2023

Reducing Same-Day Procedure Cancellations at an Interventional Spine and Pain Management Center

Adriene Smith
Walden University

Walden University

College of Nursing

This is to certify that the doctoral study by

Adriene Smith

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Margaret Harvey, Committee Chairperson, Nursing Faculty
Dr. Patricia Schweickert, Committee Member, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2023

Abstract

Reducing Same-Day Procedure Cancellations at an Interventional Spine and Pain Management Center

by

Adriene Smith

MS, Grand Canyon University, 2011

BS, Widener University, 1998

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

October 2023

Abstract

The practice problem at a local interventional spine and pain management center was that the nurses lacked sufficient knowledge of the facility's preoperative screening tool. The problem resulted in inadequate patient preparation for surgical procedures that led to a 33% same-day surgery cancellation rate. A staff education project was conducted to educate the nurses on how to properly use the facility's preoperative screening tool and assess their knowledge of common blood thinner medications included in the preoperative screening process. Failure to discontinue blood thinner medications for a specific amount of time before surgery is a common reason for same-day cancellations. Surgical procedure cancellations prolong chronic pain, delay patient care, and impose emotional harm with adverse effects. The staff education project was developed using Knowles's adult learning theory. The practice-focused questions addressed whether a nursing staff education project would increase the nursing staff's perception of knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires. Twelve nurses' perceptions of knowledge of the preoperative screening tool and knowledge of blood thinners were assessed. The nurses' perceptions of knowledge increased by 13% on the preoperative screening tool and by 75% on the blood thinner medication test. The implications for positive social change include more knowledgeable nurses and positive outcomes for the back pain population.

Reducing Same-Day Procedure Cancellations at an Interventional Spine and Pain Management Center

by

Adriene Smith

MS, Grand Canyon University, 2011

BS, Widener University, 1998

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

October 2023

Dedication

I dedicate this doctoral journey to, first and foremost, my Heavenly Father, who has given me the knowledge, understanding, and strength to persevere to completion. I also dedicate this to my tribe: my husband Craig, who has lightened my load and encouraged me along the way; my children, Natasha and Darius, for believing in me; and my circle of family and friends who cheered and prayed for me through the ups and downs of the journey to completion.

Acknowledgments

I want to thank Walden University for the opportunity to accomplish my professional goal of obtaining my doctorate degree. Again, I thank God Almighty, my husband, and my tribe of family and friends for their love and support. You can do all things through Christ who strengthens you.

Table of Contents

List of Tables

List of Figures

Section 1: Nature of the Project

Introduction

Chronic back conditions remain one of the leading health indicators in Healthy People 2020's national health promotion and disease-prevention focus (Office of Disease Prevention and Health Promotion, 2010). It is estimated that 85% of Americans have experienced a back condition at some point (Jovičić et al., 2016). Patients struck with chronic back conditions are from diverse backgrounds and demographics. The chronic back pain population has a significant socioeconomic impact in the United States due to lost wages, workforce reduction, and unemployment compensation (Sinclair et al., 2018). Chronic back pain has financial consequences and results in a sedentary lifestyle due to decreased physical mobility (Xu et al., 2020); opiate substance abuse and dependency (Bilevicius et al., 2020); and mental health disorders, including depression and suicidal ideations (Xu et al., 2020). The clinical practice guidelines and the U.S. Federal Pain Research Strategy prioritized additional or improved research to reduce the public health impact of back pain (George et al., 2020). Bhaskar and Simpson (2020) cited the World Health Organization (WHO), which promoted interventional procedures to treat chronic back pain patients. Interventional spine and pain management targets the source of back pain from the spinal nerves using various invasive techniques and surgical procedures to alleviate or lessen the pain. Chronic pain patients must be treated promptly. A delay in treatment decreases the quality of care the patients need (Bhaskar & Simpson, 2020). This Doctor of Nursing Practice (DNP) project focused on the chronic back pain

population cared for by one local outpatient interventional spine and pain management center. One out of three chronic back pain patients scheduled for a spinal procedure at the local outpatient spine and pain management center is cancelled on the day of the scheduled procedure, according to data collected from the confidential patient cancellation log. This DNP project addressed the practice-focused problem of patient procedure cancellations due to the healthcare staff's lack of knowledge on properly using the preoperative screening tool. At the facility's request, the project also addressed nurses' knowledge of common blood thinner medications that, when not discontinued before the day of surgery, lead to same-day cancellations of surgery. The implementation of the DNP project helped reduce the impact of a lack of nursing knowledge regarding the back pain population, thereby helping nurses to provide excellent preoperative care to chronic back pain patients and potentially contributing to positive social change.

Problem Statement

This DNP project focused on increasing nurses' knowledge of the preoperative screening tool to reduce patient procedure cancellations. The healthcare staff's lack of knowledge on properly using the preoperative screening tool had led to a same-day 33% cancellation rate among chronic back pain patients scheduled for an interventional surgical procedure at the local outpatient spine and pain management center. According to data collected from the facility cancellation log, more than 30% of patients scheduled for spinal procedures did not adhere to the required preoperative instructions, resulting in same-day cancellations. According to Viftrup et al. (2021), surgical procedure

cancellations prolong chronic pain, delay patient care, and impose emotional harm with adverse effects. Direct observations were conducted on the staff's use of the preoperative tool, and it was determined that the staff used the preoperative tool incorrectly. The practice-focused problem was meaningful and relevant to the practicum setting to address patient procedure cancellations and implement preventive interventions. Facility leaders noticed a lack of knowledge among nursing staff regarding common blood thinner medications. Leaders requested that staff education be conducted with nursing staff as an intervention to address the problem of incorrect preoperative screening tool usage and a lack of knowledge of common blood thinner medications. The intervention included educating the healthcare staff to properly teach and prepare patients for their spinal procedure using preoperative screening instructions. Healthcare staff were also educated on the common names of blood thinner medications so that during preoperative screening, patients could be instructed to discontinue those medications for a specified amount of time before their surgical procedure. According to Corbin et al. (2021), staff education regarding preoperative patient education materials can enhance the patient's education process and improve patient surgical outcomes.

The practice-focused problem was meaningful and relevant to the broader nursing practice because chronic back pain is one of the leading health indicators in Healthy People 2020's national health promotion and disease-prevention focus (Office of Disease Prevention and Health Promotion, 2010). It is estimated that 85% of people in North America are affected by chronic back conditions (Jovičić et al., 2016).

The DNP project was a staff education project to improve the nursing staff's knowledge of using the preoperative screening tool to educate patients on adhering to the preoperative instructions for spinal procedures and to improve the nursing staff's ability to recognize common blood thinner medications. The staff education project addressed Healthy People 2020's chronic back pain health indicator (Office of Disease Prevention and Health Promotion, 2010). Finally, the staff education project addressed the mandate of clinical practice guidelines for alleviating the public health impact of back pain. The hypothesis was that educating the nursing staff on effectively and adequately using the preoperative screening tool to educate and prepare patients for invasive spinal procedures and proper identification of common blood thinner medications would reduce the same-day procedure cancellation rate at the local outpatient spine and pain management center (Janssen et al., 2022).

According to the study, the healthcare staff was not correctly using the preoperative screen tool implemented by the facility. As a result, patients were not adequately screened, educated, or prepared for their scheduled invasive spinal pain management procedure (Buckley et al., 2021). The primary reason for patient surgical procedure cancellations at the local spine and pain center was patients' nonadherence to preoperative instructions. Same-day cancellations occurred because patients were not correctly prescreened and educated in preparation for their procedure. The high number of surgery cancellations affects the chronic back pain population by prolonging their

debilitating pain, reducing the continuity of care from healthcare professionals, and financially impacting the healthcare facility (Wintjens et al., 2021).

The practice-focused question stated: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires? The local outpatient surgery center's preoperative screening tool educates and prepares the patient for the surgical procedure using a list of essential instructions. Patients are instructed on eating and drinking, preoperative cleansing, bringing a responsible person to drive and care for them postoperatively, prescribed medications, arrival time, necessary medical clearances, authorization forms, and expected recovery time. Failure to discontinue blood thinner medications for a specific amount of time prior to surgery is a common reason for same-day cancellations. Hence, improving the healthcare staff's knowledge of preoperative screening tools and common blood thinner medications was hypothesized to improve patients' understanding of the preoperative instructions and lower the surgical procedure cancellation rate (Arias et al., 2020).

Purpose Statement

At the selected local outpatient spine and pain management center, 33% of chronic back pain patients scheduled for spinal procedures were cancelled on the same day of the planned surgery due to patients not adequately being educated on preoperative

instructions. The inexperience of the nursing staff in using the preoperative screening tool and a lack of nurse knowledge of common blood thinner medications resulted in the insufficient screening of patients for surgical procedures. Hence, the patients' lack of understanding of the required preoperative instructions led to the cancellation of many surgical procedures (Piraux et al., 2018).

The meaningful gap in practice addressed by the doctoral educational project was the nursing staff's lack of knowledge and inconsistent use of the facility's preoperative screening tool (Karanfil & Møller, 2018). The doctoral project focused on reducing chronic back pain patients' interventional surgical procedure cancellation rate by educating healthcare staff on using the preoperative screening tool and recognizing common blood thinner medications. Correctly using the organization's preoperative screening tool is essential to educate and prepare patients for surgical procedures.

The guiding practice question stated: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires? The aim of the staff education project was to teach nursing staff how to properly use the organization's preoperative screening tool to educate patients on the preoperative instructions for surgery and to educate nursing staff on common blood thinner medications. If healthcare professionals are not educated on using the preoperative tool, which includes recognizing common blood thinner

medications, they cannot effectively educate patients. The practice-focused question addressed the lack of nursing staff education on using preoperative screening tools to educate and prepare the surgical patient to adhere to the preoperative instructions; the aim was to reduce the high cancellation rate of spinal procedures.

The DNP project aligned with the gap in practice. The healthcare staff lacked the knowledge to use the preoperative screening tool effectively to prepare patients for surgical procedures to avoid cancellation. The DNP staff education project aimed to improve the nursing staff's knowledge of using the preoperative screening tools and common blood thinner medications that educate and prepare patients for surgical procedures, reducing the same-day surgery cancellation rate. Staff education interventions can improve patients' knowledge, compliance, and outcomes (Page et al., 2019).

Nature of the Doctoral Project

This DNP education project was conducted at an outpatient interventional spine and pain management center in the Southeastern United States. The healthcare staff education was conducted at the end of a monthly staff meeting when all preoperative nursing staff were present and engaged. The sources of evidence supporting this doctoral project's purpose included the leading health indicators identified in Healthy People 2020 (Office of Disease Prevention and Health Promotion, 2010). Specifically, Healthy People 2020 indicates that chronic back conditions are a national health promotion and disease prevention issue (Office of Disease Prevention and Health Promotion, 2010).

