# BEST PRACTICE RECOMMENDATIONS FOR PRESCRIPTION OPIOID EDUCATION

By

OLIVIA ANNE MILLS

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Approved by:

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Dr. Melissa Goldsmith
College of Nursing

## Abstract

What seemed like a perfect solution in the 1990's for the treatment of pain— which was once labeled by the Joint Commission as "the fifth vital sign"—has inadvertently led to a national crisis with tragic consequences (Baker, 2017). The Joint Commission, in 1997 stated that a patient had a right to be "free of pain". This treatment mandate found a solution in opioids. Twenty years later, the "solution" has turned into a crisis of national urgency. Part of the reason for the rise in the use of opioids was the lack of education and understanding by health care professionals, including nurses, of the implications of the broad use of opioids in non-cancer settings. In response to the crisis, much thought and research has focused on changes to treatment options for pain, including better practices for opioid prescription and even alternatives. The goal of this thesis is to highlight new policies and perspectives that have evolved and will discuss the role that healthcare providers—with an emphasis on nurses—have to help solve the opioid crisis regarding the best practices for prescribing opioids for pain management and the best recommendations for health care professionals to educate patients about prescription opioids.

# CHAPTER 1

## Statement of Purpose

The purpose of this thesis is to describe the current best practice recommendations for prescribing opioids for pain management and how to educate patients on safe use. Research shows that there has historically been a misguided approach to dealing with opioid prescriptions without a full appreciation of the level of addictiveness and potentially destructive results. This lack of knowledge has led to bad treatment decisions for patients who trusted their healthcare providers. This thesis explores the lack of knowledge among health care professionals (and patients) regarding the best practices for prescribing opioids. The background and significance of this topic for the nursing profession will be discussed, which will be followed by a review of the findings of the evidence-based literature. Recent evidence and expert recommendations have led to proposed best practices for use of opioids. This thesis will address these best practices and how they can be implemented, with an emphasis on nursing care.

## Background of Issue Importance

Chronic pain is abundant in the United States where more than 11% of the adult population experiences chronic pain daily (Dowel, Haegenrish & Chou, 2016). The use of opioids for pain management is common in the healthcare system in the US—about 3-4% of the adult US population is prescribed opioid therapy for long-term use (Dowel, Haegenrish & Chou, 2016). Sadly, prescription opioids are involved in nearly half of all deaths related to opioid overdose (Centers for Disease Control and Prevention, 2017).

In the 1990's, pharmaceutical companies assured patients and the medical community that short-term use of opioids were not addictive, which led to a dramatic increase in the number of prescribed opioids due to the high success rate in managing pain with this medication

(National Institute on Drug Abuse, 2017). This was a critical element in establishing the opioid epidemic our country is facing today. About 70% of patients who are prescribed opioids for chronic pain use them correctly, that leaves 30% of patients who misuse opioids (National Institute on Drug Abuse, 2017). This national health crisis can also be linked to the increased availability of the medication; however, this is not the only factor for the increase in abuse. Research has shown that there is a significant lack of knowledge among health care providers about proper opioid use, which mirrors the knowledge lacking among patients who are prescribed opioids. The lack of sufficient discharge education for patients who have been prescribed opioids leads to unsafe handling, storage, and disposal of the drug, which can lead to accidental overdose and drug diversion among friends and family members (Kellams & Maye, 2017). Education can be a significant factor in the prevention of opioid abuse for patients who are prescribed opioid painkillers. For this education to be effective, nurses and other health care providers must have sufficient knowledge about opioids, and have a thorough understanding of the risks of opioid use and abuse.

Opioid addiction is complex and can be explained at the physiological level. Many drugs of abuse, which include opioids, act by increasing the neurotransmitter, dopamine which is part of the body's natural reward, or reinforcement, system. Opioids, prescription and non-prescription, attach to the μ-opioid receptors, which act to inhibit the receptors for the neurotransmitter, gamma-aminobutyric acid (GABA) which is responsible for stopping the release of dopamine when it is sufficient (Kreek, 2002). When opioids block the GABA receptors, this results in an increased release of dopamine, thus causing a rewarding effect (Kreek, 2002). Tolerance to opioids can build up after long-term use due to the chronic exposure of μ-opioid receptor agonists which can either decrease the availability of the opioid

receptors as well as a decrease in the number of opioid receptors on the cell surface. This causes the opioid receptors to have less of an effect, to no effect, which is considered tolerance (Kreek, 2002).

## Significance of the Problem

The topic of this thesis is highly relevant for the nursing community because nurses have a central role to play in advocating for the health and safety of their patients and the responsibility for providing discharge education. It is of great importance that nurses are aware of the most relevant research and best practices in pain care involving opioids. Nurses must remain current in their education in order to help their patients, teach the community and other healthcare professionals, and save lives.

The PICOT ("Population, Intervention, Comparison, Outcome, Timing") question used to guide the research done for this thesis is stated as follows: "what are the best recommendations for providing education to patients on prescription opioids?" The initial research led to findings that demonstrated a significant lack of knowledge in health care professionals and patients with respect to opioid use and prescription. One survey analyzed the knowledge and attitudes of registered nurses toward the use of opioids. Unfortunately, the results revealed that there is a significant lack of knowledge among nurses who are caring for patients receiving opioids painkillers (Costello, 2015). Today, nurses have more face time with patients and are the primary patient educators. Nurses must be able to teach their patients about opioids, and also understand if their patients need further education on how to use and avoid issues with opioids. Nurses also have the role of assessing patients, which includes assessing their pain and need for an intervention to manage the pain. Nurses have a choice on how to treat a patient's pain based on the nurses judgment and critical thinking as well as the doctor's order. This gives nurses the

duty of starting with least invasive intervention for pain management, to the more invasive measures when that is not effective. This puts an important task on the assessment and reassessment of pain among nurses and how they can decrease the use of prescription opioids to treat pain. One study shows that over 50% of Americans are health care illiterate, which means it is difficult for them to understand health care information and that there is an uncertainty with what to do with the healthcare education they are taught (Nurse Journal, n. d.). For maximum effectiveness, it is vital for nurses to begin teaching their patients best practices as soon as they are admitted and until they are discharged. One of the key roles of a nurse is to understand what the patient already knows and to correct information that is understood incorrectly. A patient's understanding of how to manage their health in addition to prescribed therapy and medication, can prevent side effects, readmission to the hospital and, in the case of opioids, debilitating addiction and even death. In order to offer understandable and accurate patient education, the first and most important step is for nurses to have the most up to date knowledge about the prescribed medications and treatments.

According to research, most surgical residency programs allow residents to prescribe opioids but few of these require education about the best practices prior to such prescription (Yorgitis, Bryant, Raygor, Brat, Smink & Crandall, 2017). This research shows that physicians as well as nurses do not, in general, have adequate knowledge to safely prescribe opioids and adequately educate their patients.

