# RESPONSIBLE OPIOID STEWARDSHIP:
# A NURSE DRIVEN PREOPERATIVE EDUCATION INTERVENTION

by

DeShuna Y. Dickens

A doctoral scholarly project submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Doctor of Nursing Practice

Charlotte

2019

Approved by:

_____
Dr. Susan Lynch

_____
Dr. Katie Shue-McGuffin

_____
Dr. Daniel L. Watson

_____
Dr. Cheryl Waites Spellman

# ABSTRACT

DESHUNA YVETTE DICKENS. Responsible opioid stewardship: A nurse driven preoperative pain management education intervention. (Under the direction of DR. SUSAN LYNCH)

BACKGROUND: Opioid use following surgery is one factor that has contributed to the national epidemic of opioid abuse. This abuse has led to increased morbidity and mortality rates and a negative financial burden to the healthcare system. It is imperative that healthcare systems and clinicians support efforts to fight against the epidemic of opioid abuse and opioid surplus in the community by providing timely evidenced based pain management education. Nurses are in a unique position to help support this effort. PURPOSE: Preoperative education targeting pain management and opioid safety in prostate cancer patients is an area that has not been extensively explored in the literature. It is the purpose of this feasibility study to examine the effects of preoperative opioid education on improving patient's knowledge, their pain experience following prostatectomy, and understand their opioid use and pain management post discharge. METHODOLOGY: A convenience sample of 14 adult male patients undergoing elective surgery for prostate cancer were recruited to participate in a quasi-experimental designed educational intervention. Participants in the intervention cohort received one-on-one structured pain management and opioid safety education with a nurse navigator in addition to the hospital early recovery after surgery (ERAS) protocol while those in the control group received standard care preoperative pain management education by the provider with written pain management and opioid safety information only. RESULTS: Findings did not elicit any significant differences between groups on any primary or secondary outcome measures including knowledge, postoperative pain, or opioid

utilization as a result of the structured education. However, a small significant finding of improved median education was found within the intervention group only.

CONCLUSION: Additional research is needed to explore the most effective ways to affect change surrounding opioid safety and pain management in the acute surgical setting are needed. Additionally, research into the experiences and needs of prostate cancer patients continues to need to be explored.

Keywords: preoperative education; prostate cancer; prostatectomy; nurse navigator; nursing research; opioid safety; acute pain management; surgical outcomes; postoperative pain control; surgical oncology; early recovery after surgery

# DEDICATION

To my uncle “the doctor”, my aunt “TeTe”, friends, family, patients who I’ve lost to this horrible disease called cancer. To the many “survivors” I have the pleasure to support in your cancer journey. May I honor you all as I grow in knowledge and wisdom so that I can continue to help, support, and advocate for you and those whose voice is not heard, message not understood, or cannot speak for themselves. I dedicate this to you.

# ACKNOWLEDGEMENTS

I would like to acknowledge and thank Dr. Susan Lynch and Dr. Katie McGuffin for your support, guidance, feedback and especially unwavering patience with me worked to produce this final scholarly product. I would also like to acknowledge Dr. Gary Frenette and Dr. Jackie Rhoades for your initial support and willingness to serve on my committee when I started this doctoral journey. To Dr. Daniel Watson and Dr. Samuel Peretsman, thank you both for sharing your knowledge and always supporting me in my role as nurse navigator as I support your practice and your patients. To my fellow cohort DNP classmates who already completed this journey, thank you for continuing to check on me, encourage me, and remind me "it's not when you finish but that you finish. I appreciate you. Lastly, I would like to acknowledge all the patients who agreed to participate in this scholarly project. Your willingness to share of your time as you face cancer treatments, many questions, and uncertainty does not go unappreciated. Thank you.

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# LIST OF ABBREVIATIONS

| | |
|---|---|
| ACS | American College of Surgeons |
| AHRQ | Agency for Healthcare Research and Quality |
| APS | American Pain Society |
| APS-POQ-R | American Pain Society Patient Outcome Questionnaire (Revised) |
| AUA | American Urological Association |
| CINAHL | Cumulative Index of Nursing and Allied Health Literature |
| ERAS | Early Recovery After Surgery |
| GU | Genitourinary |
| IOM | Institute of Medicine |
| NIDA | National Institute on Drug Abuse |
| ONS | Oncology Nursing Society |
| PACU | Post-Anesthesia Care Unit |
| PDMP | Prescription Drug Monitoring Program |
| PMC | Presbyterian Medical Center |
| RALP | Robotic Assisted Laparoscopic Prostatectomy |
| RCT | Random Controlled Trial |
| SDM | Shared Decision-Making Model |
| USOC | Urology Specialists of Charlotte |

# CHAPTER 1: INTRODUCTION

The United States is currently experiencing an opioid epidemic of immense proportion. According to the Centers for Disease Control (CDC), in the United States, between 1999 and 2017, approximately 218,000 people died as a result of overdose related to prescription opioid abuse. Additionally, overdose deaths from inappropriate use of prescription opioids were found to be five times higher in 2016 than in 1999 (CDC, 2019). The CDC further estimates that there are approximately 58 opioid prescriptions written for every 100 Americans. This opioid epidemic is also costly to the US economy with the annual excess costs to commercial payers ranging anywhere from $10,000 – 20,000 per patient (Kirson et al., 2017). The annual economic impact of opioid misuse, abuse, and overdose has been estimated to cost the United States approximately $78 billion dollars (Habermann, 2018; Pacira Pharmaceuticals Inc., 2017).

The opioid crisis is not only a national problem but locally in North Carolina, opioid related overdose deaths have steadily risen since 1999. In 2017, opioid related overdose deaths occurred at a rate of 19.8 deaths per 100,000 compared to 14.6 deaths per 100,000 nationally (National Institute on Drug Abuse [NIDA], 2019). As a result of the opioid crisis the North Carolina Department of Health and Human Services along with several other invested stakeholders from various organizations throughout North Carolina came together in partnership to create the Opioid and Prescription Drug Use Abuse Advisory Committee (OPDAAC) to implement an Opioid Action Plan. Within this action plan are several strategies and goals the committee hopes to achieve in order to reduce the number of expected opioid-related deaths by 20% by 2021. Specifically the action plan seeks to reduce addiction and overdose deaths by targeting efforts on 7 focus

areas that include: creating a coordinated infrastructure; reducing prescription opioid surplus; reducing prescription drug diversion and illicit drug flow; strengthening community prevention and awareness; improving naloxone availability and linking overdose survivors to care; expanding treatment and recovery systems of care; and evaluating the impact of interventions and revising focus strategies as needed (North Carolina Department of Health and Human Services [NCDHHS], 2017).

Illicit opioids, such as heroin, are on the rise and are abused almost as frequently as prescription drugs; studies suggest that patients who are exposed to opioids in the post-surgical setting are at an increased risk for opioid dependence, potential misuse, future illicit drug use, and diversion (Bartels, Fernandez-Bustamante, McWilliams, Hopfer, & Mikulich-Gilbertson, 2018; Habermann, 2018; Macintyre, Huxtable, Flint, & Dobbin, 2014). Studies further suggest that new incidence of persistent opioid use is as high as 6-10% following surgery, which is more common than some post-operative complications (Carroll et al., 2012; Hah, Bateman, Ratliff, Curtin, & Sun, 2017; Habermann, 2018; Hacker et al., 2018).

## 1.1 Background

In recent years there has been a movement towards a quality improvement pathway called Enhanced Recovery After Surgery (ERAS) that has some promise in affecting opioid use in surgical practice. This pathway is an anesthesia led initiative that aims to improve patient outcomes through reducing hospital length of stay, decreasing post-surgical complications, and improving patient satisfaction (Morton, Benonis, & Duggins, 2018). ERAS pathways also serve as a perioperative surgical home that focuses on reducing practice variability by utilizing multimodal analgesia and operating on the

idea of moving patients towards an opioid free pain regimen (Brandal et al., 2017). In a study by Chapman et al. (2016) researchers compared ERAS patients undergoing minimally invasive surgeries to those who did not enter an ERAS pathway and found that ERAS patients opioid use decreased by 30%, ERAS patients utilized more non-steroidal anti-inflammatory drugs, and they also had lower post-operative mean pain scores when compared to non-ERAS patients.

At a local level, several surgeons within Novant's Presbyterian Medical Center (PMC) are moving towards using ERAS pathways to help improve patient and surgical outcomes. Within the last few years one of the oncology urology surgeons from the Urology Specialists of Charlotte (USOC) who performs a number of urologic surgeries within the Novant system has joined these efforts through the implementation of the ERAS pathway with patients undergoing robotic assisted laparoscopic prostatectomy (RALP) for treatment of prostate cancer. RALP is a minimally invasive surgery that is suggested to reduce hospital stay, increase patient satisfaction, and reduce post-operative pain (Batley, Prasad, Vasdev, & Mohan-S, 2015). While this surgical option is usually well tolerated and prostate cancer patients choosing this option are not typically in pain prior to treatment, the patients' pain experience immediately following surgery is not well documented in the literature and patient's preoperative education needs are not well studied (Juhas-Davis, 2015; Zampini et al., 2018). Without a good understanding of patients' post-operative pain needs following prostatectomy it is difficult to assume how much pain medication patients will need or their post-operative experiences with pain following discharge.

A study that evaluated the impact of ERAS and its opioid-free philosophy on opioid prescriptive practices at discharge found that despite being a successful intervention for reducing the need for opioids intra-operatively and improving the use of multimodal analgesia, ERAS failed to have any impact on post-surgical discharge opioid prescription practice (Brandal et al., 2017). Reasons indicated for this failure of ERAS to have an impact on the number of prescriptions patients were discharged include physician behavior and concern that patient's condition would change post-discharge and therefore all patients were sent home with an opioid prescription (Brandal et al., 2017).

One of the key elements of ERAS is utilizing opioid free and multimodal analgesia for patient's pain management. This pain control regimen includes reducing the number of patients who go home with opioid prescriptions at discharge. While there has been demonstrated success with reducing the number of opioid prescriptions written at discharge among other surgeons participating in ERAS at Novant through interventions targeted towards the physicians prescribing practices additional efforts are needed to improve opioid prescription practices among urology surgeries specifically those ERAS designated patients following prostatectomy (V. Morton, personal communication, September 6, 2018).

Chen, Marcantonio, & Tornetta III (2018) conducted a retrospective study of patient's 24-hour pre-discharge inpatient opioid utilization to determine if there was a correlation between whether a patient was discharged with a prescription for an opioid medication and the amounts of opioids prescribed. Findings from this study suggested that opioids are often prescribed in a manner that is not specific to patients after surgery as well as opioid overprescribing happens quite often across all surgical specialties.

Recent informal chart audits conducted by the Novant Health ERAS director revealed evidence that suggests that urology surgeons and providers at Novant send 100% of ERAS prostatectomy patients home with an opioid prescription supporting the idea in the literature that physicians behavior greatly impact patient's receipt of opioid prescriptions at discharge (V. Morton, personal communication, October 24, 2018). In 2015, prior to ERAS chart audits noted that 100% of prostatectomy patients received an opioid intra-surgery, while in the PACU, on the unit, and at discharge. Since implementation of ERAS almost a quarter of patients were noted to have not required any opioid medications while in the PACU and approximately half of patients did not require any opioid medications while on the unit in 2017 and 2018 respectively. Despite the reduction in opioid consumption among prostatectomy patients post-surgery, apart from one patient, nearly 100% of prostatectomy patients have been discharged with an opioid prescription amongst ERAS prostatectomy patients since 2017. As of 2018, the ERAS director started utilizing the North Carolina's prescription drug monitoring program (PDMP) to track if those patients who were discharged with an opioid prescription actually filled their prescription and found that only 27% of those who were discharged with an opioid prescription filled the prescription suggesting that ERAS prostatectomy patients did not have need for narcotic opioid pain medication following discharge.

This practice of sending every patient home with an opioid prescription is important because it has been suggested in a study evaluating opioid consumption practices following urology surgeries that as high as 70% of urologic patients had unused opioids post their initial prescription. Additionally, of these patients only 56% had used any of the opioid that they had filled and 3-months following the initial prescription a

total of 1,200 pills had been unused presenting a very real source of opioid in the community for diversion (Hacker et al. (2018). Similarly, another study revealed that in urologic populations opiate keeping (saving unused prescription drugs) is very common among patients and a contributing factor is lack of patient awareness and education on the proper way to dispose of unused opioid medications (Bates, Laciak, Southwick, & Bishoff, 2011).

According to some members of the urology team lack of e-prescribing access and concern that patient's will have pain medication needs post-discharge are indicated as reasons for providing prostatectomy patients with opioid prescriptions at discharge and the primary motivation for failure to change prescriptive practices (D. Watson, personal communication, February 25, 2019). Current physician prescriptive patterns, patient's lack of education and awareness regarding opiate keeping and proper opiate disposal as revealed by the above studies, and the need for better national and local opioid stewardship among surgical patients present an opportunity for a targeted education intervention in the urological surgical setting.

Several organizations such as the CDC, American College of Surgeons (ACS), American Urological Association (AUA), Institute of Medicine (IOM), and others have proposed calls to action for responsible opioid stewardship among surgeons and primary care physicians who are two of the largest specialists behind palliative care responsible for the current status of opioid prescribing practices. Although this is an important step to take in the fight to improve the epidemic, it will take a collaborative team-based approach to improve opioid safety education and pain management strategies targeting public awareness not only at the system and clinician level but also the community and patient

level to lead to significant practice change and improved public health outcomes (Bedard, Purden, Sauve-Larose, Certosini, & Schein, 2006; McEwen & Prakken, 2018).

