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Perioperative Pain Control: Evaluating Best Practices in Perioperative Pain Measures

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ABSTRACT

PERIOPERATIVE PAIN CONTROL: EVALUATING BEST PRACTICES IN PERIOPERATIVE PAIN MEASURES

by

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ABSTRACT OF GRADUATE STUDENT PROJECT

Scholarly Project

Andrews University

School of Nursing, College of Health & Human Services

TITLE: PERIOPERATIVE PAIN CONTROL: EVALUATING BEST PRACTICES IN PERIOPERATIVE PAIN MEASURES

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Background

Postoperative pain is contributing to the nation's opioid epidemic. Pain is an unpleasant sensation felt by the patient. When it is experienced postoperatively, it is a result of the surgical process. Patients up to 80% worldwide state that their pain is not controlled to their satisfaction. When postoperative pain is not treated adequately, it can contribute to chronic pain.

Purpose

Perioperative pain assessment and treatment policy at a rural critical access hospital and compare it to evidence-based guidelines for best practice. The project assessed the patient's pain treatment effectiveness compared to the pain management

policy by using the CDC framework for program evaluation (CDC, 2017). Then, the policy was evaluated for compliance with the latest evidence-based recommendations for perioperative pain management and to give recommendations to revise the current policy.

Method

To evaluate the perioperative pain management policy, surgery patients at a rural critical access hospital surgery department were given an adapted version of the Revised American Pain Society Patient Outcome Questionnaire. Patients were asked to participate in the questionnaire in the preoperative setting, where they would sign consent. They were then given the questionnaire in an envelope to fill out and return via mail. Patients' charts were also reviewed to look at pain management treatments such as medications and to assess if they had received pain management education. A total of 56 questionnaires were given out. However, only 30 of those were returned. The data collected from the questionnaires and chart review was then analyzed.

Results

Overall, patients were satisfied with their care, with a mean rating of 8.97 out of 10. When patients were asked how much pain control had been achieved 24 hours after surgery, 76.7 % of the participants indicated they had 70% or more pain relief. The average pain ratings 24 hours before surgery were 3.9/10 for the least pain and 5.9/10 for the worst pain after surgery. Postoperatively the average pain ratings 24 hours after surgery were 3.3/10 for the least pain and 5.9/ 10 for the worst pain. The chart review indicated a lack of documentation, assessment, and education. Based on the questionnaire and the chart review results, recommendations about improved documentation, assessment, patient education, and nursing education were given to the facility. Also, the

recommendation was given to have the perioperative pain management policy align with recommendations by the American Society for Anesthesiologists and the American Society for Peri Anesthesia Nurses.

Conclusion

Postoperative pain management is essential to a patient's well-being. Their pain must be controlled to their satisfaction. The facility does appear to provide pain control for patients. However, when their current policy about perioperative pain management was compared to the questionnaire, chart review, and evidence-based practice, recommendations for improvement could be made. These were given to the facility. The current plan incorporates the recommendations to improve their policy and care.

Andrews University

School of Nursing, College of Health & Human Services

PERIOPERATIVE PAIN CONTROL: EVALUATING BEST PRACTICES IN PERIOPERATIVE PAIN MEASURES

A Scholarly Project

Presented in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

by

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APPROVAL BY THE COMMITTEE

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Member: Timothy Chavis	Date Approved

DEDICATION

I want to dedicate this project to my parents, friends, and coworkers who have supported me through this journey. Thank you for believing in me and helping me in this endeavor.

To my surgery crew, present and past, that believed in my ability to become anything that I wanted to.

To God for His strength, guidance, and care for me in this project.

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LIST OF ABBREVIATIONS

AORN	Association of Operating Room Nurses
APS-POQ	Revised American Pain Society Patient Outcome Questionnaire
ASA	American Society of Anesthesiologists
ASPAN	American Society of Peri anesthesia Nurses
CDC	Centers for Disease Control and Prevention
CRNA	Certified Registered Nurse Anesthetist
CS	Central sensitization
DNP	Doctor of Nursing Practice (Essentials)
IHI	Institute for Healthcare Improvement
IASP	International Association for the Study of Pain
IRB	Internal Review Board
NSAID	Non-steroidal anti-inflammatory drugs
PDSA	Plan-do-study-act cycle
PNB	Peripheral regional nerve blocks

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CHAPTER 1

INTRODUCTION

It is contributing to the nation's opioid epidemic. According to the International Association for the Study of Pain (IASP), pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (IASP, 2017). According to McCaffrey, pain is what the patient says it is (as cited in Bernhofer, 2011). Nurses have been taught this definition for many years. According to the Centers for Disease Control and Prevention (CDC), 20% of adults seeking acute and chronic pain treatment receive opioid prescriptions (Dowell et al., 2016). This has caused a nationwide epidemic of opioid overuse contributing to 68% of overdose deaths in 2017 (CDC, 2018a). Therefore, the CDC has changed and increased the guidelines on how pain is to be treated in patients (Dowell et al., 2022).

The International Association for the Study of Pain states that pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Raja et al., 2020). This indicates that pain can be interpreted differently by any individual. Guidelines created by the American Society of Anesthesiologists (ASA) specify that pain after surgery should be considered acute pain (2012). They also include that perioperative pain management should be done before, during, and after surgery. Acute pain in postoperative patients needs to be treated appropriately to prevent chronic pain, which in turn contributes to the chronic pain epidemic in the United States (Hyland et al., 2021; Dowell et al., 2016). Although patients expect their pain to be managed after

surgery, medical personnel should strive to provide comfort to patients through various methods (Hyland et al., 2021).

Background

When looking at pain control after surgery, 50-80% of patients complain that their pain is not controlled in their recovery period (Borys et al., 2018; Gan, 2017). Research about postoperative pain included a variety of surgeries, including major surgeries such as total joint arthroplasty and thoracic surgery and minor surgeries such as appendectomy and tonsillectomy. The results showed that uncontrolled post-surgical pain had been shown to contribute to chronic pain and increase the use of opioids (Hyland et al., 2021).

Today, postoperative pain treatment goes beyond opioid treatment by incorporating non-pharmacological and non-opioid pharmacological pain management treatments (Yim & Parsa, 2018). Decreased opioid use decreases the patient's length of stay in the hospital, which benefits the patient, the insurance company, and the hospital by reducing the cost (Pain Stewardship Program, 2017). In addition, patients that were educated about what to expect with pain after surgery, opioid usage, and non-narcotic options had decreased pain and opioid use after surgery (Andelman et al., 2019).

Non-pharmacological treatment, including ice, elevation, relaxation techniques, and music, can help alleviate pain (Ames et al., 2017). In addition, meloxicam, celecoxib, acetaminophen, gabapentanoids, bupivacaine, lidocaine, dexmedetomidine, and ketamine are all alternatives to opioid medication (Brown et al., 2018). These can be used perioperatively to treat pain before surgery, during, and after surgery.

Currently, the surgical department of the selected agency has a process in addressing pain perioperatively. On the admission assessment, the nurses manage pain by

asking patients their current pain rating, their acceptable level of pain, describing their pain, asking what type of pain scale the patient prefers, and what they take for pain regularly. They also educate the patient that they will have pain after surgery, and the pain medication will only help with the pain and not take it away. Patients will have pain after surgery due to the tissue damage that occurs during the surgical process. With a requirement by Washington state, the nurses now review opioid pain medication instructions about the risk of opioids, such as decreased respiratory rate and increased sedation, safe storage, and safe disposal of opioids (Washington Administrative Code 246-919-865, 2018).

Intraoperatively, a Certified Registered Nurse Anesthetist (CRNAs) addresses and manages the patient's pain. They also provide medication orders for patients postoperatively in the Post Anesthesia Care Unit (PACU). In PACU, nurses again manage the patient's pain by administering ordered medications from the CRNA. At times the surgeon will also order non-pharmacological treatments to help manage pain postoperatively, such as cold therapy and elevation, which the nurses initiate. Patients' pain is treated according to their physical response to pain and their pain rating stated to the nurses and CRNAs.

Problem Statement

According to the World Health Organization, it is a human right to receive pain treatment (Brennan et al., 2019). The medical provider's ethical responsibility is also to treat a patient's pain. Unfortunately, some facilities do not treat postoperative pain to the patient's satisfaction (Chou et al., 2016). Also, the patient's quality of life can be affected if postoperative pain becomes chronic (Garimella & Cellini, 2013). Currently, the surgery

department in a rural hospital questions patients postoperatively to assess their surgical stay. Patients score their satisfaction on a scale of 1 to 5. They have a 95% patient satisfaction rating regarding postoperative pain treatment (S. Jacobson, personal communication, February 6, 2019). However, the patient survey currently being used is not a validated tool. Therefore, the policy about pain was evaluated for compliance with the latest evidence-based recommendations for postoperative pain management. This current policy was then compared to the evidence for best practices, and recommendations for revision to the Perioperative Pain Management Policy in this organization were suggested.

The current policy addresses patients' right to adequate pain relief and that they should be educated about and assessed about pain before surgery. It defines a pain scale of 0-10 that states "0" as the absence of pain and "10" is excruciating pain. PACU personnel are said to evaluate the patient's pain and medicate as needed per orders. It also states that the anesthesia provider or the physician will be notified if the patient's pain is not controlled. It requires the patient's pain level to be documented. However, the challenges are that it does not state which, if any, guidelines the policy follows, where the information is obtained from, or give guidance to the PACU personnel as to how and when to medicate. The policy also states that those with chronic pain will not have their pain controlled without stating a source for this information.