The procedural steps for an educational DNP project included conducting a literature search utilizing ProQuest, Medline, CINAHL, Cochrane Library, and EBSCO databases for research within the last 5 years; reviewing the healthcare staff's use of the preoperative tool and knowledge of blood thinner medications; and designing an educational program to educate nurses on effectively using the preoperative screening tool based on the deficiency rates of patients' presurgical instructional knowledge. A prequestionnaire of the nurses' knowledge was obtained using a 5-point Likert scale (see Appendix A). Nursing staff also took a blood thinner medication test (see Appendix B) to gain a baseline score of their blood thinner medication knowledge prior to education. I conducted an education project using PowerPoint (see Appendix C). A simulated patient preoperative screening was conducted, navigating the facility's computerized preoperative screening tool, and nurses were educated on common blood thinner medications. The pre- and post-staff-education questionnaire scores and blood thinner medication scores were analyzed to determine if learning had occurred. Descriptive statistics generated by IBM SPSS Statistics allowed me to assess whether the nursing staff's knowledge of the preoperative screening tool and blood thinner medications improved.

An educational project for healthcare staff at the interventional spine and pain management center using a preoperative screening tool and common blood thinner medications enhanced nurses' ability to educate and prepare patients for interventional surgical procedures to improve patient outcomes (Bobbink et al., 2020). Healthcare staff

education intervention maintains fidelity and sustainability of positive patient outcomes and increases patients' knowledge, skills, or self-management (Rochon et al., 2020). The aim of the doctoral project was to increase staff knowledge and use of the preoperative tool to prepare chronic back pain patients for procedures to reduce chronic back pain. Improving the nurses' knowledge of the tool was hypothesized to decrease patients' same-day procedure cancellation rate.

Significance

The stakeholders of the local spinal center were the physicians, healthcare staff, and patients. Through proper education, the healthcare staff can help patients adequately prepare for their surgical intervention and reduce pain and other consequences associated with same-day cancellations. The stakeholders were empowered through education to provide patients with safe, high-quality care and to educate the community's interventional chronic back patient population concerning surgical procedures. Educating patients to adhere to preoperative instructions and decreasing the interventional cancellation rate could result in the healthcare facility's ability to maintain a good reputation in the community and increase patients' confidence in managing their chronic back conditions. The healthcare staff's educational project positively impacted nurses' knowledge of blood thinner medications and the use of the preoperative tool. The healthcare staff's educational project positively impacted patients with chronic back pain, healthcare consumers, organizations, and nursing. Successful interventional pain management procedures improve patients' physical mobility, decrease prescription pain

medication dependency, reduce healthcare costs, and improve patients' quality of life (Bhaskar & Simpson, 2020).

This DNP project supports the mission of Walden University to promote positive social change through improving human health conditions by addressing chronic back pain, one of the leading health indicators in the Healthy People 2020's national health promotion and disease-prevention focus on a local level (Office of Disease Prevention and Health Promotion, 2010). Specifically, the project focused on one key indicator from Healthy People 2020, chronic back conditions. Teaching the healthcare staff led to a more knowledgeable healthcare team, educated patients, and continuity of care for chronic back pain patients. This DNP project occurred at one of the 13 facilities operated by the parent organization. The other 12 facilities can use the education project to improve nursing knowledge of preoperative tools.

Summary

Section 1 introduced the topic of chronic back pain and how the doctoral project addressed the chronic back pain population in the local setting. A problem statement was presented, which addressed the local practice setting and the problem's significance to the nursing profession. The meaningful practice gap and how the doctoral project addressed the gap were also discussed. I presented evidence that supported the need for the project. The project's ability to transfer to another setting was explained, with implications for positive social change. Section 2 will contain a discussion of the model used to develop the staff education project, the relevance of staff education in the perioperative setting to

nursing practice, the local background, the context, and my role as the DNP student in this project.

Section 2: Background and Context

Introduction

This DNP doctoral project addressed the practice-focused problem that the healthcare staff at an outpatient interventional spine and pain management center lacked sufficient knowledge of the use of preoperative screening tools and common blood thinner medications, resulting in inadequate patient preparation for surgical procedures that led to a 33% same-day-surgery cancellation rate at the facility. According to data collected from the confidential patient cancellation log, one out of three chronic back pain interventional spinal procedures scheduled at the local outpatient interventional spine and pain management center was cancelled on the day of the invasive spinal procedure. The practice-focus question stated: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires? The aim of the staff education project was to teach healthcare staff how to properly use the organization's preoperative screening tool to educate patients on the preoperative instructions for surgery. The lack of knowledge of properly using the preoperative screening tool constituted a gap in practice.

Section 2 presents a discussion of the theory used to develop the staff education project; the relevance of staff education in the preoperative setting to nursing practice; the local background and context; and my role as the DNP student. The discussion includes

the evidence-based literature regarding staff education to improve knowledge and patient outcomes, the importance of preoperative screening, and the risk of delayed or cancelled surgery appointments.

Concepts, Models, and Theories

The staff education program for this project was developed using Knowles's (1980) adult learning theory. Knowles's (1980) adult learning theory focuses on the art and science of adult learning, termed *andragogy*. Knowles identified five different assumptions and four principles about adult learners that make the theory relevant to staff education programs. The five assumptions are as follows:

- *Self-concept*: Adults need to know why they need to learn something; adults have matured with a self-concept, making them self-directed and independent.
- *Adult learner experience*: Adult learners have a reservoir of experience that makes them resourceful.
- *Readiness to learn*: Adults approach learning as problem-solving. Adult learners have developed a readiness to learn closely related to their life's roles.
- *Orientation to learning*: Adults learn best when the topic is of immediate value. The orientation for the adult learner is more problem centered.
- *Motivation to learn*: Adults are self-motivated. The motivation for learning is internal, and learners understand the need to be self-directed to help patients.

Knowles's adult learning theory principles applied to the DNP project in that the healthcare staff participated in staff education development by examining their role in the preoperative screening process.

Relevance to Nursing Practice

Addressing the practice-focused problem of surgical procedure cancellations for chronic back pain patients due to the healthcare staff's lack of knowledge in using the preoperative screening tool is vital because it impacts a vulnerable patient population. According to Viftrup et al. (2021), surgical procedure cancellations prolong chronic pain, delay patient care, and impose emotional harm with adverse effects. Chronic back pain is one of the leading health indicators in Healthy People 2020's national health promotion and disease prevention focus (Office of Disease Prevention and Health Promotion, 2010). Up to 85% of individuals in North America are affected by chronic back conditions (Jovičić et al., 2016). The clinical practice guidelines and the U.S. Federal Pain Research Strategy prioritized improving evidence to reduce the public health impact of back pain (George et al., 2020).

A strategy and standard practice used previously to address the gap in practice of healthcare staff's lack of knowledge is education. Staff education interventions improve patients' knowledge, compliance, and outcomes (Page et al., 2019). Nurse-led patient education intervention maintains fidelity and sustainability of positive patient outcomes (Rochon et al., 2020). Healthcare professionals who are well-versed in using the preoperative tool will be able to educate patients and improve patient outcomes (Mullen

et al., 2000). Healthcare staff must properly utilize the preoperative screening tool and educate patients on preoperative instructions and the effects of surgery cancellations.

Through this DNP educational project, I aimed to improve the healthcare staff's knowledge and ability to use the preoperative screening tool that educates and prepares patients for their scheduled surgical procedures. The project contained a blood thinner medication education component to improve the nursing staff's recognition of common blood thinner medications. Failure to discontinue blood thinner medications for a specific amount of time before a surgical procedure had resulted in the same-day cancellation of procedures. Education is needed for preoperative healthcare staff and patients (George et al., 2020). This DNP education project addressed the healthcare staff's lack of knowledge in using the preoperative screening tool as well as their lack of knowledge regarding blood thinner medications—the project aimed to decrease the by-product of the problem, surgery cancellations. The healthcare staff education intervention maintained the reliability and sustainability of positive patient outcomes and increased patients' knowledge, skills, and self-management (Vaismoradi et al., 2020). In addition, the intervention was hypothesized to ensure that nurses are equipped to prepare patients accordingly, which should reduce patients' anxiety before their surgical procedures.

Local Background and Context

The healthcare staff's lack of knowledge on using the organization's preoperative screening tool resulted in the cancellation of one out of three patients' surgical procedures at the local interventional surgery center. A review and analysis of the facility's

cancellation log showed that 33% of patient surgeries were cancelled due to nonadherence to preoperative instructions, including the discontinuance of blood thinner medications. Direct observation of healthcare staff conducting preoperative patient screening revealed the healthcare staff's lack of knowledge in using the preoperative tool. According to Kaddoum et al. (2016), same-day surgery cancellation has many adverse effects on patients and healthcare facilities, including extended hospital stays and financial burden, further health complications, and waste of resources. There was a gap in healthcare staff knowledge on using the preoperative tool in educating patients on preoperative instructions and a gap in knowledge about common blood thinner medications (Ganguli et al., 2018). The practice-focused question stated: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires? Through the doctoral education project, the healthcare employees were equipped with the proper knowledge to help patients prepare for surgical procedures effectively. Staff education intervention improves patients' knowledge, compliance, and outcomes (Page et al., 2019). The healthcare staff education intervention maintained the reliability and sustainability of positive patient outcomes and increased patients' knowledge, skills, and self-management (Vaismoradi et al., 2020). The intervention was hypothesized to ensure that nurses are

equipped to prepare patients accordingly, which should reduce patients' anxiety before their surgical procedures.

The DNP education project was conducted at an outpatient interventional spine and pain management center in the southeastern United States. The facility treats chronic back and spinal pain patients in a suburban community. The thriving community comprises mixed socioeconomic statuses, education levels, and racial backgrounds. The area lacks public transportation, which presents an issue for some patients. Up to 20 patients can be scheduled in a day at the facility.

The local spine center has a mission-driven team with a bold vision for the future of pain relief. The organization's mission is to be the premier interventional spinal pain management provider, providing the highest quality patient care. The vision is to be recognized as the industry leader in pain management, providing life-changing pain relief to more people than ever. The values are compassion, respect, integrity, excellence, and service. Maintaining trust in the community is vital to providing continuity of care, properly preparing and educating patients for the surgical procedure, and having knowledgeable healthcare staff (Koushan et al., 2021).

The clinical practice guidelines and the U.S. Federal Pain Research Strategy prioritized improving evidence to reduce the public health impact of back pain (George et al., 2020). Bhaskar and Simpson (2020) cited the WHO as promoting interventional procedures to treat chronic back pain patients. Interventional spine and pain management target the source of pain from the spinal nerves using various invasive techniques and

surgical procedures to alleviate or lessen back pain. Chronic pain patients must be treated promptly. A delay in treatment decreases the quality of care needed and expected from the patients and the healthcare facility (Bhaskar & Simpson, 2020).

Role of the DNP Student

As a DNP student, I served as the clinical leader and expert at the local interventional spine center to address the stated problem and gap in practice, which was that 33% of patient spinal procedures were cancelled due to the healthcare staff's lack of knowledge in adequately using the preoperative screening tool. Nursing staff were undereducated on the various blood thinner medications, which caused a missing instruction to discontinue all blood thinner medications within a specific amount of time before the surgery. I implemented an education project to investigate the practice-focused question. The practice focus question was as follows: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires? White et al. (2016) stated that the DNP student can translate evidence into nursing practice. The DNP student develops collaborative relationships that foster educational and practice experiences (American Association of Colleges of Nursing [AACN], 2006; Carlson et al., 2017). According to Staffileno et al. (2019), the DNP student addresses current healthcare issues or practice-focused problems by conducting research or implementing evidence-based practices to

improve the problem. The additional role of the DNP student is to disseminate the findings of the DNP project at the organizational level to organizational leaders and stakeholders and at the professional practice level to nursing organizations, journals, and committees.