## 1.2 Problem Statement

Opioid use following surgery is one factor that has contributed to the national epidemic of opioid abuse. This abuse has led to increased morbidity and mortality rates and a negative financial burden to the healthcare system. In North Carolina, the epidemic is an even greater issue than it is nationally. It is therefore imperative that healthcare systems and clinicians support efforts to fight against the epidemic of opioid abuse and provide timely evidenced based pain management education, instructions on safe opioid use, and education on the importance of appropriate disposal of unused drugs to all patients to reduce some of the factors contributing to opioid-related deaths and abuse.

## 1.3 Purpose of the Project

Preoperative education targeting pain management and opioid safety in prostate cancer patients is an area that has not been extensively explored in the literature. In fact, there are few published studies evaluating the effectiveness of preoperative education on postoperative outcomes, such as reducing opioid utilization, anxiety, post-op pain management, patient satisfaction, etc. in the acute surgical oncology setting (Best et al., 2018; Bisbey et al., 2017; Devine, 2003; Gadler, Crist, Brandstein, & Schneider, 2016; O'Connor, Coates, & O'Neill, 2014). Motivated by this lack of knowledge of patient's pain and surgical expectations prior to surgery, experiences with pain and opioid consumption post-prostatectomy, and the current opioid crisis it is therefore the purpose of this study to examine the feasibility of providing education on opioid safety and pain management prior to prostatectomy surgery on helping to improve prostate cancer

patient's opioid safety and pain knowledge, negative pain experience, and post-surgical pain control following surgery. The study was designed to explore differences in outcomes between ERAS prostatectomy patients who already receive additional preoperative education versus those prostatectomy patients who receive standard of care. The underlying hypothesis is that those patients who receive the nurse driven structured education will have better pain related outcomes when compared to the control.

## 1.4 Significance

The implications of this scholarly project will be measured by the positive impact nurse led preoperative education has on patient's pain experience and ability to manage their pain post-prostatectomy. This study will add to the literature on understanding prostate cancer patients education needs prior to elective surgery as well as their post-prostatectomy experience with pain following surgery and if preoperative knowledge of how to manage their pain and understanding treatment options will affect their decisions on selection of pain control options and proper disposal of opioids after discharge.

## 1.5 Clinical Question

The clinical question that this study intends to answer is: Do prostate cancer patients scheduled for prostatectomy (P) who participate in a structured nurse delivered preoperative education session on pain management and opioid safety (I) self-report improved knowledge as well as report more favorable experiences in distress and pain reports (O) when compared to patients who receive usual preoperative education (C)?

## 1.6 Project Objectives

The primary aim of this scholarly project is to test the feasibility of providing nurse driven preoperative opioid and pain management education to improve patients'

pain management knowledge and post-operative pain experience. Additional aims of this project are to evaluate if patients who participate in this intervention are influenced in their receipt of an opioid prescription or in their utilization of opioids following prostatectomy surgery confirmed by their self-reported activities following discharge. Overall projects objectives are to:

1. Improve patient's knowledge surrounding safe and effective pain management.
2. Encourage patient's engagement in the decision-making process for their pain management.
3. Understand prostatectomy patient's experience with pain in the pre-and post-operative setting.

# CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

## 2.1 Search Strategy

A search of the literature for evidence to answer the clinical question was conducted utilizing CINAHL, Cochrane Review, PubMed, and Google (Gray Literature). Manual searches were also conducted using the references of relevant papers found. Search terms included: pain education; preoperative education; preoperative counseling; opioid; opioid abuse; opioid stewardship; opioid education; opioid reduction; prostate cancer; prostatectomy; evidence based. Initial searches revealed over two-hundred articles. Articles were read for applicability to the study's clinical question and project outcomes. The articles reported here are divided into the following themes: national opioid reduction strategies, preoperative pain education in prostate cancer patients; benefits of preoperative pain education in other surgical patients, and nurse's role in preoperative education and patient outcomes.

## 2.2 National Opioid Reduction Strategies

On a national level several organizations have provided recommendations for improving the opioid epidemic including developing and testing new non-pharmacological therapies, identifying new strategies to improving prescribing practices, encouraging utilization of and implementation of PMDPs at the local level, enhancing education to future healthcare providers within educational curriculums, and implementing guidelines for the care of patients with pain (American College of Surgeons [ACS], 2017; Perrone, Weiner, & Nelson, 2019; National Institute on Drug Abuse [NIDA], 2015). One strategy for combatting the opioid epidemic recommended by the IOM include reducing demand for opioids through patient and public education.

Specifically, a report from the IOM reviewing pain management and the opioid epidemic recommended that targeted patient education programs are an important strategy for improving public education, however, gaps in the literature of effectiveness of these types of interventions in reducing the burden and risks from harms from prescription opioids is scarce (National Academies of Sciences, Engineering, and Medicine, 2017). In addition, clinical practice guidelines developed by the American Pain Society (APS) offered as the first recommendation that pre and peri operative pain management and planning utilizing individualized and tailored education interventions as an important strategy for improving post-operative opioid consumption, preoperative anxiety, and fewer requests for sedative medications (Chou et al., 2016). APS gave preoperative education and pain management a strong recommendation as best practice despite the suggestion that the evidence is of low quality.

### 2.3 Preoperative Pain Education in Prostate Cancer Patients

Studies conducted in prostate cancer patients evaluating preoperative education and post-operative pain levels reported that patients who participated in group preoperative education were more likely to report lower post-operative pain levels, increased confidence, and decreased preoperative anxiety therefore feeling more prepared for surgery than those who did not participate (Bisbey et al., 2017; Zampini et al., 2018). While not solely focused on preoperative pain education, Gadler, Crist, Brandstein, and Schneider (2016) demonstrated several benefits in preoperative education with prostate cancer patients utilizing educational videos. The benefits included improved knowledge retention, reductions in patient anxiety, improved patient satisfaction and increased provider benefits such as reductions in the amount of time providers had to spend with

patients answering questions in the post-operative setting. The authors further suggested that the time spent in preoperative education with patients repeating key post-surgical expectations helped patient's anxiety levels and knowledge retention (Gadler et al., 2016).

### 2.4 Benefits of Preoperative Pain Education in Other Surgical Patients

Several other studies including a systematic review focused on other disease conditions such as orthopedics, cardiac surgery, abdominal surgeries, and carpal tunnels disease also suggested that preoperative education improved patient satisfaction with pain management, improved anxiety, and increased knowledge (Best et al., 2018; Lemay, Lewis, Singh, & Franklin, 2017; Ramesh et al., 2017; Ronco, Iona, Fabbro, Bulfone, & Palese, 2012). In a meta-analysis of randomized controlled trials (RCTs) in orthopedic surgeries, researchers studied the effectiveness of psychosocial interventions such as patient education for its effect on reducing post-operative pain, analgesic utilization, pre- and post-operative anxiety, quality of life and surgical recovery. From their meta-analysis, the researchers found multiple studies that suggested patient education was effective in reducing postoperative pain and pre/post-operative anxiety (Szeverenyi et al., 2018).

Preoperative counseling has not only been found to be effective in reducing postoperative pain, but studies have revealed that it can be an effective intervention for reducing the number of opioids patients consume following surgery (Alter & Ilyas, 2017; Holman, Stoddard, Horwitz, & Higgins, 2014). In a study by Alter et al. (2017) researchers studied the effectiveness of surgeons providing preoperative opioid counseling to patients prior to hand surgeries and found patients consumed significantly

fewer opioid pills in the immediate postoperative period than those patients who did not receive any counseling.

## 2.5 Nurses Role in Preoperative Education and Patient Outcomes

Nurses can play a key role in leading educational efforts in preparing surgical patients on pain expectations, providing guidance on prescriptions medications and risks and benefits on drugs and ultimately impacting patient outcomes (Manworren & Gilson, 2015). Effective communication skills with patients surrounding goals of pain management following surgery are not only a vital skill for clinicians in providing quality oncology and surgical care but has been suggested to improve patient care experience and outcomes by providing care that is consistent with their wishes and reducing healthcare costs (Costello & Thompson, 2015). In a literature review appraising the evidence on the impact of nurses on patients with chronic and acute pain, Courtenay & Carey (2008) also suggested that not only can nurses improve knowledge and patients pain control but the use of nurses in pain management roles may also increase patients self- efficacy and confidence in participating with the healthcare teams in their treatment plan.

Historically nurses have always had an important role in providing education to patients and families along the health and illness continuum. Therefore, when considering strategies to combat the opioid epidemic a nurse driven intervention would be appropriate. One approach found useful in cancer patients is the use of nurse navigators. In a position statement by the Oncology Nursing Society (ONS, 2018), the role of a oncology nurse navigator is defined as one who “provides education and resources to facilitate informed decision making and timely access to quality health and psychosocial care throughout all phases of the cancer continuum” (p. 4). In addition to patient

education nurse navigators are also qualified to participate in patient assessments and monitoring of interventions and outcomes and documenting these baseline assessments (Silver, 2015).

Utilization of nurse navigators has been found to be an important role in prehabilitation of cancer patients. Silver (2015) defined prehabilitation as "first part of the cancer rehabilitation care continuum and, by definition, occurs between the time of diagnosis and the start of acute oncology treatment" (p. 14). According to Silver (2015), prehabilitation interventions can possibly improve both patient's physical and psychological outcomes by assisting them with functioning at a higher level throughout the entire continuum of their cancer treatment. Core competencies of the oncology nurse navigator also suggests that they are well suited to "facilitate shared decision making and engage patients in their care by forming trusting relationships and addressing patients' communication and health literacy needs" (Oncology Nursing Society [ONS], 2017, p. 7).

## 2.6 Literature Review Summary and Gaps in Literature

Overall synthesis of the literature corroborates the idea that preoperative education can have a positive impact on several patient outcomes including satisfaction with care, pain management, improving anxiety, and improving quality related patient outcomes. Despite this breadth of support for preoperative education there were gaps noted in the literature as pointed out above by the IOM. Specifically, many of the studies discussed in meta-analysis and comprehensive reviews suggested that education interventions are of low quality, not randomized, and do not identify a specific education

model or curriculum for reducing opioids abuse yet the IOM still highly recommended preoperative education as an intervention (Institute of Medicine [IOM], 2011).

## 2.7 Conceptual/Theoretical Framework

The Shared Decision-Making Model (SDM) will served as the theoretical framework for this scholarly project. Slover & Koenig (2012) discussed how SDM is the process that facilitates improved outcomes and communication for patients interested in engaging in healthcare decisions with their medical team. The model encourages collaboration between clinicians and patients based on patients' needs and preferences. It is considered an appropriate framework for patients in situations where there are difficult decisions that need to be made or when patients must understand the risks and benefits of certain therapies or treatments (Politi, Dizon, Frosch, Kuzemchak, & Stiggelbout, 2013). Shared Decision Making has been shown to have a number of beneficial outcomes including improving patient's health knowledge, lowering decisional conflict, increasing patient's involvement in their medical care and treatment plans, help patients to develop realistic expectations, and assist patients with clarifying their goals and preferences (Politi et al., 2013). The use of the SDM model has been used previously in the surgical gynecology field and applied to studies evaluating its use in reducing excess opioid prescribing and was found to significantly reduce the number of opioids prescribed post-operatively (Prabhu et al., 2017; Vilkins et al., 2019). Due to the success in application of this model in these studies it would be appropriate to apply the same concepts of this model to this study population.

The Agency for Healthcare Research and Quality (AHRQ) outlines how the SDM can be applied in practice to a project such as this with their structured guide on the Share Approach outlined below:

Table 1: The **SHARE** Approach: Essentials steps of shared decision making

| | | **DNP scholarly project application** | **Tips** |
|---|---|---|---|
| Step 1: | Seek your patient's participation | Obtain patient's informed consent to participate in opioid education | Describe the problem; include family or support team to participate |
| Step 2: | Help your patient explore and compare patient treatment options | Discuss patient's pain management options following surgery including the use of non-pharmacological and non-opioid treatments for pain control<br><br>Use evidence-based decision and education aide to guide conversation | Assess what patient already understands about pain control options<br><br>Use plain language to clearly discuss risks and benefits of options and use teach-back (Ask Me 3) to help facilitate patient engagement in discussion |
| Step 3: | Assess your patient's values and preferences | Utilize nursing therapeutic communication skills to encourage patient to discuss what is important to them | Use active listening and empathy skills to agree on what is important to the patient and family |
| Step 4: | Reach a decision with your patient | Using pain management decision aide as a guide help patient move to a decision on a pain control plan after surgery prior to discharge | Ask patient if additional information is needed<br><br>Confirm patient's decision and verify next steps and timing of these actions |

| | | | |
|---|---|---|---|
| Step 5: | Evaluate your patient's decision | During post op #1 visit assess how patient's pain plan worked, also discuss any barriers to implementing pain plan | Use this opportunity to evaluate if patient's decision needs to be modified |

*Note.* Developed by the Agency for Healthcare Research & Quality (AHRQ), 2014

# CHAPTER 3: PROJECT DESIGN / METHODOLOGY

## 3.1 Setting

The setting for this scholarly project was Presbyterian Medical Center (PMC) which is a part of the Novant Health System and the Urology Specialists of Charlotte (USOC) which is an independent urology practice. Physicians at this practice have surgical privileges with Novant and primarily perform surgeries and procedures in the Novant operating room. PMC is one of the largest hospitals in the Charlotte region providing several services including emergency services, maternity care, neonatal care, and other specialized services and treatment for cancer and heart disease. The DNP project manager currently works with the Novant Cancer Center as a genitourinary (GU) cancer nurse navigator. In this role, she works closely with USOC to navigate all GU cancer patients in two separate physician clinics. Both physicians are leaders in their practice who specialize in GU cancers and are the primary physicians in their practice who perform Robotic DaVinci prostatectomies.

