likelihood to sell prescription drugs, admitting to seeking euphoria from opioids, the resistance of therapy changes or alternative therapy, using alcohol concurrently with opioids, reporting lost or stolen prescriptions, canceling clinic visits, and the desire to use opioids not to

treat pain but for anxiety (Webster & Webster, 2005). The misuse of prescription opioids has become a public health crisis in the U.S. The abuse of prescription opioids leads to opioid use disorder, which has become a national health crisis in the U.S (Korthuis, 2016). Close to two million Americans aged 12 years or older were found to be suffering from opioid use disorder as a result of prescription opioid abuse/misuse (Korthuis, 2016).

As many as 11.5 million people, 12 years or older in the U.S. reported misusing prescription opioids in the past year, which surpassed those 948,000 people who used heroin, which is an illegal opioid (Curran et al., 2018). Many lives have been lost as a result of opioid misuse. The NIDA (2018) reported that 115 Americans suffer their lives every day from an opioid overdose, sourcing from prescription pain relievers, heroin, and fentanyl. There was an increase of 30% in opioid overdoses from July 2016 through September 2017 (Curran et al., 2018). However, more people died from opioid overdoses in 2015 in the U.S. than every past year, claiming as many as 52,404 lives (Schiavon et al., 2018).

According to the NIDA (2018), the U.S. spends \$78.5 billion a year to manage opioid-related issues, which include the costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement. Approximately 21% to 29% of patients who receive opioid prescriptions for chronic pain, misuse them, and about 12% of these develop an opioid use disorder (NIDA, 2018). It is important to note that as much as 80% of people who use heroin first misused prescription opioids. The issue has become a public health crisis, coupled with devastating consequences, including an increased incidence of neonatal abstinence syndrome as a result of pregnant women using or misusing opioids (NIDA, 2018). Long-term use of an opioid is associated with poorer physical health, concurrent benzodiazepine use, and a history of heroin use (Mojtabai, 2017).

Guidelines for opioid prescribing. Many people access opioids through prescription orders but do not adhere to clinician instructions (Garcia et al., 2017). Thus, the Centers for Disease Control and Prevention ([CDC], 2017) developed a guideline for prescribing opioids for chronic pain. These guidelines include using opioids only when benefits outweigh risks, starting with the lowest effective dose of immediate-release opioids, and reassessing benefits and risks before increasing dosage. The other one is using state-based prescription drug monitoring programs that may identify patients at risk for addiction or overdose (p.1).

Recommended opioid doses. Vargas-Schaffer and Cogan (2018) found that the most frequently used opioids were hydromorphone, oxycodone, fentanyl, and tramadol. These medications have a median daily dose of morphine equivalents in milligrams of 40 mg, 48 mg, 180 mg, and 25 mg, respectively. According to the CDC (2017), the rate at which opioids are prescribed in the U.S. is extremely high. The price is high enough to medicate every American for 24 hours/day for three weeks. CDC recommends that clinicians should use opioids only when the benefits exceed the risks. Clinicians may use specific pain management regimens involving acetaminophen, ibuprofen, or naproxen. Other therapies include physical therapy or Cognitive Behavioral Therapy. According to the organization, providers prescribe opioids for too many days risking habituation even at low doses

CDC (2017) recommends that treating acute pain with opioids for three days or less is adequate to control the pain, and rarely should clinicians go beyond seven days. The organization observed that clinicians prescribe high doses of unnecessary opioids to their patients. The organization argues that a 50+ morphine milligram equivalent (MME) per day of any prescribed opioid may lead to a fatal drug overdose. Fatal drug overdose increases ten times when the dose is 90 MME or more per day. The organization recommends that prescribing opioids in 20 MME

or less per day is the safest dose, and starting with immediate-release forms of the medication is the recommended approach.

Limitations of the Literature Review Process

This literature review was conducted without specific restrictions. Some of the limitations include (a) reliance on electronic publications, thereby neglecting print sources of information, which may lead to the incidence of bias, (b) Restricting to only one language, and (c) Publication bias. It was found in the literature that not many opioid-related studies have been done with the primary care settings in focus. However, this project is centered on opioid risk screening in the primary care environments with the emphasis to prevent or minimize the harmful effects associated with inappropriate opioid use.

Discussion

Reviewing the literature yielded certain vital advantages. First, it created the opportunity to evaluate the current state of research on opioid risk tools in screening patients for predicting opioid-related aberrant behaviors. Second, the works of some experts on the opioid risk assessment tools were identified in the literature. This effort created the opportunity to compare which opioid risk screening tool has been useful in predicting opioid-related aberrant behaviors in primary care settings. Third, reviewing the literature revealed the critical areas about the use of opioid risk tools, which may need further research. And finally, reviewing the literature demonstrated the methodologies and theoretical frameworks that have been used in the past to research the use of opioid risk tools. Given the dangers opioids could pose to human lives, it is an undeniable fact that proactive interventions should be implemented. The use of opioid risk tool in primary care settings to predict opioid-related aberrant behaviors would help to avoid prescribing opioids to such patients (Webster & Webster, 2005).

Conclusion of findings. It is evident in the literature that opioid use has the potential to harm its users. Taking the measure to screen patients before prescribing opioids has shown to be effective in preventing opioid-related behaviors (Webster & Webster, 2005). It is important to note that as much as opioid use has some disadvantages, so it has some key benefits as well. Clinicians have successfully used opioids to treat patients in acute and chronic pain for decades; problems arise when the intended use is diverted. Thus, the DNP project is designed to inform primary care clinicians about the importance of preventing or minimizing opioid-related harms by screening patients before initiating opioid therapy. In spite of the valuable information retrieved from the review of the literature, it is believed that more search is needed to identify additional high-levels of evidence in the literature to support the project. A summary of the levels of evidence of articles used for the literature review was developed by the DNP student leader.

Advantages and disadvantages of findings. The findings of reviewing of the literature yielded several benefits/advantages to the project. Some of these include (a) identification of gaps between the current state of predicting opioid-related aberrant behaviors and the use of opioid risk tools, (b) revealing of other resources in addition to opioid risk tool in screening to predict patients for opioid-related aberrant behaviors (c) assisting in knowing what other researchers have done in the past in attempting to prevent or minimize opioid abuse/misuse (d) helping to identify facts about the effectiveness of using opioid risk tool in predicting opioid-related aberrant behaviors (e) helping to prevent incidental plagiarism or producing the same quality improvement project that has already been done in the past, and finally (f) helping to identify high-quality evidence to support the project. However, certain disadvantages were also realized from the findings of the literature review.

Some of the difficulties of findings include the possibility of supporting the project with irrelevant evidence if the review was not efficiently conducted, the challenge of confronting numerous research studies, and the literature review is labor-intensive. Other difficulties include having sufficient time to conduct a rigorous review and, finally, working through the detailed technical process, which could lead to inferior work if the investigator fails to seek help when needed.

Utilization of findings in practice change. Clinicians and other health care professionals need to utilize evidence-based information in their practice to ensure optimum satisfaction and safety of patients. Some of the evidenced-based tools identified in the literature to manage opioid-related issues include (a) Using opioid risk tool to screen all chronic non-cancer pain patients prior to initial opioid prescribing in primary care settings (Webster & Webster, 2005); (b) Adopting medication-assisted treatment (MAT) models of care in conjunction with opioid risk tool to help minimize the incidence of opioid use disorders in the United States (Korthuis et al., 2017); (c) Monitoring closely those who are prescribed opioids on a long-term schedule as they may be at increased risk of developing opioid use disorder and other adverse health issues (Mojtabai, 2017).

Summary

One hundred seventeen articles were retrieved using the Cumulative Index of Nursing and Allied Health Literature (CINAHL) Complete, ProQuest, and PubMed. All the abstracts of these 117 articles were reviewed, and 20 of them were chosen for a thorough review. Materials that were published more within five or fewer years were included in the review. Articles had to be peer-reviewed on opioid use and limited to English. Participant age was limited to 18 years old or older.

The exclusion criteria rejected articles older than five years except for those traditional primary sources. Non-refereed journal articles were also excluded. Studies that involved children under 18 years did not meet inclusion criteria. Time constraints prohibited accessing articles in French (Quebec studies on the North American continent) because professional translator services were unavailable. Studies involving cancer patients were excluded because this population did not meet QI project needs. Finally, articles were excluded that addressed pain medications other than opioids.

Studies suggest that long-term opioid use has the potential to harm its users who may be misusing the substance other than its intended purpose. Thus, it is recommended that clinicians should screen patients with opioid risk tool before initiating opioid therapy for long-term treatment of chronic non-cancer pain. The Centers for Disease Control and Prevention recommend that treating acute pain with opioids for three days or fewer is adequate to control most pain, and rarely should clinicians go beyond seven days.

Chapter Three: Theory and Concept Model for Evidence-based Practice

This DNP project was guided by certain theories and evidence-based concept models. There are several quality improvement models and theories available in the literature but the DNP project student leader chose two appropriate ones to support this project. In this chapter, the key concepts of the project would be defined, Health Belief Model developed by Becker and Rosenstock (1984) would be discussed, and Lippitt, Watson, and Westley (1958) Change Theory as the evidence-based practice change theory chosen for this project would be elaborated.

Concept Analysis

Opioids. Calas, Wilkin, and Oliphant (2016) explained opioids as substances that function on the central nervous system by binding to mu receptors. The effects of opioids on the body when they bind to mu receptors include drowsiness, mood changes, pain mitigation or relief, pupil constriction, euphoria, decreased respiration, and cough (Calas et al., 2016). There are many forms of opioids but those commonly known and used include oxycodone, morphine, methadone, fentanyl, hydrocodone, meperidine, hydromorphone, codeine, oxymorphone, and heroin (Calas et al., 2016).

Opioid misuse. Garcia, Lefkowitz, Pelkofski, Blackhall, and Duska (2017) defined opioid misuse as "any use of the drug outside the manner and intent for which it was prescribed" (p. 456). Chang and Compton (2016, p. 22) also defined opioid misuse as "the use of prescribed medication for nonmedical use, or for reasons other than prescribed (i.e., altering dosing, route of administration, or combining substances)." Balbale et al. (2017) found that opioid misuse and its associated deaths are paralleled by prescribing rates meant to treat acute and chronic pain.

Opioid abuse. Webster and Dove (2007, p. 21) defined abuse as "the use of any substance for a nontherapeutic purpose or the use of medication for purposes other than those for

which the agent is prescribed.” For the purposes of this project, *misuse* and *abuse* were used interchangeably. Chang and Compton (2016, p. 22) also defined opioid abuse as the “misuse with consequences (mild to moderate prescription opioid use disorder [POUD]). Potential harmful consequences include accidents or injuries, blackouts, legal problems, and risky sexual behaviors.”