As a DNP student, I assessed the healthcare facility, identified a practice-gap problem, and developed a plan to implement and evaluate a staff education project. As a DNP student, I created a staff education project to improve the healthcare staff's knowledge and ability to conduct effective patient preoperative screening using the healthcare facility's tool to educate and prepare patients for surgical procedures and to reduce the same-day surgical procedure cancellation numbers. I created a blood thinner medication test to assess the nursing staff's knowledge of common blood thinner medications to improve the rate of cancellations due to nondiscontinuance of blood thinner medication prior to surgery. As the DNP student, I was able to help the healthcare staff and facility meet the organization's mission to provide the highest quality patient care, a vision of life-changing pain relief to more people than ever, and the values of compassion, respect, integrity, excellence, and service. The role of the DNP student involves completing a scholarly project that demonstrates a synthesis of the DNP student's work and lays the foundation for future scholarship (AACN, 2006, Carlson et al., 2017). As a nurse educator, I am motivated to educate healthcare staff to improve a process that will improve patient outcomes. The motivation for the DNP project was to address a key indicator of Healthy People 2020's national health promotion and disease-

prevention focus, chronic back pain conditions (Office of Disease Prevention and Health Promotion, 2010). The local spinal center cares for this patient population. Many of these patients' surgical procedures were cancelled or delayed due to the healthcare staff's inadequate preoperative instructions. My goal was to educate the healthcare staff to use the preoperative screening tool of the facility appropriately and to increase their knowledge of blood thinner medications.

Summary

In Section 2, I described the application of Knowles's (1980) adult learning theory to the staff education project. Current evidence on the chronic back pain population and health care education was presented. The section addressed the improper use of preoperative patient screening, staff education, and patient surgical procedure cancellation to benefit patients' quality of life, clinical outcomes, and healthcare staff's knowledge. Adherence to preoperative screening and patient education benefits pain interventionist providers because improved quality outcomes will advance quality and safety and potentially mitigate the financial loss of cancelled surgical procedures. In Section 3, I present the education program plan, the project participants, procedures, and protections.

Section 3: Collection and Analysis of Evidence

Introduction

The practice problem at a local outpatient interventional spine and pain management center was that healthcare staff lacked sufficient knowledge of the use of preoperative screening tools, resulting in inadequate patient preparation for surgical procedures that had led to a 33% same-day-surgery cancellation rate. The nursing staff lacked knowledge of common blood thinner medications, which resulted in cancellations due to a lack of patient instruction to discontinue blood thinner medications for a specific amount of time before the surgical procedure. The purpose of the DNP project was to improve the healthcare staff's knowledge and ability to use the preoperative screening tool that educates and prepares patients for their scheduled surgical procedures. A lack of healthcare staff knowledge on using the organization's preoperative screening tool resulted in the cancellation of one out of three patients' surgical procedures at the local interventional surgery center.

Through the doctoral education project, the healthcare employees were equipped with the proper knowledge to help patients effectively prepare for surgical procedures. The DNP education project was conducted at an outpatient interventional spine and pain management center in the southeastern United States. The facility treats chronic back and spinal pain patients in a suburban community. The thriving community is comprised of mixed socioeconomic statuses, education levels, and racial backgrounds. Section 3

contains the practice-focused question, a discussion of the source of evidence, an analysis and synthesis of the present information, and a summary of the project.

Practice-Focused Question

The practice problem at a local outpatient interventional spine and pain management center was that healthcare staff lacked sufficient knowledge of the use of preoperative screening tools, resulting in inadequate patient preparation for surgical procedures that had led to a 33% same-day-surgery cancellation rate. The meaningful gap in practice that the educational project addressed was the lack of healthcare staff knowledge of common blood thinner medications and the use of the preoperative screening tool at the local facility. The aim of the staff education project was to teach the nursing staff how to properly use the organization's preoperative screening tool to educate patients on the preoperative instructions for surgery. The project included an education component on common blood thinner medications. The practice-focused question was the following: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires?

Sources of Evidence

Evidence for this project was generated from a database search of scholarly articles. The Walden University library was used to search for evidence-based literature

in CINAHL, MEDLINE, Ovid Nursing Journal Collection, ProQuest, and Google Scholar. Key search terms were *adherence*, *nurse staff education*, *chronic back pain*, *interventional pain management*, *preoperative patient screening*, *nursing education for staff nurses*, *patient education*, *surgery cancellations*, and *preoperative office visits*. Most articles were published between 2016 and 2022. However, a few sentinel articles of relevance published before 2016 were reviewed. Local evidence required for this project was obtained from the physicians, the charge nurse, the regional manager, and the facility's patient cancellation log. The cancellation log records cancelled surgeries over a year and the reason for cancellation. The sources of evidence I applied to address the practice-focused question included a literature review that was analyzed and synthesized into three main topics: (a) nursing staff education to improve knowledge; (b) the importance of preoperative patient screening, and (c) risk to patients for delayed or cancelled surgery appointments. The facility-requested education in blood thinner medications enhanced the nursing staff's knowledge of preoperative patient screening by helping nursing staff recognize blood thinner medications on patients' medication lists. As a result of this education component, nursing staff can advise patients to discontinue blood thinner medications for a specific amount of time prior to the day of surgery.

Surgery cancellation is a common phenomenon experienced in most parts of the world. Various factors lead to patient cancellation of surgeries. Some of the reasons that may lead to patient cancellation of surgeries can be associated with poor preoperative preparation of both the patient and the healthcare workers involved in the procedure.

Proper preoperative planning of surgical procedures helps curate better patient postoperative results. Efforts at the preoperative stage can help to inform the surgical team and the patient about what to expect after the surgical procedures. The literature review highlights solutions to patient cancellation of surgeries through the different preoperative screening tools that can be utilized to prepare better and educate healthcare workers on how to go about the patient's operation and can assist patients in making informed decisions regarding their surgical procedures.

Literature Review

Nursing Staff Education to Improve Knowledge

Nurse educators must continue conducting staff education in-services to improve nurses' ability to educate patients effectively (Bastable, 2014). Some studies have demonstrated how staff education improves surgical patient outcomes (Crowe et al., 2018; Page et al., 2019). According to Page et al. (2019), an education intervention for nursing staff to educate patients has proven effective for surgery patients at Hamilton Health Sciences. This educational project for healthcare staff at the interventional spine and pain management center enhanced nurses' ability to educate and prepare patients for interventional surgical procedures using a preoperative screening tool to improve patient outcomes. Healthcare staff education intervention maintains fidelity and sustainability of positive patient outcomes and increases patients' knowledge, skills, or self-management (Bobbink et al., 2020). Registered nurses who participate in staff education increase their knowledge of the subject matter (Fitzpatrick et al., 2021). In Crowe et al.'s (2018) study,

nurses' ability to properly care for patients increased after nurses participated in education and simulation-based training. Education that includes clinically integrated teaching strategies produces positive outcomes, including improvement in nurses' analytical and critical thinking abilities and the ability to use evidence-based practices to guarantee patient safety (Horntvedt et al., 2018). According to Corbin et al. (2021), staff education regarding preoperative patient education materials can enhance the patient's education process and improve patient surgical outcomes.

Importance of Preoperative Patient Screening

Educating patients is one of the essential nursing duties to improve patient outcomes (Sherman, 2016). Nurse educators must continue to conduct staff education in-services to improve staff nurses' ability to educate patients effectively. Preoperative medical screening improves communication between patients, providers, and healthcare staff (Smith et al., 2019). Some studies have demonstrated how staff education improves surgical patient outcomes (Crowe et al., 2018; Page et al., 2019). According to Page et al. (2019), an intervention for educating nursing staff proved effective for surgery patients at Hamilton Health Sciences. Surgical team staff education interventions can significantly impact patient outcomes while minimizing costs (Rochon et al., 2020). Healthcare staff education intervention maintains fidelity and sustainability of positive patient outcomes and increases patients' knowledge, skills, or self-management (Bobbink et al., 2020; Rochon et al., 2020). This educational project for healthcare staff at the interventional spine and pain management center enhanced nurses' ability to educate and prepare

patients for interventional surgical procedures using a preoperative screening tool to improve patient outcomes.

Preoperative patient screening tools communicate the information nurses need from the healthcare facility, physicians, or patients. Wickersham et al. (2018) demonstrated that successful communication between nurses and physicians, nurses and patients, and across interprofessional lines minimizes medical mistakes because communication difficulties are mentioned as a primary reason the preoperative tool is misused. In Iqbal et al.'s (2019) study, patients with proper preoperative screening prior to surgical procedures were better prepared for their surgical process, adhered to instructions, and had fewer postoperative surgical site infections. Preoperative clinic screening and patient-centered teaching were demonstrated to minimize the number of cancellations and delays in surgical procedures in a study by Meyers et al. (2021). The WHO stated that structured preoperative screening is helpful in patients' safety and care to reduce complications and improve patient outcomes (Storesund et al., 2020). Preoperative screening enhances continuity of care, involves the patient in the preoperative process, and identifies any critical issues that can lead to an adverse event (Storesund et al., 2020). According to Sherman (2016), educating patients is one of the essential nursing duties to improve patient outcomes. According to Corbin et al. (2021), staff education regarding preoperative patient education materials can enhance the patient's education process and improve patient surgical outcomes.

Risk to Patients for Delayed or Cancelled Surgery Appointments

A prevalent issue in healthcare is surgery cancellations that happen too late. Last-minute cancellations by patients are chronic healthcare issues that negatively impact the financial health of the industry and the level of service it provides. Patient cancellations may significantly impact access to treatment if they often occur enough (Ahmadi et al., 2019). According to Viftrup et al. (2021), surgical procedure cancellations prolong chronic pain, delay patient care, and impose emotional harm with adverse effects. A cancelled procedure interrupts the continuity of care, causes a delay in care, prolongs patients' pain, impedes return to optimal health performance, causes delays in returning to work, and increases financial healthcare costs and dependency on prescription medication (Blanchette et al., 2017). The high number of surgery cancellations affects the chronic back pain population by prolonging their debilitating pain, reducing the continuity of care from healthcare professionals, and financially impacting the healthcare facility (Wintjens et al., 2021).

The evidence shows that staff education improves nursing knowledge and patient outcomes concerning preoperative screening, surgical cancellations, and associated risk prevention. The procedural steps for an educational DNP project are the following:

1. Give a pretest to gather data concerning the staff's knowledge of the preoperative screening tool.
2. Develop and implement an education project to teach the healthcare staff how to use the facility's preoperative screening tool properly.

3. Conduct the education program through different teaching methods, including PowerPoints and handouts containing information on prescreening tools to increase the staff's knowledge of preoperative procedures.
5. Give a posttest using the preoperative screening tool to assess nursing knowledge.
6. Compare pre- and posttest data with descriptive analysis to determine if the staff's knowledge of the preoperative screening tool has improved.