## 3.2 Subjects

The target population for this intervention are prostate cancer patients undergoing prostatectomy surgery for curative treatment. A convenience sample of English-speaking adult male patients age 18 and older diagnosed with prostate cancer and scheduled for an elective prostatectomy (robotic or open) surgery at Novants Presbyterian Medical Center. Patients must be willing to participate in the research study and able to read and write. Patients will be excluded if they do not have prostate cancer, have impaired eyesight or hearing; are unable to read, speak, or understand English; or are dependent on others to make healthcare decisions.

## 3.3 Intervention

This scholarly project is a socio-behavioral educational intervention that consisted of providing structured didactic information on pain management and opioid safety to prostatectomy patients in the preoperative setting by a nurse navigator versus standard education by the physician plus written information alone. The educational content was adapted from the evidence-based literature on opioid safety and principles in acute pain management. This education was provided in a standardized format to patients in either an oral or written format prior to patient's scheduled surgeries. An outline of the education content can be found in appendix J. An easy to read handout created by ACS with the same basic content was provided as a written supplement for all patients participating in the study.

## 3.4 Data Collection

Participants for this study were identified by the DNP project manager/nurse navigator through review of the physician surgery schedule for two urologists within the USOC practice that specialize in DaVinci Robotic surgery. Patients scheduled for an elective prostatectomy surgery through Novant were approached at either at their pre-surgical discussion visit with the physician if the surgery was scheduled within the study period or at their pre-anesthesia clinic visit prior to their surgery and asked to participate in the study. Participant recruitment for this study was collected for 8 weeks between July 16 and September 10, 2019. Final data collection for all data points ended October 2, 2019.

In this study only one of the two referring surgeons participate in the ERAS program for their prostatectomy surgeries. Therefore, study groups were assigned based

on the provider performing their surgery. A quasi-experimental design with a control group was used with the intervention group receiving ERAS education plus the nurse driven opioid and pain management education in the clinic setting prior to surgery. The control group received standard preoperative education given via the surgeon and other staff as preparation for surgery. Patients were assigned to one of two study arms. Study group A (intervention arm) received one-on-one opioid and pain management education with a nurse navigator in addition to ERAS education during their pre-anesthesia visit and Study group B (control arm) received written opioid and pain management education only plus any standard education provided as part of their pre-surgery visit with the surgeon or within pre-surgical services if they were required to attend a pre-anesthesia appointment. In person survey and data measures collected were obtained using hardcopy paper tools and were collected at three timepoints – baseline prior to surgery and intervention (T1), immediately after surgery during post-op day 1 (T2), and 1-2-week post-surgery (T3). Research measures and data collection points are summarized in Table 2.

Table 2: Research Measures and Study Timepoints

| **MEASURES** | **T1 (BSL-1)** | **T1 (BSL-2)** | **T2 (24 Hours Post-Op)** | **T3 (7-10 days Post-Op)** |
|---|---|---|---|---|
| Demographic Questionnaire (Appendix D) | X | | | |
| Patient Pain Questionnaire (PPQ) (Appendix E) | X | X | | |
| Surgical Fear Questionnaire (SFQ) (Appendix F) | X | | | |
| Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) (Appendix G and H) | | | X | X |

| Pain Management Evaluation (Appendix I) | X |
|---|---|

Participants in the intervention arm were asked to meet with a nurse navigator prior to surgery to receive a brief 10-15-minute education and discussion on opioid safety, safe and effective pain management following surgery, various types of pain medications, non-medication therapies, and safe opioid disposal. Participants were asked to complete a brief survey on their knowledge (T1-BSL-1), experience, and fears prior to this education and a brief knowledge survey immediately following (T1-BSL-2). Participants were also asked to complete a survey on their pain experience following their surgery at post-operative day 1 (T2) and again at their follow-up clinic visit after discharge from the hospital (T3). In addition to the post-op pain experience survey at their follow-up clinic visit participants were asked to complete a survey on their satisfaction with pain management. The nurse navigator met participants the day following surgery to discuss their pain experience, answer questions, assess their ability to participate in decisions related to their pain control, and reinforce pain management education provided at baseline prior to their discharge from the hospital.

Participants in the control group received the standard preoperative education provided by the physician and were asked to read, on their own time, prior to surgery a written handout on opioid safety, safe and effective pain management following surgery, various types of pain medications, non-medication therapies and safe opioid disposal. Participants were asked to complete two brief surveys on their knowledge and fears prior to reviewing this written education and a brief knowledge survey immediately following (T1). Similar to the intervention group, participants were also asked to complete a survey

on their pain experience following their surgery at post-operative day 1 (T2) and again at their follow-up clinic visit after discharge from the hospital with the addition of the survey on their satisfaction with pain management education (T3).

### 3.5 Description of data collection instruments

To evaluate the outcome measures proposed for this project and the quality of the nurse-led preoperative education provided, the following instruments were utilized for data collection: Demographic Questionnaire, Patient Pain Questionnaire (PPQ), a revised version of the American Pain Society Patient Outcome Questionnaire (APS-POQ-R), the Surgical Fear Questionnaires (SFQ), the pain management evaluation (PME). The demographic questionnaire collected baseline information on patient's age, ethnicity, education, employment, current use of pain medication, surgery date, and their prostate cancer Gleason score.

The PPQ is an assessment tool that was initially developed by researchers at the City of Hope Cancer Center to assess healthcare professional's knowledge about pain but was later modified for use with patients and caregivers to describe their pain experiences (Redman, 2003). Since that time researchers have used the tool to assess patient's knowledge and experiences with pain management. The tool has been tested and has been found to have content validity (CVI = 0.95), test-retest reliability (r = 0.65), and internal consistency (alpha = 0.74) (Ferrell, Borneman, & Juarez, 1998). The instrument is a 16-item tool that is divided into two subscales evaluating a patient's knowledge (9 items) and experiences (7 items) with pain. The tool is typically scored by reviewing total subscale scores and reviewing individual item mean scores for areas of knowledge and experience deficits. Historically the PPQ has been used with patients who have chronic pain rather

than the acute surgical setting with cancer patients. As such all items on the experience subscale were not applicable to this study population. Therefore only the items related to current pain (item# 10, over the past week, how much pain have you had and item#11, how much pain are you having now) and questions related to confidence to control pain and expectations for pain in the future (item# 15, to what extent do you feel you are able to control your pain and item#16, what do you expect will happen with your pain in the future) were included. Open creative commons permission was granted for using this tool as long as the author is credited.

The APS-POQ is an assessment tool that was created to be utilized with adult hospitalized patients for quality improvement (QI) activities in pain management (Gordon et al., 2010). The tool measures 6 quality aspects involving patients pain experience including 1) pain severity and relief; 2) impact of pain on activity, sleep, and negative emotions; (3) side effects of treatment; (4) helpfulness of information about pain treatment; (5) ability to participate in pain treatment decisions; and (6) use of nonpharmacological strategies (Gordon et al., 2010, p. 1172). The tool has been tested and has been found to have good internal consistency reliability and initial construct validity and has an overall Cronbach alpha of 0.86 (Gordon et al., 2010). The instrument was designed to obtain information about patients quality of pain management within the first 24 hours of hospitalized care and captures 1) the patients' perception of pain control and the degree their pain control affects their physical and emotional functioning; 2) the adequacy of the information they have received about pain control options; and 3) their ability to participate in the decision making process to treat their pain (Gordon et al.,

2010). The authors of this tool encourage utilization of the tool in clinical settings and have given open access application without requiring permission to use.

Since surgical fear has been suggested in the literature to be related to increased levels of pain post-operatively, increased utilization of pain medications and poor post-operative recovery an assessment of patient's surgical fear utilizing the SFQ will serve as a baseline measure of distress symptoms prior to surgery (Theunissen et al., 2018). The SFQ is an 8-item tool that was developed to assess patients self-reported surgical fear. Items 1-4 assess short term fears (SFQ-s) and concerns and items 5-8 assess long-term fears (SFQ-l) and concerns. Items are on an eleven-point numeric rating scale from 0 (not at all afraid) to 10 (very afraid) and are scored 0-40 for each subscale resulting in a total score ranging from 0-80. Item topics assess whether patients are afraid in the following areas: afraid of operation, anesthesia, postoperative pain, side effects, health deterioration, failed operation, incomplete recovery, and long duration of rehabilitation (Theunissen et al., 2018, p. 4). The tool is acceptable for general use amongst all types of adult surgical patients and assesses a broad range of short- and long-term surgery related fears. The tool has been tested and has been found to be valid and reliable and has an overall Cronbach alpha of 0.87. Open creative commons permission was granted for using this tool as long as the author is credited.

Lastly an overall pain management evaluation was created based upon the education provided to assess patients general satisfaction with the pain management education they received and to understand their self-reported activities regarding how they managed their pain and their opioid and non-opioid consumption behaviors following discharge. The evaluation asks participants how well they felt they were

prepared or informed in the following options: pain control options following surgery; when to take pain meds; alternatives to opioid medications; recognizing the signs of an opioid overdose; opioid storage and disposal options; home care following the operation; and overall satisfaction with their medical team. Additional items of interest added to this evaluation are questions asking about the patients actions post-discharge including if they received a prescription for an opioid and if so did they fill prescription, if they took any of the opioid while home, if they have any opioid left, and if they have safely disposed of the opioid. The ACS Safe Pain Control Education was used as the guide for the overall design of this evaluation.

## 3.5 Data Analysis

Data analyses was performed to examine the baseline demographic characteristics and outcome measures. Tests for normality were performed on dependent variables utilizing the Shapiro-Wilk test. Descriptive statistics for continuous normally distributed data are presented with means, range, and standard deviations. In this study age was the only variable that was normally distributed. All other data violated normality assumptions or normality was inconsistent between groups therefore non-parametric testing was performed using Mann-Whitney *U*, Wilcoxon rank sum, Fisher's Exact Test, and comparison of means utilizing median scores where applicable to present differences within and between groups. All other categorical data are presented as percentages, frequencies, and numbers. For all analyses, results were determined to be statistically significant when the p-value $<0.05$. The IBM SPSS Statistics Version 26 software was utilized to analyze all data.

While this is a feasibility study where a small sample (n <30) was expected, a G*power analysis was performed prior to starting the study to determine adequate sample size for significance should a larger study be conducted later. Power analysis revealed that at least 26 patients would be required in each arm for a total of 52 patients to achieve power of 80% with an alpha of 0.05.

### 3.5 Ethical Considerations

Prior to implementation of this study, approval was obtained from the Novant Health Nursing Research Council (Appendix A), Presbyterian Healthcare IRB (Appendix B), and the University of North Carolina at Charlotte IRB (Appendix C). All participants were informed of the purpose of the study and written consent explaining risks, benefits, and voluntary nature of the study was obtained from all individuals who agreed to participate. For each participant a unique identification number was assigned, and this identification number was attached to any questionnaires or data collection tools. All consent forms with identifying information was kept separate from completed questionnaires and the master participant tracking list to maintain patient privacy and confidentiality. All data collected were maintained in a locked file if a hard-copy questionnaire or a password protected file if electronic data. Access to all collected data was limited to the DNP project manager.

# CHAPTER 4: RESULTS

## 4.1 Demographic Characteristics

A total of 22 patients were identified as eligible for recruitment. Eight patients were unable to be contacted for recruitment due to either missed opportunity to meet patient prior to surgery because of scheduling conflicts or due to the patient not having a pre-operative visit scheduled on-site prior to their scheduled surgery. Figure 1 displays the flow of patients from identification to enrollment. A final total of 14 patients were recruited with 7 eligible patients for each study arm.

Patient characteristics are described in Table 3. The mean age of participants in the intervention arm was 65.9 years (SD 8.55) with a range between 56 – 82 years. Approximately 86% of intervention participants had greater than a high school education, and 57% were employed on a full-time basis. Participants in the control arm of the study ages ranged between 53 – 73 years, with a mean age of 60.6 (SD 6.50). Like the intervention group approximately 86% of patients had greater than a high school education, however 71% were employed full-time.

Participants were asked whether they knew the Gleason score of their cancer as an indicator of their baseline understanding and knowledge of their cancer status. Interestingly over half of the participants in the intervention group did not know their cancer status at 57% versus 28.6% in the control group. There were no patients in either study arm who were currently taking pain medications at baseline. Finally, the number of days from initial meeting until the patient's surgery date were calculated manually separate from the demographic analysis. On average there were approximately 12.43 (min 8 – max 18) days between the recruitment date and the patient's surgery date for the

intervention group and 5.43 days (min 0 – max 21) for the control group. Statistical testing revealed no significant differences on any demographic variable between groups.