Addiction. Chang and Compton (2016, p. 22) defined addiction as "a chronic, relapsing, and progressive disease leading to significant impairment in life domains (moderate to severe POUD.)" Opioids have inherent addictive properties. Patients who are prescribed opioids are three times more at risk of becoming addicted to the medication (Miller & Gold, 2015). The reason behind the classification of substances into various schedules is the addictive nature and degree of danger they can be. Schedule I substances are the ones with the highest addictive properties, and Schedule V substances have the lowest addictive properties. Opioids are classified as schedule II and III drugs because they are highly addicting and highly dangerous (Miller & Gold, 2015).

Aberrant drug-use behavior. Chang and Compton (2016, p. 22) defined aberrant drug-use behavior, or prescription opioid use disorder (POUD) as “taking a medication in a manner that is outside the boundaries of the prescribed treatment plan, such as using multiple pharmacies and prescribers, repeatedly losing medication, or requesting early refills. The presence of these behaviors may or may not reflect POUD.” Webster and Webster (2005) explained patients’ drug-related aberrant behaviors to include (1) using additional opioids, (2) prescription forgery (3) selling prescription drugs, (4) “recreational” opioid use, (5) resistance to dose changes or alternative therapy, (6) alcohol combined with opioids, (7) reporting “lost” prescriptions, (8) habitual “no shows,” and (9) using opioids treat anxiety, not pain.

Prescription opioid use disorder (POUD). Prescription opioid use disorder (POUD) was defined by Chang and Compton (2016, p. 22) as the “clinical diagnosis of a problematic pattern of substance use behaviors leading to clinical impairment or distress, including the inability to control use, consequences related to use, and failure to meet major responsibilities at work, school, or home.” The author explained that POUDs have categories such as mild, moderate, or severe to indicate the level of severity. Prescription opioid misuse has been identified to have a link with opioid use disorder (Morasco et al., 2013).

Theoretical Framework

Health Belief Model. The Health Belief Model (HBM), which was developed in the 1950s by social psychologists at the United States Public Health Service, is a conceptual framework used to explain human behavior toward compliance with recommended health action (Becker & Rosenstock, 1984.) This model is a powerful tool that has been widely used in health education (Glanz, Rimer, & Lewis, 2002). The model has six constructs, which explain the various perceptions people have about health, including *perceived seriousness*, *perceived susceptibility*, *perceived benefits*, and *perceived barriers*, *cues to action*, and *self-efficacy* (Butts & Rich, 2015).

Application to practice change. In applying the HBM to the DNP project on opioid misuse, it is hypothesized that patients will take their medications as prescribed if they are aware of the consequences of misusing or abusing opioids (*perceived seriousness*). Patients must understand that taking the prescribed opioid as recommended by their health care provider will improve their pain (*perceived benefits*) without creating adverse side effects (*perceived barriers*).

Knowing the personal risk for opioid abuse or misuse will encourage patients to comply with the recommended use (*perceived susceptibility*). It will also help health care providers make

informed decisions about when to prescribe or not to prescribe among specific categories of patients. This decision may be accomplished with the Opioid Risk Tool (Webster & Webster, 2005). Using follow-up calls and other reminder strategies to encourage patients to adhere to taking their opioids as prescribed (*cues to action*) will motivate healthy behavioral choices (Butts & Rich, 2015). For patients who have struggled with opioid abuse, effectively eliciting the patients' confidence in their ability to resist opioid abuse (*self-efficacy*) will motivate patients to change behaviors.

Evidence-Based Practice Change Theory

Theory of Change. The evidence-based practice (EBP) concept evolved in 1972 from the work of Archibald Cochrane (Stavrou, Challoumas, & Dimitrakakis, 2014). The essence of EBP is to use research in its appraised and criticized nature. Medicine, first adopted EBP after Cochrane disseminated the evidence-based concept (Canada, 2016). The nursing profession became involved in research utilization during the 1970s (Canada, 2016). EBP involves the translation of knowledge into practice that leads to patient outcomes improvement; however, nurses have variable competencies in applying the evidence-based concept in practice (Hande, Williams, Robbins, Kennedy, & Christenbery, 2017). All levels of nursing education, from baccalaureate to doctorate, introduce students to EBP application. However, master's and doctorate prepared nurses have more in-depth knowledge about using EBP (Hande et al., 2016). EBP changes the health care environment, and patients gain improved health outcomes (Canada, 2016).

The theory of change developed by Lippitt, Watson, and Westley (1958) guided the assessment, planning, implementation, and evaluation of the project. The theory of change is a seven-step process extended from Lewin's (1951) change theory. Lewin's argument focuses more

on a change agent's functions than on change itself (Mitchell, 2013). The seven phases of the change theory are 1) diagnose problem, 2) assess motivation and capacity for change, 3) determine the change agent's resources and motivation, 4) choose progressive change objects, 5) select the change agent's role and make sure that all parties understood that role so that expectations are clear, 6) maintain desired change, and 7) gradually terminate from the helping relationship (Lippitt et al., 1958).

In the first phase of the change model – *diagnose the problem* - the change agent recognizes and diagnoses a problem that needs attention in an organization. Staff who may be affected by the change are notified so that the difference can move forward (Mitchell, 2013).

In the second phase – *assess motivation and capacity for change* - it must be determined if staff who will be affected by the practice change are willing to support it. According to Lewin (1951), there are driving and restraining forces behind every change process's planning and implementation. The driving forces (facilitators) operate to ensure that the change process moves forward successfully. Restraining forces (barriers) impede change progress (Marquis & Huston, 2008). Thus, solutions should be devised to address all possible challenges that may confront change progress.

In the third phase - *assess the resources and motivation of the change agents* - stamina, commitment to change, team members' acceptance, experience, knowledge, personality, and the power of the change agent must be assessed. The fourth phase of the change model is *to choose progressive change objects*. This phase comprises action plan development, implementation strategies, and creating the project's time-table. The fifth phase of the model requires *the change agent's role is clearly understood by all parties so that expectations are clear*.

The sixth phase of the change theory is *maintaining the change*. Monitoring the change project for advancement is key in this phase of the model. Members of the change project communicate with each other and the change agent to make known the progress of each one's activities. The last phase of the model is to *terminate the helping relationship gradually*. This phase involves making rules and policies to govern the continuing execution of the change project because the change agent will no longer be part of the process.

After applying the first phase of the change theory to the project, the site team members had the opportunity to identify and diagnosed the patients who presented to the project site for pain management and were screened for risk of opioid-related aberrant behaviors. All the appropriate patients had chronic non-cancer pain and might need some opioid treatment. The need to screen these patients before opioid therapy was initiated was paramount based on the evidence that patients who exhibit a high risk of opioid-related aberrant behaviors would misuse and abuse opioids in the long-term (Webster & Webster, 2005).

During the second phase of the change theory, staff at the project site who had expressed an interest in assisting to implement the opioid risk tool were identified and trained. Those without the interest to apply the opioid risk tool were educated on the benefits of the project for stakeholders, the patients, the site, and the nation as a whole. They were also motivated by using diverse strategic interventions.

During the third phase of the change theory, the change agent championed the project and ensured its successful implementation. The DNP student was ready and enthused to lead the screening of patients for risk opioid-related aberrant behaviors and ensured that the implementation of the project was accomplished. Murphy (2006) argued that change agents do not necessarily have to be part of the organization where change is being introduced.

The fourth phase of the change theory was applied by developing action plans, strategies for implementation, and creating the project's timetable. The Opioid Risk Tool screening process was defined, and each team member's responsibility was clearly defined and assigned. The change agent provided coaching and training to assist team members in developing attitudes and skills to successfully implement the screening of patients.

The fifth phase of the change theory was to determine the change agent's role and communicate that definition to all parties involved. The purpose of this step of the model was to avoid confusion and promote unity among all the team members.

In applying the sixth phase of the change theory, the team leader urged the site team members to continue screening patients using the Opioid Risk Tool after the project was completed. Persistent motivation was needed to ensure the successful implementation of this phase of the model. The usefulness of the outcome of the project was realized when the site continued to implement the change to identify patients who may be at high risk for opioid-related aberrant behaviors.

In applying the last phase of the change theory to the project, the project team leader terminated his responsibilities after project completion, with the goal that the site would continue to screen patients.. It was vital for the transition to be accepted by the project site for this step of the model to be successful. However, the change team leader could continue to advise and motivate the site members as needed. A framework based on the change model was developed by the DNP student leader (please see Appendix C).

Summary

The Health Belief Model helps practitioners understand why patients behave as they do when making health choices. The six constructs underlying this model include *perceived*

seriousness, perceived susceptibility, perceived benefits, and perceived barriers, cues to action, and self-efficacy. The application of this model to healthcare management has demonstrated positive results. Therefore, using the model to guide this DNP project is helpful, and I believe patients will benefit from its application.

The change theory developed by Lippitt, Watson, and Westley (1958) has demonstrated effectiveness in guiding many organizations to make productive changes. It is feasible to use because its underlying concepts are clear. With this theory, a change is implemented by first diagnosing the problem. Then the motivation and capacity for change and the resources and motivation of the change agents are assessed. Progressive change objects are chosen, and the role of the change agent is selected. At this point, maintenance of change, and gradual termination of helping the relationship become important.

Chapter Four: Pre-implementation Plan

In the United States, the opioid epidemic is widespread. Many lives are lost every day for abusing or misusing prescription opioids. Federal, state, and local interventions have not eliminated opioid misuse. It is necessary to identify patients with chronic non-cancer pain who may be at risk for opioid abuse so that appropriate pain control interventions could be initiated. Patients at-risk to abuse opioids could be identified through screening tools (Webster & Webster, 2005).

Therefore, the Doctor of Nursing (DNP) student led a team to implement the Opioid Risk Tool that identified patients with chronic non-cancer pain who might be at risk for opioid-related aberrant behaviors. This descriptive quality improvement project fulfilled part of a Doctor of Nursing program. The project team included five health care staff in a local clinic, a physician, two nurses, and two support staff. This team worked to screen chronic non-cancer pain patients who might be at risk for opioid-related aberrant behaviors.

Project Purpose

The idea behind the DNP project emerged from an encounter the DNP project student leader had at the project site during the adult clinical rotation. The site has a large population of patients with pain unrelated to chronic cancer who depended on opioids for pain management. The DNP student observed that these patients were not screened for opioid-related aberrant behaviors before opioid treatments were initiated. This observation motivated the DNP student to search the literature. The search found tools that demonstrated effectiveness in screening for opioid-related aberrant behaviors.