In 2016, 116 people died each day from opioid-related deaths and 11.5 million people misused prescription opioids (National survey on Drug Use and Health, 2016). These high statistics on opioid problems are attributed to many factors, but better education at the time of discharge is where nurses and other health care professionals can begin to combat the crisis.

## CDC Guidelines for Prescribing Opioids for Chronic Pain in the United States

In 2016, the Centers for Disease Control released 12 guidelines for prescribing opioid medication for chronic pain. Managing chronic pain has always been a difficult challenge, and the use of opioids for long-term, defined as greater than one (1) year, for chronic pain has now been deemed unsafe and can cause unintended effects. This is not to say that opioids should never be used, but using them in a very limited fashion with close monitoring and patient communication is always best. Experts at the CDC performed a systematic review of patients who used opioids for a long period of time. The study also investigated the effectiveness of opioids and risks associated with long-term use. The goal of the systematic review by the CDC explored the benefits, harms, values, preferences and costs of prescribing opioids for long-term chronic pain management. The resources used in this systematic review include observational studies and randomized clinical trials. All of the studies concluded that there is no benefit of using opioids for long-term chronic pain management (Dowell, Haegerich & Chou, 2016). The studies also found that long-term opioid use is associated with a higher incidence of opioid use disorder and overdose, including death (Dowell, Haegerich & Chou, 2016).

This systematic review established recommendations for opioid use and prescription to minimize the side effects while maximizing gain. For management of chronic pain, non-opioid therapy is recommended as the preferred treatment rather than opioid therapy. Before starting opioid therapy, clinicians should discuss the risks with the patient and potential benefits as part of establishing treatment goals. If the treatment goals are not being met, the clinician and patient should consider discontinuing the use of opioids and establishing a new treatment plan with a revised goal. Another recommendation is for doctors or nurse practitioners to prescribe and administer the lowest effective dosage of opioids to a patient, and to be very cautious about

increasing the dosage if the opioid is not effective at managing the pain at the lowest level (Dowell, Haegerich & Chou, 2016). It is recommended that health care professionals discuss the benefits and harms of long-term opioid therapy with the patient prescribed opioids at least every three months. If a patient develops an opioid use disorder, it is recommended that clinicians should prescribe medication-assisted treatment for the addiction with buprenorphine or methadone (Dowell, Haegerich & Chou, 2016).

## Arizona Opioid Prescribing Guidelines

Some of the newest evidence-based guidelines for prescribing opioids have been the result of research and published materials at the University of Arizona. The Arizona Opioid Prescribing Guidelines (2018) have been recommended to be used by health care providers for treating patients with acute and chronic pain, excluding treatment for pain related to end of life care, surgery or cancer. These guidelines are organized by acute pain, chronic pain and risk mitigation, and then there are guidelines on how to implement these recommendations, how to identify at-risk patients, and other recommendations related to prescription opioid use. These are some of the most recent guidelines that have been recommended for health care providers to use to guide their use of prescription opioids for pain management.

The first section in these guidelines are the recommendations for opioid pain management for acute pain. Opioids are not recommended for acute pain, instead non-opioids are recommended for first-line treatment for mild to moderate acute pain. Research shows that acute pain can be successfully treated with non-pharmacologic methods, and with the use of NSAIDs (non-steroidal anti-inflamatory drug) if pain medication is needed (Arizona Department of Health Service, 2018). Treating acute pain with opioids can have the unintended effect of long-term use. If opioid therapy is necessary for acute pain, the dosing should be initiated at the

lowest possible dose and prescribed for no longer than three to five days. After three days, each additional day of opioid use, causes an increase in risk for addiction to occur. If pain is still persistent after the 3-5 days, reassess the pain and treatment plan (Arizona Department of Health Service, 2018). It is also recommended to prescribe long-acting opioids for management of acute pain (Arizona Department of Health Service, 2018).

The second portion of these guidelines is targeted toward the recommendations for opioid prescription for chronic pain. According to the Arizona guidelines, there is evidence that long-term opioid use is not safe for the treatment of chronic pain. Instead, there are many studies that do not support the use of opioids for chronic pain due to the high risk of side effects and addiction associated with it (Arizona Department of Health Service, 2018). Adverse effects from opioid use can occur even during short-term therapy where physical tolerance can develop within days or weeks. The first approach to the treatment of chronic pain is recommended to be self-management. Self-management is treating pain by understanding the pain, the symptoms of the pain, and one's relationship with the pain. Self-management therapies are dependent on the type of pain and may include losing weight, cognitive behavioral therapy, physical therapy, and a multidisciplinary approach to rehabilitate the pain (Arizona Department of Health Service, 2018).

The third and final portion of these guidelines is the recommendations for risk mitigation and to minimize the adverse effects of opioid use. It is recommended to obtain documented informed consent from patients who are on long-term opioid therapy which includes the side effects, risks, and alternative options to pain management and a risk assessment tool should also be completed with patients prior to opioid therapy. It is also recommended that in patients with untreated substance use disorders, long-term opioid therapy should not be used. Health care

providers should be vigilant in identifying patients who have untreated substance use disorders to aide in treatment, resources and close monitoring. Another recommendation to decrease the adverse effects is to avoid using benzodiazepines with opioids. The FDA has a Black Box Warning, which is the most serious warning for hazard on a drug, against the simultaneous use of these two types of medications due to the similar effects of central nervous system depression and respiratory failure (Arizona Department of Health Service, 2018). This can put a patient at high risk for overdose and death. It is also suggested to educate female patients who are of reproductive age, about the risk of using opioids while pregnant due to neonatal abstinence syndrome and other adverse outcomes. Women of reproductive age with untreated substance use disorder, should be recommended to contraceptive resources to prevent unplanned pregnancy (Arizona Department of Health Service, 2018). Prescribers and nurses should educate patients on the safe use of opioids including the storage and disposal of the medication. Teaching patients about the dangers of sharing their medications with family and friends, can decrease the amount of drug diversion of prescription opioids (Arizona Department of Health Service, 2018). These guidelines also recommend the reevaluation of patients who are prescribed opioids every 90 days in a face-to-face meeting to discuss the dangers of developing opioid use disorder and progress toward the patient's goals that were discussed at the start of opioid therapy (Arizona Department of Health Service, 2018). Health care professionals should frequently assess patients who are prescribed long-term opioid therapy for opioid use disorder and offer medically assisted treatment when necessary. There should be education on naloxone use to patients and family members for patients at risk for opioid use disorder to be able to use the opioid-reversing medication if the patient overdoses. Patients on long-term opioid therapy should plan a strategy to safely stop taking opioids with their provider which may include tapering off the dose, taking

medically assisted opioid treatment, or a combination of both tapering off and taking medically assisted treatment. Stopping long-term opioid use can be dangerous and the patient must be assessed by health care professionals for the best strategy that will fit them (Arizona Department of Health Services, 2018). The goal of risk mitigation is to prevent opioid use disorder by protecting both the patient and provider. Risk mitigation should be used as a guideline in order to minimize opioid use and to promote safety and education when opioids are required. The guidelines for acute and chronic pain should also be used in order to protect both parties as well as providing a clear and structured set of recommendations that have been established with the most recent research (Arizona Department of Health Service, 2018).