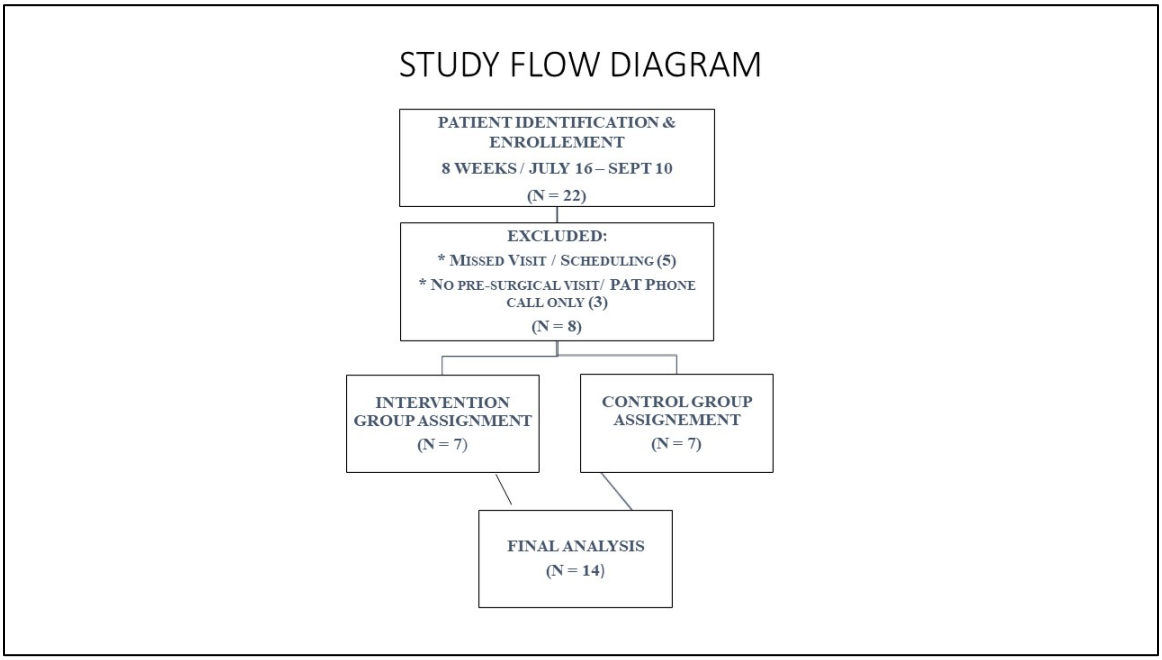


Figure 1: Study Flow Diagram

Table 3: Demographic Characteristics

| Characteristic | Mean (SD) | Range |
|---|---|---|
| **Age** | | |
| **Intervention** | 65.9 (8.55) | 56 – 82 |
| **Control** | 60.6 (6.50) | 53 – 73 |

| Characteristic | n | Percentage (%) |
|---|---|---|
| **Race** | | |
| **Intervention** | | |
| American Indian or Alaska Native | 1 | 14.3 |
| Black or African American | 2 | 28.6 |
| White or Caucasian | 4 | 57.1 |
| **Control** | | |
| Black or African American | 1 | 14.3 |
| White or Caucasian | 6 | 85.7 |
| **Education** | | |
| **Intervention** | | |
| High school graduate or GED | 1 | 14.3 |
| Some college or 2-year degree | 3 | 42.9 |
| 4-year college degree or higher | 3 | 42.9 |
| **Control** | | |
| High school graduate or GED | 1 | 14.3 |
| Some college or 2-year degree | 1 | 14.3 |
| 4-year college degree or higher | 5 | 71.4 |
| **Employment Status** | | |
| **Intervention** | | |
| Working full-time (35+ hours/week) | 4 | 57.1 |
| Retired | 3 | 42.9 |
| **Control** | | |
| Working full-time (35+ hours/week) | 5 | 71.4 |
| Retired | 2 | 28.6 |
| **Cancer Status (Do you know your Gleason Score?)** | | |
| **Intervention** | | |
| No | 4 | 57.1 |
| Yes | 3 | 42.9 |
| **Control** | | |
| No | 2 | 28.6 |
| Yes | 5 | 71.4 |
| **Gleason Score*** | | |
| **Intervention** | | |
| 6 | 1 | 33.3 |
| 7 | 1 | 33.3 |
| 8 | 1 | 33.3 |
| **Control** | | |
| 6 | 1 | 20 |
| 7 | 2 | 40 |
| 8 | 2 | 40 |
| **Currently taking pain meds** | | **No** |
| **Intervention** | | 100% |
| **Control** | | 100% |

*Note.* SD = standard deviation; *Only includes those who knew their Gleason score

## 4.2 Surgical Fear Questionnaire (SFQ)

Total median scores and ranges (minimum – maximum) comparing intervention and control group on short, long, and total surgical fear are presented in Table 4 and individual item median scores are presented in Table 5. A Mann-Whitney *U* test was run to determine if there were differences in SFQ scores between the intervention and control participants. Scores were analyzed as a total score (SFQ-t) and by subscales – short-term fear (SFQ-s) vs. long-term fear (SFQ-l). Distributions of the SFQ scores between groups were not similar across all domains, as assessed upon visual inspection. There was no statistical significant difference noted in SFQ scores – total or subscales between intervention and control [SFQ-t (*U* = 34, z = 1.214, p = .259, r = .47); SFQ-l (*U* = 33.5, z = 1.158, p = .259, r = .44) and SFQ-s ( *U* = 27, z - .322, p = .805, r = .12] using an exact sampling distribution for *U*. Mean rank scores for intervention and control group are listed in Figure 2.

Table 4: Median SFQ Scores (SFQ-s, SFQ-l, SFQ-t)

| Participant Group | | Surgical Fear - Short | Surgical Fear - Long | Surgical Fear - Total |
|---|---|---|---|---|
| Intervention | Median | 8.0000 | 6.0000 | 14.0000 |
| | Minimum | 4.00 | 1.00 | 8.00 |
| | Maximum | 22.00 | 14.00 | 33.00 |
| Control | Median | 14.0000 | 13.0000 | 23.0000 |
| | Minimum | .00 | .00 | .00 |
| | Maximum | 21.00 | 30.00 | 51.00 |
| Total | Median | 8.0000 | 10.0000 | 18.5000 |
| | Minimum | .00 | .00 | .00 |
| | Maximum | 22.00 | 30.00 | 51.00 |

Table 5: Individual SFQ Item Median Scores

| Participant Group | I am afraid of the operation | I am afraid of the anesthesia | I am afraid of the pain after the operation | I am afraid of the side effects after the operation | I am afraid my health will deteriorate | I am afraid the operation will fail | I am afraid I won't completely recover | I am afraid of the rehabilitation after |
|---|---|---|---|---|---|---|---|---|
| Intervention | 2.0000 | 1.0000 | 1.0000 | 2.0000 | 1.0000 | 1.0000 | 1.0000 | 2.0000 |
| Control | 3.0000 | 3.0000 | 4.0000 | 3.0000 | 3.0000 | 3.0000 | 2.0000 | 5.0000 |
| Total | 2.0000 | 1.5000 | 2.0000 | 2.0000 | 2.0000 | 1.0000 | 1.5000 | 5.0000 |

**SFQ Mean Rank Scores***

| | N | SFQ-t Mean Rank | SFQ-l Mean Rank | SFQ-s Mean Rank |
|---|---|---|---|---|
| Intervention | 7 | 6.14 | 6.21 | 7.14 |
| Control | 7 | 8.86 | 8.79 | 7.86 |
| **Total** | 14 | | | |

*Note.* * 0 = Not at all afraid - 10 = Very afraid

Figure 2: SFQ Mean Rank Scores

### 4.3 Patient Pain Questionnaire (PPQ)

Total median pre- and post-test scores comparing intervention and control group on PPQ responses are presented in Table 6 and individual item median scores are presented in Table 7 for the 3 variable items with the lowest median scores representing areas of opportunity for education and participant knowledge deficits. Note that these 3 items were the same for both the intervention and control group. For the purposes of this analyses all items were transposed so that the response anchor represented a scale where 0 = worst outcome/response and 10 = positive outcome/response.

To test if there was a significant difference in knowledge on the PPQ following the education intervention a Wilcoxon Signed Rank test was performed. The test revealed a statistically significant median improvement (*Mdn* = 1.11) in knowledge scores

following participation in the nurse driven education for participants in the intervention group, $z = 2.37$, $p < .018$, with a small effect size ($r = .17$). The median knowledge score on the PPQ increased from pre-test (*Mdn* = 5.56) to post-test (*Mdn* = 7.00). The control group however did not elicit a significant improvement in median scores between pre and posttest (*Mdn* = 0.00), $z = 1.63$, $p < .10$, with a small effect size ($r = .12$). Further comparison analysis on this variable between groups was conducted with a Mann-Whitney *U* test which revealed no significant differences in median scores between intervention or control, $U = 22.5$, $z = -.257$, $p = .805$. Mean rank scores were 7.79 ($n = 7$) and 7.21 ($n = 7$) for intervention and control respectively.

Table 6: Median Pre-Post PPQ Score and Difference

| Participant Group | PPQ- Pretest | PPQ-Posttest | Post - Pre PPQ |
|---|---|---|---|
| Intervention | 5.56 | 7.00 | 1.11 |
| Control | 5.33 | 5.56 | .00 |
| Total | 5.44 | 6.11 | .33 |

Table 7: Lowest Individual Item Pre-Post Median Scores

| Patient Pain Questionnaire PRE-test (PPQ) | Intervention | Control | |
|---|---|---|---|
| **Knowledge*** | Median | Median | Total |
| Give meds only when pain is severe | 3.14 | 4.43 | 3.00 |
| Cancer patients will become addicted | 1.29 | 3.57 | 1.50 |
| Give pain med around clock vs PRN | 4.14 | 4.57 | 4.00 |

| Patient Pain Questionnaire POST-test (PPQ) | Intervention | Control | |
|---|---|---|---|
| **Knowledge*** | Median | Median | Total |
| Give meds only when pain is severe | 6.00 | 4.29 | 5.00 |
| Cancer patients will become addicted | 2.57 | 3.14 | 1.00 |
| Give pain med around clock vs PRN | 5.14 | 3.14 | 5.00 |

*Note.* * 0 = Negative Response – 10 = Positive Response

As discussed above, items on the experience subscale were not all applicable to this sample so only those items of interest including current pain experience, confidence to control pain, and expectations of what will happen with their pain in the future were

presented here. Contrary to the knowledge subscale items, the experience subscale was not transposed for analysis, but the scale was maintained where the anchor response of a 0 = a positive response and an anchor of 10 = a negative response. At baseline 42.9% of the intervention group and 28.6% of the control group reporting having pain greater than a 0 over the past week. When asked how much pain they were having now 28.6% of the intervention group reported having pain equal to 1 on the scale of 0 – 10. Similar to the intervention group, 28.6% of participants in the control group reported having current pain, with one patient reporting pain equal to 1 out 10 and another participant reporting pain 7 out of 10.

4.4 American Pain Society Patient Outcome Questionnaire (APS-POQ-R)

Patients in both study arms completed the APS-POQ-R to assess for pain experience and satisfaction immediately after surgery and again at their postoperative clinic visit. Although participants completed the entire 16-items in this instrument, for this analysis only those responses related to the project aims are presented in Table 8. A Mann-Whitney U test was run to determine if there were differences in all the variables listed below between intervention and control. All variables except for the least pain between study arms did not reveal statistical significance. Least pain scores for the control group (mean rank = 5.21) were statistically significantly lower than for the intervention group (mean rank = 9.79), U = 8.5, z = -2.15, p = .038.

Table 8: Median APS-POQ-R Scores and Differences

| Study Variable | Intervention (n=7) | Control (n=7) | Total (n=14) | Sig. |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Least Pain in 24 Hours | 2.00 | 1.00 | 1.00 | |
| Least Pain in last 7 days | 1.00 | 1.00 | .00 | *p* = 0.038* |
| Difference (Least) | -1.00 | .00 | .00 | |
| Most Pain in 24 Hours | 8.00 | 5.00 | 5.00 | |
| Most Pain in last 7 days | 7.00 | 5.00 | 6.00 | |
| Difference (Most) | .00 | .00 | .00 | |
| % of time in severe pain in 24 Hours | 20.00 | .00 | 10.00 | |
| % of time in severe pain in last 7 days | 20.00 | .00 | 10.00 | |
| Difference (% of time in severe pain) | .00 | .00 | .00 | |

*Note.* * $p < .05$ equals statistical significance

4.5 Pain Management Evaluation (PME)

For the first seven items of the evaluation, participants indicated how well they felt prepared or informed on the following scale: very well, well, fairly, poorly, or not informed. For questions associated with patient's perception of their knowledge related to post-discharge pain management, overall 100% of participants in both the intervention and control groups rated feeling very well or well informed about their pain control options following surgery. However, when asked if they felt prepared or informed about when to take their pain medications or if they felt prepared for their home care following the operation, only 85.7% of the intervention group reported feeling very well or well

prepared vs. 100% of patients in the control group on when to take their medications and 100% of intervention patients vs 85.8% of the control group felt prepared for home care.

The second theme of questions assessed participants perceived opioid related knowledge by asking if they felt informed of the alternatives to opioid medications, recognizing signs of opioid overdose, and opioid storage and disposal options. Results indicate that more participants in the intervention felt informed of the alternatives to opioids and recognizing the signs of an overdose compared to the control group (85.7% control vs. 100% intervention on both variables). While both groups felt very informed of opioid storage and disposal options all participants in the intervention group reported feeling very well-informed vs the control participants who only felt very well prepared 57.1% and just well-prepared 42.9%. Overall satisfaction with the information participants received on pain control from all members of the team suggests that more participants in the control group felt satisfied (100%) vs. 85.7% of the intervention. To test the observed differences statistically a Fisher's Exact Test was conducted that revealed that the multinomial probability distributions between the two groups on all the above questions were not statistically significantly different ($p > .05$) [pain control options, $p = 1.00$; when to take medications, $p = .559$; felt prepared for home care, $p = .592$; alternatives to opioids, $p = .462$; recognize the signs of opioid overdose, $p = .192$; opioid storage and disposal, $p = .192$; and overall satisfaction, $p = 1.00$].