The project question was the following: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires?

Participants

The participants who contributed evidence to address the practice-focused question included the healthcare staff at the local interventional spine and pain management center. The interventional spine and pain center employed two preoperative nurses, two operation room nurses, a nurse anesthetist, two recovery nurses, a nurse practitioner, and four medical assistants. All registered nurses held a minimum of a Bachelor of Science in Nursing (BSN), and three nurses held a master's degree. The medical assistants held a certification in their field. These participants were selected

because they were all involved in some part of patients' preoperative process and had some deficiencies in properly using the preoperative screening tool.

Procedures

The parent office of the local interventional spine and pain management center developed the preoperative screening tool as well as the blood thinner medication test. The preoperative tool includes a check-off list of medical documents, lab results, diagnostic studies, and screening questions addressed in the patient's chart to be reviewed by the physician, nurse practitioner, and nurse anaesthetists. The preoperative screening tool includes a list of nonsteroidal anti-inflammatory drugs (NSAIDs), blood thinners, or anticoagulants to screen for; patients should be instructed to stop all blood thinners or anticoagulants according to physicians' approval and recommendations. The preoperative tool verifies the patient's procedure, physician, location of the facility, time of surgery, responsible driver, and nothing by mouth (NPO) status, as well as which prescribed or over-the-counter medication, vitamins, and herbs to keep taking or to stop, including insulin, antihypertensives, alcohol, and smoking prior to the scheduled surgery. Preoperative cleansing instructions are given. Postoperative expectations are reviewed, and insurance approvals are noted. The nurse anesthetists must review preoperative screening for surgery clearance, and the nurse practitioner must review the screening for a history and physical examination.

Protections

The strategy for recruiting and developing working relationships with participants was ongoing. I attended the local facility staff meeting. Nursing staff were asked if they would participate in an educational program to address one of the topics discussed in the staff meeting concerning preoperative patient screening.

The DNP study complied with Health Insurance Portability and Accountability Act (HIPAA) guidelines, keeping all healthcare staff identification anonymous. Each participant picked a random number from a box. Participants were instructed to write the number on the pre- and postquestionnaire and the blood thinner medication test. The pre- and postquestionnaires and tests did not contain any identifying information. The surveys were anonymous, and participants placed the surveys and medication tests in a box rather than handing them directly to me personally. The study data for staff education were scanned onto a password-protected computer and then shredded. All study findings and survey results were kept on a password-protected thumb drive in a locked drawer in my locked home office. Only I had access to the home office and a key to the file drawer where the thumb drive was stored. My laptop was password protected. No financial support was received for conducting the study. I made no direct patient contact. The role of the Walden University Institutional Review Board (IRB) in approving the doctoral project was to ensure that the research complied with the university's ethical standards and U.S. federal regulations. IRB approval was required before collecting any data.

Analysis and Synthesis

The local facility performs approximately 300 monthly interventional spine and pain management procedures. The facility completed a yearly review of the facility's patient cancellation log for patient cancellation data. A statistical analysis of 33.3% of cancelled same-day procedures was noted, and data were collected on the progressive cancellations. The nursing staff's data on knowledge of the preoperative screening tool and how they use it to prepare the patients was obtained from the pre- post-staff education questionnaires. The nursing staff's knowledge of blood thinner medications was assessed with the pre- and post-test. The participants placed their selected number on the pre-and post-staff education questionnaires and the pre-and post-blood thinner medication test. The participants' unique identifiers matched the pre- post-staff education questionnaires and blood thinner medication tests to track that the participants completed both questionnaires and tests. The pre- and post-staff education questionnaires utilized a Likert scale with scores ranging from 1–5. The data were analyzed using IBM SSPS software to qualify the improvement of nursing knowledge pre- and post-staff education implementation. A descriptive analysis was completed. Graphs and charts were used to interpret the data. The pre- and post-blood thinner medication tests were analyzed for improvement in the recognition of blood thinner medications that might appear on patients' preoperative screening lists.

Summary

Section 3 focused on the evidence source, participants, collection, and data analysis. I presented the staff education plan and outline of the project process. The evidence to support the practice gap was discussed, along with the steps to implement an intervention focused on attention and education on the preoperative screening process to improve nurses' knowledge of the preoperative tool.

Section 4: Findings and Recommendations

Introduction

The local outpatient interventional spine and pain management center experienced cancellation of one out of three chronic back pain interventional surgical procedures on the planned surgery day due to the nursing staff's lack of knowledge in using the facility's preoperative screening tool. The meaningful gap in practice addressed by the doctoral educational project was the healthcare staff's lack of knowledge and inconsistent use of the facility's preoperative screening tool as well as a lack of knowledge regarding types of blood thinner medications. This DNP project was focused on increasing the nurses' knowledge in using the facility's preoperative screening tool to educate better and prepare the patients for interventional surgical procedures to prevent cancellation. The practice-focused question was the following: Will a nursing staff education project increase the nursing staff's knowledge in using the facility's preoperative screening tool and nursing staff's knowledge of common blood thinner medications to educate and prepare patients on preoperative instructions for surgical procedures, comparing pre- and post-staff-education questionnaires?

The sources of evidence were a pre- and post-staff-education questionnaire and a blood thinner medication test. The pre-and post-staff-education questionnaire consisted of 10 questions that measured how knowledgeable the nurses were on using the preoperative screening tool and various aspects of important patient teachings for surgery. The questionnaires used a 1–5 Likert scale asking how knowledgeable the participant was on

a topic. The blood thinner medication test was administered to measure the nurses' knowledge of blood thinner medication names, as one of the reasons that procedures are cancelled is patients not knowing to discontinue their blood thinners within a specific amount of time before surgery.

The pre- and postquestionnaires were reviewed and approved by the stakeholders. A validation sheet was completed by the facility administrator and physician, who approved the questions on the survey addressing the following topics:

- clarity and directions of the items
- presentation and organization of the items
- suitability of items
- adequateness of the content
- attainment of the purpose
- objective
- scale and evaluation rating

The education project was placed on the schedule after a monthly staff meeting where all nursing staff were available to volunteer as participants. The staff project was introduced, and the consent form was read to all participants. Each participant took a number from a bag and was instructed to place it on each questionnaire and medication test. The participants completed the pre-staff-education questionnaire and the blood thinner medication test. All questionnaires and tests were placed into a folder labeled "pretest." Staff education was presented using a PowerPoint presentation in which I

navigated the computerized preoperative screening tool and distributed handouts of blood thinner guidelines and medications. The post-staff-education questionnaire and post blood thinner medication test were completed; participants placed their completed questionnaires and tests in a folder labeled “posttest.” The participants were thanked for volunteering. The staff education questionnaire and blood thinner medication test responses were analyzed using IBM SPSS version 29. A descriptive statistical analysis of results was produced in percentage, mean, and standard deviation, comparing the pretests to the posttests.

Findings

The results of the pre- and post-staff-education questionnaires and pre and post blood thinner medication tests are presented in this section.

Pre- and Post-Staff-Education Questionnaire

Table 1 indicates the pre- and post-staff-education questionnaire responses. The questionnaire contained 10 items asking how knowledgeable the participant was concerning each item on a 5-point Likert-scale (1 = *not knowledgeable/beneficial at all*, 2 = *not so knowledgeable/beneficial*, 3 = *somewhat knowledgeable/beneficial*, 4 = *very knowledgeable/beneficial*, and 5 = *extremely knowledgeable/beneficial*.

Table 1

Descriptive Statistics

How knowledgeable are you ...	Not at all 1		Not so 2		Somewhat 3		Very 4		Extremely 5		*M*	*SD*
	n	%	*n*	%	*n*	%	*n*	%	*n*	%		
1. using the preoperative screening tool that provides patients with preoperative instructions and education?												
Pre	0	0	0	0	4	40	3	30	3	30	3.90	.876
Post	0	0	0	0	0	0	3	30	7	70	4.70	.483
2. of the primary reasons why patients' surgeries are cancelled on the day of the procedure?												
Pre	0	0	0	0	4	40	3	30	3	30	3.90	.876
Post	0	0	0	0	0	0	2	20	8	80	4.80	.422
3. about the brand and generic names of anticoagulants?												
Pre	1	10	1	10	4	40	3	30	1	10	3.20	1.13
Post	0	0	0	0	2	20	5	50	3	30	4.10	.738
4. about educating patients on when to stop various blood thinner medications before their procedure?												
Pre	1	10	1	10	4	40	1	10	3	30	3.40	1.35
Post	0	0	0	0	0	0	6	60	4	40	4.40	.516
5. in providing patients instructions on when to stop eating and drinking before their procedures?												
Pre	0	0	0	0	0	0	6	60	4	40	4.40	.516
Post	0	0	0	0	1	10	3	30	6	60	4.50	.707
6. on educating diabetic patients on how to take their insulin prior to their procedures?												
Pre	0	0	2	20	5	50	2	20	1	10	3.20	.919
Post	0	0	1	10	0	0	4	40	5	50	4.30	.949
7. in educating patients who receive sedation?												
Pre	0	0	0	0	1	10	3	30	6	60	4.50	.707
Post	0	0	0	0	0	0	4	40	6	60	4.60	.516
8. on what to do if patients have questions or concerns about their procedure?												
Pre	0	0	0	0	4	40	3	30	3	30	3.90	.876
Post	0	0	0	0	1	10	4	40	5	50	4.40	.699
9. with determining if patients understood all of the preoperative instructions?												
Pre	0	0	0	0	1	10	4	40	5	50	4.40	.699
Post	0	0	0	0	0	0	5	50	5	50	4.50	.527
10. How beneficial would a preoperative staff education be to help you improve your knowledge?												
Pre	0	0	0	0	1	10	3	30	6	60	4.50	.707
10. How beneficial was the preoperative staff education to improving your knowledge?												
Post	0	0	0	0	0	0	3	30	7	70	4.70	.483

Note. $N = 10$.

Question 1

Before the education project, the participants were asked, "How knowledgeable are you using the preoperative screening tool that provides patients with preoperative instructions and education?" Four participants (40%) responded that they were somewhat knowledgeable, three participants (30%) indicated that they were very knowledgeable, and three participants (30%) indicated that they were extremely knowledgeable. The mean value of all participants' responses was 3.90 (*SD* = .876). After the education

project, the participants' knowledge increased; three participants (30%) responded that they were very knowledgeable, and seven participants (70%) indicated that they were extremely knowledgeable. The mean value of all participants' responses was 4.70 (*SD* = .483), indicating that most participants were extremely knowledgeable about using the preoperative screening tool that provides patients with preoperative instructions and education.

Question 2

Before the education project, participants were asked, "How knowledgeable are you of the primary reasons why patients' surgeries are cancelled on the day of the procedure?" Four participants (40%) responded that they were somewhat knowledgeable, three (30%) indicated that they were very knowledgeable, and three participants (30%) stated that they were extremely aware. After the education project, the participants' knowledge increased; two participants (20%) responded that they were very knowledgeable, and eight participants (80%) stated that they were extremely knowledgeable. The mean value of all participants' responses was 4.80 (*SD* = .422), indicating that the participants were extremely knowledgeable of the primary reasons why patients' surgeries were cancelled on the day of the procedure.