Purpose Statement

The project aimed to evaluate the perioperative pain assessment and treatment policy at a rural critical access hospital and compare it to evidence-based guidelines for best practice. The project assessed the patient's pain treatment effectiveness compared to the pain management policy by using the CDC framework for program evaluation (CDC, 2017). Then, the policy was evaluated for compliance with the latest evidence-based recommendations for perioperative pain management and to give recommendations to revise the current policy.

Facilities with surgical services are recommended to have specific policies and procedures for pain treatment after surgery (Crosson & Davison, 2022a; Chou et al., 2016; ASA, 2012). Policies and procedures should be updated regularly and based on current evidence. Having pain treatment policies in place helps decrease patients' pain ratings postoperatively (Crosson & Davison, 2022a; Pogatzki-Zahn et al., 2015; ASA, 2012).

PICO Question

In postoperative patients at a rural critical access hospital(P), how does the postoperative pain management policy function (I) to control patients' pain (O) in the post-anesthesia care unit after surgery (T)? Once this question was answered, the policy was compared to current guidelines for best practice, and any gaps noted were given in recommendations for improvement.

CHAPTER 2

LITERATRUE REVIEW

Conceptual Definitions

Acute Pain: Pain that lasts less than four weeks (CDC, 2022).

Chronic Pain: Pain that lasts longer than normal healing time (Lavande'homme, 2018). Pain that lasts longer than three months (Dowell et al., 2022).

Intra-Operative: Time frame during surgery

Opiate abuse/overuse: The use or abuse of opiate medications (Yim & Parsa, 2018).

Perioperative: Time frame of the surgery process, including before, during, and after surgery

Preoperative: Time frame before surgery

Postoperative: Time frame after surgery

Post-Anesthesia Care Unit: Recovery unit after surgery.

Multimodal: Using multiple medications to treat pain from a variety of approaches (ASA, 2012).

Theoretical and Conceptual Framework

The Model for Improvement was used as a guideline to evaluate the current perioperative pain management at the surgery department. It was developed by Associates in Process Improvement (2019) to help organizations learn and make changes

in processes. There are several steps to the Model (Institute for Healthcare Improvement [IHI], 2019). These include forming the team, setting aims, establishing measures, selecting, testing, implementing, and spreading changes.

The Model for Improvement has two parts that are studied. This is broken into three main questions and the Plan-Do-Study-Act testing cycle (IHI, 2019). The questions include -What are we trying to accomplish? How will we know that a change is an improvement? Moreover, what change can we make that will result in improvement? In this project, the plan was to conduct a questionnaire for patients and a chart review. The "Do" portion was the questionnaire given to patients and the review of the same patients' charts. The questionnaire and chart review results were studied and analyzed in the study portion. A conclusion was given based on the findings of the questionnaire and the chart review, along with evidence-based recommendations for improving the policy. Acting on the results will be the responsibility of the stakeholders after they have been given the information and rationale for any changes needed.

Stakeholder buy-in is an essential factor in this type of framework (IHI, 2019). The stakeholders become part of the team that helps make the project a success. Making sure that time goals are set is also crucial in setting aims. Finding a way to measure data quantitatively should be incorporated into a project under the Model for improvement.

The CDC Framework for program evaluation will be used to evaluate perioperative pain management at a critical access hospital. The CDC Framework includes: engaging the stakeholders, describing the program, evaluation design, gathering of credible evidence, justifying a conclusion, and ensuring that lessons learned are shared (CDC, 2018b).

Just as stakeholders are essential in the IHI Model for Improvement (IHI, 2019), they are also in the CDC Framework for program evaluation (CDC, 2018b). Both require the stakeholders to buy into the project and participate in it. They may do this by giving examples of problems, coming up with solutions, and partaking in the project evaluation itself.

Program description, focused evaluation, gathering credible information, and justifying a conclusion are also vital to program evaluation (CDC, 2018b). These steps also go along with the IHI Model for Improvement steps. Ultimately, the primary outcome was to share the information gathered and apply it to a situation. In this case, the information collected will hopefully improve perioperative care of pain management.

The CDC Framework for evaluation also requires standards to be upheld during the evaluation. These are utility, feasibility, propriety, and accuracy (CDC, 2018b). The utility requires that the evaluation will provide applicable and needed information for the stakeholders. Infeasibility, it is ensured that the data is realistic, prudent, diplomatic, and frugal. For propriety, the evaluation must be conducted legally and ethically, ensuring that those participating will not be harmed. Finally, accuracy indicates that the evaluation will be conducted in such a manner that data collection is accurate and adequate information is needed to perform a proper evaluation.

Review of the Literature

Perioperative pain management should encompass before, during, and after surgery. Research indicates that patients not adequately treated for pain perioperatively have a higher risk of having chronic pain (Hyland et al., 2021; HHS, 2019). In addition, the Centers for Disease Control and Prevention (CDC) states that chronic pain is

becoming an epidemic in the United States (Dowell et al., 2016). This literature review will review articles related to best practices in perioperative pain management.

The methodology used included search engine EBSCO host using Advance Search Complete, CINAHL Complete, MEDLINE, and Health Source: Nursing/ Academic Edition for databases resulting in 4,942 articles. These were narrowed down by evaluating each article for publication dates between January 1, 2017, and January 1, 2022. Search limiters included were peer-reviewed, full text available, and English language. The searches were conducted between January 19, 2022, and February 3, 2022. Google scholar was also utilized, and those articles were narrowed only by published since 2017. Search terms included postoperative pain, perioperative pain, pain assessment tools, and visual analog scale for pain. Each article was first reviewed for relevance to perioperative pain management by evaluating the abstract, the introduction, and the conclusion. About 45 articles showed to be applicable, and the whole article was reviewed. This literature review will attempt to offer evidence for the best postoperative pain management practices.

The Three Different Types of Pain

Pain can be classified into three types which include inflammatory, neuropathic, and dysfunctional pain (Manion et al., 2019). Inflammatory pain is caused by inflammation in the tissues caused by an injury or a degenerative condition such as rheumatoid arthritis or osteoarthritis. This type of pain can cause hyperalgesia, an increased sensation of pain. However, it is likely a normal pain response in the body to promote healing. Surgical pain can be considered a form of inflammatory pain.

Neuropathic pain originates within the nervous system (Manion et al., 2019). It is

considered a maladaptive form of pain that begins within the nervous system, either caused by an obvious lesion causing pain or may have no apparent reason. It can be described as sharp, shooting pain with numbness and tingling. This form of pain is among the most difficult to treat.

Dysfunctional pain is considered pain that may occur related to abnormal function of the somatosensory system (Manion et al., 2019). There may be no apparent cause of pain related to a lack of inflammation or tissue damage. This type of pain can also be challenging to treat.

ASA Practice Guidelines for Pain Management Perioperatively

The ASA published guidelines from 2012 apply to perioperative pain management. These guidelines are still considered the gold standard for perioperative pain management (Hyland et al., 2021). These guidelines include facilities with specific policies addressing perioperative pain management. They also state that every person undergoing surgery should have a preoperative pain assessment to determine the pain medication needed during and after surgery.

The patient is also part of the guidelines (ASA, 2012). This includes educating the patient about why a patient's pain should be managed, reporting their pain, and the appropriate use of opioid medication. Also, non-pharmacologic pain management, such as behavior modalities for the control of pain and anxiety, should be considered. Another recommendation is that if patients take pain medication daily, they should continue on their medications prior to surgery.

A combination of central regional opioids, such as intrathecal and epidural routes, with intravenous opioids and peripheral regional blocks, including plexus blocks and

local anesthetic infiltration, have decreased patients' pain postoperatively (ASA, 2012). Intrathecal and epidural pain relief works by injecting medications that reduce the sensation of pain near or around the spinal cord. The peripheral regional blocks and local anesthetic infiltration work by injecting local anesthetics around nerves and in between tissues to block nerve pain signals.

Multimodal pain management consists of giving two medications that work simultaneously through different pain pathways (ASA, 2012). This can include giving multiple IV medications together or combining numerous medications, such as in an epidural. It can also involve giving medications preoperatively that have effects postoperatively.

Extra care and consideration in administering pain management are necessary for pediatric, geriatric, and critically ill patients (ASA, 2012). This may mean reducing the amount of medication given using pain assessment tools suitable to patients' mental ability. Additional pain treatments may also need to be considered in these populations.

Postoperative Pain Management

The ASA guidelines are recommended to be applied and used for policies and procedures in surgical centers (2012). These guidelines should be used along with other literature findings to improve patient care. Various professional associations have recommended creating and implementing policies and procedures specific to perioperative pain assessment and management (Joshi et al., 2019).

Widespread findings in perioperative pain management research suggest that patients perceived their postoperative pain was not controlled (Hyland et al., 2021; Borys et al., 2018; Gan, 2017; Chou et al., 2016). In researching postoperative pain with major

and minor surgeries, patients claim to be dissatisfied with their pain and its treatments after surgery 50-80% of the time. The dissatisfaction and perception of increased pain after surgery can contribute to increased morbidity (Gan, 2017). Patients may have cardiovascular, pulmonary, renal, and gastrointestinal side effects from increased pain. It may also affect sleep quality, leading to the psychological impact of decreasing coping ability. The immune system response can also be altered by pain, increasing the inflammatory response.

Poorly controlled postoperative acute pain can lead to chronic pain (Gan, 2017). The reasons are inadequately understood. However, preoperative, intraoperative, and postoperative factors are believed to contribute. Increased inflammation at the surgical site is linked to the progression of chronic pain. Also, tissue and nerve damage and central sensitization were reported to increase risk factors for chronic pain.