Similar to hospital specific data reported elsewhere in this paper nearly all of patients were discharged with a prescription for an opioid except for one participant in the intervention group. Of those who were discharged with an opioid prescription 83.3% of the intervention group reported filling the prescription vs. 42.9% of the control group.

Of those participants who filled their prescription 80% of those in the intervention group reported taking the medicine vs. 66.7% of the control group. One hundred percent of the intervention group reported still having opioid medication leftover when they no longer needed it and 40% of these patients reporting safely disposing the leftover medications. On the contrary, 66.7% of patients in the control group reported still having opioid medication leftover when they no longer needed it with 50% of participants reporting safely disposing of the drug once they no longer needed. Interesting to note is that during the time between discharge and their postoperative visit 71.4% of intervention patients stated that they had utilized a non-opioid medication for pain relief vs. 100% of control patients.

# CHAPTER 5: DISCUSSION

## 5.1 Summary

One of the primary purposes of this study was to assess the feasibility of conducting an educational intervention with prostatectomy patients prior to surgery to determine if patients who participate would have improved knowledge of how to manage their postoperative pain and ultimately would have a better postoperative experience when compared to patients who receive the standard of care. The results of this study imply that while it is feasible to conduct this type of education as evidenced by the 100% participation rate, there is not enough statistical evidence at this time to draw conclusions to support the hypothesis that patients who are given nurse led structured pain management and opioid safety education will demonstrate improved knowledge or have better postoperative pain related outcomes when compared to those individuals who receive standard care.

Ultimately there was not a significant improvement in knowledge between groups using the PPQ tool, despite the significant median increase in knowledge within the intervention group only. As a result, a solid conclusion cannot be made. Review of the subscale items indicate that for both the intervention group and the control group there are areas of opportunity for knowledge improvement that are very similar to areas on the PME that were identified as areas of deficiency including when to take medications, the signs of an opioid overdose and proper opioid disposal. A larger sample size would be recommended to fully detect the significance or lack thereof to determine the worthiness of the educational intervention and the efficacy of the tool in detecting knowledge changes in this setting.

When evaluating the APS-POQ-R for themes, initial examination of the results suggests that those individuals in the intervention group had more pain on several measures when compared to those in the control group and that those in the control group had significantly less median pain levels ($p = .38$) at all time points 24-hours post-surgery and at their postoperative visit. This result is interesting to understanding the experience of prostate cancer patients because as it was noted previously a larger percentage of men in the intervention (43%) reported having current pain at baseline although they were not currently taking pain medications. One explanation for this could be related to recent studies that suggest that preoperative pain is a risk factor for acute postoperative pain (Kulkarni et al., 2017; Raja & Jensen, 2010). Currently in the preoperative setting prior to prostate surgery pain levels are not assessed routinely. If patients complain of pain it may not be reported until after surgery or in the pre-surgical suite. In this study it appears that the intervention patients reported pain higher levels of median pain after surgery (although not significant). If there is some validity to this theory, it is possible that patients postoperative pain levels were influenced by their pain levels prior to surgery.

Surgical Fear was assessed as a part of the baseline characteristics to describe the participant population. Results indicate that at baseline both groups exhibit a moderate level of surgical fear based on medians scores across both short and long-term subscales and total score, however these scores were not deemed to be significant. This information, however, is clinically important because a high level of surgical fear and/or anxiety may possibly interfere with a patient's ability to recall or comprehend any presurgical teaching or education (Moore & Estey, 1999). If a patient does not recall

teaching, it raises the question of the appropriate timing of and place for education to be most effective.

Lastly it is important to note that one of the secondary aims of this study was to understand patients home opioid utilization following discharge. As described in the background, since the implementation of ERAS patients need for an opioid while inpatient has declined, despite this 100% of patients still go home with the prescription. Part of the structured teaching focuses on educating patients not only on appropriate opioid disposal but also on teaching patients how to communicate with the healthcare team. Out of the 14 patients only one patient declined the opioid prescription in the hospital, yet when the patients left the hospital 57% of the control (non-ERAS) group and 16.7% of the intervention group did not fill the prescription given to them. If it is the goal of the ERAS program to reduce opioid use this presents a key opportunity to explore other quality improvement interventions to reduce this number.

## 5.2 Strengths and Limitations

Strengths of this study include high response rates – every participant offered the opportunity to participate did so and completed all measurement points of the study. While the qualitative data was not reported as a part of this paper, a few participants anecdotally reported appreciating the extra time spent to prepare for surgery. Lastly, another strength of this study includes the strong support of the hospital staff, anesthesia ERAS coordinator, and urology surgeons.

This study has several potential limitations including small sample size, sampling bias, lack and variety of adequate research studies on the topic of preoperative pain management education and its effect on postoperative outcomes for prostate cancer

patients, and recruitment was limited to a single urology practice and hospital. As a result, the results may be subject to bias and confounding that were not considered as a part of this analysis. Additionally, while some small significance was noted with regards to knowledge post education for the intervention group these results are not considered statistically significant. As reported earlier in this paper a power analysis was completed prior to conducting this study and it was noted that in order to achieve statistical power at least 52 patients (26 per arm) would need to be enrolled in order to 80% power. Without an adequately powered study the results of significance may not be generalizable to the population.

In addition to a small sample size, the use of a convenience sample and non-randomization might have created selection bias in which those patients who were enrolled may be atypical. For example, this study's sample were very highly educated, employed full-time, mostly Caucasian men. This study's sample may not be representative of the larger population due to convenience sampling and thus threatening external validity.

Lack of research in this area limited the availability of quality instruments applicable for assessing knowledge of patients undergoing prostatectomy in the acute surgical setting. During administration of the tool the DNP project manager noted that the pattern for the item anchors switched back and forth from a negative anchor at the low end to a positive anchor on the low end (i.e. 0 = agree – 10 = disagree and 0 = disagree – 10 = agree). A few patients reported finding this change difficult to follow and therefore may have incorrectly scored their surveys due to reading too fast. Additionally, this particular tool was historically utilized with cancer patients who have chronic pain versus

acute and therefore modifications were made by removing questions that were not applicable for this population. Due to this modification reported reliability of the tool may have been impacted.

## 5.3 Clinical significance and Recommendations

The recent increase in opioid use disorder, deaths, and now new resurgence of heroin in the community call for a variety of approaches to reducing the opioid surplus available to those at risk for abuse (National Institute on Drug Abuse [NIDA], 2019). Like other studies the results of this study support the idea opioid over-prescribing in the acute surgical area is problematic (Bartels et al., 2018; Carroll et al., 2012; Habermann, 2018; Hacker et al., 2018; Macintyre et al., 2014). With 100% of patients being discharged with an opioid it is evident that more work must be done to identify best practice solutions to work collectively with the physicians, patient and other key members of the team to ensure patients have not only adequate pain management knowledge, appropriate opioid safety knowledge, but also realistic pain expectations following surgery. Future research studies with larger better powered samples are needed to understand preoperative education needs and improve clinical outcomes in patients following prostatectomy surgery.

## 5.4 Conclusion

A cancer diagnosis for any person can be an exceptionally scary and overwhelming experience. It has been suggested in the literature that prostatectomy patients have information needs that are often overlooked at critical times in between their diagnosis and treatment (Bracey, Billing, Turner, & Endacott, 2018). Nurses are

uniquely prepared to support this effort. Continued research into the preoperative needs of prostate cancer patients is warranted.

## References

Agency for Healthcare Research and Quality. (2014). The SHARE Approach—Essential steps of shared decision making: Expanded reference guide with sample conversation starters. Retrieved from https://www.ahrq.gov/professionals/education/curriculum-tools/shared

Alter, T. H., & Ilyas, A. M. (2017). A prospective randomized study analyzing preoperative opioid counseling in pain management after carpal tunnel release surgery. *J Hand Surg Am*, *42*, 810-815.

American Cancer Society. (2019). Key Statistics for Prostate Cancer. Retrieved from https://www.cancer.org/cancer/prostate-cancer/about/key-statistics.html

American College of Surgeons. (2017). Statement on the Opioid Abuse Epidemic. Retrieved from https://www.facs.org/about-acs/statements/100-opioid-abuse

American College of Surgeons. (n.d.). Patient Education Initiatives - Safe Pain Control: Opioid Abuse and Surgery. Retrieved from https://www.facs.org/education/opioids/patient-ed

Bartels, K., Fernandez-Bustamante, A., McWilliams, S. K., Hopfer, C. J., & Mikulich-Gilbertson, S. K. (2018). Long-term opioid use after inpatient surgery – A retrospective cohort study. *Drug and Alcohol Dependence*, *187*, 61-65. https://doi.org/10.1016/j.drugalcdep.2018.02.013

Bates, C., Laciak, R., Southwick, A., & Bishoff, J. (2011). Overprescription of postoperative narcotics: A look at postoperative pain medication delivery, consumption and disposal in urological practice. *The Journal of Urology*, *185*, 551-555. https://doi.org/10.1016/j.juro.2010.09.088

Batley, S. E., Prasad, V., Vasdev, N., & Mohan-S, G. (2015). Post-operative pain management in patients undergoing robotic urological surgery. *Current Urology*, *9*(1), 5-11. https://doi.org/10.1159/000442843

Bedard, D., Purden, M. A., Sauve-Larose, N., Certosini, C., & Schein, C. (2006). The pain experience of post-surgical patients following the implementation of an evidence-based approach. *Pain Management Nursing*, *7*(3), 80-92. https://doi.org/10.1016/j.pmn.2006.06.001

Best, J. T., Musgrove, B., Pratt, K., Hill, R., Evans, C., & Corbitt, D. (2018). The Impact of Scripted Pain Education on Patient Satisfaction in Outpatient Abdominal Surgery Patients. *Journal of PeriAnesthesia Nursing*, *33*(4), 453-460. https://doi.org/10.1016/j.jopan.2016.02.014

Bisbey, C. C., Ristau, T. A., Johnson, M. D., Streed, M. M., Bursiek, A. A., & Grubbs, P. L. (2017). The power of education: Preoperative class reduces anxiety and improves confidence. *MedSurg Nursing*, *26*(5), 324-326.

Bracey, M., Billing, J., Turner, C., & Endacott, R. (2018). Providing information early in the clinical pathway for people with prostate cancer. *Cancer Nursing Practice.*, *17*(6), 30-36. https://doi.org/10.7748/cnp.2018.e1520

Brandal, D., Keller, M., Lee, C., Grogan, T., Fujimoto, Y., Gricourt, Y., ... Cannesson, M. (2017). Impact of Enhanced Recovery After Surgery and Opioid Free Anesthesia on Opioid Prescriptions at Discharge from the hospital: A historical-prospective study. *Anesth Analg*, *125*, 1784-1792. https://doi.org/10.1213/ANE.0000000000002510

Cabo, J., Hsi, R. S., & Scarpato, K. R. (2018). Post-Operative Opiate Use in Urologic Patients: A Quality Improvement study aimed at improving opiate disposal practices. *The Journal of Urology*. https://doi.org/doi: https://doi.org/10.1016/j.juro.2018.09.052.