Question 3

Before the education project, participants were asked, "How knowledgeable are you about the brand and generic names of anticoagulants?" One participant (10%) responded that they were not at all knowledgeable, one participant (10%) stated that they

were not so knowledgeable, four participants (40%) indicated that they were somewhat knowledgeable, three participants (30%) stated that they were very knowledgeable, and one participant (10%) stated that they were extremely knowledgeable about the brand and generic names of anticoagulants. The mean value of the participants' responses was 3.20 (*SD* = 1.13). After the education project, the participants' knowledge had increased. Two participants (20%) responded that they were somewhat knowledgeable, five participants (50%) stated that they were very knowledgeable, and three (30%) indicated that they were extremely knowledgeable about the brand and generic names of anticoagulants. The mean value of all participants' responses was 4.10 (*SD* = .738), indicating that most participants considered themselves very knowledgeable.

Question 4

Before the education project, the participants were asked, "How knowledgeable are you about educating patients on when to stop various blood thinner medications before their procedure?" One participant (10%) responded that they were not at all knowledgeable about educating patients on when to stop various blood thinner medications before their procedure, one participant (10%) stated that they were not so knowledgeable, four participants (40%) stated that they were somewhat knowledgeable, one participant (10%) stated that they were very knowledgeable, and three participants (30%) indicated that they were extremely knowledgeable. The mean value of all participants' responses was 3.40 (*SD* = 1.35), indicating that most of the participants considered themselves somewhat knowledgeable. After the education project, the

participants' knowledge had increased. One participant (10%) responded that they were somewhat knowledgeable, three participants (30%) stated that they were very knowledgeable, and six (60%) indicated that they were extremely knowledgeable about educating patients on when to stop various blood thinner medications before their procedure. The mean value of all participants' responses was 4.50 (*SD* = .707), indicating that most participants considered themselves very knowledgeable.

Question 5

Before the education project, the participants were asked, "How knowledgeable were they in providing patients instructions on when to stop eating and drinking before their procedures?" Six participants (60%) responded that they were very knowledgeable in providing instructions to patients on when to stop eating and drinking before their procedures, and four participants (40%) stated that they were extremely knowledgeable. The mean value of all participants' responses was 4.40 (*SD* = .516), indicating that most of the participants considered themselves very knowledgeable. After the education project, the participants' knowledge increased. One participant (10%) responded that they were somewhat knowledgeable, three participants (30%) stated that they were very knowledgeable, and six (60%) indicated that they were extremely knowledgeable in providing patients instructions on when to stop eating and drinking before their procedures. The mean value of all participants' responses was 4.50 (*SD* = .707), indicating that most of the participants considered themselves very knowledgeable.

Question 6

Before the education project, the participants were asked, "How knowledgeable are you on educating diabetic patients on how to take their insulin prior to their procedures?" Two participants (20%) responded that they were not so knowledgeable about educating diabetic patients on how to take their insulin prior to their procedures, five participants (50%) indicated that they were somewhat knowledgeable, two participants (20%) stated that they were very knowledgeable, and one participant (10%) responded that they were extremely knowledgeable. The mean value of all participants' responses was 3.20 (*SD* = .919), indicating that most of the participants considered themselves somewhat knowledgeable. After the education project, the participants' knowledge increased. One participant (10%) responded that they were not so knowledgeable, four participants (40%) stated that they were very knowledgeable, and five (50%) indicated that they were extremely knowledgeable about educating diabetic patients on how to take their insulin prior to their procedures. The mean value of all participants' responses was 4.30 (*SD* = .949), indicating that most of the participants considered themselves very knowledgeable.

Question 7

Before the education project, the participants were asked, "How knowledgeable are you in educating patients who receive sedation?" One participant (10%) responded that they were somewhat knowledgeable in educating patients who receive sedation, three participants (30%) indicated that they were very knowledgeable, and six participants

(60%) responded that they were extremely knowledgeable. The mean value of all participants' responses was 4.50 (*SD* = .707), indicating that most of the participants considered themselves very knowledgeable. After the education project, the participants' knowledge had increased. Four participants (40%) responded that they were very knowledgeable, and six (60%) indicated that they were extremely knowledgeable in educating patients who receive sedation. The mean value of all participants' responses was 4.60 (*SD* = .516), indicating that the majority of the participants considered themselves extremely knowledgeable.

Question 8

Before the education project, the participants were asked, "How knowledgeable are you on what to do if patients have questions or concerns about their procedure?" Four participants (40%) responded that they were somewhat knowledgeable on what to do if patients have questions or concerns about their procedure, three participants (30%) indicated that they were very knowledgeable, and three participants (30%) responded that they were extremely knowledgeable. The mean value of all participants' responses was 3.90 (*SD* = .876), indicating that most of the participants considered themselves very knowledgeable. After the education project, the participants' knowledge remained stable. One participant (10%) responded that they were somewhat knowledgeable on what to do if patients have questions or concerns about their procedure, four participants (40%) responded that they were very knowledgeable, and five participants (50%) indicated that they were extremely knowledgeable on what to do if patients have questions or concerns

about their procedure. The mean value of all participants' responses was 4.40 (*SD* = .699), indicating that most participants considered themselves very knowledgeable.

Question 9

Before the education project, the participants were asked, "How knowledgeable are you in determining if patients understood all of the preoperative instructions?" One participant (10%) responded that they were somewhat knowledgeable in determining if patients understood all the preoperative instructions, four participants (40%) indicated they were very knowledgeable, and five participants (50%) responded that they were extremely knowledgeable. The mean value of all participants' responses was 4.40 (*SD* = .699), indicating that most participants considered themselves very knowledgeable in determining if patients understood all of the preoperative instructions. After the education project, the participants' knowledge remained stable. Five participants (50%) responded that they were very knowledgeable in determining if patients understood all of the preoperative instructions, and five participants (50%) indicated that they were extremely knowledgeable. The mean value of all participants' responses was 4.50 (*SD* = .527), indicating that the majority of the participants considered themselves very knowledgeable.

Question 10

Before the education project, the participants were asked, "How beneficial would a preoperative staff education help you improve your knowledge?" One participant (10%) responded that a preoperative staff education would be somewhat beneficial to improve

their knowledge, three participants (30%) indicated that preoperative staff education would be very helpful, and six participants (60%) responded that preoperative staff education would be extremely beneficial. The mean value of all participants' responses was 4.50 (*SD* = .707), indicating that most participants considered preoperative staff education very beneficial. After the education project, the participants were asked, "How beneficial was the preoperative staff education to improving your knowledge?" Three participants (30%) stated that the preoperative staff education was very beneficial, while seven participants (70%) stated that it was extremely beneficial. The mean value of all participants' responses was 4.70 (*SD* = .483), indicating that the majority of the participants considered the preoperative staff education extremely beneficial for improving their knowledge.

Differences Between Pre- and Post-Staff-Education Questionnaire Knowledge Perception

Table 2 shows the difference between the participants' pre- and post-staff-education questionnaire knowledge. The purpose of this analysis was to demonstrate improvement in knowledge. There was a statistically significant difference at the .05 level, t (9) = -2.59, $p < .05$, r = .185, 95 % CI for mean difference -1.09 to -.07 between pre-staff-education knowledge (M = 3.93, SD = .646) and post-staff-education knowledge (M = 4.51, SD = .433), with improvement noted from pre to post staff education.

Table 2

Differences between Pre- and Post-Staff-Education Questionnaire Knowledge Perception

Knowledge perception	*M*	*SD*	*r*	Sig.	95% confidence interval		*t*	*df*	Sig. (2-tailed)
					Lower	Upper			
Preknowledge	3.93	.646	.185	.608	-1.09	-.07	-2.59	9	.029*
Postknowledge	4.51	.433							

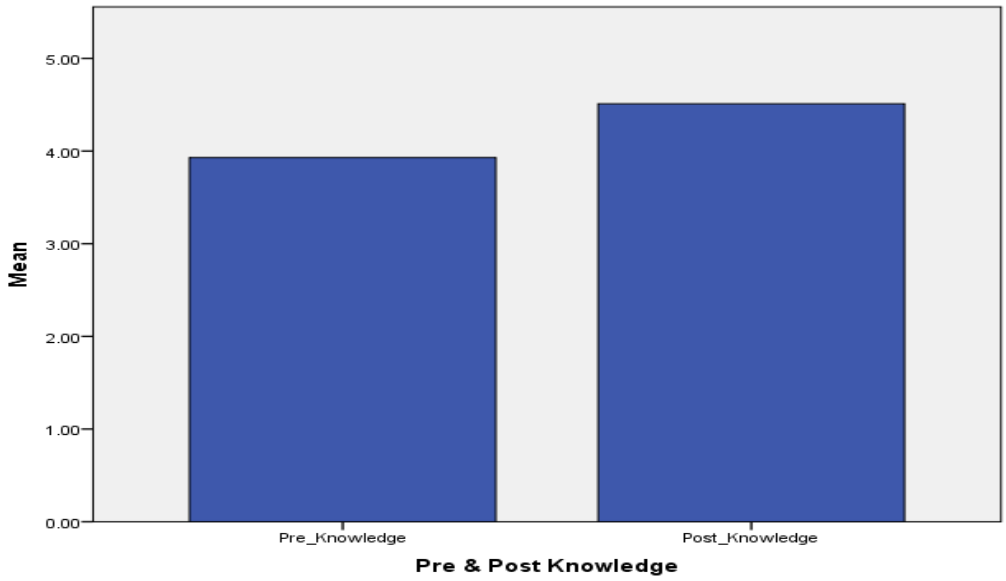
Note. $N = 10$.

*$p < .05$.

Figure 1 indicates the mean differences between participants' pre- and post-knowledge perception. A 13.7% increase in knowledge is noted.

Figure 1

Pre- and Posteducation Questionnaire Perception of Knowledge



Differences Between Pre- and Post-Staff-Education Questionnaire Overall Scores

Table 3 shows that there was a statistically significant difference at the .05 level of significance, t (9) = -7.79, $p < .001$, $r = .870$, 95 % CI for mean difference -64.78 to -35.62. between pre-staff education questionnaire scores ($M = 41.40$, $SD = 19.49$) and

post-staff education questionnaire scores (M = 91.60, SD = 7.23). Overall pre- and post-staff education questionnaire scores indicate that participants perceived an increase in knowledge of the preoperative screening process after participating in the preoperative staff education.

Table 3

Differences Between Pre- and Post-Staff-Education Questionnaire Overall Scores

Staff education questionnaire scores	*M*	*SD*	*r*	Sig.	95% confidence interval		*t*	*df*	Sig. (2-tailed)
					Lower	Upper			
Pre-staff-education overall score	41.40	19.49	.060	.870	-64.78	-35.62	-7.79	9	.000*
Post-staff-education overall score	91.60	7.23							

Note. N = 10.

*p < .05.