Educating patients preoperatively about their pain appeared to improve patients' pain ratings (Andelman et al., 2020; Hyland et al., 2021; Yim & Parsa, 2018; Chou et al., 2016). The type of education included informing the patient that they will have pain after their procedure, that opioids will not altogether remove their pain but lessen it, and that opioids can increase the risk of respiratory depression and increased sedation. Patients were also educated about the average consumption of opioids, that non-opioid medications can be used with opioids, such as non-steroidal anti-inflammatory drugs (NSAIDs), the use of ice after surgery, and elevating extremities when applicable. Including the family in the pain management education process of the patient was also shown to improve patient pain ratings. Providers creating and documenting this treatment plan indicated success in decreasing pain postoperatively. However, the documentation of

discharge instructions and education about pain management is lacking (Gordon et al., 2016). Disposal of unused opioid medications is also recommended as part of the patient's perioperative pain education (Hyland et al., 2021).

Chronic pain patients, whose pain persists longer than expected healing time, were shown to have higher pain ratings postoperatively than those without chronic pain. (Borys et al., 2018; Lavand'homme, 2017). Their continuous use of opioids and other pain medications contributes to increased anxiety, increasing their postoperative pain perception (Hyland et al., 2021; Edwards et al., 2019). A history of osteoarthritis may also place the patient at higher risk for chronic pain postoperatively because of their prior sensitization to pain (Lavand'homme, 2017).

Hyland et al. (2021) indicate that patients' pain treatment should be individualized to each specific patient. Different needs and different pain responses are seen in each patient. Individualized pain management has shown to be more beneficial for postoperative pain than using an identical treatment for every patient. Each patient's medical and social histories need to be considered when devising treatment plans (Hyland et al., 2021; Chou et al., 2016). However, individualized pain treatment is common because the patient's pain causes are not always considered and addressed (Lavand'homme, 2017).

Non-steroidal anti-inflammatory medications and acetaminophen are recommended as adjunct treatments for pain by Chou et al. (2016). NSAIDs, especially cyclooxygenase-2 inhibitors (COX-2), can decrease the need for opiates postoperatively (McEvoy et al., 2017). They have minimal effect on coagulation, therefore not increasing bleeding risk with use. Antiemetic use can also be decreased with their use related to

decreased opioid use. Caution should be used in patients with renal issues. Otherwise, their use is not contraindicated in many patients. They should be administered preoperatively. If an oral NSAID was not given preoperatively, ketorolac could be given intraoperative or postoperative via IV. However, NSAIDs have shown poor pain relief for patients who have chronic pain after surgery (Gan, 2017).

Acetaminophen can also reduce the need for opioids (McEvoy et al., 2017). It can be administered orally or via IV. IV use is not necessarily better than oral use. Both are considered adequate. However, it should be used cautiously in patients with hepatic impairment.

The education of perioperative staff, including nurses, surgeons, and anesthesia providers, on pain management, contributed to better pain control 24 hours after surgery (Crosson & Davison, 2022a; Pogatzki-Zahn et al., 2015). This includes education about policies on pain management, guidelines for pain assessment, documenting pain, and pharmacological and non-pharmacological pain treatment. The staff was educated on the policies and procedures for six months and then implemented them. The patients rated their pain higher postoperatively before the implementation of such a policy as compared to those after the six-month education undertaken by the staff caring for them.

However, nurses and physicians receive limited education about pain in their initial training (Shipton et al., 2018; Drake & William, 2017). In addition, most of the training about pain treatment they receive is on the job after practicing. Therefore, all practitioners that treat a patients' pain must receive education about pain treatment.

In educating nurses about acute pain, they should be taught about the origin and causes of pain, types of pain, variety of pain treatments, how to assess pain, and when to

treat pain (Drake & William, 2017). Physicians' education should be similar to nurses' education. They also need to advise about opiate abuse, how to treat patients with chronic pain, and address chronic pain after surgery (Shipton et al., 2018). With opioid use at an all-time high and becoming an epidemic, postoperative pain relief is becoming an important issue (Dowell et al., 2016; CDC, 2018a).

A multimodal approach to treating postoperative pain is recommended (Joshi et al., 2019; Brown et al., 2018; Waldman et al., 2018; Chou et al., 2016; Gordon et al., 2016). This approach is reflected in patients receiving more than one medication to treat pain and the nociceptive process behind the pain. In addition, different medications address different sources of pain. Using this type of multimodal approach decreases the number of individual medications used and reduces the side effects seen with that medication. This may include something simple such as giving ibuprofen along with opiate medication. While the opiate binds to the mu receptors, ibuprofen addresses inflammation by inhibiting prostaglandins (McEvoy et al., 2017). However, the multimodal approach should continue to be researched for effectiveness (Gan, 2017).

Another medication added to a multimodal approach is ketamine (Schwenk et al., 2018). Adding ketamine in small doses to opioids can potentiate their effect and increase pain relief postoperatively. Even when administered intraoperatively, it can decrease opioid use postoperatively. It does not add to the sedative effects of opioids. Often it will be given intraoperatively (ASA, 2012).

Lidocaine given intravenously can also decrease pain and opioid use in patients postoperatively (Mc Evoy et al., 2017). The effects of lidocaine can last up to 48 hours after surgery, diminishing the need for other pain medications. This can also help reduce

the side effects of opioid use after surgery, such as constipation. Lidocaine can be given intravenously during surgery, injected at the site of surgery prior or after, or used in a nerve block before or after surgery. However, lidocaine should be used with caution in patients.

Gabapentinoids such as gabapentin and pregabalin given before surgery or within 48 hours after surgery may decrease postoperative pain (Gan, 2017). A 300mg dose of gabapentin before surgery can effectively reduce pain and the need for other medications (Hyland et al., 2021). However, gabapentinoids can increase the risk of respiratory depression, delirium, sedation, and dizziness, especially in those older than 65 years of age, renal impaired, and with chronic pulmonary disease. Therefore, caution should be used when administering. Postoperatively, gabapentinoids can decrease opioid use, sensitization to pain, and even nausea, indicating that their use would benefit pain treatment.

Acutely ill patients requiring surgery have more pain postoperatively than those having surgery electively (Magidy et al., 2015). Patients with an acute illness or injury requiring surgery appear to have more pain and prolonged pain after surgery. It may be attributed to the disease process. However, more research needs to be done to understand the link.

The patient's ability to communicate their pain is a factor in enabling staff to treat their pain (Wikstrom et al., 2015). Also, the patient's inability to express their pain contributed to the difficulty of treating the pain for staff. The staff that is trained at communicating with patients had better results because of being able to address the patient's concerns.

Quality of life can be greatly affected by pain. Patients that have pain have a reduced quality of life (Gross & Gordon, 2019). In a study by Nyman et al. (2018), patients with decreased health literacy had increased pain and decreased quality of life. This included the inability to understand preoperative and postoperative instructions. However, the types of quality of life that are influenced by postoperative pain have not been studied well.

Not only does pain affect the quality of life, but it can also affect the patient's mental health (Hyland et al., 2021). For example, patients with anxiety may have an increased perception of pain (Edwards et al., 2019). Anxiety may also increase the patient's risk of becoming more dependent on pain medication postoperatively (Gan, 2017). Anxiety may also affect patients' satisfaction with their overall care and pain management (Trinh et al., 2019).

Nationally, pain management policies are needed (Gross & Gordon, 2019). Every medical facility with a surgery department must have pain management policies in place (Crosson & Davison, 2022a; ASA, 2012). Pain management policies should follow the opiate guidelines developed by CDC (Kroenke et al., 2019).

The numeric pain scale has been used in various settings when assessing pain. Patients are asked to rate their pain on a scale from 1-10 (Dowell et al., 2022). Another tool used to assess pain is the Visual Analog Scale (VAS). It is a diagram that shows various pain ratings in a face that correlates with a pain rating from 0 to 10. The patient points to which face represents their pain. This scale is helpful with pediatric, developmentally delayed, and cognitively impaired patients. In general, pain severity is rated mild from 2-3/10 pain, moderate from 4-5/10 pain, and severe pain is rating greater

than 6/10.

ASPAN Recommendations for Pain Management

Another association that has guidelines for perioperative pain management is the American Society of Peri Anesthesia Nurses (ASPAN). ASPAN is the society that sets the standards for perioperative nurses. For perioperative pain management, their guidelines start with assessing and educating about pain in a preadmission appointment (Crosson & Davison, 2022a). This continues with assessing pain on admission, followed by pain assessment upon admission to the PACU or Phase I recovery, upon discharge from Phase I recovery, then upon admission to Phase II, and again upon discharge from Phase II unless the patient is being transferred to another unit within the hospital. In addition, upon medication administration, 15 to 30 minutes after giving medication and 30 minutes after the last opioid before discharge also require assessment and documentation of pain.

Nerve Blocks, Local Infiltration, and Periarticular Injection

Peripheral regional nerve blocks (PNB) may be an effective tool to use perioperatively to control pain (Jeng & Rosenblatt, 2022a; ASA, 2012). In some situations, they may be superior to neuraxial nerve blocks and general anesthesia. These blocks also decrease intraoperative and postoperative opioid consumption and are part of a multimodal approach (Siu & Moon, 2020). One type of these nerve block is called an adductor canal block. The adductor canal block (ACB) can be used for knee surgeries (Admunson & Johnson, 2022a). This nerve block works by injecting an infiltrate anesthetic such as lidocaine, bupivacaine, or ropivacaine into the anterior medial thigh. Ultrasound is typically used to guide the provider to inject the medication at the correct

anatomical landmarks to anesthetize part of the femoral nerve and some branches from it.