## Arizona Pain and Addiction Curriculum

The Arizona Department of Health Services has also published the Arizona Pain and Addiction Curriculum (2018). This curriculum is aimed to redefine pain and addiction as a "multidimensional, interrelated public health issue that requires the transformation of care toward a whole-person interprofessional approach with a community and systems perspective" (Arizona Department of Health Services, 2018, p. 5). These guidelines are targeted at pre-graduated health care professionals who are in the midst of their studies and it is recommended that this curriculum, recommended by the Arizona Department of Health Services, is implemented into their learning so that upon graduation, these guidelines are enforced in their healthcare practices. The recommendations in this curriculum have been developed through interdisciplinary collaboration among medical doctors, nurse practitioners, physician's assistants, doctors of pain management, and other medical professionals in order to establish a link between pain and addiction (Arizona Department of Health Services, 2018).

The curriculum sets to establish a more holistic approach to pain and addiction which includes the approach to be neurobiological, clinical, psychological, cultural and cognitive. There are three main areas that these guidelines are divided into: (1) redefine pain and addiction, (2) apply an evidence-based, whole person approach to pain and addiction, and (3) integrate care with a systems approach (Arizona Department of Health Services, 2018). Redefining pain and addiction is the first area that is recommended, and is it recommended to define pain and addiction as a multidimensional problem, and to be aware of the environmental and healthcare systems that have shaped the opioid crisis in order to establish a new perspective regarding prescription opioid use (Arizona Department of Health Services, 2018). It is also recommended to focus on the correlation between pain and addiction in which they are neurobiologically connected and that they must be treated together instead of individually (Arizona Department of Health Services, 2018). The second area of recommendation is to apply an evidence-based, whole person approach which includes using a socio-psycho-biological approach to assess patients and to create a pain management plan to prevent opioid use disorder (Arizona Department of Health Services, 2018). There should also be an emphasis on empowering people to self-manage their pain and to be educated and aware about their prescribed medications and their side effects and risk for dependence. Another importance aspect of these guidelines that should be implemented into practice, is to use language that destigmatizes addiction and allows people to not feel ashamed for asking for help and guidance (Arizona Department of Health Services, 2018). This therapeutic relationship will foster trust and encourage people to ask for help when necessary. The third area of recommendation is to integrate care with a systems perspective. This includes having a team-based approach with pain management and addiction to engage the entire family within the care plan (Arizona Department of Health Services, 2018).

Evidence-based care should be used to guide the plan of care and it is recommended that pharmaceutical treatment, including opioids, should not be the first-line of pain management. This will again, empower the patient and place a more patient-focused self-management approach to their plan of care (Arizona Department of Health Services, 2018).

These guidelines are recommended to be implemented into the teaching curriculum for health education programs across many disciplines and should be enforced in their healthcare practice. The whole-person approach and link with pain and addiction, along with the specific recommendations within this curriculum should be taught as the foundation of opioid education and used daily within the healthcare field to combat the opioid crisis (Arizona Department of Health Services, 2018).

## Summary

The purpose of this thesis is to first identify the lack of knowledge among healthcare professionals with respect to prescription opioids, to explore the best practice recommendations for safe (or at least safer) opioid prescription, and then to establish the best practice recommendations on how and what to educate patients who are prescribed opioid pain medication in order to minimize the risk for opioid use disorder and prevent overdose. The Centers for Disease Control performed a systematic review that resulted in 12 recommendations for prescribing opioids for pain management. These guidelines, along with other research articles, seek to improve safety and efficacy of pain treatment while reducing the downsides of opioid prescription. This thesis analyzes the current research and recommendations, including the Arizona opioid prescribing recommendations which include guidelines on prescribing opioids, risk mitigation, how to implement these guidelines, and other strategies to prevent and treat opioid use disorder. The best practices for prescribing opioids are particularly relevant for

nurse practitioners who are able to prescribe in many states but are important for nurses to be aware of in order to educate patients and the public about the safe use and most recent recommendations.

Nurses were ranked the most trusted profession in 2017 (American Hospital Association, 2018). The trust that patients have in their nurses gives nurses the ability to offer knowledge and teaching during outpatient and inpatient encounters. Nurses must utilize this trust to help educate their patients and colleagues on the safe use of prescription opioid pain medication. The purpose of this thesis is to understand the common issues with prescribing and administering opioids, and to identify effective, evidence-based recommendations for prescribing these medications, ultimately the goal is to decrease the rates of patients misusing and becoming addicted to prescription opioids.

# CHAPTER 2

## Review of Literature

This review of literature focused on literature on provider education among nurses, nurse practitioners and other healthcare professionals, prescription recommendations for prescribers, and recommendations for registered nurses on discharge education and administration of prescription opioids. The databases used for the literature review research were PubMed, CINAHL and searches on specific nursing journals. The publication dates used in the research were between 2008-2018. The search terms used to find the research articles were "patient opioid education," "opioid epidemic," "preventing opioid abuse," "nurse opioid education," and "prescription opioid guidelines." The filters used to search the databases were "nursing journals" and "10 years or less" for the publication date. The results from this literature review will be used to guide the best practice recommendations for nurses and health care professionals for educating patients on prescription opioid pain medication. The articles chosen for the literature review were chosen based on their findings regarding lack of education of prescription opioids among healthcare professionals and patients, and how to prevent opioid use disorder through implementation of education within the clinical setting and pre-graduated healthcare professional education setting.

### Opioid Prescribing Education in Surgical Residencies

It is estimated by the American Association of Addiction Medicine that 80% of heroin users first began by using prescription opioids (Yorkgitis, Bryant, Raygor, Brat, Smink, & Crandall, 2017). Patients who are prescribed opioids must be educated and have established goals for pain management before discharge to decrease the risk for opioid use disorder. It is the duty of all health care professionals to provide education to patients, but the education must

begin with the providers themselves being adequately informed about prescription opioids. This study was done throughout the United States with the purpose to determine the use of opioid prescribing education (OPE) among surgical residency programs (Yorkgitis, 2017). Over half of surgeon prescribed opioids are prescribed by surgeons in training, therefore it is important to have implemented education in the curriculum so that the surgeons and residents have enough knowledge about the risks and effects of opioids in order to educate patients and decrease the use of prescribing opioids for pain management (Yorkgitis, 2017). Opioid prescribing education is a significant part of preventing access or limiting access of opioids to patients. This study took place in the United States where 75% of the residency programs in the study were university affiliated and the other 25% were independent residency programs (Yorkgitis, 2017). The 18-question survey was sent to all program directors in surgery across the United States and was completed by a total of 110 residency program directors that were included in this study (Yorkgitis, 2017). The design of the study was a survey that included questions about residency type, location, number of graduates per year, the perceived importance of opioid prescribing education on the care of patients, the perceived importance of OPE in surgical residencies, residency policy on prescribing opioids, use of hospital or individual registration through the Drug Enforcement Agency (DEA), presence of OPE, and preferred method of OPE (Yorkgitis, 2017).