The DNP student found Webster and Webster's Opioid Risk Tool to be easier-to-use than others and chose it for the project. The student discussed the plan of this project with the owner

of the project site, who was also the only medical provider at the site. The provider became interested in the idea of the DNP project and permitted the student to carry out the implementation of the project. The provider wrote a letter of project acceptance and support to the College of Nursing at East Carolina University. Afterward, the DNP student submitted the project topic – “Application of the Opioid Risk Tool in the Management of Patients with Chronic Non-Cancer Pain in the Primary Care Setting” - to the project faculty member, and it was approved.

The project was designed to educate and motivate the primary care provider who prescribed opioids to patients with non-cancer pain without screening them for opioid-related aberrant behaviors. It was also designed to educate other health care professionals at the project site on the need to screen patients before opioids were initiated. This education ensured that patients who were at-risk to misuse opioids were screened and identified.

The outcome of the project was for the project site to initiate and continue to screen at least four patients with chronic non-cancer pain for opioid-related aberrant behaviors each day. The desired effect of the project implementation was to see that the project site provider would adopt the screening tool and use it to screen at least four patients each day after the project was completed. Implementation of the project provided a foundation for practice scholarship and interprofessional leadership. This intervention gave the clinician a useful tool to use for screening clients before prescribing opioids.

Project Management

The project implementation was scheduled to begin in the Fall of 2019 and ended in the Spring of 2020. The pre-implementation plan was executed and completed by Summer, 2019. The DNP student led the team, supported by the project chair, other faculty members, the site

champion, two registered nurses, and two support staff. The project had no extramural funding. Intramural funding of roughly \$840 was expended for travel, gifts to support team members, and the costs of project supplies. The DNP student leader paid for this budget.

The site champion and other team members provided support without charge. Two project site nurses agreed to administer the Opioid Risk Tool to the appropriate patients encountered. They scored the completed Opioid Risk Tool and responded to questions from the patients. The patients responded to the Opioid Risk Tool themselves, but the two nurses helped them if there was a need. It was assumed that there was full access to the project site. Participants of the project were willing to cooperate, and there were no constraints with the use of supplies at the project site.

Organizational readiness for change. The organization was ready for change and willing to put the project on course. After the DNP student discussed the project with the medical provider, the site manager, the nurses, and the support staff, each one expressed support for the project. The provider commented that “we see many patients in this office who could benefit from this project” (project site owner, personal communication, October 21, 2018). The owner of the project site was the only prescribing provider at the project site. He was committed to the success of this project.

Interprofessional collaboration. The organization had various professionals, including one physician, three registered nurses, one medical assistant, four administrators, one nursing assistant, and two support staff. Two registered nurses gave direct patient care by performing the intake and administering medications and treatments to patients as needed. One nurse did the laboratory duties. The medical assistant helped in the rehabilitation department for patients willing to quit abusing opioids. The nursing assistant helped the medical provider with

administrative tasks. The DNP student communicated with the site staff, the manager, the provider, and the support staff about the project each week.

The physician and two registered nurses agreed to work closely with the DNP student to implement the project. The nurses agreed to assist in scoring the completed Opioid Risk Tool. One support staff agreed to scan the scored Opioid Risk Tool into the electronic medical record system for the physician to use for opioid prescribing decision-making.

Risk management assessment. Using the SWOT analysis, the DNP student identified the project's potential strengths, weaknesses, opportunities, and threats. The strengths included the availability of resources, management and staff support, patients to screen, and small site for the project implementation. The weaknesses were a small number of staff members at the project site, which was seen as a challenge because should one or two team members decide to quit the job while the project implementation is on course, it may create a problem for the project; the short timeframe to complete the project; and lack of funding.

The opportunities for the project implementation included authorization from Dr. Webster to use his Opioid Risk Tool and exemption of IRB by the project site and East Carolina University. Finally, the threats were sickness, a staff member quitting the job, lack of patient's interest to be screened, running out of resources, and occurrence of adverse weather.

To minimize time constraints, the DNP student developed a timeline. Please see Appendix D for the DNP project timeline. To reduce the consequences on the progress of the project of a team member getting sick, and a staff member quitting the job, the DNP student included adequate staff. The risk of running out of resources was managed by making sure that there were sufficient and extra supplies needed for the project implementation. Education about

the risks of opioids abuse was done to ensure that the participants understood the project and to motivate team members.

Organizational approval process. The organization approved the DNP project as evidenced by two letters. One of the letters is a letter of approval, and the other is a letter of support and agreement. The letter of approval demonstrated the organization's willingness to work with the DNP student leader on the project. The letter of support and agreement stated that the organization agreed with the tools, instruments, and materials used during the project. Both letters were given to the faculty member supervising the project. Please see a copy of the letter of approval letter is in Appendix E.

Information technology. Standard computer software such as Microsoft Office embedded with Microsoft word, excel, and pdf was used. The electronic medical record was used, but the DNP project student leader had no access to these records. The staff at the site had access. Once patients completed the pen and paper version of the Opioid Risk Tool, staff scanned the tool into the patients' medical records. Data were collected bi-weekly and entered into an Excel data collection tool on a password-protected laptop. Electronic communications, project planning, implementation, progress, and evaluation were used throughout project management. When necessary, telephone communications were also used.

Cost Analysis of Materials Needed for Project

The budget for the project covered the costs of transportation, the supplies, and the gifts for team members. The organization helped with the supply of computers and printing of the Opioid Risk Tool template. Transportation cost was estimated to be \$267.50, the estimate of supplies was \$469.99, and the cost of appreciation to staff was budgeted to be \$100 to make a total of \$837.49. The DNP student leader did not spend more money on the project because the

project site contributed most of the needed resources such as printing papers and computers. The duration of the project implementation was from August 2019 to December 2019. Please see Appendix F for a copy of the DNP project budget.

Plans for Institutional Review Board Approval

The organization at which the project was conducted, exempted the student from their Institutional Review Board (IRB) approval process because the DNP project was a quality improvement (QI), not a research study. The plan for obtaining IRB from East Carolina University (ECU) was initiated. First, the certificate from the CITI training program was earned. Second, the ePirate questionnaire/survey was completed for IRB's review. The project was exempted from the acquisition of ECU's IRB because it was considered as a QI project. Besides, the DNP student leader obtained Self-Certification Verification from ECU's IRB. Please see Appendix G for a copy of the Self-Certification Verification from the ECU's IRB.

Plan for Project Evaluation

Demographics. The DNP project participants included the DNP project student leader, one physician, two registered nurses, and two administrative staff at the project site. There was a total of ten staff members at the project site, and five (50%) of them chose to participate in the project. Out of these five staff, one was a male and four were females. All the staff members had a at least some college education. The staff had no barriers to comprehending the education on the use of the Opioid Risk Tool in screening patients with chronic non-cancer pain.

Outcome measurement. The outcome of the project was measured by the number of patients screened. It was expected that at least, of the 42 patients who were presented with chronic non-cancer pain each week, at least 20 (48%) would be screened for opioid-related

aberrant behaviors. The essence of this measure was to know the desire of the organization to screen patients using the Opioid Risk Tool.

Evaluation tool. The project was evaluated using Plan-Do-Study-Act (PDSA) cycles. The PDSA tool was utilized to operationalize the project implementation process every two weeks. Modifications to the implementation process were made as needed based on the results of the PDSA cycle. PDSA cycle has shown to be effective in evaluating quality improvement projects such as this DNP project.

Data analysis. The project was analyzed using run charts. Data were collected using an Excel spreadsheet that was analyzed every two weeks using the run chart. Modifications to improve utilization of the Opioid Risk Tool template occurred every two weeks. Data were analyzed using the run charts. Run charts are useful tools in analyzing quality improvement projects such as this DNP project (Moran, Burson, & Conrad, 2014).

Data management. The data was managed securely to ensure the confidentiality of the participants. Completed tools were scanned into the computer as part of the patient's electronic medical record (EMR), and the hard copies were shredded right away. No information about a participant related to the project was made available to other staff members who were not part of the DNP project team membership.

Summary

The pre-implementation plan was essential in this DNP project. Implementing a project to identify opioid-related aberrant behaviors requires a carefully-prepared plan. Thus, the DNP student leader initiated a thoughtful plan to guide the DNP project. The purpose of the project was to ensure that the Opioid Risk Tool developed by Webster and Webster (2005) was effectively and efficiently used in the primary care setting. Also, the project motivated the site

staff to screen patients with pain unrelated to cancer before opioids were prescribed (project team members, personal communication, November 26, 2019). The DNP student leader had the support of staff and management from the primary care clinic where the project was implemented. The clinic was ready for change by expressing the willingness and interest in adopting the Opioid Risk Tool to ensure that patients who presented with chronic non-cancer pain were screened.

It is known that high-risk patients have the potential to abuse or misuse opioids. When these high-risk patients were identified, alternative pain management such as prescribing non-opioid medications or treatments or referring the patients to pain management clinics could be initiated. Strengths, weaknesses, opportunities, and threats were identified using the SWOT analysis. The strengths included the availability of resources, staff support, patient availability, and small project site. The small number of staff working on the project was a weakness, which was challenging when one staff quit their job during the project implementation process. Other weakness was the short timeframe to complete the project. The opportunities included the author's permission to use the Opioid Risk Tool and IRB waiver from both the project site and ECU. The threats were staff members quitting the job or falling sick, lack of patients' willingness to be screened, the potential to run out of resources such as printing papers and the impact of adverse weather on the continuous operation of the project site during the implementation process.

Chapter Five: Implementation Process

This chapter discusses the implementation process. The setting, participants, recruitment process, and implementation phase were discussed in detail.

Setting

The DNP project was conducted in Sanford, a city in Lee County, North Carolina (NC). Sanford is located in the heart of North Carolina and has a total land area of 29.79 square miles (US Census Bureau, 2010). It is a steadily growing city whose population increased from 28,134 in 2010 to 29,313 in 2017 (US Census Bureau, 2018). The city has ethnic and racial diversity. In 2017, white non-Hispanic persons made up of 45.3% of the population, while Blacks or African Americans constituted 26.2%. Hispanic or Latino persons made up of 24.7%, and Asian persons were 1.2% of the city's population (US Census Bureau, 2018).

In 2017, the majority of the population in Sandford was identified as working class. Persons under the age of 18 represented 17.1% of the population in 2017, while 60.7% of the residents were between 18 and 64, and 12.2% were 65 years of age or older (US Census Bureau, 2018). According to the Census Bureau (2018), the female to male ratio in Sanford was 1:9 in 2017.