Another type of nerve block is the infiltration of local anesthetics between the popliteal artery and capsule of the knee (IPACK) (Jeng & Rosenblatt, 2022b). With this block, the local anesthetic is injected into the posterior thigh between the femur and the popliteal artery. Branches of the sciatic, tibial, and common peroneal nerves are anesthetized to help with pain in the posterior of the knee. Typically, only the nerve is blocked, not the motor function with the ACB and IPACK. Using them together shows improved pain management of those undergoing total knee arthroplasty (TKA) (D'Souza et al., 2021).

Multiple blocks can be used to anesthetize the brachial plexus that innervates the arm (Jeng & Rosenblatt, 2022c). These include the interscalene and the supraclavicular nerve blocks. Both are performed with ultrasound guidance indicating where the nerves' branches are located. With the interscalene block, the anesthetic needle is placed between the neck's middle and anterior scalene muscles (Wilson & Kelesius, 2022). For the supraclavicular block, the injection occurs just above the clavicle (Jeng & Rosenblatt, 2022c).

Local infiltration is another way local anesthetics can block the transmission of nerve impulses from the surgical site to the brain (Association of Operating Room Nurses, 2022 a). The anesthetics can include lidocaine 2% or 1%, ropivacaine 0.25%, and bupivacaine 0.25%. These medications vary in onset and duration, which aids in the selection by the provider. It may be used for surgery on a patient without any other kind of anesthesia, or it may be used in conjunction with monitored anesthesia care or general anesthesia.

Wrist blocks are used for hand or finger surgeries (Jeng & Rosenblatt, 2022c). These are more of a local infiltration that helps anesthetize either the radial, median, or ulnar nerves leading to the hand. Depending on the indication for surgery, only one nerve or all three may be anesthetized by injecting different anatomical locations within the wrist.

Periarticular injections are a type of local infiltration (Admunson & Johnson, 2022b). Medications such as bupivacaine and ropivacaine can be injected directly into the joint. Typically, adjuvants such as ketorolac or clonidine may be added to make the anesthetic agent more effective. These also may be done along with a form of PNB.

Spinal Anesthesia

Spinal anesthesia is a form of neuraxial anesthesia (Ituk & Wong, 2022). This type of anesthesia is performed by placing a needle in the lower part of the back and then placing an anesthetic agent into the subarachnoid space. This results in a block of sensation in the lower limbs. It is frequently used for lower extremity surgery. It not only blocks sensation but may have some effect on motor function. However, there can be complications such as hypotension, bradycardia, and respiratory paralysis. Patients also have the risk of a spinal headache where fluid may leak out of the spinal cord slowly and create a headache. Urinary retention, and prolonged anesthesia may also be side effects.

Central Sensitization

Central sensitization (CS) is an increased perception of pain that occurs at the spinal cord and brain instead of at the tissue level (Manion et al., 2019). It can amplify neural signaling within the central nervous system resulting in pain hypersensitivity (Neblett, 2018). CS can be difficult to treat, and those with prior CS may be more

susceptible to CS pain in other locations. Postoperative pain can also contribute to CS in patients (Gan, 2017). Also, those with CS before surgery have poor pain outcomes after surgical intervention (Nijs, 2019). While the Central Sensitization Inventory can be used to screen patients (Neblett, 2018), it is not proven to be reliable (Coronado & George, 2018).

Intraperitoneal Instillation

Aiding patients that undergo laparoscopic surgery with their pain, intraperitoneal instillation has been shown to reduce postoperative pain and postoperative consumption of analgesics (Putta et al., 2022). Bupivacaine 0.5 % is instilled into the peritoneal cavity before or after surgery. This can be done for surgeries such as cholecystectomy. The local anesthetic then blocks the nerve impulses from the place in the peritoneal cavity where the medication was used with cholecystectomies; this would include the liver bed.

Discussion

The World Health Organization states that every human has the right to treat their pain accordingly (Brennen et al., 2019). The patient's quality of life can be impacted if the postoperative pain is not addressed appropriately (HHS, 2019). Postoperative pain should be addressed so that patients will not have a negative impact on their lives.

The articles reviewed did have limitations that were discussed (Andelman, 2020; Hyland et al., 2021; Borys et al., 2018). Most commonly, the need for more research on postoperative pain was needed. Also, finding alternative pain treatments that could be included in a multimodal approach was recommended (Chou et al., 2016).

Synthesis of Evidence

One major limitation in the literature is that non-pharmacological methods do not have a variety of data. Ice is a recommendation. However, other non-pharmacological methods are not very much promoted or researched. While some methods, such as cognitive behavioral therapy, are mentioned, this requires the patient to have specific counseling and usually takes multiple weeks. This is not efficient for postoperative pain control.

Non-opioid anesthesia methods are also lacking research. Even in UpToDate, there is only a paragraph listed in the section under administering anesthesia. However, much of non-opioid anesthesia is led by CRNA's.

Overall, data does indicate that perioperative pain control is necessary for patients' experience after surgery. Uncontrolled pain perioperatively, especially after surgery, may contribute to chronic pain. Also, with the recent increase of guidelines by the CDC (Dowell et al., 2016), there is more guidance now for surgeons as to how much medication should be prescribed after surgery. Even more data has since been published about this and what other medications should be used perioperatively to control pain (Dowell et al., 2022).

CHAPTER 3

METHODOLOGY

The stakeholders at the critical access hospital include Surgical Services nurses, the Coordinator of surgical services, the Director of Nursing Services, two CRNAs, the surgeons, the Chief of surgery, and the board of commissioners for the hospital. The project included engaging the stakeholders, which included meeting with the medical staff and reviewing the activities and the outcomes of the project, also presenting to the board of commissioners what the evaluation would mean for the public health district.

The stakeholders were asked about their expectations for the policy evaluation, their input in the evaluation, and their agreement with the evaluation. This was done by meeting with the Director of Nursing Services and by having discussions with the Surgical Services Manager. Both wanted to see if any improvements were needed and that their policies were evidence-based. The Chief of Surgery was supportive of such an effort and interested in the outcome of the questionnaire. Even the Medical staff was supportive in and gave their approval for the project.

Prior to the project's start, approval was received from the Andrews University Internal Review Board (IRB) (Appendix C), the facility’s chief of Surgery (Appendix D), and the Medical staff (Appendix E).

The current policy was evaluated for effectiveness by using a questionnaire tool to assess patients' postoperative pain. This evaluated if the patient was educated

perioperatively enough to be able to treat their pain appropriately, if the patient felt that their pain was managed in the perioperative period, and if the stakeholders needed to change anything about their process. The questionnaire was also a tool to collect evidence.

The questionnaire that was given to the patient is an adapted version of the Revised American Pain Society Patient Outcome Questionnaire (Gordon et al., 2010). It is a validated tool. The questions that have been added to the original version gave extra information about demographics. A retrospective patient chart review was done after surgery to validate what meds patients were given during the perioperative period. It was also used to track if the patient had a prior pain history, current pain medications, and if they were discharged on any pain medications. Charts were also reviewed for education given to patients.

Patients were asked to participate in this project prior to surgery. They were educated on the reasons for the project and then signed a consent form if they chose to participate that informed them of the questionnaire and the chart review that would take place. Once they consented to participate, they were given the questionnaire in an envelope to take home, fill out the following day, and mail back to the hospital in a postmarked envelope. The envelopes used were a cream color, so they were a different color than the surgical services survey that was sent home with patients at that time. It was ensured that only the project manager opened the project questionnaire and helped maintain patient privacy, as indicated on the consent form (see Appendix A).

Project Design

This project was conducted to evaluate how postoperative pain management

policy currently functions to control a patient's pain in PACU in a selected agency. The project design was based on a cross-sectional questionnaire. Since the point of the project was to evaluate the current practice, the cross-sectional questionnaire is an appropriate design for this type of study (Sullivan, 2018). However, the limitation of the questionnaire was that it could only evaluate the patient's pain at a specific point in time, and at one agency, the sample size was limited, which limited the ability to extrapolate these findings to a larger group than the one under study.

For this project, the dependent variable was pain control in the patient, and the independent variables were pain medications, non-pharmacologic, age, educational level, economic status, gender, and marital status.

Population and Sample

The critical access hospital where the project took place is in a rural community. It is a public health district that includes a critical access hospital, a rural health clinic, and assisted living. It is in a rural county that has a population of 13,886 as of 2021, with a 15.9% poverty rate (United States Census Bureau, n.d.). According to the United States Census Bureau, 90.2% of the population is white. The hospital and health clinic serve not only patients within the county but also part of neighboring counties. The population of the project was anyone having surgery at the rural critical access hospital.

The sample included patients that had general, gynecological or orthopedic surgery, were 18 years of age or older, were able to read and write in English, were able to fill out a questionnaire, were able to consent for themselves, and communicated their degree of pain. Prior to COVID-19 the surgery department performed about 800 procedures a year, with 500 of those being gastrointestinal endoscopies and 300

surgeries. The numbers had declined during COVID-19 and total procedures for 2022 were just under 800. Endoscopy patients were not included in the project. At this time in the U.S., elective surgeries are often canceled or postponed for periods due to increased hospitalizations for COVID-19 patients, which may have affected the outcome and patients available for participation.

Recruitment

Each patient undergoing surgery was allowed to participate in this program by consenting preoperatively to take a questionnaire postoperatively. The consent was done preoperatively before the patient received any medications that could influence their decision-making process. They were told that it was their choice to participate, that none of the information gathered from the individual would be revealed directly to the staff and that only when the project was done would the staff be notified of the outcome.

The consent was done by the nursing staff currently working in the Surgical Services department. Once the preoperative process was completed, the nurses discussed the project and the ability to participate with the patients. Patients then either chose to participate or not. Not every surgery patient was asked, related to nurses forgetting to ask the patient. Also, not all patients met the qualifications needed to consent. There were two known instances where patients were asked and verbally consented, but the nurses did not have them sign the consent. It was also not tracked how many patients declined to participate.