Carroll, I., Barelka, P., Wang, C. K., Wang, B. M., Gillespie, M. J., McCue, R., ... Mackey, S. C. (2012). A Pilot Cohort Study of the Determinants of Longitudinal Opioid Use after Surgery. *Pain Medicine*, *115*. https://doi.org/10.1213/ANE.0b013e31825c049f

Centers for Disease Control. (2019). Opioid Overdose: Data, Prescription Opioids. Retrieved October 21, 2019, from https://www.cdc.gov/drugoverdose/data/prescribing/overview.html

Chapman, J. S., Roddy, E., Ueda, S., Brooks, R., Chen, L., & Chen, L. (2016). Enhanced recovery pathways for improving outcomes after minimally invasive gynecologic oncology surgery. *Obstetrics & Gynecology*, *128*(1), 138-144. https://doi.org/10.1097/AOG.0000000000001466

Chen, E. Y., Marcantonio, A., & Tornetta III, P. (2018). Correlation Between 24-Hour Predischarge Opioid Use and Amount of Opioids Prescribed at Hospital Discharge. *JAMA Surgery*, *153*(2). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5838710/

Chou, R., Gordan, D. B., De Leon-Casasola, O. A., Rosenburg, J., Bickler, S., Brennan, T., ... Wu, C. L. (2016). Guidelines on the Management of Postoperative Pain Management of Postoperative Pain: A Clinical Practice Guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain

Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. *The Journal of Pain*, *17*(2), 131-157. https://doi.org/10.1016/j.jpain.2015.12.008

Costello, M., & Thompson, S. (2015). Preventing opioid misuse and abuse: The Nurses role in patient education. *Pain Management Nursing*, *16*(4), 515-519. https://doi.org/10.1016/j.pmn.2014.09.008

Courtenay, M., & Carey, N. (2008). The impact and effectiveness of nurse-led care in the management of acute and chronic pain: a review of the literature. *Journal of Clinical Nursing*, *17*(15), 2001-2013. https://doi.org/10.1111/j.1365-2702.2008.02361.x

Dart, R. C., Surratt, H. L., Cicero, T. J., Parrino, M. W., Severtson, S. G., Bucher-Bartelson, B., & Green, J. L. (2015). Trends in opioid analgesic abuse and mortality in the United States. *The New England Journal of Medicine*, *372*(3), 241-248. https://doi.org/10.1056/NEJMsa1406143

decisionmaking/tools/tool-2/index.html

Devine, E. C. (2003). Meta-Analysis of the Effect of Psychoeducational Interventions on Pain in Adults with Cancer. *ONF*, *30*(1), 75-89. https://doi.org/10.1188/03.ONF.75-89

Ferrell, B. R., Borneman, T., & Juarez, G. (1998). Integration of pain education in home care. *Journal of Palliative Care*, *14*(3), 62-68. Retrieved from https://journals.sagepub.com/loi/pal

Gadler, T., Crist, C., Brandstein, K., & Schneider, S. (2016). The effects of a take-home educational video on patient knowledge retention, anxiety, satisfaction, and

provider time. *Urologic Nursing*, *36*(6), 297-302. https://doi.org/10.7257/1053-816X.2016.36.6.297

Gordon, D. B., Polomano, R. C., Pellino, T. A., Turk, D. C., McCracken, L. M., Sherwood, G., ... Farrar, J. T. (2010). Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) for Quality Improvement of Pain Management in Hospitalized Adults: Preliminary Psychometric Evaluation. *The Journal of Pain*, *11*(11), 1172-1186. https://doi.org/10.1016/j.jpain.2010.02.012

Habermann, E. B. (2018). Are opioids overprescribed following elective surgery? *Advances in Surgery*, *52*, 247-256. https://doi.org/10.1016/j.yasu.2018.03.003

Hacker, K., Jung, J., Graves, J. L., Cook, H., McNaull, P., Chidgey, B., ... Nielson, M. (2018). Post-operative opioid prescribing in urology: Are we contributing to the national crisis? *The Journal of Urology*, *199*(4S), e1093. Abstract retrieved from https://www.jurology.com/article/S0022-5347(18)42011-3/fulltext

Hah, J. M., Bateman, B. T., Ratliff, J., Curtin, C., & Sun, E. (2017). Chronic Opioid Use After Surgery: Implications for Perioperative Management in the Face of the Opioid Epidemic. *Anesth Analg*, *125*(5), 1733-1740. https://doi.org/10.1213/ANE.0000000000002458

Hahn, K. L. (2011). Strategies to prevent opioid misuse, abuse, and diversion that may also reduce the associated costs. *Am Health Drug Benefits*, *4*(2), 107-114.

Harmon, E., Hance, L., Woody, N., McCall, C., Chidgey, B., McNaull, P., & Kolarczyk, L. (2018). *Patients enrolled in enhanced recovery after surgery (ERAS) pathway demonstrate low post-discharge opioid consumption following total abdominal hysterectomy*. Paper presented at the American Society for Enhanced Recovery,

Fort Lauderdale, FL. Abstract retrieved from https://www.med.unc.edu/anesthesiology/enhancedrecovery/files/2018/04/Harmon_Abstract.pdf

Hill, M. V., Stuke, R. S., Billmeier, S. E., Kelly, J. L., & Barth, Jr., R. J. (2018). Guideline for discharge opioid prescriptions after inpatient general surgical procedures. *Journal of American College of Surgeons*, *226*, 996-1003. https://doi.org/10.1016/j.jamcollsurg.2017.10.012

Himberger, J. R. (2018). Opioid awareness and the role of the cancer Navigator in management of malignant pain. *Journal of Oncology Navigation & Survivorship*, *9*(10). Retrieved from http://www.jons-online.com/issues/2018/october-2018-vol-9-no-10/1995-opioid-awareness-and-the-role-of-the-cancer-navigator-in-management-of-malignant-pain

Holman, J. E., Stoddard, G. J., Horwitz, D. S., & Higgins, T. F. (2014). The effect of preoperative counseling on duration of postoperative opiate use in orthopaedic trauma surgery: a surgeon-based comparative cohort study. *Journal of Orthopaedic Trauma*, *28*(9), 502-506. https://doi.org/10.12968/bjon.2007.16.1.22712

Institute of Medicine. (2011). *Relieving pain in America: A blueprint for transforming prevention, care, education, and research.* https://doi.org/10.17226/13172

Joshi, G. P., Jaschinski, T., Bonnet, F., & Kehlet, H. (2015). Optimal pain management for radical prostatectomy surgery: What is the evidence? *BMC Anesthesiology*, *15*(159). https://doi.org/10.1186/s12871-015-0137-2

Juhas-Davis, K. A. (2015). *Pain management and comfort in robotic laparoscopic prostatectomy patients* (Doctoral dissertation). Retrieved from https://idea.library.drexel.edu/islandora/object/idea%3A6181

Kirson, N. Y., Scarpati, L. M., Enloe, C. J., Dincer, A. P., Birnbaum, H. G., & Mayne, T. J. (2017). The economic burden of opioid abuse: Update findings. *J Manag Care Spec Pharm*, *23*(4), 427-425. Retrieved from https://www.jmcp.org/doi/pdf/10.18553/jmcp.2017.16265

Kulkarni, A. R., Pusic, A. L., Hamill, J. B., Kim, H. M., Qi, J., Wilkins, E. G., & Roth, R. S. (2017). Factors Associated with Acute Postoperative Pain following Breast Reconstruction. *JPRAS Open*, *11*, 1-13. https://doi.org/10.1016/j.jpra.2016.08.005

Lemay, C. A., Lewis, C. G., Singh, J. A., & Franklin, P. D. (2017). Receipt of pain management information preoperatively is associated with improved functional gain after elective total joint arthroplasty. *The Journal of Arthroplasty*, *32*, 1763-1768. https://doi.org/10.1016/j.arth.2017.01.028

Macintyre, P. E., Huxtable, C. A., Flint, S. P., & Dobbin, M. H. (2014). Costs and consequences: a review of discharge opioid prescribing for ongoing management of acute pain. *Anaesth Intensive Care*, *42*(5), 558-574. https://doi.org/10.1177/0310057X1404200504

Manworren, R. C., & Gilson, A. M. (2015). Nurses' role in preventing prescription opioid diversion. *AJN*, *115*(8), 34-40.

Maughan, B. C., Hersh, E. V., Shofer, F. S., Wanner, K. J., Archer, E., Carrasco, L. R., & Rhodes, K. V. (2016). Unused opioid analgesics and drug disposal following

outpatient dental surgery: A randomized controlled trial. *Drug and Alcohol Dependence*, *168*, 328-334. https://doi.org/10.1016/j.drugalcdep.2016.08.016

McEwen, S., & Prakken, S. (2018). Reducing the oversupply of prescription opioids. *North Carolina Medical Journal*, *79*(3), 175-180. https://doi.org/10.18043/ncm.79.3.175

Moore, K. N., & Estey, A. (1999). The early post-operative concerns of men after radical prostatectomy. *Journal of Advanced Nursing*, 1121-1129. https://doi.org/10.1046/j.1365-2648.1999.00995.x

Morton, V., Benonis, J., & Duggins, J. (2018). *Colorectal and Bariatric Enhanced Recovery After Surgery in a Non-Academic Institution: An anesthesia led quality initiative*. Paper presented at the American Society for Enhanced Recovery Annual Congress, Fort Lauderdale, FL. Abstract retrieved from https://aserhq.org/wp-content/uploads/2018/03/03_ASER_Morton.pdf

National Academies of Sciences, Engineering, and Medicine. (2017). *Pain management and the opioid epidemic: Balancing societal and individual benefits and risks of prescription opioid use.* Washington, DC: The National Academies Press.

National Institute on Drug Abuse. (2015). *2016–2020 NIDA Strategic Plan: Advancing Addiction Science*. Retrieved from https://www.drugabuse.gov/about-nida/2016-2020-nida-strategic-plan

National Institute on Drug Abuse. (2019). North Carolina opioid summary: Opioid-Involved Overdose Deaths. Retrieved October 21, 2019, from https://www.drugabuse.gov/opioid-summaries-by-state/north-carolina-opioid-summary

National Institute on Drug Abuse. (2019). Opioid Overdose Crisis. Retrieved from https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis

North Carolina Department of Health and Human Services. (2017). *North Carolina's Opioid Action Plan 2017-2021* (Version I). Retrieved from https://files.nc.gov/ncdhhs/NC%20Opioid%20Action%20Plan%208-22-2017.pdf

O'Connor, G., Coates, V., & O'Neill, S. (2014). Randomised controlled trial of a tailored information pack for patients undergoing surgery and treatment for rectal cancer. *European Journal of Oncology Nursing*, *18*, 183-191. https://doi.org/10.1016/j.ejon.2013.10.011

O'Donnell, K. F. (2015). Preoperative Pain Management Education: A Quality Improvement Project. *Journal of PeriAnesthesia Nursing*, *30*(3), 221-227. https://doi.org/10.1016/j.jopan.2015.01.013

O'Donnell, K. F. (2018). Preoperative Pain Management Education: An Evidence-Based Practice Project. *Journal of PeriAnesthesia Nursing*, *33*(6), 956-963. https://doi.org/10.1016/j.jopan.2017.11.001

Oncology Nursing Society. (2017). *2017 oncology nurse navigator core competencies*. Retrieved from https://www.ons.org/sites/default/files/2017ONNcompetencies.pdf

Oncology Nursing Society. (2018). Role of the Oncology Nurse Navigator Throughout the Cancer Trajectory. Retrieved from https://www.ons.org/make-difference/advocacy-and-policy/position-statements/ONN

Pacira Pharmaceuticals Inc. (2017). The United States for non-dependence: An analysis of the impact of opioid overprescribing in America. Retrieved from

https://www.planagainstpain.com/wp-content/uploads/2017/09/PlanAgainstPain_USND.pdf

Perrone, J., Weiner, S., & Nelson, L. (2019). Stewarding Recovery from the Opioid Crisis Through Health System Initiatives. *Western Journal of Emergency Medicine*, *20*(2), 198-202. https://doi.org/10.5811/westjem.2018.11.39013

Politi, M. C., Dizon, D. S., Frosch, D. L., Kuzemchak, M. D., & Stiggelbout, A. M. (2013). Importance of clarifying patients' desired role in shared decision making to match their level of engagement with their preferences. *BMJ*, *347*, f7066. https://doi.org/10.1136/bmj.f7066

Prabhu, M., McQuaid-Hanson, E., Hopp, S., Burns, S. M., Leffert, L. R., Landau, R., ... Bateman, B. T. (2017). A Shared Decision-Making Intervention to Guide Opioid Prescribing After Cesarean Delivery. *Obstet Gynecol*, *130*, 42-46. https://doi.org/10.1097/AOG.0000000000002094

Proescholdbell, S. K., Cox, M. E., & Asbun, A. (2017). Death rates from unintentional and undetermined prescription opioid overdoses and dispensing rates of controlled prescription opioid analgesics – 2011-2015. *North Carolina Medical Journal*, *78*(2), 142-143.

Raja, S. N., & Jensen, T. S. (2010). Predicting postoperative pain based on preoperative perception: Are we doing better than the weatherman? *Anesthesiology*, *112*(6), 1311-1312. https://doi.org/10.1097/ALN.0b013e3181dcd5cc

Ramesh, C., Nayek, B., Baburaya, V., Patel, N., George, A., George, L. S., & Devi, E. S. (2017). Effect of preoperative education on postoperative outcomes among patients undergoing cardiac surgery: A systematic review and meta-analysis.