Nearly 80% of the adult population in 2017 had a high school education, and 23.2% had a bachelor's degree or higher (U.S Census Bureau, 2018). Household median income of was \$45,417 with per capita income of \$21,767 (U.S. Census Bureau, 2018). Quite a considerable number of the population under 65 years of age were disabled, and 17.2% of the disabled population had no health insurance, according to the U.S. Census Bureau (2018).

The project site chosen for the DNP project was located on the outskirts of the city. The primary care practice treated all patients with acute or chronic diseases. The practice took disease

prevention and health promotion seriously. As many as 60% of the patients presented for medical care did so for chronic non-cancer pain (clinic owner, personal communication, October 15, 2019). These may include arthritis, rheumatism, musculoskeletal pain, and other related conditions. Opioids were prescribed for about 45% of this patient population (clinic owner, personal communication, October 15, 2019). The organization had a rehabilitation department that treated patients who had abused and/or misused opioids or depended on opiates.

The site had one physician, an office manager, three registered nurses, one medical assistant, one nursing assistant, and three support staff. The physician and all staff were instrumental in the successful implementation of the project. The organization was committed to providing nursing staff to administer the Opioid Risk Tool during patient encounters. The organization also provided other materials that were needed, such as computers, printers, and paper.

Participants

The participants of the DNP project were the DNP project student leader, a physician, two registered nurses (RN), and two support staff. The student led the DNP project implementation process by educating staff about the clinical importance of the Opioid Risk Tool. The student also trained the staff about the project implementation process and evaluated their consistency in the administration of the Opioid Risk Tool to screening appropriate patients encountered. The physician used the Opioid Risk Tool scores to make opioid prescribing decisions, two RNs scored the completed Opioid Risk Tool based on patient responses, one support staff distributed the Opioid Risk Tool to the patients encountered, and another support staff scanned the scored tools into the electronic medical records. Thus, there were a total of six

participants in the DNP project implementation. The DNP student was not involved in patient care. Patient care was provided by the site staff.

Recruitment

Recruitment was accomplished by using the convenience sample of the provider and employees at the project site. Following a discussion with the DNP project student leader, 5 (50%) of the staff who were interested in the implementation were recruited.

Implementation Process

The DNP project student leader developed an action plan to guide the implementation process. The student created a PowerPoint presentation to educate staff about the DNP project and implementation process. The training took place at the project site and lasted about 30 minutes. The purpose of the DNP project was explained, and time was allocated for staff to ask questions. Contributions and input from the staff were embraced.

The front-desk staff began the distribution of the Opioid Risk Tool on September 19, 2019. After the Opioid Risk Tool was completed by patients, the RNs scored the tools and categorized the risk levels. The completed tools were scanned into the electronic medical records by one of the support staff. The physician used the risk scores to make prescribing decisions.

Excel was used to develop a data collection tool. Please see Appendix H for a copy of the data collection tool. Data were documented each week and the DNP student leader visited the project site at least twice every two weeks to collect data. Plan-Do-Study-Act (PDSA) cycles were used and completed every two weeks to assess the progress of the implementation process. Throughout the implementation process modifications were made to the PDSA cycles every two weeks to correct any areas that needed to be changed. Five PDSA cycles were utilized during the implementation phase.

Operational and tracking tools. PDSA cycles and run charts were used to operationalize and track the implementation process, respectively. In the “plan” stage of the PDSA cycle, demographic items were added to the Opioid Risk Tool. In the “do” stage, the team decided to administer the Opioid Risk Tool to four patients encountered during the first day of implementation. The distribution of the tool continued with five patients on the second day, six patients on the third day, seven patients on the fourth day, and eight patients on the fifth day. However, the goal was to screen at least four patients each day. The front-desk staff executed the administration of the tool. The Opioid Risk Tool was administered to patients presenting with conditions involving chronic non-cancer pain. In the “study” phase, the processes were reviewed, and modifications were made in the “act” phase. The cycle continued throughout the implementation phase, and run charts were made to track the progress of the process.

The DNP student visited the project site each week for ten weeks but collected data every two weeks. The student developed a data collection tool that was used to document data from the completed Opioid Risk Tool. The DNP student did not have any contact with patients.

Bi-weekly data were discussed with the site champion and other team members to determine the revisions to the PDSA cycles. The PDSA tool was utilized to operationalize the project implementation process every two weeks. Thus, five PDSA cycles were made during the data collection process. Run charts were made every two weeks using the data, resulting in five runs for the ten-week implementation phase. The presence of the student at the project site was to respond to team members questions about the implementation process and also to motivate them as well as to collect data when due. The DNP student learned that regular visits to the project site motivated the team members to be committed to reaching the goal of screening at least four patients each day.

Plan Variation

In the initial stages of the project implementation, the team decided to screen at least ten patients per any working day. However, based on input from the front-desk staff and the RNs, the goal was changed to four patients per day because the average number of patients screened during the first week was four. The site champion agreed to the new goal. For a reason unknown to the site champion and the nurses, the front-desk staff was not distributing the Opioid Risk Tool to patients as planned early on.

Thus, the team decided to place copies of the Opioid Risk Tool in every patient examination room. After this intervention, at least four patients were screened each day until the last two weeks of the implementation period. The front-desk informed the DNP student leader that during the last two weeks of the Opioid Risk Tool implementation process, there was a repetition of patient visits. Thus few patients completed the Opioid Risk Tool because most of the patients had already completed one.

Summary

The DNP project was conducted in Sanford, a city in Lee County, North Carolina (NC). The project student leader led the DNP project implementation process by educating staff about the clinical importance of the Opioid Risk Tool. Recruitment was accomplished by using convenience sampling of the provider and employees at the project site. PDSA cycles and run charts were used to operationalize and tracked the DNP project implementation processes and outcomes. Five PDSAs and five runs were made. The project implementation began on September 19, 2019 and ended on November 26, 2019. During the implementation phase, a total of 165 patients were screened.

Chapter Six: Evaluation of the Practice Change Initiative

The purpose of this DNP project was to apply the Opioid Risk Tool to screen patients with chronic non-cancer pain in the primary care setting. The purpose of the screening was to identify patients with chronic pain unrelated to cancer who might be at risk for opioid abuse or misuse. The project implementation began on September 19, 2019 and ended on November 26, 2019. Plan-Do-Study-Act (PDSA) cycles were used to operationalize the implementation process, and run charts were used to track the implementation phase. This chapter discussed the DNP project participant demographics, intended outcomes, implementation findings, and summary.

Participant Demographics

There was a total of ten staff at the project site, with five of them participated in the DNP project implementation phase. The five staff were made up of one physician, two registered nurses, and two administrative staff. One administrative staff member was trained to distribute the Opioid Risk Tool to patients, another administrative staff was educated to scan completed tools into the patients' medical records, and two registered nurses received training to assist patients in completing the tool and scored responses. The physician received training on the need to use the opioid risk scores in making opioid prescribing decisions.

Intended Outcomes

This quality improvement project had short-, intermediate-, and long-term intended outcomes. The short-term outcome was to screen patients with chronic non-cancer pain to identify their levels of opioid risk for opioid-related aberrant behaviors. The intermediate outcomes were to prescribe non-opioid medications or therapy to appropriate high-risk patients when necessary and refer those patients who could not be managed by the project site to pain

management clinics. The long-term outcome was the development of and sustainability of enthusiasm among the project site staff to continue to use the Opioid Risk Tool in screening patients with chronic pain unrelated to cancer after the completion of the DNP project. The DNP project student leader utilized five PDSA cycles to operationalize the implementation process and used five run charts to track the implementation phase.

Findings

The project implementation phase lasted ten weeks, spanning from September 19, 2019 through November 26, 2019. Screening of patients using the Opioid Risk Tool started on September 19, a day after the staff had received training on the implementation process. The DNP project student leader visited the project site weekly to evaluate the progress of the implementation. The staff at the project site did all the screening, and the DNP project student leader collected the data every two weeks.

Data included the number of patients screened with the Opioid Risk Tool during the two-week interval. Data were analyzed and displayed in weekly intervals to assist with recognizing incremental positive and negative process change. The implementation phase was operationalized using five PDSA cycles, and revisions were made as needed. The implementation process was tracked using five run charts. Although the data were collected every two weeks, graphical presentation was displayed on weekly basis.

An average number of 11 patients with chronic non-cancer pain visited the clinic each day during the implementation period. The implementation took ten weeks to complete. The clinic staff used thirty-four working days to screen patients during the ten weeks of the implementation phase. The clinic closed for business during the entire period of the sixth week of the implementation process; thus no patients were seen. There were certain days when no

patients were screened due to the demand of routine clinic duties and holidays such as Thanksgiving. By computation, during the ten weeks of the project implementation, an average number of 41.5 patients with chronic non-cancer pain were seen in the clinic each week. This figure was realized by multiplying 34 days by 11 patients per day and dividing by nine weeks of active screening. Thus, on average, a total of 378 patients were seen at the clinic during the implementation phase.

The initial goal was to screen at least ten (91%) appropriate patients who presented for care each day. An average of four (48%) patients were screened each day during the first week. Thus, a revision was made to screen an average number of four patients daily as the new goal for the project. Thus, it was expected that at least 20 (48%) patients would be screened every week as the new goal. The goal remained at screening 20 patients weekly through the end of the implementation phase. However, the average number of 18 (44%) patients were screened each week. Although this number fell short of the weekly goal, there were certain weeks where more than 20 patients were screened. The DNP project student leader learned from this experience that setting a realistic, achievable goal from the outset of a project implementation phase should be the initial plan.

A total number of 165 (or 44%) patients were screened by the clinic staff during the entire implementation phase. The highest percentage of patients screened occurred in week five (86%), and no patient was screened during week six because the clinic closed for business during the entire period of the sixth week. During the first week of the implementation process, 20 (48%) patients of the 42 seen were screened; seven (17%) were screened in the final week. A total number of 101 (61%) patients of the 165 screened needed opioid therapy. The screening indicated that 37 (22%) patients of the 165 screened were identified as medium to high risk for

opioid abuse. As at the completion of the data collection, no patient had been referred to any pain clinic. Please see Table 1 for the summary of the weekly data.

Table 1

Project Weekly Data

Screening Period	Average # of Patients Seen in the Clinic Weekly	Number of Patients Screened Weekly	Number of Patients Needed Opioid Therapy	Number of Patients Identified as Medium-to-High Risk for Opioid Abuse	Percentage of Patients Screened with the Opioid Risk Tool Over 10 Weeks
Week 1	42	20	13	3	48
Week 2	42	17	17	8	40
Week 3	42	10	8	0	24
Week 4	42	3	3	1	7
Week 5	42	36	14	5	86
Week 6	0	0	0	0	0
Week 7	42	28	14	6	67
Week 8	42	24	17	7	57
Week 9	42	20	9	5	48
Week 10	42	7	6	2	17
Total	378	165	101	37	44

Note: The data collected during the DNP project implementation phase over ten weeks.