Risk and Benefits

The risks to the patient by filling out the questionnaire could be emotional and psychological. In the process of having to review their pain, patients may have had some

emotional struggles with revisiting their pain after surgery. However, patient care was not changed by patient participation. Each nurse was educated to treat patients the same way they had been, according to the current policy in place in this selected agency. At times the postoperative nurse was not even aware if the patient had decided to participate because the consent had already been put in a secure location. The benefits of participating in the project were for future patients to identify issues with perioperative pain management in the surgery department.

Risks to the chart review included finding information about the patient that the patient may not have wanted to be included. This was limited to evaluating only the encounters that related to the surgery, such as preoperative clinic appointments, preadmission phone calls, preadmission anesthesia evaluations, and surgery charts. Information was offered to patients about this.

Data Collection

Instrumentation

To assess patients' pain ratings postoperatively, they were given the 2010 Revised American Pain Society Patient Outcome Questionnaire (APS-POQ) for quality improvement of Acute and Cancer Pain Management. The questionnaire was administered in English. This questionnaire has been validated by the American Pain Society (Gordon et al., 2010). Validation analysis included a Cronbach α with a result of 0.85, item-to-item correlational testing for each of the original stem questions, and student t-test and ANOVA testing to assess differences between groups taking the questionnaire. The questionnaire has been reevaluated for validation with a Cronbach α of 0.770 (Wang, 2013). Follow-up validation testing also included student t-test and

ANOVA testing.

This questionnaire was chosen specifically because it addresses postoperative pain and can evaluate the pain patients perceive after surgery (Gordon et al., 2010). The questionnaire questions that specifically would apply ask the patient their least and worst pain rating within 24 hours after surgery. Since the pain management policy also addresses patient education, the questions about whether the patient received pain education would also apply.

Patients received a modified version of the APS-POQ that had demographic questions added that could not be answered by the information in patient charts (see Appendix A). This increased the amount of data collected for evaluation.

When the patient signed the consent form, they had a code on it that was also on the questionnaire. If a patient chooses not to participate at a later part, their questionnaire would be able to be removed from the data. Also, a chart review spreadsheet (see Appendix B), was used to collect data about the patient. It contained the same code to be able to remove patient information. The signed consent forms were kept locked away at the facility to maintain patient privacy. Only those involved with the project had access to them. This included the project manager and the unit secretary, ensuring consents were locked up on days the project manager was not there. The consents will be destroyed six months after project completion.

Patient charts were used to determine pain management during the patient's stay at the facility and what medication the patient was discharged with, if any. In addition, information was gathered about patient education, medications given before, during, and after surgery, and to look at the surgical procedures done on the patients. The information

collected from the charts was de-identified of patient-specific data and kept confidential.

The goal was to analyze if there is any statistical significance between the continuous dependent variable of pain control and independent variables, including pain treatments patients have received that are pharmacological and non-pharmacological. To determine the sample size, the G*Power version 3.1.9.4 software was used. Calculations were done using a simple t-test with a moderate effect size of 0.5, meaning that the standard deviation must be more than 0.5 to be accurate (Sullivan, 2018). The project power was set at 0.8, indicating that 80% of the time, the mean difference would be accurate. Also, regarding the probability of error, the p values were set at 0.05, meaning only 5% of the time the results were observed by chance. In calculating these parameters, it was determined that the sample size should be 26. Therefore, the goal would be to collect at least 26 complete questionnaires. However, to have more information for statistical evaluation and to control confounding, at least 35 questionnaires will be needed.

Confidentiality

The project manager only opened returned patient questionnaires. The questionnaires where then stored in a locked cabinet with limited access within the surgery department. Chart reviews were only done on hospital computers. All patient identifiers were kept confidential, and only the project manager had access to patient identifiers within the project.

CHAPTER 4

DATA ANALYSIS

To be able to analyze the information collected about the dependent variable of pain control and the independent variables of pain medications, non-pharmacologic measures such as ice, elevating, reading, and other distraction methods, along with age, educational level, economic status, gender, and marital status, multiple statistical analyses were attempted. However, the statistical tests such as t-test, Analysis of variance (ANOVA), and multiple linear regression did not give any results because of the lack of participants and the wide variety among independent variables. There were not enough participants to be able to eliminate confounding, and the data would not be accurate if the results were given.

Descriptive statistics were used to break down the simple summaries of the data collected, such as the means, frequency, and distribution of the data.

Results

Questionnaires were given to patients in starting August 17, 2022, and ending December 29, 2022. There were 56 questionnaires handed out to patients that consented. Out of those 56, only 31 of them were returned. In one of them, the consent was not signed by the patient, but the questionnaire had been completed. The questionnaire was not used in the data.

Prior to giving out the questionnaires, the nurses were asked to review the consent

with the patients. They were educated that this was voluntary and that patients did not

Table 1

Demographics of Study Participants

Characteristics	*n*	(%)
Gender		
Male	15	(50)
Female	14	(47)
Other	1	(3)
Race		
White	30	(100)
Marital Status		
Single	2	(6.7)
Separated	1	(3.3)
Married or in a domestic partnership	23	(76.7)
Divorced	3	(10)
Widowed	1	(3.3)
Education		
Highschool/GED	9	(30)
Less than high school diploma	1	(3.3)
Some College	3	(10.0)
Associate degree	2	(6.7)
Bachelor's Degree	8	(26.7)
Professional/Doctoral Degree	6	(20.0)
Prefers not to answer	1	(3.3)
Income		
Less than $20,000	3	(10)
$20,000 to$34,999	3	(10)
$35,000 to $49,999	1	(3.3)
$50,000 to $74,999	3	(10)
$75,000 to $99,999	4	(13.3)
Over $ 100,000	7	(23.3)
Prefer not to answer	9	(30)

need to participate. Patients were also educated about this. The patients were also told that their care would not be affected related to whether they chose to participate or not. Any patient who decided to participate signed the consent and was given the questionnaire to take home.

Table 2

Patients Pain Rating: 24 hours before and 24 hours after surgery

Characteristics	*n*	(%)	*M* (*SD*)
Least Pain Before Surgery	30		3.9 (2.510)
No pain	2	(6.7)	
Mild	11	(36.7)	
Moderate	8	(26.7)	
Severe	9	(30.0)	
Worst Pain Before Surgery	30		5.9 (3.177)
No pain	3	(30)	
Mild	3	(30)	
Moderate	7	(23.3)	
Severe	17	(56.7)	
Least Pain After Surgery	30		3.3 (2.628)
No pain	2	(6.7)	
Mild	17	(56.7)	
Moderate	7	(23.3)	
Severe	4	(13.3)	
Worst Pain After Surgery	30		5.9 (3.188)
No pain	1	(3.3)	
Mild	9	(30)	
Moderate	2	(6.7)	
Severe	18	(60)	

Out of the 30 questionnaires that were returned, 15 participants were male, 14 were female, and one marked other. All of the participants were white. When asked about marital status, 76.7% were either married or in a domestic partnership, 10% were divorced, and 13.3% were either single, separated, or widowed. As for education, 30% had high school diplomas, 10% had some college, 26.7% had a bachelor's degree, 20% had a master's degree or higher, 7% had an associate degree, and 3% had less than high school.

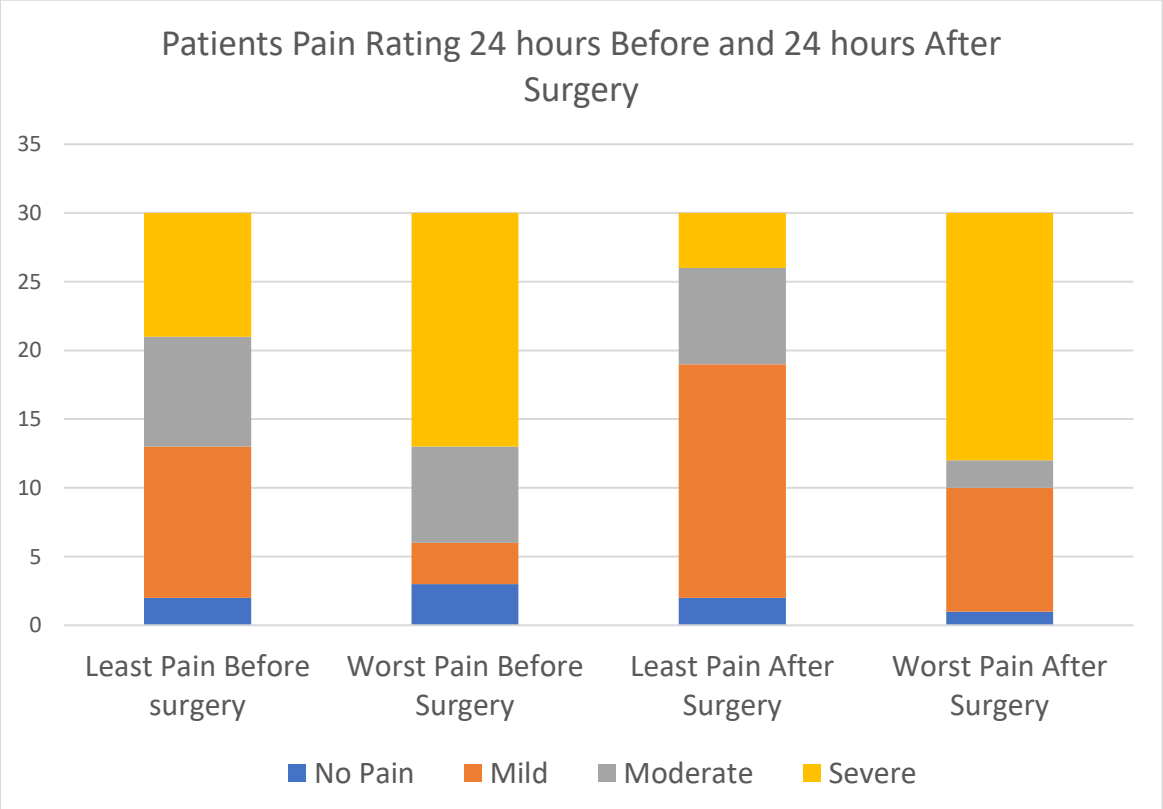

Figure 1. *Patients pain rating 24 hours before and 24 hours after surgery*

The authors of the APS-PQO indicate that the percentage of relief of pain in the past 24hrs is more reliable indicator of pain control than the percentage of time spent in

severe pain (Gordon et al., 2010). Patients in this project were also asked - In the past 24 hours, how much pain relief have you received? The responses were widespread. However, 76.7% of the participants did indicate that they had 70% or more pain relief within the first 24hrs after surgery.