The findings of the study are that of the 110 surgical residency programs, 104 of the programs allow residents to prescribe outpatients opioids, but very few require opioid prescribing education for their patients. For the question that was asked about the perceived value of the importance of opioid prescribing education, the program directors' average score was a 73.1 on a 0-100-point scale, where 0 is not valuable at all and 100 is very valuable. Using

the same scale, the program directors responded on average with a score of 79.3 for the value of OPE in surgical residencies (Yorkgitis, 2017). Of the 110 programs, only 29 programs require their residents to obtain their own Drug Enforcement Administration registration and only 22 programs require OPE which leaves 81 residency programs in this study who do not have a mandatory OPE component, and seven programs who were not sure if they have a mandatory OPE (Yorkgitis, 2017). After participating in the study though, 79.5% of the residency programs without current OPE established, are considering adding OPE to their curriculum. Although only 22 of these residency programs have a required OPE component in their curriculum, 104 of these programs allow the residents to prescribe opioids. This leaves 82 residency programs that allow residents to prescribe opioids without having required OPE within their education. Of the 22 residency programs that require OPE, 15 of these mandatory components only took 1 hour or less to complete, but four of the programs had a component that took between 1-3 hours to complete and three of these programs had a component that took more than 3 hours to complete (Yorkgitis, 2017). The training methods for these OPE components varied among residency programs, with the most common form of training was with case-based scenarios, then computer-based education programs (both hospital-developed and government-developed), and the third most common form of teaching was reported to be didactic lectures.

This study shows that there is a clear deficiency of OPE among resident surgeons who have significant authority in prescribing opioids. Education has become a vital step in preventing opioid use disorder. The results of this study reflect a lack of education among surgical residents, who are a key component in combating the opioid crisis from the first step of prescription.

In order to aide in the decline of the opioid crisis that the United States is facing today, education must begin at the highest point in prescription opioid, which is the prescribers. There needs to be adequate education on prescribing, and the risks and effects of opioids among prescribers so that this education can be implemented in the way that they are prescribing, which should be less dosing and less often. Prescribers have the power to limit the access to opioids and have a vital role in the prevention of furthering the opioid crisis. Nurses must compliment the education of providers and continue the teaching to patients.

**Preventing Opioid Misuse and Potential Abuse: The Nurse's Role in Patient Education**

According to Costello (2015), nurses have a significant lack of knowledge in the best practices for opioid use which impedes the ability of nurses to properly educate their patients on safe opioid use. A quantitative study was done aimed to identify the knowledge gap among nurses who care for patients prescribed opioids for pain management (Costello, 2015). The study was approved by the Institutional Review Board (IRB) and consisted of a 48-item questionnaire. The study included questions on pharmacologic management, use of adjuvant medication, addiction risk, respiratory depression risk, and proper storage and disposal of prescription opioids (Costello, 2015). The sample used for this study was 133 nurses from two large urban hospitals in Boston, Massachusetts. The questionnaire was adapted from the City of Hope's Knowledge and Attitudes Survey, which is a highly regarded and well-known instrument used to measure knowledge and attitudes on pain among health care professionals (Costello, 2015).

The findings of this study indicate that there is a significant lack of knowledge among nurses caring for patients who are receiving opioids for pain relief (Costello, 2015). The length of time being a nurse and the experience of being a nurse did not influence the performance on

the survey. This lack of knowledge among nurses, who are trained professionals, suggests an even greater lack of knowledge among patients about safe opioid use due to inadequate education in the hospital setting (Costello, 2015). Nurses must be knowledgeable about opioids and the safe use in order to adequately educate patients at discharge. Patients must be made fully aware about the safe use, storage, and disposal of opioids to avoid the need for return visits to the hospital, accidental overdose, and to avoid drug diversion among family members and friends (Costello, 2015).

Although this study has a relatively small sample size, the data is significant and should be considered among nursing populations. This data should promote the development of increased nurse education so that nurses—who are a vital role in patient education—can teach patients about the use of opioid pain medication to decrease the amount of opioid use disorders and overdoses. Educating patients about safe opioid use is a small step in educating the entire public on the risk for prescription opioid use.

**Effectiveness and Risk of Long-Term Opioid Use for Chronic Pain**

There is a direct correlation with the increase in the prescription of opioid medication with increase in opioid overdoses, abuse and other harms (Chou, Turner, Devine, Hansen, Sullivan, Blazing, Dana, Bougatsos & Deya, 2015). This systematic review analyzed 39 studies with respect to the benefit versus the risk of long-term opioid therapy used for chronic pain in older adults. For this systematic review, long term is defined as more than three months. This systematic review used literature from MEDLINE, Cochrane Center Register of Controlled Trials, CINAHL, and PsychINFO. Included are randomized trials and observational studies that evaluate the results for opioid therapy versus placebo, no opioids, or nonopioid therapy. Observational studies included in the systematic review concluded that opioid therapy used for

chronic pain is correlated with increased risk for overdose, abuse, and myocardial infarction (Chou et al., 2015). This review addresses prescription opioids in adults with chronic pain by focusing on these topics: (1) how effective long term opioid use is compared to no opioid therapy in regard to pain, function and quality of life, (2) risks including abuse, addiction, overdose, falls, motor vehicle accidents and cardiovascular events with opioids, (3) opioid dosing strategies, (4) accurate risk assessment prior to initiating opioid therapy, and (5) effectiveness of patient education for reducing the risk of negative outcomes (Chou et al., 2015).

This systematic review concluded that the greater the opioid use the greater the risk for overdose events. Long-term opioid therapy is correlated with increased risk for abuse or dependence. The overdose rate for people recently prescribed opioids was 256 per 100,000 people, while the overdose rate for patients who had not been prescribed opioids (but were using nonetheless) was 36 out of 100,000. Another factor that increased the risk for overdose was the dosing. The higher the dose correlated with higher risk for overdose (Chou et al., 2015).

**Development and Validation of the Patient Opioid Education Measure**

It is important to identify the lack of knowledge among health care professionals and prescribers but is also significant to identify the lack of knowledge of patients as well. Health care professionals prescribe medications, and an important aspect of this role is to adequately educate patients to safely use opioids for pain management. It has been demonstrated that most patients are not being well-educated when they are prescribed opioids. There is a link between a lack of knowledge among healthcare professionals, which translates into a lack of knowledge in their patients who have not been taught about the opioids they are prescribed. (Wallace, Wexler, Miser, McDougle, and Haddox, 2013. Wallace and his colleagues conducted a study to measure how much patients knew and understood about opioid use. The study was done by

developing the Patient Opioid Education Measure (POEM) (Wallace et al., 2013). The POEM is an instrument used to identify patient's knowledge and expectations regarding chronic opioid use and is written below the sixth grade reading level so that it can be easily understood by the vast majority of patients (Wallace et al., 2013). The study was comprised of two parts, a qualitative and quantitative portion. The first portion of the study is the qualitative portion, where a sample of 14 physicians and specialists from one of two clinics within Ohio State University, brainstormed, rated and sorted each items, and then grouped the items into similar clusters (Wallace et al., 2013). There were a total of 37 physicians and specialists who participated in rating and sorting the items by importance using a Likert scale. The specialists developed the final POEM which consisted of open-ended knowledge questions in six categories: medicolegal issues, prescribing policies, safe use and handling, side effects, pharmacology, and warnings (Wallace et al., 2013).