Fisher's Exact Test

Fisher's exact test examined the association between participants' pre- and post-knowledge. Fisher's exact test is the most appropriate measure to examine the association between two categorical variables when the sample size is too small Hoffman, 2015). In this project, the sample size was 10, which justified the use of Fisher's exact test.

Table 4

Fisher's Exact Test

How knowledgeable are you ...	Not at all 1		Not so 2		Somewhat 3		Very 4		Extremely 5		Sig. (2-tailed)
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	
1. using the preoperative screening tool that provides patients with preoperative instructions and education?											
Pre	0	0	0	0	4	40	3	30	3	30	.073
Post	0	0	0	0	0	0	3	30	7	70	
2. of the primary reasons why patients' surgeries are cancelled on the day of the procedure?											
Pre	0	0	0	0	4	40	3	30	3	30	
Post	0	0	0	0	0	0	2	20	8	80	.053
3. about the brand and generic names of anticoagulants?											
Pre	1	10	1	10	4	40	3	30	1	10	.410
Post	0	0	0	0	2	20	5	50	3	30	
4. about educating patients on when to stop various blood thinner medications before their procedure?											
Pre	1	10	1	10	4	40	1	10	3	30	.195
Post	0	0	0	0	0	0	6	60	4	40	
5. in providing patients instructions on when to stop eating and drinking before their procedures?											
Pre	0	0	0	0	0	0	6	60	4	40	.370
Post	0	0	0	0	1	10	3	30	6	60	
6. on educating diabetic patients on how to take their insulin prior to their procedures?											
Pre	0	0	2	20	5	50	2	20	1	10	.033*
Post	0	0	1	10	0	0	4	40	5	50	
7. in educating patients who receive sedation?											
Pre	0	0	0	0	1	10	3	30	6	60	1.00
Post	0	0	0	0	0	0	4	40	6	60	
8. on what to do if patients have questions or concerns about their procedure?											
Pre	0	0	0	0	4	40	3	30	3	30	.395
Post	0	0	0	0	1	10	4	40	5	50	
9. with determining if patients understood all of the preoperative instructions?											
Pre	0	0	0	0	1	10	4	40	5	50	1.00
Post	0	0	0	0	0	0	5	50	5	50	
10. How beneficial would a preoperative staff education help you improve your knowledge?											
Pre	0	0	0	0	1	10	3	30	6	60	1.00
10. How beneficial was the preoperative staff education to improving your knowledge?											
Post	0	0	0	0	0	0	3	30	7	70	

Note. $N = 10$.

*$p < .05$.

Fisher's exact test was used to determine the association between participants' pre- and post-knowledge of using the preoperative screening tool. Table 4 indicates a significant association between pre- and post-knowledge on educating Preoperative patients prior to their procedures ($p = .033$). However, there was no significant association between pre- and post-knowledge on any of the other preoperative screening tool items. There was no association between pre- and post-perceptions about the

beneficial preoperative staff education that helps them to improve their knowledge (p = 1.00). There was no association between the overall pre- and post-knowledge of the participants based on the staff education questionnaire scores.

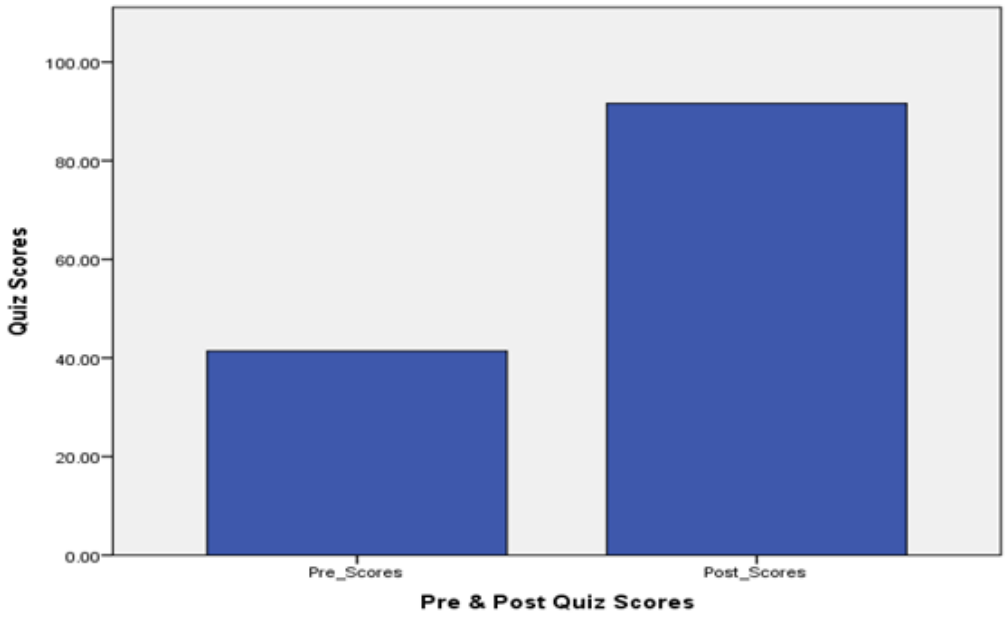
Blood Thinner Medication Test

The facility wanted to add their standard blood thinner medication teaching to the staff education DNP project to reinforce the nurses' knowledge of blood thinners. I was asked to teach blood thinner medications to the participants and administer a facility-developed blood thinner medication test pre-education and post-education. The positive outcome of the staff education on blood thinner medications was unanticipated. The results showed that the nursing staff benefited from education on blood thinner medications and improved their knowledge of common blood thinner medications. This outcome enhanced the findings from the staff education questionnaire related to Question 4: "How knowledgeable are you about educating patients on when to stop various blood thinner medications before their procedure?"

Figure 2 indicates the mean differences between the overall scores of participants' pre- and post-blood thinner medication tests. A 75.6% increase in knowledge is noted.

Figure 2

Pre and Post Blood Thinner Medication Test Results



Summary of Findings

The findings from the staff education on the preoperative screening tool indicated that nursing staff improved their knowledge of the tool and how to use it. The staff education made the staff aware of the potential issues that have led to same-day surgery cancellations. As a result of the staff education project, patients will be better educated and prepared for their spinal procedures. Increasing the nurses' knowledge of using the preoperative screening tool and common blood thinner medications strengthens that facility's ability to provide continuity of care for the community, improving the facility's reputation and trust. The staff education project resulted in a learning tool that can be used for new employees and annual staff education to continually improve the

preoperative screening process. The parent organization can use staff education to help improve nursing knowledge at other facilities in the organization.

Implications

By increasing the nursing knowledge on how to use the preoperative screening tool, patients will be appropriately prepared for spinal surgical procedures, and procedures will be less likely to be cancelled on the surgery day. The DNP project helped improve the nursing staff's use of the facility's preoperative screening tool and educated the nurses on blood thinner medications that interfere with spinal procedures. Increasing the nurses' knowledge of using the preoperative screening tool promotes better patient outcomes and satisfaction. This DNP project supports the mission of Walden University to promote positive social change through improving human health conditions by addressing an important health indicator listed in the national health promotion and disease-prevention focus of Healthy People 2020 (Office of Disease Prevention and Health Promotion, 2010) on a local level. Specifically, the project focused on one key indicator from Healthy People 2020, chronic back conditions. An increase in nursing staff knowledge leads to a more knowledgeable healthcare team, educated patients, and continuity of care for chronic back pain patients for improved health outcomes.

Recommendations

The recommended solution to address the gap in practice is to use the educational PowerPoint and lesson with new nurses hired in the facility and to incorporate staff education annually to maintain continuity in providing preoperative screening. This DNP

education project occurred at one of the 13 facilities operated by the parent organization. The education project can be used at the other 12 facilities to improve nursing knowledge of the preoperative screening tool. All instructional materials were shared with the facility's administrator and charge nurse; these two leaders are responsible for staff education and new hire onboarding.

Strengths and Limitations of the Project

The strengths of the doctoral project are the development of an educational guide that educates the nursing staff on how to properly educate and prepare patients for spinal surgical procedures. The educational guide contains an educational component on the blood thinner management guidelines for surgical procedures that can be used for future staff education in-services and new hires. The staff education project promoted team-building. A limitation of the doctoral project is that the education delivery is instructor dependent. If the educational project is to be replicated, the instructor must be consistent in teaching, which may lead to different learning outcomes. Another limitation is the short amount of time allotted for the project. There were only 10 participants in this project, which limits the generalizability of the findings. A recommendation for future educational projects for preoperative patient screening is to develop a computerized learning module so that the teaching can be consistently delivered.

Section 5: Dissemination Plan

The plan to disseminate this work to the institution is to request that I be placed on the schedule at one of the monthly staff meetings to review the project results. The facility's staff meetings offer a place where all employees, administrators, and some stakeholders are present. The monthly staff meeting has allotted space for staff education. A presentation of the findings can be discussed in a staff meeting. The stakeholders and the facility can share a written copy of the doctoral project. A plan to disseminate the project to the broader nursing profession is to attend the Association of periOperative Registered Nurses (AORN) nursing conference using a poster board presentation. Thousands of perioperative nurses and professionals from across the globe gather together for a few days for education and networking, making the AORN conference a highly visible place to disseminate the project's findings.

Analysis of Self

My doctoral journey has challenged me in my ways. I have grown as a practitioner, scholar, and project manager. I have grown in my role as a practitioner during my doctoral journey to achieve clinical expert status. I am furthering my education to obtain a doctoral degree in nursing practice and improving my knowledge in library research to find current nursing evidence-based practice research and implement evidence-based research into practice. One of my long-term professional goals is to address gaps in practice by implementing evidence-based research.

I have grown as a scholar in my library research skills and abilities to become proficient in navigating different databases and finding current evidence-based articles in the development of my DNP project. I am now using my research skills in my current role as a committee member to address a gap in practice by presenting evidence-based research articles to help develop new policies and procedures. This DNP journey has prepared me to present current evidence-based practices orally and in written form.

I have developed project management skills during the DNP project. My challenge as a project manager during my doctoral journey was time management. I was working full time in the clinical setting, teaching part time, and trying to stay present as a wife and a mother. I have improved my prioritization, organization, and delegation skills. The project management role made me a leader and improved my ability to multitask with deadlines.

Completing this DNP project has allowed me to work through challenges, discover solutions, and learn how to pivot to align with organizational goals. The challenges faced during the DNP project's completion related to the facility's gap in practice. The facility had a change in leadership, which affected the project's completion. After the previous leadership approved my project, I had to convince the new leadership of the need for the educational DNP project. The solution was to incorporate the new leadership ideas into the DNP project to develop the DNP project further and still accomplish my proposal goals. I gained insight on my doctoral journey into stakeholder

expectations, organizational goals, and the need for staff nurses' continuous education. My DNP project addressed the above to achieve positive social change.

Summary

This DNP education project allowed me to improve nursing knowledge to utilize a facility's preoperative screening tool properly. It was essential to address this gap in practice because the patient population of this facility is vulnerable to chronic back pain. Patients seek interventional surgical procedures to alleviate or decrease chronic disabling pain so they may have a better quality of life. However, the nurses' lack of knowledge in using the preoperative screening tool caused 33% of the scheduled pain-relieving procedures to be cancelled on the same day of surgery, prolonging patients' back pain and dependency on pain medication while affecting overall health. Educating nurses on the correct usage of the preoperative screening tool improved patient outcomes. This DNP project was conducted to educate nurses to serve their patients in the community better.