Table 3

Percentage of Time in Severe Pain Within 24 Hours After Surgery

Characteristics	*n*	(%)
Percentage of time in Severe Pain within 24 hours after surgery		
0%	10	(30)
10%	2	(6.7)
20%	5	(16.7)
30%	4	(13.3)
40%	1	(3.3)
50%	1	(3.3)
60%	1	(3.3)
70%	2	(6.7)
80%	1	(3.3)
90%	1	(3.3)
100%	2	(6.7)

Overall, patients did say they were satisfied with the pain management they received while at the hospital. One participant did rate 5/10. The average of all participants was 8.9/10. Patients also marked that their pain education was helpful. The average was 8.2/10. One participant did only give a 2/10. (Table 5).

Table 4

Questionnaire Results

Characteristics	*n*	(%)	M (SD)
Pain Relief Percentage in first 24 hours			
0%	1	(3.3)	
10%	1	(3.3)	
20%	1	(3.3)	
30%	2	(6.7)	
40%	0	(0)	
50%	1	(3.3)	
60%	1	(3.3)	
70%	6	(20)	
80%	11	(36.7)	
90%	5	(16.7)	
100%	1	(3.3)	
Were you allowed to participate in the decisions about your pain treatment as much as you wanted to?			
0	1	(3.3)	
1	0	(0)	
2	0	(0)	
3	0	(0)	
4	1	(3.3)	
5	3	(10)	
6	0	(0)	
7	3	(10)	
8	0	(0)	
9	3	(10)	
10	19	(62.7)	
	30	(100)	8.57 2.487

Table 5

Questionnaire Results

Characteristics	*n*	(%)	M	(SD)
Circle one number that best shows how satisfied you were with the results of your pain treatment while in the hospital				
1	0			
2	0			
3	1			
4	0			
5	1			
6	0			
7	1			
8	5			
9	6			
10	16			
	30		8.97	(1.629)
Did you receive any education about pain while at the hospital				
No	4	(13.2)		
Yes	26	(86.8)		
If Yes, please circle the number that best shows how helpful the information was				
1	0	(0)		
2	1	(3.9)		
3	0	(0)		
4	0	(0)		
5	5	(19.2)		
6	1	(3.9)		
7	1	(3.9)		
8	4	(15.4)		
9	8	(30.8)		
10	6	(23.1)		
	26	(100)	7.85	(2.136)

Table 6

Questionnaire Results

Characteristics	*n*	(%)	M (SD)
Did you receive any information about your pain treatment options?			
No	1	(3.3)	
Yes	29	(96.7)	
If yes, Please circle the number that best shows how helpful the information was			
1	0		
2	0		
3	0		
4	1		
5	4		
6	1		
7	1		
8	5		
9	8		
10	9		
	29		8.27 (1.918)

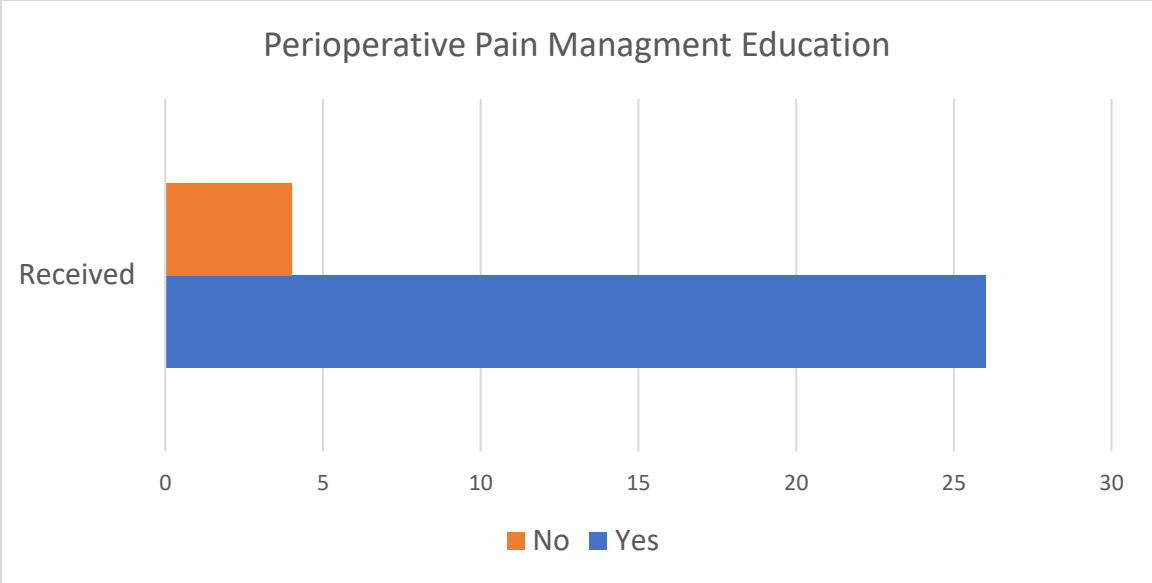

Figure 2. *Perioperative pain management education*

Four patients marked that they had not received any pain education. However, of these four, two did have documentation that they were educated about pain either preoperative or postoperative. Yet, there were 9/30 that did not have anything documented about pain education. This included either on the education documentation or documentation that discharge instructions were reviewed. The discharge instructions contain sections specific to pain management.

The chart review also looked at education for family members. Especially post-operatively, the patients may not remember the education about medications being given. In three out of 30 patients it was documented if a family member received education about postoperative pain management. However, because of COVID-19 guidelines at this facility, family members are only allowed in the recovery area. This may have limited the ability to give instruction to family members.

Patients rated their pain on a scale from 0 to 10 for multiple questions. The least

pain rating prior to surgery was 0/10. The highest pain rating before surgery was 10/10. After surgery, the patients also rated their pain levels. Again, the least was 0/10, and the highest was 10/10.

When taking pain medications, sometimes there can be side effects. Patients were asked to rate their side effects on a scale of 0 to 10. Patients had minimal side effects. The most common side effect was drowsiness, and the least common side effect was itching.

When asked if patients felt they were allowed to participate in their pain management, 19 out of the 30 patients rated their ability to participate as 10/10. Five participants did rate their ability to participate as five or less.