The next part of the study was the quantitative portion. The sample was determined by the following inclusion criteria: has been seen in one of the two clinics within Ohio State University within the past 6 months, is 30-65 years old, and receiving long-term opioid medication for chronic non-cancer pain (Wallace et al., 2013). There were 83 individuals who were eligible for the baseline test. Data collection for this study involved one-on-one interviews for a baseline test of the POEM (Wallace et al., 2013). A reassessment was performed seven-ten days after the initial POEM screening. The patients' answers were considered correct if they matched acceptable responses that were previously agreed upon by the expert team who developed the survey (Wallace et al., 2013). The findings of the study were that the POEM was a reliable and valid measurement tool for identifying patient's knowledge and expectations regarding chronic opioid use (Wallace et al., 2013). The Kuder-Richardson 20 was used to

measure the internal consistency of the POEM which indicated that the findings were significant (a >.7 score using this scale is desirable, the POEM is 0.73), (Wallace et al., 2013). Test-retest reliability was also present between the baseline test and the reassessment (correlation of 0.87), (Wallace et al., 2013).

The importance of this study is as a useful tool for healthcare providers to identify patients who are at risk of having limited knowledge regarding opioids. With this conclusion, healthcare providers can better target those patients who need more education as part of the prescription process. This study and development of the POEM will increase education and in turn decrease the misunderstanding in regard to opioid use which will ultimately result in safer opioid use.

## Improving Education Provided by Nurses to Emergency Department Patients Prescribed Opioid Analgesics at Discharge

The study consisted of a quality improvement project that emphasized evidence-based education provided by nurses to patients in the emergency department who were prescribed opioid analgesics and then was evaluated using a teach-back method (Waszak, Mitchell, Ren & Fennimore, 2018). The nurses provided education on three focused points—(1) how to properly take the prescribed medication according to the prescription, (2) what to avoid while taking the prescribed medication, and (3) how to safely store the medication. The patient was provided with written information that contained all of these points in a 6$^{th}$ grade reading level. Once the nurse provided the information to the patient, there were three teach-back question that the nurse uses to assess the understanding of the information. The teach-back questions include, (1) what to do if you don't get enough pain relief from the medication? (2) What to avoid when using this medication? (3) Why it is important not to share medication? Three talking points were used,

and three teach-back questions were used for simplicity in the fast emergency department setting and to make it understandable for the patients. Nurses were trained on opioid safety by using specific learning objectives (Waszak et al., 2018).

Nurses play a large part in the primary prevention of opioid abuse by educating patients from the initial admission to the hospital, until they are discharged. The hospital setting prior to discharge is the prime location to teach patients about the safe use of their medications. Opioids are responsible for the highest rate of injury death in the United States, but with continued efforts for education, these rates may be decreased (Waszak et al., 2018). In 2012, 17% of emergency department patients were prescribed opioid pain medication across the United States, which places emergency department nurses in a prime position for providing discharge teaching to patients (Waszak et al., 2018). The emergency department in Allegheny County of Pennsylvania conducted a study in 2018 on the implementation of education provided by nurses for patients who are prescribed opioids. Patients who are prescribed opioids and who do not have sufficient discharge teaching about their medication, are at an increased risk for chronic opioid use (Waszak et al., 2018). The goal of this study was to improve patient understanding of prescription opioid pain medication use to reduce the rate of opioid use disorder and accidental overdose.

In an emergency department study of 96 patients, opioid discharge education was only provided 56% of the time from physicians (Waszak et al., 2018). In another emergency department, it was found that 41 patients reported that there was no teaching on the duration or frequency of their prescription opioid medication (Waszak et al., 2018). Nurses should take advantage of the time that they spend with their patients to educate and advocate for them. It is part of the nurse's role to assess the patient for understanding and comprehension. According to

this study, evaluation of patient understanding may be done using a teach-back method (Waszak et al., 2018)

The results of this study support the use of patient education in the emergency department using a teach back method for evaluation. Nurses are also recommended to pursue further education on proper opioid safety so that they are able to educate their patients in an understandable way. Nurses should use the most recent evidence-based education to teach their patients about opioid use.

## Implementation of Opioid Overdose Education

It is no surprise that the opioid crisis has led to an increase in emergency department visits related to opioid use. Naloxone is an opioid antagonist medication that is used to reverse the effects of an opioid overdose. Proper training, education and distribution of naloxone are important steps to reduce death related to opioid overdose and hospital admissions. An interrupted time series analysis was performed in urban Massachusetts on the rates of annual opioid related overdose fatalities and of hospital admissions when there was overdose education and naloxone distribution (OEND) implemented and when there was not OEND implemented (Wally, Xuan, Hackman, Quinn, Doe-Simkins, Sorenson-Alawad, Ruiz, & Ozonoff, 2013). This study was conducted in 351 cities in Massachusetts. Throughout 2006 and 2007, two community public health organizations of Massachusetts educated the public on overdose education and naloxone distribution. There was a focus on educating community members who were non-medical public health workers, potential overdose bystanders, and opioid users. The topics of education that were included in this intervention were syringe access programs, addiction treatment, HIV education, different healthcare settings, and community support. The training was developed by the Harm Reduction Coalition as well as the Chicago Recovery Alliance. The

OEND trainers took part in a four-hour training session, knowledge-based test, and were supervised by a master trainer for two training sessions. The education emphasized some key points, such as, the risk of overdose by preventing mixing prescription and non-prescription medications, reduced tolerance after abstinence, recognizing and responding to the signs of overdose, and not to use opioids alone. The participants were also trained to use naloxone rescue kits and taught to stay with the person until medical help has arrived (Wally et al., 2013)

The data that was used for this study included the rates of fatal opioid overdoses and non-fatal opioid-associated hospitalizations divided into groups determined by zip code. To collect the baseline data and post-intervention data for this study, fatal opioid overdose statistics were determined using the electronic database of the Massachusetts Registry of Vital Records and Statistics and Massachusetts Department of Public Health and opioid related hospitalization statistics were determined using the Massachusetts emergency department database from Massachusetts Division of Health Care Finance and Policy (Wally et al., 2013). This study included a questionnaire at the time of enrollment for a naloxone kit and at the time of the request of an additional naloxone kit. The questionnaire was performed at the time of the request of a new kit because naloxone was used in an overdose and the data collected from this questionnaire helped establish if the OEND teaching was beneficial. The questionnaire included information on the number of doses of naloxone used, the zip code of the overdose, where the overdose took place, if the naloxone was successful, if emergency medical personnel was involved, and if the person stayed with the person who overdosed. All of these questions asked are based on the OEND training that was conducted at the intervention portion of the study and the data collected from the questionnaire reflects if the teaching was successful (Wally et al., 2013).