References

Ahmadi, E., Garcia-Arce, A., Masel, D. T., Reich, E., Puckey, J., & Maff, R. (2019). A metaheuristic-based stacking model for predicting the risk of patient no-show and late cancellation for neurology appointments. *IISE Transactions on Healthcare Systems Engineering*, *9*(3), 272–291. https://doi.org/10.1080/24725579.2019.1649764

American Association of Colleges of Nursing. (2006, October). *The essentials of doctoral education for advanced nursing practice.* https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf

Arias, F., Wiggins, M., Urman, R. D., Armstrong, R., Pfeifer, K., Bader, A. M., Libon, D. J., Chopra, A., & Price, C. C. (2020). Rapid in-person cognitive screening in the preoperative setting: Test considerations and recommendations from the Society for Perioperative Assessment and Quality Improvement (SPAQI). *Perioperative Care and Operating Room Management, 19*, Article 100089. https://doi.org/10.1016/j.pcorm.2020.100089

Bastable, S. B. (2014). *Nurse as educator: Principles of teaching and learning for nursing practice* (4th ed.). Jones & Bartlett Learning.

Bhaskar, A. K., & Simpson, K. H. (2020). Interventional management of pain in cancer and palliative care. *Medicine*, *48*(1), 9–13. https://doi.org/10.1016/j.mpmed.2019.10.014

Bilevicius, E., Sommer, J. L., Keough, M. T., & El-Gabalawy, R. (2020). An examination of comorbid generalized anxiety disorder and chronic pain on substance misuse in a Canadian population-based survey. *Canadian Journal of Psychiatry*, *65*(6), 418–425. https://doi.org/10.1177/0706743719895340

Blanchette, M.-A., Rivard, M., Dionne, C., Steenstra, I., & Hogg-Johnson, S. (2017). Which characteristics are associated with the timing of the first healthcare consultation, and does the time to care influence the duration of compensation for occupational back pain? *Journal of Occupational Rehabilitation*, *27*(3), 359–368. https://doi.org/10.1007/s10926-016-9665-y

Bobbink, P., Pugliese, M.-T., Larkin, P., & Probst, S. (2020). Nurse-led patient education for persons suffering from a venous leg ulcer in outpatient's clinics and homecare settings: A scoping review. *Journal of Tissue Viability*, *29*(4), 297–309. https://doi.org/10.1016/j.jtv.2020.08.006

Buckley, R. A., Atkins, K. J., Fortunato, E., Silbert, B., Scott, D. A., & Evered, L. (2021). A novel digital clock drawing test as a screening tool for perioperative neurocognitive disorders: A feasibility study. *Acta Anaesthesiologica Scandinavica*, *65*(4), 473–480. https://doi.org/10.1111/aas.13756

Carlson, E. A., Staffileno, B. A., & Murphy, M. P. (2017). Promoting DNP-PhD collaboration in doctoral education: Forming a DNP project team. *Journal of Professional Nursing*, *34*(6), 433–436. https://doi.org/10.1016/j.profnurs.2017.12.011

Corbin, B., Tsaih, S.-W., & Uyar, D. (2021). Enhanced Recovery After Surgery (ERAS) protocols: The impact of enhanced patient perioperative education on patient satisfaction and outcomes in gynecologic oncology practice. *Gynecologic Oncology*, *162*(Suppl. 1), S149–S150. https://doi.org/10.1016/S0090-8258(21)00925-2

Crowe, S., Ewart, L., & Derman, S. (2018). The impact of simulation based education on nursing confidence, knowledge and patient outcomes on general medicine units. *Nurse Education in Practice, 29*, 70–75. https://doi.org/10.1016/j.nepr.2017.11.017

Fitzpatrick, E. R., Pogorzelska-Maziarz, M., Manning, M., & Gleason, V. M. (2021). The effect of an education program on nursing knowledge and empowerment in antimicrobial stewardship in a surgical intensive care unit. *Dimensions of Critical Care Nursing, 40*(1), 21–28. https://doi.org/10.1097/DCC.0000000000000450

Ganguli, A., Pagan-Diaz, G. J., Grant, L., Cvetkovic, C., Bramlet, M., Vozenilek, J., Kesavadas, T., & Bashir, R. (2018). 3D printing for preoperative planning and surgical training: A review. *Biomedical Microdevices*, *20*(3), Article 65. https://doi.org/10.1007/s10544-018-0301-9

George, S. Z., Lentz, T. A., Beneciuk, J. M., Bhavsar, N. A., Mundt, J. M., & Boissoneault, J. (2020). Framework for improving outcome prediction for acute to chronic low back pain transitions. *Pain Reports, 5*(2), Article e809. https://doi.org/10.1097/PR9.0000000000000809

Hoffman, J. I. E. (2015). Chapter 13—Hypergeometric distribution. In *Biostatistics for medical and biomedical practitioners* (pp. 179–182). Academic Press.

Horntvedt, M. E. T., Nordsteien, A., Fermann, T., & Severinsson, E. (2018). Strategies for teaching evidence-based practice in nursing education: a thematic literature review. *BMC Medical Education, 18*(1), Article 172. https://doi.org/10.1186/s12909-018-1278-z

Iqbal, U., Green, J., Patel, S., Tong, Y., Zebrower, M., Kaye, A., & Liu, H. (2019). Preoperative patient preparation in enhanced recovery pathways. *Journal of Anesthesiology Clinical Pharmacology, 35*(Suppl 1), S14–S23. https://doi.org/10.4103/joacp.JOACP_54_18

Janssen, E. R., Punt, I. M., Biemans, C. F., van Rhijn, L., Willems, P. C., & van Meeteren, N. L. (2022). Preoperative community based functional high intensity interval training (f-HIIT) with high-risk patients opting for lumbar spinal fusion: A pilot study. *Disability and Rehabilitation,* 45(5), 805–813. https://doi.org/10.1080/09638288.2022.2040618

Jovičić, J., Brkić, T., Mimić, A., Marković, I., Magdelinić, A., & Knežević, I. (2016). Higher utilization of the pharmacologic and non-pharmacologic therapies in patients with chronic low back pain in a developing country than in the USA: Treatment of chronic low back pain. *Serbian Journal of Anesthesia and Intensive Therapy, 38*(3–4), 89–94. https://doi.org/10.5937/sjait1604089J

Kaddoum, R., Fadlallah, R., Hitti, E., Jardali, F., & El Eid, G. (2016). Causes of cancellations on the day of surgery at a tertiary teaching hospital. *BMC Health Services Research, 16,* Article 259. https://doi.org/10.1186/s12913-016-1475-6

Karanfil, E. T., & Møller, A. M. (2018). Preoperative inspiratory muscle training prevents pulmonary complications after cardiac surgery–a systematic review. *Danish Medical Journal, 65*(3), Article A5450.

Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy* (2nd ed.). Cambridge Books.

Koushan, M., Wood, L., & Greatbanks, R. (2021). Evaluating factors associated with the cancellation and delay of elective surgical procedures: A systematic review. *International Journal of Quality in Health Care, 33*(2), Article mzab092. https://doi.org/10.1093/intqhc/mzab092

Meyers, N., Giron, S. E., Burkard, J. F., & Bush, R. A. (2021). Preventing surgical delay and cancellation with patient-centered interventions. *Journal of Perianesthesia Nursing*, *36*(4), 334–338. https://doi.org/10.1016/j.jopan.2020.10.008

Mullen, P., van den Borne, B., & Breemhaar, B. (2000). Implementing a surgery-patient education program as a routine practice: A study conducted in two Dutch hospitals. *Patient Education & Counseling*, *41*(2), 223–234. https://doi.org/10.1016/s0738-3991(00)00140-3

Office of Disease Prevention and Health Promotion. (2010, November). *Healthy people 2020.* U.S. Department of Health and Human Services. https://www.healthypeople.gov/sites/default/files/HP2020_brochure_with_LHI_508_FNL.pdf

Page, C., Cordon, C., & Wong, J. (2019). Evaluating the effectiveness of a mnemonic to guide staff when providing patient education to autologous hematopoietic stem cell transplant patients. *Canadian Oncology Nursing Journal*, *29*(2), 123–140. https://doi.org/10.5737/23688076292123131

Piraux, E., Caty, G., & Reychler, G. (2018). Effects of preoperative combined aerobic and resistance exercise training in cancer patients undergoing tumor resection surgery: A systematic review of randomized trials. *Surgical Oncology*, *27*(3), 584–594. https://doi.org/10.1016/j.suronc.2018.07.007

Rochon, M., Magboo, R., Barlow, C., Ibrahim, S., Carruthers, L., Pagett, J., Morais, C., & Silva, E. (2020). Implementing enhanced patient education for surgical site infection prevention in cardiac surgery. *British Journal of Nursing*, *29*(17), 994–1002. https://doi.org/10.12968/bjon.2020.29.17.994

Sherman, J. R. (2016). An initiative to improve patient education by clinical nurses. *MedSurg Nursing*, *25*(5), 297–300, 333. https://commitmenttolifelonglearning.files.wordpress.com/2017/04/an-initiative-to-improve-patient-education-by-clinical-nurses.pdf

Sinclair, L. B., Fox, M. H., Jonas, B. S., Berry, H. G., Quatrano, L. A., McGowan, A. K., & Peacock, G. (2018). Considering disability and health: Reflections on the Healthy People 2020 Midcourse Review. *Disability and Health Journal, 11*(3), 333–338. https://doi.org/10.1016/j.dhjo.2018.04.001

Smith, W. R., Wera, J., Ramsey, F. V., Takei, R., Gallant, G., Liss, F., Beredjiklian, P., & Kwok, M. (2019). Patient satisfaction in the preoperative period: Preparing for hand surgery. *HAND, 14*(5), 646–650. https://doi.org/10.1177/1558944718760036.

Staffileno, B. A., Murphy, M. P., Hinch, B., & Carlson, E. (2019). Exploring the Doctor of Nursing Practice project facilitator/mentor role. *Nursing Outlook, 67*(4), 433–440. https://doi.org/10.1016/j.outlook.2019.01.005

Storesund, A., Haugen, A. S., Flaatten, H., Nortvedt, M. W., Eide, G. E., Boermeester, M. A., Sevdalis, N., Tveiten, Ø., Mahesparan, R., Hjallen, B. M., Fevang, J. M., Størksen, C. H., Thornhill, H. F., Sjøen, G. H., Kolseth, S. M., Haaverstad, R., Sandli, O. K., & Søfteland, E. (2020). Clinical efficacy of combined surgical patient safety system and the World Health Organization's checklists in surgery: A nonrandomized clinical trial. *JAMA Surgery, 155*(7), 562–570. https://doi.org/10.1001/jamasurg.2020.0989

Vaismoradi, M., Tella, S., A Logan, P., Khakurel, J., & Vizcaya-Moreno, F. (2020). Nurses' adherence to patient safety principles: A systematic review. *International Journal of Environmental Research and Public Health, 17*(6), Article 2028. https://doi.org/10.3390/ijerph17062028

Viftrup, A., Dreyer, P., Nikolajsen, L., & Holm, A. (2021). Surgery cancellation: A scoping review of patients' experiences. *Journal of Clinical Nursing*, *30*(3–4), 357–371. https://doi.org/10.1111/jocn.15582

White, K. M., Dudley-Brown, S., & Terharr, M. F. (2016). *Translation of evidence into nursing and health care practice* (2nd ed.). Springer.