The data collected were tracked using run charts, and the number of patients screened was expressed in percentages. The median percentage of patients screened with the Opioid Risk Tool was 44%. Weeks one, five, seven, eight, and nine met the weekly goal of 48% or 20

patients. Weeks seven, eight, and nine were above the median of 44% consecutively. The data were expressed in a run chart in the Figure 1.

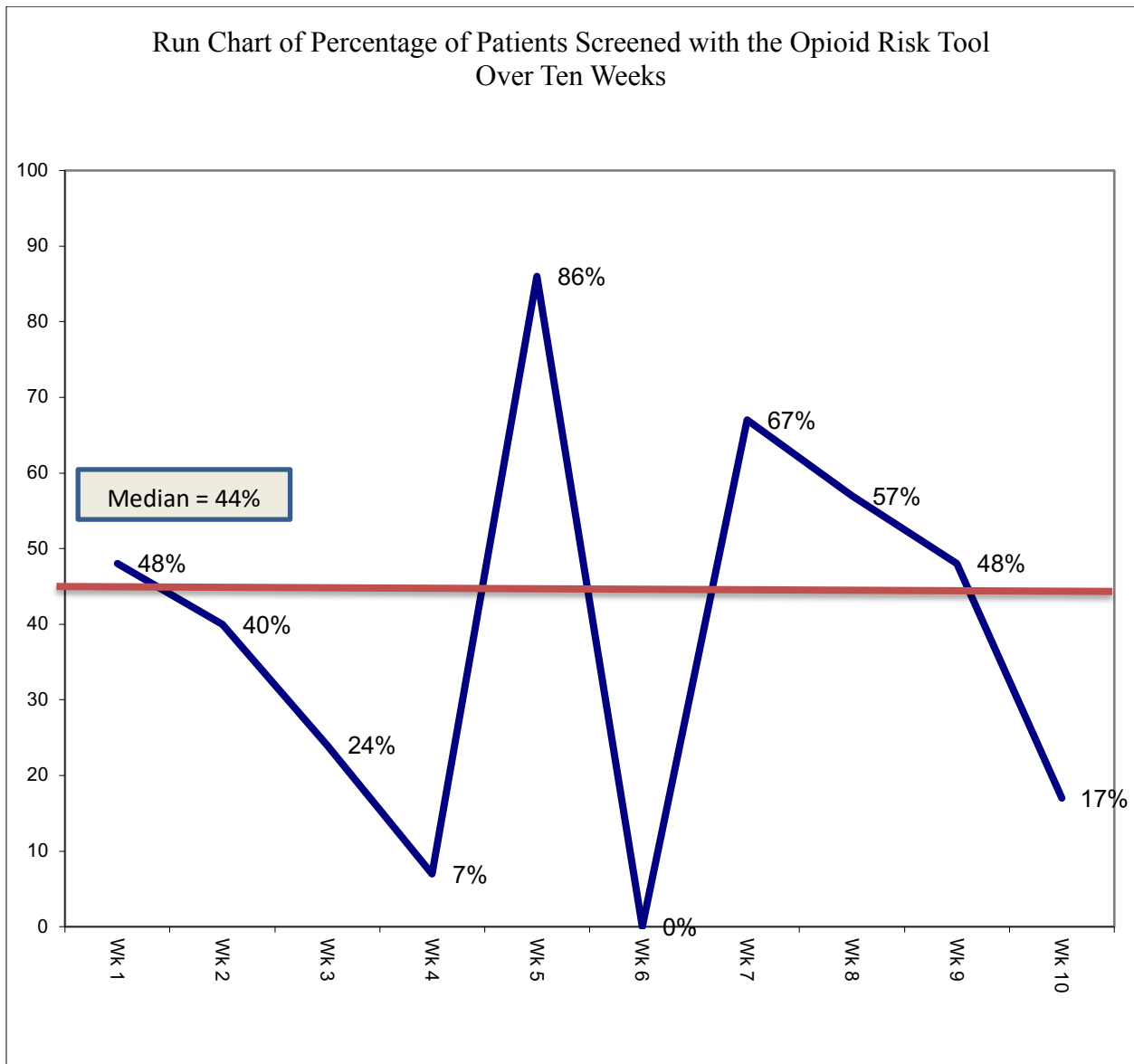


Figure 1. A run chart of the data collected during the DNP project implementation phase over ten weeks. The data reflect the percentage of patients screened with the Opioid Risk Tool over ten weeks of project implementation

Summary

Site team members who participated in the DNP project were trained before the implementation phase started. Of the 378 patients seen by the clinic during the implementation phase, 165 (44%) were screened with the Opioid Risk Tool. Of the 165 patients screened, 101 (61%) needed opioid therapy, and 37 (22%) were identified as medium-to-high risk patients for opioid-related aberrant behaviors. The median of the percentage of patients screened with the Opioid Risk Tool was 44%. Weeks seven, eight, and nine were above the median of 44%. Weeks one, five, seven, eight, and nine met the weekly goal of 48%. The minimum percentage of patients screened was 0% in week six because the clinic closed for business during that week. The maximum percentage of patients screened occurred in week five (86%). Five PDSA cycles were used to operationalize the implementation phase, and five run charts were used to track the data. Data and process tracking suggest that the project was successful and that the project site has been prepared to continue to screen patients with the Opioid Risk Tool to identify opioid-related aberrant behavior risk.

Chapter Seven: Implications for Nursing Practice

In 2004, the American Association of Colleges of Nursing (AACN) drafted a position statement recommending the Doctor of Nursing Practice (DNP) as the terminal degree for advanced practice nurses (Garritano, Glazer, & Willmarth-Stec, 2016). Consequently, AACN (2006) assembled a task force to write the Essentials of Doctoral Education for Advanced Practice, which were released in 2006. These essentials are part of the curricular requirements and competencies that DNP-prepared nurses must master to be conferred the degree (Garritano et al., 2016). The release of the DNP Essentials was in alignment with the Institute of Medicine's recommendations that the DNP curriculum should involve "preparation to engage with interdisciplinary teams, leverage information systems, and focus on quality improvement and patient safety" (Garritano et al., 2016, p. e143).

The strength in the number of DNP-prepared nurses is growing. The AACN reported in 2015 that there was an increase of 26% in the number of students enrolled in the DNP program from the previous year (Bleich, 2017). The number of colleges and schools offering the DNP program to students has also increased. According to AACN (2019), there are 348 DNP programs in schools of nursing nationwide, and an additional 98 new DNP programs are in the planning stages (50 post-baccalaureate and 48 post-master's programs). The AACN (2019) reported that 32,678 students were enrolled in DNP program in 2018 (an increase from 29,093 in the previous year), and 7,039 students graduated with the DNP degree (an increase from 6,090 from the previous year).

There is quite an appreciable number of DNP projects published in the literature but the literature showing incorporation of DNP Essentials in the DNP projects is lacking (Garritano et al., 2016). Though the AACN's 2015 recommendations do not make it mandatory for all of the

DNP essentials be part of the final DNP project, this paper will demonstrate how each DNP essential was used to inform the application of the Opioid Risk Tool in the management of chronic non-cancer pain patients in one primary care setting.

Practice Implications

Essential I: Scientific underpinning for practice. Essential I explains the scientific foundations of nursing practice and requires the DNP student to relate his or her project to nursing or other healthcare-related theory. This DNP project used two frameworks to support the development and implementation of the project. The theory of change developed by Lippitt, Watson, and Westley (1958) was used to guide the assessment, planning, implementation, and evaluation of this DNP project. The project was developed on the Health Belief Model (HBM) founded in the 1950s by social psychologists Rosenstock, Hochbaum, Kegeles, and Leventhal (Becker & Rosenstock, 1984).

Referencing from the seven conceptual steps of the theory of change, the first step was to identify the quality improvement issue at the project site. Second, the motivation and capacity to change were assessed. The project site staff who were willing to help with the project were educated about the clinical importance of the project and their roles in the project. Available resources at the site that could be used to enhance the success of the project implementation were identified and evaluated. The Opioid Risk Tool was discussed with the project site, and the plan and schedule for the project implementation were developed. In the plan, individual roles were clarified to avoid confusion. It was anticipated that the project staff would continue to screen appropriate patients after the completion of the project, and the project leader would gradually withdraw from participation to give the site independence.

The HBM model is a tool that has been widely used in health education (Glanz, Rimer, & Lewis, 2002). The model has six constructs. These constructs explain the various perceptions people have about health. The constructs include perceived seriousness, perceived susceptibility, perceived benefits, perceived barriers, cues to action, and self-efficacy (Butts & Rich, 2015).

In applying the HBM to the DNP project on opioid issues, it is believed that patients would take their medications as prescribed if they are aware of the consequences of misusing or abusing opioids (*perceived seriousness*). Other beliefs were that patients must understand that taking the prescribed opioid as recommended by their health care provider may improve their pain (*perceived benefits*) and minimize medication adverse side effects (*perceived barriers*).

Knowing patients' personal risks for opioid abuse or misuse will guide health care providers to make informed decisions when prescribing opioids. Patients' understanding of their own risks for opioid abuse or misuse has the potential to prompt them to comply with the recommended use (*perceived susceptibility*). This construct could be fulfilled by using the Opioid Risk Tool to screen all patients who have chronic non-cancer pain when opioid therapy is needed. According to Webster and Webster (2005), the cause for opioid addiction is 50% genetic and 50% environmental. While anyone can develop an opioid addiction, some patients are at greater risk than others (Webster & Webster, 2005).

Follow-up calls and other reminder strategies to encourage patients to adhere to taking opioids as prescribed (*cues to action*) potentially motivated healthy behavioral choices (Butts & Rich, 2015). For patients who were struggling with opioid abuse, effectively eliciting their confidence in the ability to resist opioid abuse (*self-efficacy*) motivated them to change behaviors. It is important to note that using the Opioid Risk Tool may not be able to eradicate

opioid addiction or misuse; however, it may help to identify patients who may be at risk (Webster & Webster, 2005).

Essential II: Organizational and systems leadership for quality improvement and systems thinking. Essential II requires the DNP student to assume a leadership role in practice improvements using scientific evidence and principles for effective communication, business finance, policy, and monitoring. Leadership for this project included identifying a quality improvement issue at a rural clinic where many patients seek pain treatment with opioids, yet no patient screening for risk for addiction or aberrant behaviors was conducted. The student leader developed an action plan to use the Opioid Risk Tool to screen patients with chronic non-cancer pain at the project site.