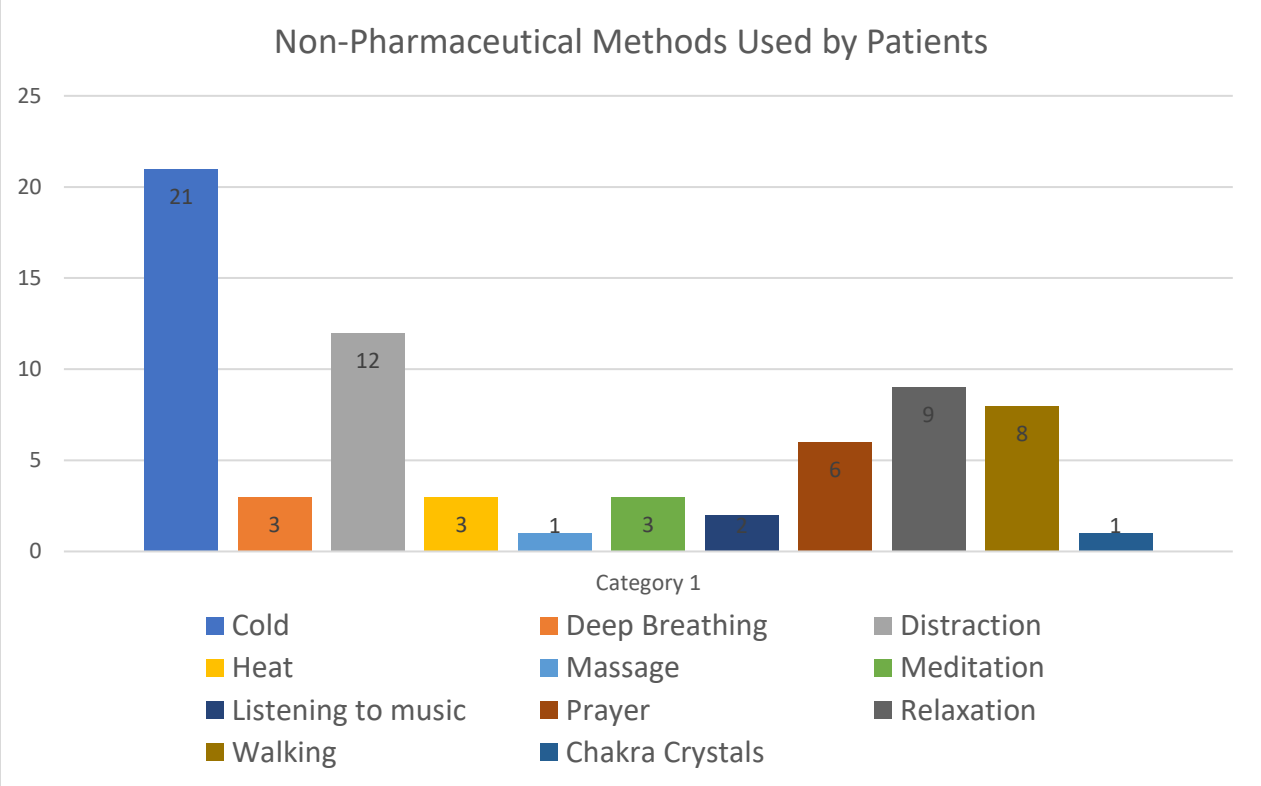

Figure 3. *Non-pharmaceutical methods used by patients*

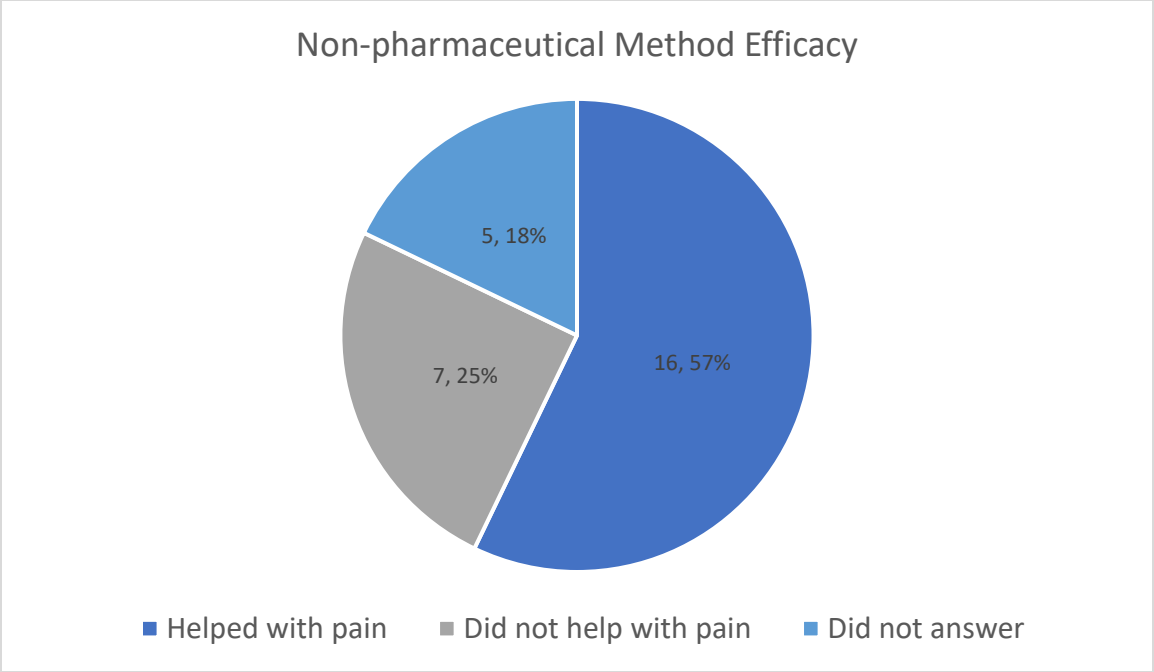

Figure 4. *Non-pharmaceutical method efficacy*

Patients were also asked if they used non-medicinal methods to manage their pain. Four out of 30 patients said they did not use any non-medicinal methods. The most used method was a cold pack. Other methods used were deep breathing, distraction, heat, massage, meditation, listening to music, prayer, relaxation, walking, and chakra crystals. However, seven patients marked that their non-medicinal method did not work for their pain.

Nerve blocks can also be a way to control pain management after surgery. Fifteen out of 30 patients responded that they did receive a block. Out of those patients, the longest-lasting block was 36 hours, and the least was one hour.

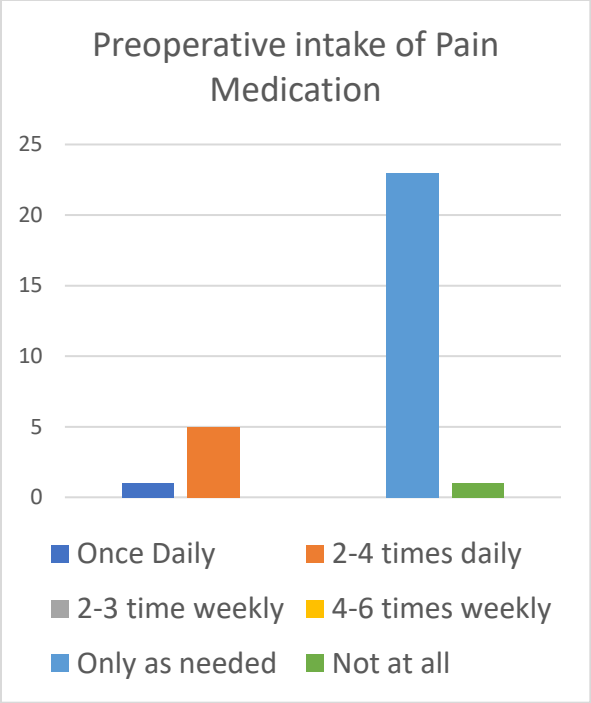

Figure 5. *Preoperative intake of pain medication*

Five patients indicated that they took pain medication daily or two to four times daily. Out of these five patients, only one of them had documented the last time they had taken their medication prior to surgery. However, 23 of the patients only used pain medications as needed. One patient even marked not at all. Even though patients marked that they only used pain medication as needed, it does not confirm that they do not use medication daily or that they use it more than 6 times a day.

Table 7

Chart Review Results

Characteristics	*n*	(%)
Surgeries		
Arthroplasty- hip, knee, shoulder	7	(23.3)
Inguinal Hernia repair	5	(16.5)
Shoulder arthroscopy	4	(13.2)
Cholecystectomy	3	(10)
Carpel Tunnel	3	(10)
Knee arthroscopy	2	(6.7)
ORIF Wrist	1	(3.3)
Dilation and Curettage	1	(3.3)
Excision Pilonidal cyst	1	(3.3)
Anterior Colporrhaphy	1	(3.3)
Excision of Lipoma of breast	1	(3.3)
Excision of Lipoma of chest wall	1	(3.3)
Laterality		
None	7	(23.3)
Right	13	(43.3)
Left	10	(33.3)

Table 8

Chart Review Results

Characteristics	*n*	(%)
Nerve Block Given		
No	14	(46.7)
Yes	16	(53.3)
Type of Nerve Block		
Supraclavicular Brachial Plexus	2	(6.7)
Interscalene	4	(13.2)
Pericapsular Nerve Group	1	(3.3)
Superficial cervical plexus	3	(10)
Adductor Canal	1	(3.3)
Periarticular	3	(10)
Spinal	2	(6.7)
Injection between Popliteal Artery and posterior compartment of the knee	1	(3.3)
Local Infiltration		
No	3	(10)
Yes	27	(90)
Scripts Given		
No	6	(20)
Yes	24	(80)
Script medications		
Hydrocodone/APAP 5/325	9	(30)
Hydrocodone/APAP 7.5/325	12	(40)
Hydrocodone/APAP 10/325	1	(3.3)
Oxycodone/APAP 7.5/325	1	(3.3)
Tramadol 50mg	1	(3.3)
None	6	(20)

The chart review also indicated that 24 out of 30 patients received a pain medication prescription after surgery. The most common was hydrocodone acetaminophen 7.5mg/325mg. However, a variety of opioid medications were prescribed (see Table 8).

Table 9

Patient and Family Education

Characteristics	*n*	(%)
Education to Patients Documented		
No	9	(30)
Yes	21	(70)
Education to Family Member Documented		
No	3	(10)
Yes	27	(90)

A variety of surgeries were involved in this questionnaire. These included total knee, shoulder, and hip arthroplasty, shoulder arthroscopy, knee arthroscopy, cholecystectomy, dilation and curettage, excision of lipoma, carpal tunnel release, trigger finger release, umbilical hernia repair, inguinal hernia repair, and excision of a pilonidal cyst. Four patients had more than on procedure, such as a carpal tunnel release with a trigger finger release or multiple hernia surgeries. The arthroscopy surgeries may have also had more than one procedure, such as a rotator cuff repair and a biceps tenodesis. Most prominently, surgery was done on the right side with 43.3 % (see Table 7).

One patient had surgery with only local anesthesia. Their pain ratings on the

survey were 2/10 before and after surgery. Compared to the patient that had the same surgery rated their pain 8/10 before and after surgery. All other patients had some form of general anesthesia.

The medications used prior to surgery, for the peripheral nerve blocks, for infiltration, during surgery, and after surgery were a wide variety. There were too many different doses to be able to do any statistical analysis of them. This may indicate that the anesthesia providers give patient-centered care and give exactly the medications needed instead of using the same items on each patient. While opioids were used during surgery and some after, other medications that are considered part of a multimodal approach were also utilized. These included acetaminophen, ketorolac, dexmedetomidine, magnesium, and dexamethasone. Peripheral nerve blocks were done with lidocaine, ropivacaine, bupivacaine, and liposomal bupivacaine.