In this study, 2,912 potential bystanders were trained with OEND programs, and out of these potential bystanders who were trained, there were 327 reported rescues (Wally et al., 2013). This study implemented education to potential opioid users, and effectively improving the safety of opioid use. The results of this study suggest that when the OEND was implemented, there were significantly reduced rates of opioid overdose deaths compared to communities where OEND was not implemented. Although this study is based on both prescription and non-prescription opioid use, the results can be implemented across the inpatient and outpatient setting as well by providing adequate education to patients and family members who are prescribed opioids. This teaching can also be targeted at patients and their family members who come into the emergency department due to opioid related overdose to prevent fatal overdose.

## Conclusion

Based on the evidence in this literature review, the results indicate that there is a lack of knowledge among healthcare providers in regard to proper opioid use, which then leads to prescribing opioids without proper patient education. This lack of education of healthcare providers and, in turn, patients leads to much greater incidents of preventable misuse and overdoses of opioids. Thus, the opioid epidemic our nation is facing is correlated, in part, with the insufficient knowledge among healthcare providers, which is then translated to insufficient knowledge to patients who are prescribed opioids. Greater education of healthcare professionals is a vital step to help combat the national opioid crisis the United States is facing. Studies confirm that the medical community has been inaccurately and inadequately educated about proper opioid use. These studies conclude that there should be more education among health care providers and patients, and on the proper use, storage and disposal of opioids.

Understanding the lack of knowledge in the United States about safe opioid use should be used to guide further research and implementation of education initiatives.

The literature review shows that there is an importance of greater opioid education for healthcare professionals who interact with patients. Healthcare providers can improve their knowledge of opioids through the use of the surveys (Costello, 2015) and using the Patient Opioid Education Measure (Wallace, 2013). A clearer understanding of the lack of knowledge among healthcare professionals is a critical first step in initiating a solution that can save significant pain and suffering.

# CHAPTER 3

## Best Practice Recommendations: Guidelines for Prescription Opioid Pain Management and Education

The lack of knowledge by healthcare professionals, and inaccurate and insufficient information provided by pharmaceutical companies, led to the over-prescription of opioids. What has occurred as a result is a national tragedy resulting from deaths of unknowing patients and loss for their families. What has transpired in the face of this tragedy is the practical guidelines and curriculum to change how opioids are prescribed and monitored so that the benefits can continue to be obtained by patients suffering pain without the devastating downsides.

This thesis presents a series of best practice recommendations that are based on evidence from research studies, in combination with best practice recommendations created by experts in pain management and professional and government organizations. The result of this work is presented in the table below. In short, (a) the best practice recommendations based on the Arizona Curriculum, provides updated education for healthcare professionals on the effects of opioid use; (b) reducing the amount of the quantity prescribed; (c) reducing the dosage in most cases; (d) providing education for the patient on the dangers of opioid use; (e) closely monitoring opioid use; and (f) recommends non-opioid treatments in some instances. If implemented by healthcare providers in a consistent and methodical fashion, these practices will greatly reduce the negative impacts of opioid use.

The goal of these recommendations is to continue to provide access to pain management while reducing unintended consequences of addiction and death to unwitting patients. It will

take time for changes to take hold, but the national attention that has been given to the crisis should accelerate the adoption of many of these recommendations.

*Best Practice Recommendations for Opioid Prescription, Administration, and Education*

| Recommendation | Rationale | References | Level of Evidence |
|---|---|---|---|
| **Education for healthcare professionals on the effects of opioid use**<br><br>Implement curriculum within pre-graduated healthcare professional education<br>• Redefine pain and addiction<br>• Use a systems approach to treat pain<br>• Use evidence-based recommendation and expert opinion to establish curriculum<br>• Decrease the use of pharmacologic pain management<br>• Encourage naloxone training within curriculum | • There is a significant lack of knowledge among nurses who care for patient receiving prescription opioids for pain management<br><br>• Most surgical residency programs allow residents to prescribe opioids but very few of these programs require prior opioid prescribing education | Costello, M. (2015). Preventing Opioid Misuse and Potential Abuse: The Nurse's Role in Patient Education. *Pain Management Nursing, 16*(4), 515-519. doi: 10.1016/j.pmn.2014.09.008<br><br>Yorkgitis, B., Bryant, E., Raygor, D., Brat, G., Smink, D., & Crandall, M. (2017). Opioid Prescribing Education in Surgical Residencies: A Program Director Survey. *Journal of Surgical Education,* 1-5. doi: 10.1016/j.jsurg.2017.08.023<br><br>Arizona Department of Health Services. (2018). Arizona pain and addiction curriculum. | Level IV<br><br>Level IV<br><br>Level V |
| **Education for the Patient on the Dangers of Opioid Use**<br><br>• Assess the patient's | • Patient Opioid Education Measure (POEM) can identify patients at risk for limited | Wallace, L., Wexler, R., Miser, W., McDougle, L., & Haddox, J. (2013). Development and Validation of the Patient Opioid Education Measure. | Level IV |

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|---|---|---|---|
| knowledge<br>• Encourage naloxone training for the public | knowledge about opioid use<br>• Adequate education and understanding of proper opioid use would result in safer opioid use | *Journal of Pain Research, 6*, 663-681.<br><br>Dowell, D., Haegerich, T. & Choi, R. (2016). CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. *Centers for Disease Control and Prevention,* 315(15), 1624-1645. Doi: 10.1001/jama.2016.1464 | Level V |
| **Reduce the quantity of opioids prescribed and administered** | • Only prescribe patients with opioids for 3-5 days-worth of medication | Arizona Department of Health Services. (2018). Arizona Opioid Prescribing Guidelines. Retrieved from azhealth.gov/opioid<br><br>Dowell, D., Haegerich, T. & Choi, R. (2016). CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. *Centers for Disease Control and Prevention,* 315(15), 1624-1645. Doi: 10.1001/jama.2016.1464 | Level V<br><br>Level V |
| **Reduce the dosage of opioids prescribed and administered** | • The higher the dose of opioid prescribed is correlated with higher risk for overdose | Chou, R., Turner, J., Devine, E., Hansen, R., Sullivan, S., Blazina, I., Dana, T., Bougatsos, C., Deyo, R. (2015). The effectiveness and risk of long-term opioid therapy for chronic pain: A systemic review for a national institutes of health pathway to prevention workshop. Annals of Internal Medicine, 162(4): 276-286. Doi: doi.10.7326/M14-2559 | Level IV |