The DNP project student leader developed a budget to provide resources for the project implementation. The budget was funded by the project site and the DNP project student leader. The site provided human resources and stationery. Costs for lunch and appreciation gifts for the staff at the project site were provided by the DNP project student leader. The project proposal was submitted and waived by the project site and University Institutional Review Board at East Carolina University. Staff at the project site were educated. Operational and tracking tools to help guide the project implementation process were identified. It was important for the DNP project student leader to assume a leadership position on the project.

Essential III: Clinical scholarship and analytic methods for evidence-based practice. Essential III challenges the DNP student to translate research into practice and make this new knowledge known to inform the practice of others (AACN, 2019). Scholarship and research are the hallmarks of doctoral education. According to Garritano et al. (2016), “the DNP degree prepares graduates to serve as leaders across the health care system with expertise in using

evidence to support system and clinical changes” (p. e147). The DNP-prepared nurse is charged with the task of using evidence-based technology and practice to improve health care (AACN, 2019). This DNP project used the Opioid Risk Tool, an evidenced-based tool for screening patients in an effort to prevent or minimize opioid abuse or the potential for opioid-related aberrant behaviors. Webster and Webster (2005), who developed the Opioid Risk Tool, used concordance statistic to validate the tool as it assesses both sensitivity and specificity at the same time. The concordance statistic for males and females were 0.82 and 0.85, respectively. The outcome of the DNP project was disseminated for use by the project site to improve clinical practice.

Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health care. Essential IV requires the DNP student to utilize up-to-date technology to disseminate evidence-based practice and to improve health care. Health care delivery has reached complex levels where the integration of technology is extremely needed (AACN, 2019). The ability of the DNP-prepared nurses to utilize technology to support and improve patient care and health care systems is one of the tools that make DNP-prepared nurses distinguished from other nurses (AACN, 2019).

This DNP project is focused on the use of the Opioid Risk Tool to identify patients at risk for current and future opioid abuse and/or addiction (Webster & Webster, 2005). In completing the project implementation action plan, a meeting was organized with the site champion and the team members to discuss the need to integrate the Opioid Risk Tool completed by the patients to be part of the patient’s medical record. The site champion, who was the owner of the medical facility, agreed to scan the completed tools into the electronic medical records to serve as a

reference for opioid prescribing decisions. Prior authorization was given by the developer of the tool to use in any capacity to improve patient care.

Essential V: Health care policy for advocacy in health care. Essential V prepares the DNP students to be knowledgeable in health care policies at all levels and equip them with the ability to advocate for their patients and the nursing profession in general. Health care policy, at any level, has some effects on the delivery of care and, consequently, on patients' outcomes (El-Jardali & Fadlallah, 2017). The Institute of Medicine (2001) asserts that DNP graduates are in a position to design, influence, and implement health care policies to regulate health care financing, practice, access, safety, quality, and efficacy to influence positive patients' outcomes.

It was of the opinion of this DNP student that if primary care providers had screened patients using the Opioid Risk Tool before initiating opioid treatments, the opioid epidemic in the United States might not have reached this current level. This DNP project had the potential to improve the quality of care at the project site by using the Opioid Risk Tool to screening patients before opioids were initiated. It was the desire of this DNP project student leader that the project site would make it a policy for the screening to continue even after the DNP project was ended.

It is a necessity that screening patients at the primary care settings for opioid-risk behaviors should be a mandatory practice for all primary care providers. Jones, Schmidt, and Moore (2015) argued that screening for an individual's risk factors for opioid misuse prior to receiving the first opioid prescription would highlight specific awareness of potential psychiatric and biopsychosocial variables that may predict long-term use and have the potential to influence the opioid crisis in the long-term. According to Barnett, Oelnski, and Jena (2017), there is growing evidence that the initial opioid prescription from the primary care settings contributes to long-term opioid use.

The CDC (2017) published that nearly 20% of people taking opioids will not take the medication as prescribed but misuse it, and 80% of new heroin users started by misusing prescribed opioids. Policy formulation by the federal, state, and local government to regulate mandatory screening of all patients prior to initiating opioids at the primary care settings is warranted.

Essential VI: Interprofessional collaboration for improving patient and population health outcomes. Essential VI requires the DNP student to engage in interprofessional communication and collaboration. Planning for this DNP project required collaboration with other professionals in the health care setting by the DNP project student leader. After knowing about the Opioid Risk Tool through online searches, the DNP project leader contacted Webster and Webster (2005), the owners of the tool via their email for permission to use it for the DNP project. Permission was granted for the tool to be used for the project.

In formulating the project topic, other professionals such as social workers, nurses, health care administrators, physicians, university faculty members, students, and friends were consulted. The reason for the consultation was to seek their expertise on how the DNP topic could be formulated in an acceptable scholarly manner. The implementation of this DNP project largely involved with all the departments at the project site. These departments included information technology (IT) department, nursing, front-desk staff, administrative, medical, and laboratory departments. The reason for involving these departments was to ensure effective collaboration for the success of the DNP project as these departments were part of the health care system. Each department had resources to offer for the implementation phase of the DNP project.

Essential VII: Clinical prevention and population health for improving the nation's health. Essential VII focuses on the role of the DNP student's involvement with health

promotion, disease prevention, and risk mitigation. Although nursing theory is founded on health promotion and risk reduction, the DNP degree further equips students to evaluate and interpret epidemiological, biostatistical, occupational, and environmental information necessary to improving the health of both individuals and communities (AACN, 2006). This essential also prepares DNP graduates with the skills to synthesize the psychosocial dimensions and cultural impacts related to population health (AACN, 2006).

Opioid abuse and/or misuse claims many lives in the United States each day. As many as 115 Americans lose their lives from opioid abuse every day (CDC, 2017). This DNP project had the potential to save lives by identifying the number of at-risk individuals exposed to opioids, thereby reducing complications associated with opioid addiction and substance use disorder. This DNP project was congruent with the goals of health promotion by ensuring that the primary care provider at the project site screened the appropriate patients from all races or ethnicities who were 18 years old or older using the Opioid Risk Tool before prescribing opioids to patients with chronic non-cancer pain. This intervention would assist in documenting individuals and populations at risk for opioid abuse and other opioid-related aberrant behaviors before opioids were prescribed.

Essential VIII: Advanced nursing practice. Essential VIII highlights direct clinical care provided by the DNP project student leader regarding the area of specialized practice (Garritano, 2016). With the goal of improving patient outcomes in mind, the DNP project student demonstrated advanced levels of clinical judgment, systems thinking, and delivery of evidence-based care (AACN, 2006). Essential VIII addresses the need for comprehensive assessments, mentoring, and educating patients through complex situational transitions (AACN, 2006). This DNP project was designed to fulfill this essential by requiring providers to screen

patients with the Opioid Risk Tool to identify those who might be at high risk for opioid-related aberrant behaviors.

Summary

The DNP Essentials were used to develop the foundation of knowledge, skills, and behaviors for the DNP project student leader to engage in this project. Completion of the DNP degree increases the provider's knowledge to take on complex issues at all levels of health care and empowers providers to improve the quality of life of individual patients and populations. Practice that is evidenced-based directed the planning, implementation, and analysis of this project and shaped the perceptions and critical thinking capabilities of the DNP project student leader.

Chapter 8: Final Conclusions

This DNP quality improvement project was implemented to identify patients with chronic non-cancer pain who might be at risk for opioid-related aberrant behaviors by using the Opioid Risk Tool. The goal of the project implementation phase was to ensure that by the completion of the project implementation phase, at least 20 patients or 48% of the patients with chronic non-cancer pain who presented for care at the project site would have been screened with the Opioid Risk Tool. Prescribing opioids to treat any pain has both beneficial and detrimental outcomes. Primary care providers have the responsibility to ensure that the damaging outcomes related to opioid use are minimized. There is evidence that anyone can develop opioid-related aberrant behaviors such as addiction, but some patients are at higher risk of developing habits than others (Webster & Webster, 2005). It is essential to recognize that addiction to opioids is 50% genetic and 50% environmental (Webster & Webster, 2005). The Opioid Risk Tool can assess both genetic and environmental factors that can place patients at opioid-related risk.

At the end of the implementation phase, 165 (44%) of the 378 patients who presented for care were screened with the Opioid Risk Tool. Although the total percentage of patients screened did not meet the overall goal of 20 (48%) per week, the goal was met in weeks one, five, seven, eight, and nine. In addition, the project goals were met on schedule and within the budget. The outcome was satisfactory to the DNP project student leader and the team members; thus the project was a success. The data collected were used to evaluate compliance with the administration of the Opioid Risk Tool by the clinic staff. This chapter highlighted the significance of findings, project strengths and weaknesses, limitations, project benefits, recommendations for practice, and final summary.

Significance of Findings

Using an evidence-based tool to screen patients who have pain unrelated to cancer in order to identify potential opioid-related aberrant risk is essential in the primary care setting. The Opioid Risk Tool at the project site was successfully implemented and shown to be a clinically important tool. The staff at the project site who actually distributed the tool to the appropriate patients commented that the Opioid Risk Tool was easy to complete as it took most patients less than three minutes to complete. However, the tool was designed to be completed in one minute. Patients at risk for opioid-related aberrant behaviors were identified during the screening. As many as 37 patients or 22% were identified to be at medium to high risk for aberrant behaviors. It is expected that these at-risk patients who have to be treated with opioids would be monitored closely, and those who could not be managed by the project site would be referred to pain management clinics.

The DNP project has shown that it is feasible to screen patients for opioid-related aberrant behaviors in the primary care setting. Prior to commencing the implementation of this project, the DNP student talked to a couple of primary care providers about the project, but some of them commented that many patients who needed opioids would refuse to complete the tool (Clinical preceptor, personal communication, July 2019). However, the outcome of the project demonstrated the effectiveness of using the Opioid Risk Tool in screening patients who presented at the project site with chronic non-cancer pain and needed opioids to manage their pain.

The DNP project student leader learned from the implementation process that the tool should be readily available for the appropriate patients to complete. Once it was determined that the tool being available to patients only at the front desk during check-in was a limitation, the

project team discussed strategies to improve the availability of screening for patients. The decision was made to place screening tools in each of the patient examination rooms, as well as at the front desk. This idea actually helped to increase the percentage of appropriate patients screened.

Another lesson learned by the DNP student was that the staff screening patients should be well trained to understand the clinical benefits of the screening in order to motivate them. A PowerPoint was provided for clinic team members by the DNP student as a means to empower and motivate clinical staff to execute the screening effectively. The staff members were able to answer most of the patients' questions, and those questions they could not answer were passed on to the DNP student leader.