Wickersham, L., Johnson, K., Kamath, A., & Kaboli, P. J. (2018). Novel use of communication technology to improve nurse-physician communication, teamwork, and care coordination during bedside rounds. *Journal of Communication in Healthcare. 11*(1), 56–61. https://doi.org/10.1080/17538068.2018.1431425

Wintjens, A. G., Hintzen, K. F., Engelen, S. M., Lubbers, T., Savelkoul, P. H., Wesseling, G., & Bouvy, N. D. (2021). Applying the electronic nose for preoperative SARS-CoV-2 screening. *Surgical Endoscopy*, *35*(12), 6671–6678. https://doi.org/10.1007/s00464-020-08169-0

Xu, Y., Wang, Y., Chen, J., He, Y., Zeng, Q., Huang, Y., Xu, X., Lu, J., Wang, Z., Sun, X., Chen, J., Yan, F., Li, T., Guo, W., Xu, G., Tian, H., Xu, X., Ma, Y., Wang, L., … Li, G. (2020). The comorbidity of mental and physical disorders with self-reported chronic back or neck pain: Results from the China Mental Health Survey. *Journal of Affective Disorders*, *260*, 334–341. https://doi.org/10.1016/j.jad.2019.08.089

Appendix A: Staff Education Questionnaire

Pre-Questionnaire

Prior to the staff education:

1. How knowledgeable are you overall in providing patients with preoperative instructions?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

2. How knowledgeable are you of the primary reasons why patients' surgeries are cancelled on the day of the procedure?

    1. Extremely aware
    2. Very aware
    3. Somewhat aware
    4. Not so aware
    5. Not at all aware

3. How knowledgeable are you about the brand and generic names of anticoagulants?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

4. How knowledgeable are you about educating patients on when to stop various blood thinner medications before their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

5. How knowledgeable are you in providing patients instructions on when to stop eating and drinking before their procedures?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

6. How knowledgeable are you on educating diabetic patients on how to take their insulin prior to their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

7. How knowledgeable are you in educating patients who receive sedation?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

8. How knowledgeable are you on what to do if patients have questions or concerns about their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

9. How knowledgeable are you with determining if patients understood all of the preoperative instructions?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

10. How beneficial would a preoperative staff education help you improve your knowledge?

    1. Extremely beneficial
    2. Very beneficial
    3. Somewhat beneficial
    4. Not so beneficial
    5. Not at all beneficial

Post-Questionnaire

After the staff education:

1. How knowledgeable are you overall in providing patients with preoperative instructions?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

2. How knowledgeable are you of the primary reasons why patients' surgeries are cancelled on the day of the procedure?

    1. Extremely aware
    2. Very aware
    3. Somewhat aware
    4. Not so aware
    5. Not at all aware

3. How knowledgeable are you about the brand and generic names of anticoagulants?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

4. How knowledgeable are you about educating patients on when to stop various blood thinner medications before their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

5. How knowledgeable are you in providing patients instructions on when to stop eating and drinking before their procedures?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

6. How knowledgeable are you on educating diabetic patients on how to take their insulin prior to their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

7. How knowledgeable are you in educating patients who receive sedation?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

8. How knowledgeable are you on what to do if patients have questions or concerns about their procedure?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

9. How knowledgeable are you with determining if patients understood all of the preoperative instructions?

    1. Extremely knowledgeable
    2. Very knowledgeable
    3. Somewhat knowledgeable
    4. Not so knowledgeable
    5. Not at all knowledgeable

10. How beneficial was the preoperative staff education to improving your knowledge?

    1. Extremely beneficial
    2. Very beneficial
    3. Somewhat beneficial
    4. Not so beneficial
    5. Not at all beneficial

Appendix B: Blood Thinner Medication Test

Anticoagulant/Blood Thinner Competency Quiz

Employee Name: Date:
Passing Score Required: 100% Satisfactory Score:
Evaluator:

1. Which drug is the generic for Plavix?
   a. Clopidogrel
   b. Pletal
   c. Clonidine
   d. Ticagrelor

2. Which of the following drugs have the potential to reduce clotting and or thin blood? Select all that apply
   a. Lexapro
   b. Aleve
   c. Goody's Powder
   d. Cymbalta
   e. Aspirin 325
   f. Indomethacin
   g. Aspirin 81 mg
   h. Aggrenox
   i. Duexis
   j. Estradiol
   k. Metoprolol
   l. Hydrochlorothiazide
   m. Diclofenac
   n. Pradaxa

3. Which drug(s) are considered the brand name for Warfarin?
   a. Coumadin
   b. Brilinta
   c. Jantoven
   d. Heparin

4. Match the following brand name with its generic equivalent.

a. Eliquis	_h_ Fondaparinux
b. Xarelto	_g_ Dalteparin
c. Jantoven	_i_ Enoxaparin sodium
d. Pletal	_j_ Edoxaban
e. Effient	_f_ Acetylsalicylic acid / Dipyridamole
f. Aggrenox	_e_ Prasugrel
g. Fragmin	_k_ Pentoxifylline
h. Arixtra	_a_ Apixaban
i. Lovenox	_b_ Rivaroxaban
j. Savaysa	_c_ Warfarin
k. Trental	_l_ Eptifibatide
l. Integrilin	_d_ Cilostazol

5. Aggrastat is a blood thinner.
   a. True
   b. False

6. At Alliance Spine and Pain each provider as specific anticoagulant instructions.
   a. True
   b. False

7. OTC vitamins and supplements such as cranberry, vitamin E, Fish Oil, and Ginkgo Bilbo have the potential to thin your blood and or reduce clotting
   a. True
   b. False

For Administrative Use Only:

Evaluator Signature: _____ Date: _____

Appendix C: Staff Education PowerPoint

Staff Education: Preoperative Patient Screening

ADRIENE SMITH, MSN.ED, RN

1

Course Description

The purpose of this course to educate nursing staff on essential components a pre-operative screening for interventional spine and back pain patients scheduled for surgical procedures.

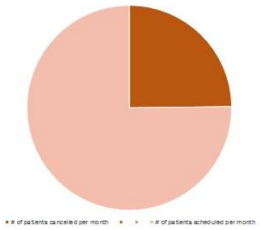
2

General Problem

- The primary reason for patient surgical procedure cancelations is patients' non-adherence to preoperative instructions.
- Patients are not being adequately screened, educated, or prepared for their scheduled spinal pain management procedure (Buckley et al., 2021).
- Inadequate patient preparation for surgical procedures that have led to a 33% same-day surgery cancelation rate.

3

33% same-day surgery cancelation rate



4

Desired Outcome

To reduce the number of same-day surgical procedure cancelation for the spine and back pain patient population.

To increase the nursing staff's awareness of the major reasons why patients' procedures are cancelled on the appointment day

To positively impact patients with chronic back pain, healthcare consumers, organizations, and nursing.

5

At the end of the staff education, the nursing staff will be able to perform a preoperative patent education screening effectively.

- Understand the major reasons why patient's surgery are cancelled the same-day of procedure
- Identify anticoagulants that will interfere with patient's procedures
- Demonstrate your ability to effectively instruct and educate patients for schedule procedures
- Determine if the patient understood the preoperative instructions given

6

Pre-test and Questionnaire

The purpose of the pre-test and questionnaire is to establish as baseline of the staff's knowledge and understanding.

Pick up a pre/post test packet. Random numbers have been assigned to each packet to remain anonymous. Make sure the pre-test has the same number as the post-test. Place completed test face down in the box

7

Spine and Back pain population significance

- Chronic back conditions is a leading health indicators in the national health promotion and disease-prevention focus of Healthy People 2020 (U.S. Department of Health and Human Services, 2010).
- Eighty-five percent of Americans have experienced a chronic back condition at some point in their lives (Jovii et al., 2016).
- The chronic back pain population has a significant socioeconomic impact in the United States due to lost wages, workforce reduction, and unemployment compensation (Sinclair et al., 2018).
- Chronic back pain has financial consequences and a sedentary lifestyle due to chronic pain, resulting in decreased physical mobility (Xu et al., 2020); opiate substance abuse and dependency (Bilevicius et al., 2020); and mental health disorders, including depression and suicidal ideations (Xu et al., 2020).

8

Major reasons why patients' procedures are cancelled

- Surgery Date
- Arrival Time
- Need for responsible driver
- NPO status
- Schedules Medications
- Blood thinners
- Necessary clearances

9

Preoperative Screening Process

See Handout

10

Anticoagulant "Blood Thinner" Instructions

Some medications need to be stopped prior to certain procedures. If you are taking a blood thinning medication, we must have clearance from the prescribing physician that it is ok for you to stop taking a blood thinning medication.

For your safety, do not stop taking these medications before approval is received from your prescribing physician.

Blood Thinner Restrictions for Epidural and Cervical Procedures

7 days	5 days	3 days	1 day	6 hours
Aspirin (Acetylsalicylic Acid) (Aspirin/Dipyridamole)	Coumadin/Jantoven (Warfarin)	Plavix (Clopidogrel)	Lovenox (enoxaparin)	SubQ heparin
Plavix (Clopidogrel)	Arixtra (fondaparinux)	Eliquis (apixaban)	Fragmin (dalteparin)	
Effient (Prasugrel)	Pradaxa (dibagatran)	Xarelto (rivaroxaban)	Aggrastat (tirofiban)	
Trental (Pentoxifylline)	Brilinta (Ticagrelor)	Savaysa (edonaban)	Integrelin (eptifibatide)	
		Sintrom (acenocoumarol)		
		Non-steroidal anti-inflammatory medications		
		Aspirin/Cervical Epidural Steroid Injections only		

Major Procedures (Procedures requiring an incision) and Trials

To include above instructions if applicable

7 days	

11

Patient education

- Emphasize the major issues
- State date and ask patient to place on their calendar
- Emphasize arrival time and importance of arriving on time
- Ask for Name and number of Responsible driver
- Elaborate on when patient's last meal should be, include smoking and alcohol intake stops
- Review patients' medication: which medications to stop and if a clearance is needed.
- Special attention to blood thinner list

12

Reinforce teaching

- Make sure patient and/or family member understands the preoperative instructions → Have patient read back to you all important information
- Reinforce any incorrect information → Allow time for patient to ask questions

13

Close the loop

- Please follow up on all patients' questions and concerns
- Make sure all necessary clearances are on patients' chart
- Follow up with MD/CRNA/NP for any other concerns

14

Post-test and Questionnaire

The purpose of the post-test and questionnaire is to determine if the staff's knowledge and understanding improved

Make sure the pre-post has the same number as the pre-test. Place completed test face down in the box

15

16