*Journal of Perianesthesia Nursing*, *32*(6), 518-529. https://doi.org/10.1016/j.jopan.2016.11.011

Redman, B. K. (2003). *Measurement tools in patient education* (2nd ed.). [E-book]. Retrieved from http://books.google.com

Ronco, M., Iona, L., Fabbro, C., Bulfone, G., & Palese, A. (2012). Patient education outcomes in surgery: a systematic review from 2004 to 2010. *International Journal of Evidence-Based Healthcare*, *10*, 309–323. https://doi.org/10.1111/j.1744-1609.2012.00286.x

Seth, P., Rudd, R. A., Noonan, R. K., & Haegerich, T. M. (2018). Quantifying the epidemic of prescription opioid overdose deaths. *American Journal of Public Health*, *108*(4), 500-502. https://doi.org/10.2105/AJPH.2017.304265

Shah, A. S., Blackwell, R. H., Kuo, P. C., & Gupta, G. N. (2017). Rates and risk factors for opioid dependence and overdose after urological surgery. *The Journal of Urology*, *198*, 1130-1136. https://doi.org/10.1016/j.juro.2017.05.037

Silver, J. (2015). Cancer prehabilitation and its role in improving health outcomes and reducing healthcare costs. *Seminars in Oncology Nursing*, *31*(1), 13-30. https://doi.org/10.1016/j.soncn.2014.11.003

Slover, J., & Koenig, K. (2012). Shared decision-making in orthopaedic surgery. *Clinical Orthopaedics and Related Research*, *470*, 1046–1053. https://doi.org/10.1007/s11999-011-2156-8

Syed, U. A., Aleem, A. W., Wowkanech, C., Weekes, D., Freedman, M., Tjoumakaris, F., ... Austin, L. S. (2018). Neer award 2018: the effect of preoperative education on opioid consumption in patients undergoing arthroscopic rotator cuff repair: a

prospective, randomized clinical trial. *J Shoulder Elbow Surg*, *27*(6), 962–967. https://doi.org/10.1016/j.jse.2018.02.039

Szeverenyi, C., Kekecs, Z., Johnson, A., Elkins, G., Csernatony, Z., & Varga, K. (2018). The use of adjunct psychosocial interventions can decrease postoperative pain and improve the quality of clinical care in orthopedic surgery: A systematic review and meta-analysis of randomized controlled trials. *The Journal of Pain*, *19*(11), 1231-1252. https://doi.org/10.1016/j.jpain.2018.05.006

Theunissen, M., Jonker, S., Schepers, J., Nicholson, N. A., Nuijts, R., Gramke, H., ... Peters, M. L. (2018). Validity and time course of surgical fear as measured with the Surgical Fear Questionnaire in patients undergoing cataract surgery. *PLoS ONE*, *13*(8), e0201511. https://doi.org/10.1371/journal.pone.0201511

Vilkins, A. L., Sahara, M., Till, S. R., Ceci, C., Howard, R., Griffith, K., ... As-Sanie, S. (2019). Effects of Shared Decision Making on Opioid Prescribing After Hysterectomy. *Obstetrics & Gynecoclogy*, *134*(4), 823-833. https://doi.org/10.1097/AOG.0000000000003468

Wang, Y., Liu, Z., Chen, S., Ye, X., Xie, W., Hu, C., ... Jackson, T. (2018). Pre-surgery beliefs about pain and surgery as predictors of acute and chronic post-surgical pain: A prospective cohort study. *International Journal of Surgery*, *52*, 50-55. https://doi.org/10.1016/j.ijsu.2018.02.032

Waszak, D. L., Mitchell, A. M., Ren, D., & Fennimore, L. A. (2018). A quality improvement project to improve education provided by nurses to ED patients prescribed opioid analgesics at discharge. *J Emerg Nurs*, *44*, 336-344. https://doi.org/10.1016/j.jen.2017.09.010

Zampini, A. M., Gill, B. C., Khanna, A., Hettel, D. R., Faris, A. E., Wood, H. M., & Sabenegh, E. S. (2018). Associations between preoperative preparedness for radical prostatectomy and patient reported pain outcomes. *The Journal of Urology*, *199*(4S), e1092. Abstract retrieved from https://www.jurology.com/article/S0022-5347(18)42008-3/fulltext

# APPENDIX A: NOVANT HEALTH NURSING RESEARCH COUNCIL APPROVAL

Name: DeShuna Dickens MSN, RN, DNP (c)

Facility: NHmg

December 27, 2018

Dear DeShuna,

Thank you for submitting your evidence-based practice project, "Responsible Opioid Stewardship: A Nurse-Driven Preoperative Education Intervention" to the Nursing Research Council for approval.

Your project will involve determining whether a nurse-drive educational intervention and ERAS interventions will impact patient knowledge and use of opioids postoperatively. Your project was approved as a sound project with the potential to improve care at Novant Health. The Nursing Research Council recommended the following changes to strengthen your study:

- Discuss project with Christie White DNP, RN in the patient education department.

Your completed project will be eligible for inclusion in career ladder portfolios for eligible nurses. The final report must be submitted back to the Nursing Research Council prior to Career Ladder submission.

We look forward to hearing back from you within the year.

Best wishes!

Gloria A Walters

Gloria Walters PhD, RN, RN-BC, CCRN-K
Novant Health
336.718.6033
gawalters@novanthealth.org

# APPENDIX B: PRESBYTERIAN HEALTHCARE IRB APPROVAL

NOVANT HEALTH

Presbyterian Medical Center

200 Hawthorne Lane
Charlotte, NC 28204

| | | |
|---|---|---|
| **DATE:** | April 26, 2019 | |
| **TO:** | DeShuna Dickens, MPH, MSN, Novant Health Presbyterian Medical Center | |
| **FROM:** | Vickie Zimmer, Director, Presbyterian Healthcare IRB | |
| **PROTOCOL TITLE:** | Responsible Opioid Stewardship: A Nurse Driven Preoperative Pain Management Education Intervention | |
| **PROTOCOL NUMBER:** | 19-1275 | |
| **APPROVAL PERIOD:** | Approval Date: April 26, 2019 | Expiration Date: April 25, 2020 |

The Presbyterian Healthcare IRB, operated by Novant Health, has reviewed the protocol entitled: Responsible Opioid Stewardship: A Nurse Driven Preoperative Pain Management Education Intervention. The review of your submission included the items listed below.

**Attachments**

- Patient Questionnaire_POD1
- Patient Questionnaire_POD7
- Pain Management Evaluation
- PPQ
- SFQ
- Education Content Guide
- Study Participant Tracking Tool
- Demographics Tool
- Informed Consent

The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease.

This finding will be documented in the minutes of the May 16, 2019 IRB meeting. A copy of the protocol is maintained by the IRB office. All minutes and proceedings pertinent to this protocol are maintained by the IRB office. The Novant Health IRBs are registered with the Office for Human Research Protections (OHRP) and are in compliance with the requirements of federal regulations 45 CFR 46, 21 CFR 50, 21 CFR 56 and internal policies as revised to date. If you have any questions or need additional information, please contact the IRB office at (336)718-9670 or irb@novanthealth.org.

Sincerely,

Note: Approved by Expedited Review meeting category 7.

Mark Clemens, PhD
Presbyterian Healthcare IRB Chair

# APPENDIX C: UNCC APPROVAL BY EXTERNAL IRB

Deshuna Dickens <ddicken8@uncc.edu>

## IRB Notice - 19-0183

3 messages

**IRB** <uncc-irb@uncc.edu> Tue, May 14, 2019 at 1:28 PM
To: ddicken8@uncc.edu, kdshue@uncc.edu
Cc: uncc-irbis@uncc.edu

**To**: Deshuna Dickens

**From**: Office of Research Compliance

**Date**: 5/14/2019
**Expiration Date of Approval by External IRB:** 4/25/2020
**RE**: Agreement to Rely on External IRB
**External Organization:** Presbyterian Healthcare IRB
**Study #:** 19-0183

**Study Title**: Responsible Opioid Stewardship: A Nurse Driven Preoperative Pain Management Education Intervention

This confirms that an IRB Authorization Agreement with the organization identified above has been executed to rely on their IRB for continuing oversight of this study. This agreement specifies the roles and responsibilities of the respective entities.

**Study Description:**

Opioid use following surgery is one factor that has contributed to the national epidemic of opioid abuse. This abuse has led to increased morbidity and mortality rates and a negative financial burden to the healthcare system. In North Carolina, the epidemic is an even greater issue than it is nationally. It is therefore imperative that healthcare systems and clinicians support efforts to fight against the epidemic of opioid abuse and provide timely evidenced based pain management education, instructions on safe opioid use, and education on the importance of appropriate disposal of unused drugs to all patients to reduce some of the factors contributing to opioid-related deaths and abuse.

Preoperative education targeting pain management and opioid safety in prostate cancer patients is an area that has not been extensively explored in the literature. In fact, there are very few published studies evaluating the effectiveness of preoperative opioid education on postoperative outcomes (reducing opioid utilization, post-op pain control, anxiety, etc.) in any surgical oncology patients other than a few studies noted in breast and colon cancer. Motivated by this lack of knowledge of patient's pain and surgical expectations prior to surgery, experiences with pain and opioid consumption post-prostatectomy, and the current opioid crisis it is therefore the purpose of this study to examine the effects of preoperative opioid education on patient's knowledge of pain management and to analyze their opioid consumption following prostatectomy and post discharge.

**It is your responsibility to:**

1. Inform the UNC Charlotte IRB about any actions by the external IRB affecting their approval to conduct the study, including suspension or termination of approval.

2. Submit a modification to the UNC Charlotte IRB (via IRBIS) if/when new personnel are added to the study team or the study is modified in such a way that additional institutional approvals are required (e.g., radiation safety, biosafety).

3. Submit a copy of the external IRB approval letter and current approved consent document to the UNC Charlotte IRB (via IRBIS) when the study is renewed; you will continue to receive reminder notices from the UNC Charlotte IRB for renewal, and should provide the external approval and consent documents within 30 days of receipt.

4. Report all Unanticipated Problems protocol violations and unresolved subject complaints to the UNC Charlotte IRB *in addition to the external IRB.* You may submit a copy of the report you submitted to the external IRB; this should be done via the IRBIS UP reporting pathway.

# APPENDIX D: DEMOGRAPHIC DATA COLLECTION TOOL

Data Collection Tool: Demographics

Patient ID#: _____

**Please answer the following questions by checking a response or writing the answer in the space provided.**

1. Date of birth: ____/____/____
   MM DD YY

2. Which of the following *best* describes your race and ethnicity?

   ☐ American Indian or Alaska Native
   ☐ Asian
   ☐ Black or African American
   ☐ Hispanic/Latino
   ☐ Native Hawaiian or Pacific Islander
   ☐ White or Caucasian
   ☐ Some other race - Please specify: _____

3. Highest level of education?

   ☐ 8th grade or less
   ☐ Some high school / no diploma
   ☐ High school graduate or GED
   ☐ Some college or 2-year degree
   ☐ 4-year college degree or higher

4. What is your current employment status?

   ☐ Working full-time (35+ hours/wk)
   ☐ Working part-time (1-34 hours/wk)
   ☐ Retired
   ☐ Other: Please specify: _____

5. Do you know your cancer's Gleason Score?

   ☐ No ☐ Yes: Please specify: _____

6. Are you currently taking pain control medications?

   ☐ No ☐ Yes: Please specify: _____

7. Do you have a surgery date scheduled?

   ☐ No ☐ Yes: Please specify: _____

# APPENDIX E: PATIENT PAIN QUESTIONNAIRE (PPQ)

Instrument Title: The Patient Pain Questionnaire (PPQ)
Instrument Author: The City of Hope Pain & Palliative Care Resource Center
Cite instrument as:

The City of Hope Pain & Palliative Care Resource Center. (2012) . The Patient Pain Questionnaire (PPQ). Measurement Instrument Database for the Social Science. Retrieved from www.midss.ie


**Patient Pain Questionnaire**

Dear Colleague,

The Patient Pain Questionnaire (PPQ) is a sixteen item ordinal scale that measures the Knowledge and Experience of a patient in managing chronic cancer pain. This tool can be useful in clinical practice as well as for research. This instrument can be administered by mail or in person.

**Directions**: The patient is asked to read each question thoroughly and decide if he/she agrees with the statement or disagrees. The patient is then asked to circle a number to indicate the degree to which he/she agrees or disagrees with the statement according to the word anchors on each end of the scale.

The PPQ includes 9 items that measure knowledge about pain and 7 items that measure the patient's experience with pain. All of the items have been formatted such that 0 = the most positive outcome and 10 = the most negative outcome. We have found it most helpful to analyze the data by focusing on the subscales as well as the individual items as each item has important implications.

You are welcome to use this instrument in your research/clinical practice to gain information about patient knowledge and experience to formulate or evaluate pain management programs. You have permission to duplicate this tool.

This tool is used in conjunction with a version created for use by family caregivers, the Family Pain Questionnaire (FPQ). The PPQ tool has been tested with established reliability and validity. A series of psychometric analyses were performed on the PPQ instrument including content validity (CVI = .95), test-retest reliability (r = .65), internal consistency (alpha = .74), and factor analysis established with caregivers (N=219).

Good luck with your research!!

Betty R. Ferrell, RN, PhD, FAAN Research Scientist

References:


1. Ferrell BR, Ferrell B, Rhiner M, Grant M. "Family Factors Influencing Cancer Pain". Post Graduate Medical Journal, 1991; 67 (Suppl 2):S64-S69.

2. Ferrell BR, Rhiner M, Cohen M, Grant M. "Pain as a Metaphor for Illness. Part I: Impact of Cancer Pain on Family Caregivers." Oncology Nursing Forum, 1991; 18(8):1303-1309.

3. Ferrell BR, Cohen M, Rhiner M, Rozak A. "Pain as a Metaphor for Illness. Part II: Family Caregivers' Management of Pain. Oncology Nursing Forum, 1991; 18(8):1315-1321.

4. Ferrell BR, Rhiner M, Ferrell B. "Development and Implementation of a Pain Education Program. Cancer, 1993; 72(11):3426-3432.

5. Ferrell BR, Ferrell B, Ahn C, Tran K. "Pain Management for Elderly Patients with Cancer at Home." Cancer, 1994; 74(7):2139-2146.

6. Ferrell BR, Borneman T, Juarez G. "Integration of Pain Education in Home Care." Journal of Palliative Care, 1998; 14(3):62-68.

7. Ferrell BR, Rivera LM. "Cancer Pain Education for Patients." Seminars in Oncology Nursing, 1997; 13(1):42-48.

8. Ferrell BR, Juarez G, Borneman T, ter Veer A. "Pain management in home care." Journal of Hospice and Palliative Care Nursing Association, 1999.