The clinical practice that collaborated on this project advanced from no screening of opioid risks prior to prescribing opioids, to screening patients for potential opioid-related aberrant behaviors. The project was a new clinical activity for the team members but they received the idea with enthusiasm. This DNP project has the potential to be used in other clinics using the same methodology to identify patients with chronic non-cancer pain who may be at risk for opioid-related aberrant behaviors.

Project Strengths and Weaknesses

Several strengths were noticed in the project implementation phase. First, the staff participants were willing to be part of the project and were excited about the opportunity to learn something new. The staff did all the screening activities after receiving training from the DNP project student leader. The team freely gave suggestions for improvement to enhance the successful implementation of the project. For example, in an instance where the front-desk team was not giving the Opioid Risk Tool to patients to complete, the physician and the nurses

suggested placing some of the tools in all the patient examination rooms for easy access during patient visits. This suggestion helped tremendously to increase the screening rate. Second, the project had the full support of the management and staff of the clinic, who contributed to the project by offering logistics such as printers and papers. The third strength was that many patients met the criteria to be screened. Finally, the small size of the clinic with a few staff made communication between the DNP project student leader and the team members simple and easy.

Screening patients with the Opioid Risk Tool did not require many or sophisticated resources, and patients did not spend much time completing the tool. Many patients could be screened using the tool even in the short term. If the project site could use nine weeks to screen 165 patients, then hypothetically, an 18-week implementation could double the number to 330 patients screened. If the project is replicated to other clinics using the same or similar conditions or methodology and resources of this DNP project, ten primary care facilities could screen 1650 patients in nine weeks.

The project was confronted by some weaknesses, however. First, the project implementation took place during a period where there were several holidays. For instance, the clinic closed for the entire week during the Thanksgiving observation, and that adversely affected the screening momentum. Second, the adverse winter weather during the implementation period led to clinic closure for two days, which limited the screening activity. Third, one of the team members resigned near the end of the project. This reduced the number of patients who completed the screening for one week simply because the new front desk employee did not know how to distribute the screening tool to the appropriate patients. The DNP project student leader discovered this problem during one of the weekly site visits and trained the new staff on the process.

Project Limitations

The project had only a few limitations. There was a problem of inadequate time on the part of the team members. For example, there were a few instances where the team members were too busy with routine patient care to give the tool to the appropriate patients to complete, thereby impeding the screening activity. There were certain days when the staff did not screen as many patients as planned, though the reasons were not given. When the DNP student inquired about those days, the staff could not support the low screening incidents for any reason.

The DNP project student was confronted with a communication barrier. For example, there was a day the DNP student drove to the clinic site as part of the routine weekly visits, but the clinic did not open for business without the knowledge of the student. The project was implemented in only one local small clinic in a rural setting, and the outcome may not be representative of other settings.

Project Benefits

Several benefits were realized from implementing the Opioid Risk Tool screening at the project site. Both the community and the practice in which the project implementation took place gained the benefits. Screening patients who experienced chronic non-cancer pain using the Opioid Risk Tool did not exist at the project site before the implementation of this DNP project. Patients in this practice community can now be screened for opioid-related risks, resulting in patients having evidence on which they can make informed decisions about taking opioids. Staff working in the project site now have the skills, knowledge, and ability to screen patients for opioid-related risk behaviors.

It is generally accepted that opioid therapy is known to be safe and effective in treating patients with moderate to severe pain over many non-opioids (Regier, 2017). However, there are

identified risks involved in opioid treatment, including adverse reactions to the medication, addiction, overdose, and even death. Thus, health care providers have the responsibility to assess patients' opioid risk levels and then to balance the risks and benefits of opioid therapy in treating each patient.

Many lives have been lost from opioid abuse and/or misuse. The practice of screening patients having chronic pain unrelated to cancer before prescribing opioids has the potential to decrease harm and save lives. Saving lives is a means to conserve human resources, which are critical for national development. The cost of healthcare could be reduced by reducing the financial resources spent on treating patients suffering from opioid abuse. Patients who are screened and found to be at high-risk for potential opioid-related aberrant behaviors may not be denied opioid therapy but may receive heightened care with close monitoring or be referred to pain management clinics.

The implementation of this DNP project, directly and indirectly, contributes to health care quality. This project has the capability of being transferred to many clinical practices to assist providers in identifying patients who may be at risk for aberrant opioid behaviors. Screening patients with the Opioid Risk Tool may serve as secondary prevention that can directly reduce patient harm and indirectly prevent unnecessary costs associated with opioid misuse treatment, morbidities associated with opioid abuse, and loss of lives as a result of opioid dependence and overdose.

Opioid addiction has caused disruptions in the normal order of life. Consistent patient screening for potential opioid-related misuse or abuse may reduce the social burden for communities. Many children have entered the foster system due to the negative impacts of opioid-related loss of parental custody, parental incarceration, or loss of parents' lives. Increased

loss of productivity across the nation as a result of effects on human resources by opioid misuse and/or addiction is common. The healthcare sector is burdened with an increased number of opioid-related issues coupled with insufficient treatment programs and facilities, yielding inaccessible treatment or poorly managed treatment plans with loose ties to evidence. The practice of screening patients may not avoid all opioid-related morbidities and mortalities, but it can positively impact many lives, costs, and communities if it is done properly, such as this DNP project was implemented.

Practice Recommendations

The project could be utilized as a teaching tool in academia. The practice of screening patients with appropriate risk tools, including the Opioid Risk Tool, before opioids are initiated, has not been carried out effectively as expected (Webster & Webster, 2005). This DNP project student believes that most graduate nursing students do not get the opportunity to learn about opioid risk screening in school, nor do they see risk screening in their clinical practice rotations. Adding this important practice to the clinical curricula will help educate nurses to integrate patient screening before opioids are initiated for patients in their clinical settings, especially in the primary care setting, such as where this project was implemented. Opioid risk screening should be integrated into the pre-clinical didactic courses to increase the knowledge, improve the skills, and impact the behaviors of novice Advanced Practice Registered Nurses (APRNs.)

Continued screening for risk of opioid-related aberrant behaviors is recommended. The DNP student leader presented the findings and benefits of this project to the staff of the project site and that the project partner was motivated to continue the screening. It is recommended that all patients with chronic non-cancer pain be screened with the Opioid Risk Tool before opioid therapy is initiated. Those patients found to be at high risk should either be referred to pain

management clinics or monitored closely for opioid-related aberrant behaviors that manifest within 12 months of opioid treatment.

This DNP project could be replicated in other primary care settings. The same strategic plan used for the implementation of this project has the potential to be used in other areas. However, other practices are free to adapt this project to meet the needs of individual practices and patient populations. The overarching aim is consistent screening for opioid risks among patients suffering from chronic non-cancer pain before opioids are initiated.

This project serves as a gateway for further inquiry for developing best practices in screening patients for opioid-related risks, including but not limiting screening to the Opioid Risk Tool used in this project. The responsibility of patient safety through prevention does not depend on primary care providers alone; it does also depend on all stakeholders such as students, politicians, religious leaders, teachers, family members, opinion leaders, federal and local leaders, lawmakers, and law enforcement officers.

The responsibility to ensure that communities are safe from opioid-related morbidity and mortality. The DNP student leader recommends that policies to utilize opioid risk assessment tools, such as the Opioid Risk Tool, be implemented in all primary care settings to identify patients at potential increased risk for life-threatening aberrant behaviors. Such screening will reduce adverse patient outcomes and the family burdens related to opioid use, misuse, addiction, and related complications.

Final Summary

The loss of human life in the U.S to opioid-related problems is alarming. The National Institute of Drug Abuse (2018) reported that 115 persons lose their lives every day from an opioid overdose, sourcing from prescription pain relievers, heroin, and fentanyl. As many as

52,404 lives were lost in 2015 from an intentional or unintentional opioid overdose, more opioid-related loss than any previous year (Schiavon et al., 2018). Unchecked access to prescription opioids plays a major role in opioid abuse. There was a 30% increase in opioid overdoses in the US between July 2016 through September 2017 (Curran et al., 2018). Unchecked access to prescription opioids plays a major role in opioid abuse.

Shipton, Shipton, and Shipton (2018) argued that “it has become clear that aggressive opioid prescription practices play the biggest role in opioid-related behaviors and contribute to an epidemic of abuse of opioid prescriptions (p. 24).” Many lives could have been saved and could be saved if patients were screened using an appropriate opioid risk assessment instrument, such as the Opioid Risk Tool, before a decision is made to prescribe opioids to individuals (Webster & Webster, 2005). Secondary preventive interventions, such as screening those who may be at risk for developing an addiction or displaying opioid-related aberrant behaviors, is recommended.

This DNP project was a quality improvement initiative that was implemented at a primary care clinic in Lee County, North Carolina. The purpose of the project was to motivate the project site to screen patients experiencing chronic non-cancer pain with the Opioid Risk Tool before opioids were initiated. The implementation of the project began on September 19, 2019 and ended on November 26, 2019. The total number of patients screened were 165 out of the 378 appropriate patients seen by the clinic during the ten weeks of implementation. The goal of the project was to screen at least 20, or 48%, of appropriate patients seen each week. The practice site successfully screened a median of 18 (44%) patients per week. Albeit, the weekly screening did not meet the goal; there were some weeks when the goal was met or exceeded.

Of the 165 patients screened, 101 (61%) needed opioid therapy, and 37 (22%) were identified as medium-to-high risk patients for opioid-related aberrant behaviors. The median of the percentage of patients screened with the Opioid Risk Tool was 44%. Consecutively, weeks seven, eight, and nine were above the median of 44%. Weeks one, five, seven, eight, and nine met or exceeded the weekly goal of 48%. The minimum percentage of patients screened was 0% in week six because the clinic closed for business during the entire week, and the maximum was 86% in week five. The DNP project student leader found that the completion of the tool used less time to accomplish. The average time patients used to complete the tool was 3 minutes. Team members observed that the patients were willing to complete the tool without hesitation. Also, the implementation of the project was cost-effective. A total budget of \$837.49 was used to complete the project.

In preparing for this project, the abstracts of 117 relevant articles were reviewed, and 20 of these articles were retained for a thorough literature review for the project. The project was guided by the Health Belief Model developed by the renowned psychologists from the Public Health Service in the 1950s. The project implementation was based on the Change Model developed by Lippitt, Watson, and Westley (1958). The project site progressed through the seven stages of change defined by Lippitt et al. (1958).

Current evidence indicates that health care providers in the United States (U.S.) do not use the Opioid Risk Tool to screen patients before initiating opioid treatment for patients with chronic non-cancer pain (Webster & Webster, 2005). This DNP project addressed staff members' lack of knowledge related to opioid risk screening through the implementation of a standardized process for screening appropriate patients for opioid-related aberrant behaviors.