| | | | |
|---|---|---|---|
| | • Prescribe the lowest dose of opioids and highly consider the risks and benefits of increasing the dose if the initial dosage is ineffective | Dowell, D., Haegerich, T. & Choi, R. (2016). CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. *Centers for Disease Control and Prevention,* 315(15), 1624-1645. Doi: 10.1001/jama.2016.1464 | Level V |
| **Using non-opioid treatment as first-line for acute pain management- Use a least invasive to most invasive approach** | • Treating acute pain with opioids can have unintended consequences<br>• Acute pain can be successfully treated with non-opioid analgesics and nonpharmacologic methods | Arizona Department of Health Services. (2018). Arizona Opioid Prescribing Guidelines. Retrieved from azhealth.gov/opioid | Level V |
| **Identify patients who are at risk for opioid use disorder and recommend them to resources and further teaching** | • Identifying patients who are at risk for opioid use disorder should be targeted for more teaching and referral to treatment<br>• Use the Patient Opioid Education Measure (POEM) to identify patients who are at risk for opioid use disorder | Arizona Department of Health Services. (2018). Arizona Opioid Prescribing Guidelines. Retrieved from azhealth.gov/opioid | Level V |
| **Redefine pain and addiction as a neurobiological, clinical, psychological, cultural and cognitive**<br>• Use a multisystem and multidisciplinary approach | • Reduce the stigma of pain and addiction by using this approach<br>• Treat the patient with a holistic approach | Arizona Department of Health Services. (2018). Arizona pain and addiction curriculum. | Level V |

## Summary of Best Practice Recommendations

The literature that has been reviewed in this thesis highlights the best practice recommendations for safe opioid use. In response to the opioid crisis this country is in the midst of, there is ongoing efforts to conduct research in this area and create new best practice guidelines for managing pain. The recommendations in this thesis are based on evidence and expert consensus about effective ways aimed at reducing the negative impact of opioid use, and safe opioid use. These recommendations may be applied to healthcare providers and implemented in hospitals as guidelines for safe prescription and administration. There has historically been a lack of knowledge on the safe use and prescription of opioids among nurses and physicians (Costello, 2015). Education protocols should be initiated for health care professionals, including prescribers and non-prescribers so that there is consistency throughout the nation in the management of pain with opioids. Having consistency of opioid education among healthcare professionals will allow for better patient education when prescribed opioids. Research shows that patients also have a lack of understanding the extent of danger when they are prescribed opioids (Wallace, Wexler, Miser, McDougle, & Haddox, 2013). It is first necessary to identify the misunderstanding and areas that require more teaching in patients who are prescribed opioids. Using the Patient Opioid Education Measure (POEM) is a reliable measurement of patients who are at risk for having limited knowledge and understanding of opioids. This tool should be implemented by providers to understand where more education needs to be done so that patients have a better understanding of the reality and risks of opioid use. The amount of opioids prescribed should be limited to 3-5 days' worth of medication supply if necessary for the treatment of pain. Each subsequent day of opioid use after 3 days,

increases the likelihood of a dangerous, potentially life-threatening adverse effect or the likelihood of what was intended to be short-term use, to evolve into long-term opioid use (Arizona Department of Health Services, 2018). In addition to reducing the number of pills prescribed at a time, according to the CDC (2016) the dosage should be carefully considered and the lowest dosage possible should be initiated (Dowell, Haegerich, & Choi, 2016). The lowest dosage should be used when opioid therapy for pain management is deemed necessary because increased risk for overdose is directly correlated with higher prescription doses (Chou et al., 2015). Whenever opioids are considered for treatment of pain management, the initiation of opioid therapy should be carefully considered and only used if deemed necessary based on careful assessment of the patient's pain. Non-opioid therapy is shown to be effective at treating acute pain. Opioids are unnecessary for treating acute pain in most cases and have more risks associated with outcomes (Arizona Department of Health Services, 2018). Prescribers should come up with a treatment goal with patients before prescribing opioids and start with the non-opioid therapy or the lowest dose of opioid medication prescribed and to only initiate or increase opioid therapy if carefully considered and reviewed (Dowell, Haegerich, & Choi, 2016).

# CHAPTER 4

## Implementation and Evaluation

The evidence within this thesis suggests that there needs to be updated information about administering opioids for pain management added to the curriculum for pre-professional healthcare providers. This chapter will focus on a proposal for implementing prescription opioid education within the curriculum of the Bachelor of Science in Nursing (BSN) program at the University of Arizona (U of A). This content would be useful to be added into the BSN program at the University of Arizona because currently there is a lack of education on the recently published recommendations for prescription opioid administration for pre-licensure nursing students. The proposed curriculum would be implemented across all four of the semesters of the BSN program and each semester the prescription opioid teaching will align with the current content and topics that are covered. The curriculum implemented should be based off of the evidence-based practice guidelines as well as the research evidence referenced in this thesis.

The stakeholders involved in this proposed curriculum would be the students, instructors, clinical facilities partnered with the U of A, and other disciplines involved with prescribing and patient education. The resources involved in the implementation of this curriculum would be the time of the faculty, time of the students, and time of the clinical facilities that partner with the college of nursing. The faculty would need to be updated on the most recent expert opinion, evidence and practice guidelines on prescription opioids and how to decide when to administer opioids versus other interventions. This continued education would take time and resources to pull together the most recent evidence-based practices and expert opinions. The expert opinions that should be used to guide the new curriculum could include recommendations within this thesis, such as from the Centers for Disease Control and Prevention (2016), Arizona Pain and

Addiction Curriculum (2018) and Arizona Opioid Prescribing Guidelines (2018). Other expert opinions that may be referenced to add to the curriculum could be from the Joint Commission, the International Pain Society, and American Association of Critical Care Nurses. The students would have to put more time into learning the newest guidelines and expert opinion on opioid use and be able to implement the new knowledge into their clinical practice.

The framework used to implement this proposed curriculum is based off of the current BSN curriculum at the U of A, and the process currently in place to revise the curriculum. The proposed curriculum would be implemented across all four semesters with content fitting within the current BSN lesson plan. The process to implement this curriculum would begin with a faculty committee performing a gap analysis and reviewing the current curriculum for content that is related to pain and determining where content needs to be added or revised. The committee would include instructors from each of the four semesters of the BSN program. Next there would be a task force developed that would review the most recent evidence-based recommendations and establish what should be implemented into the BSN program. This committee would be a combination of BSN faculty as well as other healthcare professionals within the community with expert knowledge. Once the committee makes decisions about the content to be added to the curriculum-they would present their recommendations to the course chairs and the curriculum committee. Course chairs would then determine how to add the recommendations to their courses in the didactic and clinical components of each course.

Some of the barriers of this proposed curriculum would be deciding on which guidelines to use as the framework for the implemented teaching. There may be multiple guidelines referenced to add into the curriculum which would need to be decided on also. There may also be a need for education among the faculty regarding the most recent opioid recommendations, that

requires faculty to update their own education, attitudes and skills related to administering prescription opioids. Other barriers would be addressing the stigma behind opioid use disorder and changing the viewpoints of nursing students. These barriers would challenge the implementation process but the benefit of adding the updated recommendations to the curriculum outweigh the barriers. Following is a summary of proposed curricular changes.