Patient Pain Questionnaire (PPQ)

**Patient code:** _____

Below are a number of statements about cancer pain and pain relief. Please circle a number on the line to indicate your response:

**Knowledge**

1. Cancer pain can be effectively relieved.

   **agree** 0 1 2 3 4 5 6 7 8 9 10 **disagree**

2. Pain medicines should be given only when pain is severe.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

3. Most cancer patients on pain medicines will become addicted to the medicines over time.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

4. It is important to give the lowest amount of medicine possible to save larger doses for later when the pain is worse.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

5. It is better to give pain medications around the clock (on a schedule) rather than only when needed.

   **agree** 0 1 2 3 4 5 6 7 8 9 10 **disagree**

6. Treatments other than medications (such as massage, heat, relaxation) can be effective for relieving pain.

   **agree** 0 1 2 3 4 5 6 7 8 9 10 **disagree**

7. Pain medicines can be dangerous and can often interfere with breathing.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

8. Patients are often given too much pain medicine.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

9. If pain is worse, the cancer must be getting worse.

   **disagree** 0 1 2 3 4 5 6 7 8 9 10 **agree**

Patient Pain Questionnaire (PPQ)

**Experience**

10. Over the past week, how much pain have you had?

**no pain** 0 1 2 3 4 5 6 7 8 9 10 **a great deal**

11. How much pain are you having now?

**no pain** 0 1 2 3 4 5 6 7 8 9 10 **a great deal**

12. How much pain relief are you currently receiving?

**a great deal** 0 1 2 3 4 5 6 7 8 9 10 **no relief**

13. How distressing is the pain to you?

**not at all** 0 1 2 3 4 5 6 7 8 9 10 **extremely**

14. How distressing is your pain to your family members?

**not at all** 0 1 2 3 4 5 6 7 8 9 10 **extremely**

15. To what extent do you feel you are able to control your pain?

**extremely** 0 1 2 3 4 5 6 7 8 9 10 **not at all**

16. What do you expect will happen with your pain in the future?

**pain will get better** 0 1 2 3 4 5 6 7 8 9 10 **pain will get worse**

Thank you very much for your time, your co-operation is much appreciated.
Any further comments about your views and experiences related to your pain management would be welcomed, please use the area below or the back of this questionnaire if necessary for further comments or observations.

# APPENDIX F: SURGICAL FEAR QUESTIONNAIRE AND SUPPORTING INFO

## (SFQ)

**Surgical Fear Questionnaire (SFQ)**

**Patient code:** _____

**This questionnaire assesses how afraid you are for various aspects related to the surgical procedure you are about to undergo. Please circle the number that best reflects how you feel right now.**

1. I am afraid of the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

2. I am afraid of the anesthesia

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

3. I am afraid of the pain after the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

4. I am afraid of the unpleasant side effects (like nausea) after the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

5. I am afraid my health will deteriorate because of the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

6. I am afraid the operation will fail

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

**Surgical Fear Questionnaire (SFQ)**

**Patient code:** _____

7. I am afraid that I won't recover completely from the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

8. I am afraid of the long duration of the rehabilitation after the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

## Supporting information

**S1 File. Surgical Fear Questionnaire.**

Patient instructions:

This questionnaire assesses how afraid you are for various aspects related to the surgical procedure you are about to undergo. Please circle the number that best reflects how you feel right now.

1. I am afraid of the operation
2. I am afraid of the anesthesia
3. I am afraid of the pain after the operation
4. I am afraid of the unpleasant side effects (like nausea) after the operation
5. I am afraid my health will deteriorate because of the operation
6. I am afraid the operation will fail
7. I am afraid that I won't recover completely from the operation
8. I am afraid of the long duration of the rehabilitation after the operation

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| not at all afraid | | | | | | | | | | very afraid |

For the calculation of the total score the following instructions are applicable: one missing item score at maximum is allowed, to be replaced by the subject's mean score. In the case of more than one missing, the SFQ should not be interpreted. For the calculation of the subscales (short-term fear item 1-4 and long-term fear item 5-10) no missing data are allowed. If a subject enters two scores for one item: if

adjacent, choose the highest value, if non-adjacent (other values are in between) the item has to be considered as missing.

# APPENDIX G: APS-POQ-R (POD#1)

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R)

Patient ID#: _____

The following questions are about pain you experienced during **the first 24 hours after your operation**.

**P1**. On this scale, please indicate the **least** pain you had in the first 24 hours:

0 1 2 3 4 5 6 7 8 9 10
no pain worse pain possible

**P2**. On this scale, please indicate the **worst** pain you had in the first 24 hours:

0 1 2 3 4 5 6 7 8 9 10
no pain worse pain possible

**P3**. How often were you in **severe** pain in the first 24 hours?

Please circle your best estimate of the percentage of time you experienced severe pain:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
never in severe pain always in severe pain

**P4**. Circle the one number below that best describes how much pain **interfered or prevented you from**:

a. Doing **activities in bed** such as turning, sitting up, repositioning:

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

b. Doing **activities out of bed** such as walking, sitting in a chair, standing at the sink:

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

c. **Falling asleep**

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

d. **Staying asleep**

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

**P5**. Pain can affect our mood and emotions.
On this scale, please **circle the one number** that best shows how much the pain caused you to feel:

a. **Anxious**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

b. **Depressed**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R)

Patient ID#: _____

c. **Frightened**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

d. **Helpless**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

**P6**. Have you had any of the following side effects?

Please circle "0" if no; if yes, circle the **one** number that best shows the severity of each:

a. Nausea

0 1 2 3 4 5 6 7 8 9 10
none severe

b. Drowsiness

0 1 2 3 4 5 6 7 8 9 10
none severe

c. Itching

0 1 2 3 4 5 6 7 8 9 10
none severe

d. Dizziness

0 1 2 3 4 5 6 7 8 9 10
none severe

**P7**. In the first 24 hours, how much pain **relief** have you received?

Please circle the one percentage that best shows how much relief you have received from all of your pain treatments combined (medicine and non-medicine treatments):

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
no relief complete relief

**P8**. Were you **allowed to participate in decisions** about your pain treatment as much as you wanted to?

0 1 2 3 4 5 6 7 8 9 10
not at all very much so

**P9**. Circle the one number that best shows how **satisfied** you are with the results of your pain treatment while in the hospital:

0 1 2 3 4 5 6 7 8 9 10
extremely dissatisfied extremely satisfied

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R)

Patient ID#: _____

**P10**. Did you receive any **information** about your pain treatment options? ____ No ____ Yes

a. If yes, please circle the number that best shows **how helpful** the information was:

0 1 2 3 4 5 6 7 8 9 10

not at all helpful extremely helpful

**P11**. Did you use any **non-medicine methods** to relieve your pain? _____ No _____ Yes

If yes, **check all** that apply:

_____ cold pack

_____ deep breathing

_____ distraction (such as watching TV, reading)

_____ heat

_____ imagery or visualization

_____ massage

_____ meditation

_____ listen to music

_____ prayer

_____ relaxation

_____ walking

other (please describe):_____

**P12**. How often did a nurse or doctor **encourage you to use** non-medicine methods?

_____ never _____ sometimes _____ often

*P13. Tick here if the patient received help in filling-in the questionnaire: ☐

**Thank you for your time and feedback**

Any further comments about your views and experiences related to your pain management would be welcomed, please use the area below or the back of this questionnaire if necessary for further comments or observations.

_____

_____

_____

# APPENDIX H: APS-POQ-R (POD# 7)

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) / *Modified

Patient ID#: _____

The following questions are about pain you experienced during **the last 7 days since your operation**.

**P1**. On this scale, please indicate the **least** pain you had in the last 7 days:

0 1 2 3 4 5 6 7 8 9 10
no pain worse pain possible

**P2**. On this scale, please indicate the **worst** pain you had in the last 7 days:

0 1 2 3 4 5 6 7 8 9 10
no pain worse pain possible

**P3**. How often were you in **severe** pain in the last 7 days?

Please circle your best estimate of the percentage of time you experienced severe pain:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
never in severe pain always in severe pain

**P4**. Circle the one number below that best describes how much pain **interfered or prevented you from**:

a. Doing **activities in bed** such as turning, sitting up, repositioning:

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

b. Doing **activities out of bed** such as walking, sitting in a chair, standing at the sink:

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

c. **Falling asleep**

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

d. **Staying asleep**

0 1 2 3 4 5 6 7 8 9 10
does not interfere completely interferes

**P5**. Pain can affect our mood and emotions.
On this scale, please **circle the one number** that best shows how much the pain caused you to feel:

a. **Anxious**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

b. **Depressed**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) / *Modified

Patient ID#: _____

c. **Frightened**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

d. **Helpless**

0 1 2 3 4 5 6 7 8 9 10
not at all extremely

**P6**. Have you had any of the following side effects?

Please circle "0" if no; if yes, circle the **one** number that best shows the severity of each:

a. Nausea

0 1 2 3 4 5 6 7 8 9 10
none severe

b. Drowsiness

0 1 2 3 4 5 6 7 8 9 10
none severe

c. Itching

0 1 2 3 4 5 6 7 8 9 10
none severe

d. Dizziness

0 1 2 3 4 5 6 7 8 9 10
none severe

**P7**. In the last 7 days, how much pain **relief** have you received?

Please circle the one percentage that best shows how much relief you have received from all of your pain treatments combined (medicine and non-medicine treatments):

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
no relief complete relief

**[P8 – P10 skipped for POD7 questionnaire]**

**P11**. In the last 7 days **at home**, did you use any **non-medicine methods** to relieve your pain? _____ No _____ Yes

If yes, **check all** that apply:

_____ cold pack
_____ deep breathing
_____ distraction (such as watching TV, reading)
_____ heat
_____ meditation
_____ listen to music
_____ prayer
_____ relaxation

Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) / *Modified

Patient ID#: _____

_____ imagery or visualization

_____ walking

_____ massage

other (please describe):_____

*P13. Tick here if the patient received help in filling-in the questionnaire: ☐

**Thank you for your time and feedback**

Any further comments about your views and experiences related to your pain management would be welcomed, please use the area below or the back of this questionnaire if necessary for further comments or observations.

_____

_____

_____

_____

# APPENDIX I: PAIN MANAGEMENT EVALUATION

**Pain Management Evaluation**

Patient ID#: _____

Please rate **how well** you were prepared or informed about the following:

1. My pain control options following surgery

   ☐ Very well
   ☐ Well
   ☐ Fairly
   ☐ Poorly
   ☐ Not informed

2. When to take pain medications

   ☐ Very well
   ☐ Well
   ☐ Fairly
   ☐ Poorly
   ☐ Not informed

3. Alternatives to opioid medications

   ☐ Very well
   ☐ Well
   ☐ Fairly
   ☐ Poorly
   ☐ Not informed

4. Recognizing the signs of opioid overdose

   ☐ Very well
   ☐ Well
   ☐ Fairly
   ☐ Poorly
   ☐ Not informed

5. Opioid storage and disposal options

   ☐ Very well
   ☐ Well
   ☐ Fairly
   ☐ Poorly
   ☐ Not informed

6. I felt prepared for my home care following my operation.

   ☐ Very prepared
   ☐ Somewhat prepared
   ☐ Neither prepared or unprepared
   ☐ Somewhat unprepared
   ☐ Very unprepared

**Pain Management Evaluation**

Patient ID#: _____

7. Overall I am satisfied with the information I received on pain control from all members of the medical team.

   ☐ Very satisfied
   ☐ Somewhat satisfied
   ☐ Neither satisfied or dissatisfied
   ☐ Somewhat dissatisfied
   ☐ Very dissatisfied

8. In the last 7 days **at home**, did you use any **non-opioid medicines** to relieve your pain?
   _____ No _____ Yes **[IF YES, please indicate which below]**

   _____ Acetaminophen (Tylenol©)
   _____ NSAIDS (anti-inflammatories)
   _____ Aspirin
   _____ Ibuprofen (Advil©, Motrin©)
   _____ Naproxen (Aleve©)
   _____ Celecoxib (Celebrex©)
   _____ Other (please describe):_____

   _____ Nerve pain medications
   _____ Gabapentin (Neurontin©)
   _____ Pregabalin (Lyrica©)

9. Were you discharged with a prescription for an **opioid** pain medication? _____ No _____ Yes **[IF NO, END HERE]**

   **If YES**, answer the following questions:

   a. Did you fill the prescription? _____ No _____ Yes

   b. Which opioid pain medication prescription(s) were you given, **check all** that apply
      _____ Tramadol (Ultram©)
      _____ Codeine with acetaminophen (Tylenol#3 or #4)
      _____ Hydrocodone (Norco©, Vicodin©, Lorcet©)
      _____ Oxycodone (OxyContin©)
      _____ Oxycodone with acetaminophen (Percocet©, Endocet©)
      _____ Other (please describe):_____

   c. How many opioids were you prescribed? _____

   d. Did you take any opioids while at home? _____ No _____ Yes

   e. Were you told how long to take the opioids? _____ No _____Yes

   f. How many days were you told to take opioids? (i.e., 3 days, 5 days, etc.) _____

   g. Do you have opioid pain medications have left? _____ No _____ Yes

   h. When you stopped feeling pain, did you safely dispose of your opioids? _____ No _____ Yes

# APPENDIX J: STRUCTURED EDUCATION GUIDE

*Structured Pain Education Content*

| |
|---|
| A. General overview of safe and effective pain control |
| a. Brief discussion patient's experience and/or fears regarding pain |
| b. Understanding of causes of pain |
| c. Discussion of pain assessment and use of pain rating scale |
| d. Discussion of goal for pain control |
| B. Discussion of non-medication management options for pain |
| C. Discussion of non-opioid management options for pain and side effects |
| D. Discussion of opioid management options for pain, side effects, and safe disposal |

*Note.* Based off of the American College of Surgeons (ACS) Safe and Effective Pain Control After Surgery Handout and content delivered during ERAS pre-op session.