The DNP project student leader recommends a mandatory policy be implemented requiring primary care providers to use a validated tool, such as the Opioid Risk Tool, to screen every patient with chronic pain unrelated to cancer before opioid treatment is initiated. Screening appropriate patients with the Opioid Risk Tool before opioid treatment is started is one intervention to reduce the morbidities and mortalities related to opioid misuse. Responsibility for intentional opioid risk screening can begin with primary care providers.

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Appendix A
Opioid Risk Tool

Circle each number that applies	Female	Male
Family history of substance abuse		
Alcohol	1	3
Illegal drugs	2	3
Rx drugs	4	4
Personal history of substance abuse		
Alcohol	3	3
Illegal drugs	4	4
Rx drugs	5	5
Age between 16—45 years	1	1
History of preadolescent sexual abuse	3	0
Psychological disease		
ADD, OCD, bipolar, schizophrenia	2	2
Depression	1	1
Scoring totals		

Note: Adapted from “Predicting Aberrant Behaviors in Opioid-Treated Patients: Preliminary Validation of the Opioid Risk Tool” by L. R. Webster and R. M. Webster, 2005, *Pain Medicine*, 6, p. 432.

Appendix B

Letter of Authorization to Use the Opioid Risk Tool

[REDACTED]

Wed, Sep 19,
2018, 9:46 AM

[REDACTED]

Hi Armstrong,

Thank you for your interest in the Opioid Risk Tool (ORT). You are welcome to use the ORT; we only ask that you cite the validation article (published in Pain Medicine) on any reproductions you might make.

Since your work is pain-related, I would like to let you know about [REDACTED] book "The Painful Truth: What Chronic Pain is Really Like and Why It Matters to Each of Us." There is also a documentary of the same title airing on local PBS stations, you can watch it for free here:

<http://www.lynnwebstermd.com/painful-truth-documentary/>

To retrieve the ORT (including several translations) and the validation article, please visit: <http://www.lynnwebstermd.com/opioid-risk-tool/>

Thanks again for your interest in the ORT. Please let me know if you have any problems accessing or if you need anything else.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Appendix C

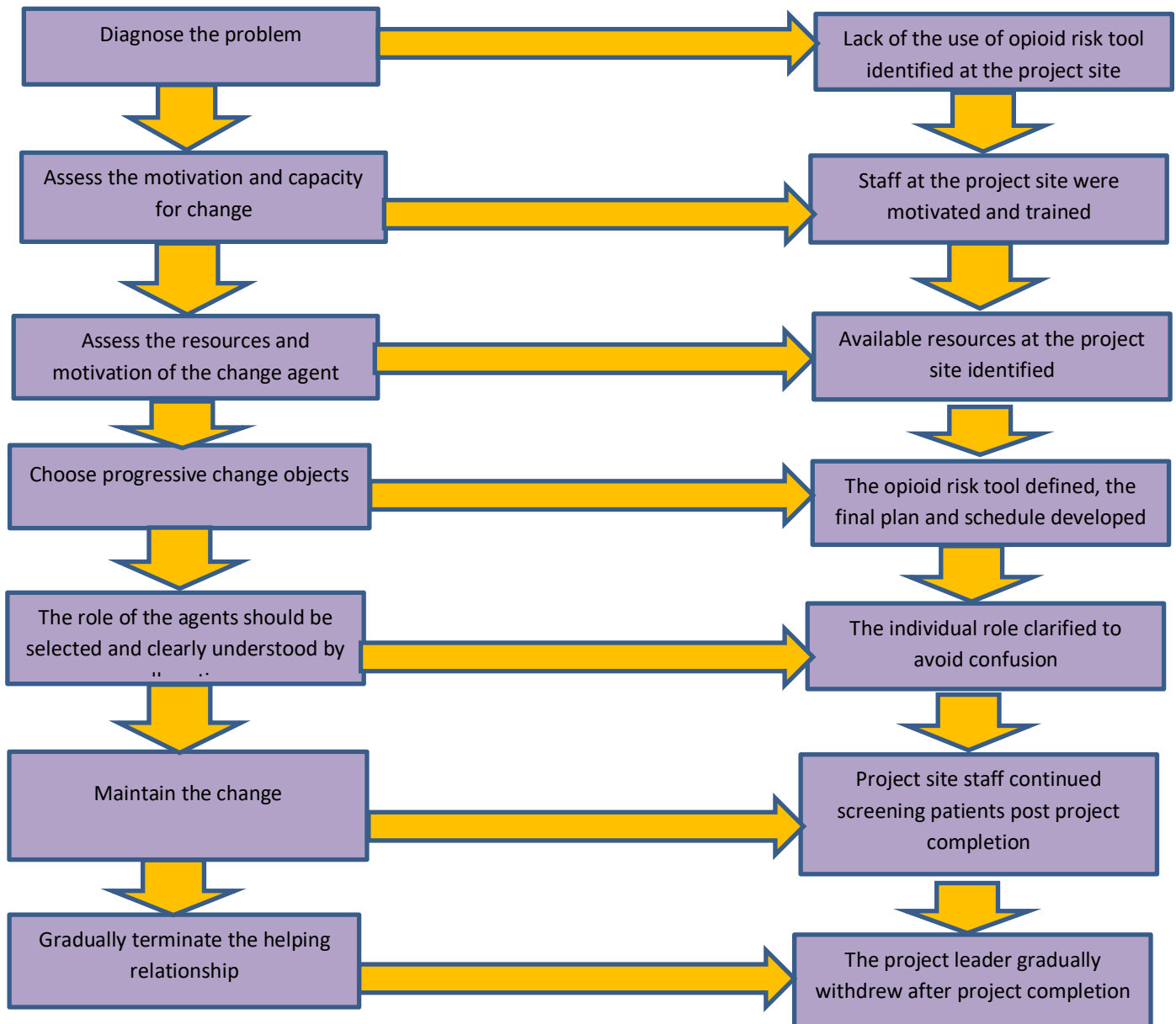


Figure 2. Change theory framework. Adapted from “Change Theory” by Lippitt, Watson, and Westley (1958).

Appendix D

Timeline for Doctor of Nursing Practice Capstone Project

Date	Task	Complete/Incomplete
August 2018-2019	Explore project topic	Complete
August 2018-present	Review the literature for topic of interest	Complete
May 2019	Define project topic	Complete
June 2019	Explore and define theoretical framework to guide project	Complete
June 2019	Establish project committee	Complete
June 2019	Establish how the project will be implemented	Complete
June 2019	Sign up for Qualtrics account and complete tutorial	Complete
July 2019	Complete abstract for Summer Practicum	Complete
July 2019	Complete final paper for Summer Practicum	Complete
August 2019	Contact survey and Opioid Risk Tool developers for permission to utilize and modify survey	Complete
August 2019	Tailor survey to meet project objectives and share with the developer of the primary survey	Complete
August 2019	Enter survey into Qualtrics	Complete
September 2019	Submit project for IRB approval	Complete
September 2019	Secure appropriate listservs for survey distribution	Complete
November 2019	Lunch survey	Complete
November 2019	Promote survey completion at dedicated clinic meetings	Complete
December 2019	Close survey	Complete
March 2020	Complete final paper for project	Complete
April 2020	Disseminate project information	Complete
May 2020	Submit manuscript to the Journal of AANP for publication	Ongoing

Appendix E

Site Letter of Project Approval



Date: November 30, 2018

To Whom It May Concern:

We at [REDACTED] have reviewed Armstrong Dadson's DNP Project, titled "Application of Opioid Risk Tool in the Management of Patients with Chronic Non-Cancer Pain in a Primary Care Setting". Mr. Armstrong Dadson has organizational support and approval to conduct his project within our institution. We understand that for Mr. Dadson to achieve completion of the DNP program, dissemination of the project will be required by the University, which will include a public presentation related to the project and a manuscript submission will be encouraged.

Our organization has deemed this project as a quality improvement initiative and institutional review board (IRB) review is not required.

Thank you [REDACTED]



Appendix F
DNP Project Budget

Category/Budget Item	Cost Calculation	Total
Travel		
Mileage cost for collection of data	10 trips x 50mi/trip x 53.5¢	\$267.50
Supplies		
Printing papers	2 reams x \$20	\$40.00
Photocopying	200 copies x \$1.7	\$340.00
Printing cartridge	1x \$89.99	\$89.99
Miscellaneous		
Token rewards for the study participants	25 x \$4	\$100.00
Grand Total		\$837.49

Appendix G

Self-Certification Verification from ECU's IRB

**Quality Improvement/Program Evaluation Self-Certification Tool****Purpose:**

Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Instructions:

Please complete the requested project information, as this document may be used for documentation that IRB review is not required. Select the appropriate answers to each question in the order they appear below. Additional questions may appear based on your answers. If you do not receive a STOP HERE message, the form may be printed as certification that the project is "not research", and does not require IRB review. The IRB will not review your responses as part of the self-certification process.

Name of Project Leader:

Armstrong Fiifi Dadson

Project Title:

Application of Opioid Risk Tool in the Management of Patients with Chronic Non-Cancer Pain the in Primary Care Setting

Brief description of Project/Goals:

The project is designed to educate primary care providers who initiate opioids to non-cancer pain patients without screening them prior to the clinical decision. This will ensure that patients with the potential to abuse and/or misuse opioids may be minimized. This intervention will solve practice problems. The outcome of the project is to see an increased number of patients who would undergo opioid risk screening at the primary care level. The

desired effect expected to see from the implementation of this project would be prevention or minimization of opioid misuse and/or abuse by high-risk patients with chronic non-cancer pain by using alternative pain control measures or therapy. As opioid-related aberrant behavior increases, leading to high incidence of opioid use disorders, implementation of the project will provide a foundation for practice scholarship and interprofessional leadership by giving clinicians an effective tool to use for screening clients prior to initiation of opioids. The data of the DNP Project will be collected using the Opioid Risk Tool (ORT) developed by Webster and Webster (2005). Two nurses at the project implementation site have agreed to collect the data by administering the ORT to all patients who present to the clinic with a complaint of chronic non-cancer pain. The patients will complete the questions on the tool themselves but they can be assisted by the two nurses if the need be.

Will the project involve testing an experimental drug, device (including medical software or assays), or biologic?

Yes **No**

Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?

Yes **No**

Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?

Yes **No**

Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g. testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?

Yes **No**

Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?

Yes **No**

Would the project occur regardless of whether individuals conducting it may benefit professionally from it?

Yes **No**

Does the project involve "no more than minimal risk" procedures (meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?

Yes No

Is the project intended to improve or evaluate the practice or process within a particular institution or a specific program, and falls under well-accepted care practices/guidelines?

Yes No

Powered by Qualtrics

Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 3/19/2019