**First Semester**

In the first semester of the BSN program, some of the courses included are pathophysiology and pharmacology. Theoretically, there should be teaching implemented in both of these classes with education on the pathophysiology of addiction, tolerance, and how opioids act within the body. In pharmacology, there should be teaching on the different strengths of opioids and other non-opioid medications that can treat pain as well. In the first semester, there is also content on how to perform a thorough head-to-toe assessment of patients, which includes assessing for pain. The pain assessment is taught on a 0-10 pain scale which allows for patients to say they are in no pain at all by choosing zero. This pain scale can be a useful tool to assess for pain but must be used consistently for it to be accurate. the proposed curriculum would be to encourage the use of the 0-10 pain scale on a consistent and regular basis in order to assess for pain. The next step of the pain assessment is to perform an intervention if necessary. The proposed teaching would be to educate the nursing students on how to choose an intervention by starting with least invasive, such as integrative therapy which may include applying cold or warm, repositioning, mindfulness and distraction, then progressing to the more invasive interventions such as non opioid medications and opioid medications. There should be teaching on how to decide which intervention to perform on a patient and that opioid therapy is not first-line treatment for pain. Along with the proposed teaching on how to choose an

intervention, there will be a patient simulation in the Steele Innovative Learning Center Lab (SILC lab). This simulation would include a head-to-toe assessment on a patient with an acute pain score greater than 0 on the 0-10 pain scale. The nursing student would have an order for different interventions such as an ice pack, acetaminophen, and an opioid pain medication. The student would decide which intervention is the most appropriate and least invasive for the patient situation. The nursing student would also be expected to provide teaching to the patient on whichever intervention is performed and evaluation of the effectiveness of the intervention.

**Second Semester**

In the second semester, the BSN students are taught how to administer medications. In this semester, the proposed curriculum would be a more in-depth pain assessment including a reassessment of the pain. It should be reiterated on how to assess for pain using the same 0-10 pain scale as in first semester, then how to properly administer pain medication, and then how to reassess for pain once the medication has taken effect. In this semester, there are some lessons on integrative therapy which should be expanded even more to encourage the use of integrative therapy instead of, or in addition to pharmacologic treatment. There should also be lessons implemented for the nursing students to teach patients about self-management of pain and integrative therapies that may be used to manage chronic pain. Similar to the proposed curriculum for first semester, there would also be a patient simulation in the SILC lab that encompasses the teaching based on the second semester focusing on assessment, reassessment and teaching. The patient simulation would be a patient with chronic pain, such as cancer pain, and how the nursing student would assess and treat the pain in the simulation as well as how the student would reassess the effectiveness of the intervention, then the student would be expected to educate the patient on how to manage chronic pain through integrative therapies and self-

management techniques that can be used indefinitely. The student may have the option to choose between opioid or non-opioid drip, oral medication, or integrative therapy, and would be tested on the correct administration based on the choice of intervention. This simulation is appropriate for this semester because it tests the student's skill competency of administering medication as well as tests the student's judgement and critical thinking skills regarding the choice of intervention and education.

**Third Semester**

After completing the first two semesters of the BSN program, the nursing students are becoming more familiar with skills and more comfortable with patient care, so the proposed curriculum for this semester would be emphasized on discharge teaching. The nursing student would be required to provide adequate discharge teaching that includes the evidence-based recommendations on opioid education for patients included in this thesis. Students should be tested on their own knowledge on opioids, such as the dangers and side effects of the medication, proper storage, and proper disposal. The student should be required to be competent on knowledge about opioids so that they are adequately prepared to educate patients and family members.

This semester, there should be a patient simulation in the SILC lab with a patient who has chronic back pain who has been on a prescription opioid therapy long term and has developed dependence. The nursing student should be expected to treat this situation by first starting with using an evidence-based tool, such as the POEM (Wallace et al., 2013), to screen at-risk patients for lack of knowledge regarding prescription opioids. The student would then take the findings from the screening tool and decide how to educate the patient with recommendations for resources to treat opioid use disorder and to educate the patient on the dangers of using long term

opioids. The student would also be required to teach the patient about integrative therapies and self-management of chronic pain. This simulation would pull together evidence-based practice recommendations on how to screen at-risk patients for lack of education as well as implement the expert ~~opinion~~ practice recommendations on what to include in the discharge teaching for patients on prescription opioids.

**Fourth Semester**

In the fourth and final semester of the BSN program, ~~the~~ nursing students are expected to be competent in all patient care skills and focus more on leadership, management, and delegation. This semester, the nursing students are taught how to prioritize patient care tasks and how to delegate patient care to other to other members of the health care team. The proposed content would be to implement teaching on how to prioritize patient's needs including assessing pain and passing pain medications. There should also be teaching implemented on caring for patients with opioid use disorder and how to decrease the stigmatization that some nurses may have toward these patients. Decreasing the stigma behind opioid use disorder is another aspect of the opioid crisis that nurses must be aware of in order to treat patients equally and kindly without being judgmental so that the patients will be able to receive the care they have equal rights too. Nurses must provide equal and just care so that they are able to assess their patients adequately and recommend resources and help for patients who battle opioid use disorder.

This semester would be appropriate to have a SILC lab simulation competency exam based on patient care prioritization, delegation and reducing stigmatization. At this level where students are starting to transition to the practice setting, it would be appropriate to have a patient simulation where there are multiple patients with different pain levels and different diagnosis and the nursing student would be expected to prioritize care and delegate tasks. The student would

also provide discharge education and would be evaluated on the competency of the student's clinical judgement, ability to prioritize care, communicate effectively, and delegate appropriately. There would be delegation, education, and provider communication built in which would be more similar to the clinical setting.

## Summary

The purpose of this thesis was to establish best-practice guidelines for implementing education on updated guidelines on pain management and opioid administration within the pre-professional nursing program which will in turn improve patient care and education regarding prescription opioid use. This thesis provides guidelines and recommendations from evidence-based articles and expert opinion that focus on the primary prevention of opioid use disorder in attempts to aid in combatting the opioid crisis. The current literature suggests that there needs to be more education implemented within the curriculum for healthcare professionals and this thesis focuses on implementing current evidence-based recommendations within the Bachelors of Science in Nursing Program at the University of Arizona. The proposed curriculum within chapter four of this thesis, pulls together references from evidence-based articles and practice guidelines developed by experts in order to educate nursing students on the safest and most current recommendations for prescription opioids and how to prescribe and administer in a way that is suggested to decrease the occurrence of opioid use disorder. Roles of a registered nurse include assessing, treating, advocating for, and educating patients. This puts registered nurses in a position to decide how to treat pain, and potentially when and how much of a pain medication they will administer (based on the doctor's order), and how they will provide education to their patient about the intervention they choose to implement. Nursing students should be educated on

the recommendations and resources addressed in this thesis within the BSN Nursing program and apply this content to their clinical practice, and continue to stay aware of the most current recommendations so that they can educate their patients and the public on pain management and the safe and appropriate use of opioid pain medication.

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