Peripheral nerve blocks used for patients included supraclavicular brachial plexus, interscalene brachial plexus, pericapsular nerve group, superficial cervical plexus, adductor canal block, and injection between the popliteal artery and posterior compartment of the knee. Patients indicated that the peripheral nerve blocks lasted from one to 36 hours postoperatively. Spinal anesthesia was also done for two cases. Periarticular injections were done for six of the total joint arthroplasties. Intraperitoneal instillation was used for those that underwent cholecystectomy.

Only 8 out of 30 patients (26.7%) required pain medications in PACU. Most of these did have some documentation of their pain ratings in PACU. However, three of them did not have a reassessment documented.

CHAPTER 5

SIGNIFICANCE

In evaluating the postoperative pain policy and comparing it to the data, it shows that if followed, there would be efficacy as the current policy is at guiding the management of the patient's pain. The current process appears to be helping patients, and more patients will continue to benefit. However, if the current process is not always being followed by staff. There was lacking documentation found. Also, not all the recommendations for perioperative pain control are currently part of the policy. The policy requires revision. The American Pain Society (2010), ASA (2012), and ASPAN (Crosson & Davidson, 2022a) all have guidelines that are evidence-based that guide perioperative pain control for patients (Chou et al., 2016). These guidelines have been implemented or incorporated into the recommendations to ensure that evidence-based care is being followed.

In the evaluation process, the stakeholders were kept up to date with what the data was indicating (CDC, 2017). This helped to prepare the stakeholders for changes that may have to occur to the policy or process currently taking place. Keeping the stakeholders continually involved with the information as the evaluation is conducted will allow them to be actively involved and have confidence in the project.

In evaluating the pain management policy by using a questionnaire along with

evaluating data in the charts, the postoperative pain satisfaction of patients was compared with national and international trends on patient satisfaction with postoperative pain (Borys et al., 2018; Chou et al., 2016). In addition, understanding patients' perceptions about the current pain management and a review of current best practices for postoperative pain will help determine what changes need to be made to the policy in the selected agency, if any. This helped to determine factors that could be modified to improve postoperative pain management.

Evaluating pain postoperatively will add to the current body of knowledge that is already available to nurses, anesthesia providers, doctors, and other hospital staff. This type of evaluation will hopefully show that incorporating evidence-based practices can improve the quality of the care being provided to patients. The recommendation may be made that the critical access hospital use the information to change their current policy and then conduct the evaluation again to see if the changes made to the policy improved patient care.

End Product

Recommendations

The following are the recommendations to the facility to improve their care of patients compared to their current pain management policy. These are based on evidence found in the literature that has been supported by other research done. The recommendations are made to improve this facility's care of patients but do not indicate a lack of proper care for patients prior to this project.

Recommendations

1. Improve Pain Documentation

2. Improve Pain Assessment
3. Patient Education
4. Nursing Education
5. Revise Policy to meet ASA and ASPAN guidelines

Recommendation #1 -Documentation

The facilities policy states-Documentation of an ongoing assessment of the patient's pain level, analgesia administered, and analgesia effectiveness will be made on the Post Anesthesia Record.

ASPAN has multiple recommendations for perioperative management of pain (Crosson & Davidson, 2022a). However, in evaluating charts, documentation was lacking. This included documenting the last dose of pain medication before arrival at the hospital, patient pain education, and patient pain levels preoperatively and postoperatively. A recommendation is to follow the current policy about documenting patients' pain ratings upon assessment. Pain ratings should be documented every time they are assessed. The pain's location, if it radiates, and how the patient describes it should also be documented. It should also be documented if the pain is chronic before surgery.

The facility did recently transition to documenting in EPIC. There are portions of the module used within the surgical services department that nurses state are cumbersome with documentation. This may have contributed to some of the missing documentation.

Recommendation #2 – Pain Assessment

The current policy states- Preoperative teaching and assessment will include evaluation for chronic pain, and establishment of the patient's baseline level of pain.

Postoperative pain management will attempt to control acute pain, but will realistically not achieve a complete absence of pain for chronic pain sufferers.

Patients should be assessed prior to surgery for pain and after surgery (Crosson & Davidson, 2022a; The Joint Commission, 2022). It should also be documented if patients have chronic pain or not. Also, patients' pain should be assessed on admission to the PACU in Phase I, on discharge from Phase I to Phase II, on admission to Phase II, and then at discharge from Phase II. Pain should also be assessed when patients complain about pain and then again 15 to 30 minutes after pain intervention depending on if the medication was given and the half-life of that medication. Assessment should also include pain location, intensity, radiation, and type of pain feeling.

Recommendation # 3- Patient Education

The current policy states- Preoperative teaching and assessment will include evaluation for chronic pain and establishment of the patient’s baseline level of pain.

Four out of ten patients did mark on their questionnaires that they had not received pain management education. Patients can sometimes forget things that happened during the perioperative care related to anxiety and amnesic medications administered (Hyland et al., 2021). According to ASPAN, pain management education should take place prior to the patient coming in for surgery (Crosson & Davidson, 2022a, Odom-Forren et al., 2021; The Joint Commission, 2022). The education should occur at their preoperative appointment. Currently, pain education is only happening upon admission assessment and then upon discharge. Patients did give an average of 73% for the helpfulness of their education.

However, education should not be limited to how to take care of their pain only.

Education needs to be focused on proper opioid medication use, the risk of use with opioid medications, not to use opioids with alcohol or other sedatives, the misuse of opioids, safe opioid storage, and disposal, and the risk of acetaminophen overdose (Odom-Forren et al., 2021). It is also recommended that patients should be educated about tapering pain medications as soon as they are able to (Dowell et al., 2022).

Recommendation #4- Nursing Education

Nurses that work in perioperative settings should be educated about the pathophysiology of pain, the pharmacokinetics of pain medications administered during anesthesia, and which treatments would be best in their care for the patients (Crosson & Davidson, 2022b). They also need to know the half-life of medication to be able to reassess pain in a timely manner after administering pain medications. Patients also need to be monitored for 30 minutes after giving an oral opioid medication. Nurses should have this education to ensure that they are giving care according to ASPAN guidelines.

Recommendation #5- Revise the Policy to meet ASA and ASPAN guidelines

The policy states that chronic pain patients may not have their pain controlled after surgery. This is not found within the ASA or the ASPAN guidelines. Chronic pain can be more difficult to treat perioperatively. However, with a multimodal approach, chronic pain may be manageable during the perioperative period.

Deliverables

Once the data analysis was completed, the information gathered was presented to the perioperative nurses, CRNAs, and surgeons. Then recommendations were given to the Chief Nursing Officer and the Surgical Services Manager so that the perioperative pain management policy could be updated as needed by this evaluation. The findings of

the evaluation were also orally disseminated to the Medical Staff via a PowerPoint presentation.

Project Strengths

There are a few strengths to discuss of this project. The project evaluated the facility's pain management policy and how well it treated patients' pain. Overall, patients rate that they are satisfied with their care. However, it did help show some gaps in evidence-based practice in the policy. It also indicated that some documentation pertaining to the patient's pain was missing. These are items that the facility can now improve on.

Project Limitations

This project had multiple limitations that should be addressed. The sample size is comparatively very small, with only 30 participants. This limits the statistical evaluation of the data. A larger sample size would have been more beneficial. More statistical analysis could have been done if the sample size had been larger. Considering that the return rate was 54% over a period of 5 months, the project would have had to continue on for another 5-6 months to likely double the number of participants. This would have been enough for some more analysis, but still not over 100. The sample was also not diverse in race. Participants were 100% Caucasian.

Another limitation was that patients were not asked if the peripheral nerve block worked for them or not. Instead, it was only asked if they had one and then their pain ratings, and how long it lasted. If this questionnaire was done again, the question should be included.

Since the tool was a questionnaire, all of the answers were self-reported. Some

patients appeared to answer the questions on the questionnaire as contradictory. More than one patient documented a lower pain rating for the highest pain rating before surgery compared to their lowest pain rating before surgery. The questions may need to be simplified so that patients can understand them better. Another question asked how much percentage of the 24 hours after surgery did they have severe pain, which indicated that severe was 7/10 or greater. There were patients that marked a high percentage. However, they rated their highest pain rating 5/10 after surgery.

The questionnaire also did not explain well the 0-10 Likert scale. On the scale, it stated that 0 equaled no pain, and 10 was the worst pain. However, there was no explanation for how to consider the rest of the numbers from 1-9. Patients could interpret their ratings differently.

For the chart review, one of the limitations was not to look at the patient's tolerable pain level. This could have helped evaluate the answers about pain levels after surgery from the questionnaire.

Project Evaluation

The nurses in the Surgical Services Department received a presentation of the data analysis along with the recommendations. Five staff registered nurses, the director of the Surgical Services Department, and the Chief Nursing Officer all attended the presentation. They were given handouts of the current pain management policy, data analysis charts and figures, recommendations, and an evaluation form. They also received an educational handout that pertained to being able to document pain assessments more easily in EPIC.

All seven participants filled out the evaluation form. The results can be seen in a

table for the multiple-choice questions. They were also asked about project strengths and weakness. One person commented that they thought the assessment of the data was thorough, evidence based and was appreciative of the sharing of the information. Another person stated that now was a good time to find the documentation issues since they were still newer to EPIC use. A third person commented that they thought the staff education was a strength.

Some of the weaknesses that were mentioned were that patients potentially did not understand the questions in the questionnaire, that there was inconsistency in EPIC with documentation and flow, that the information given was overwhelming, and that assessing patients' pain in Phase I may be set the tone for the recovery and that asking a patient about pain may make them think more about that they are having pain. While the weaknesses are pertinent, some did not necessarily pertain specifically to this project.

Table 10

Evaluation Results

Characteristics	*n*	(%)
The outcomes of this project will improve the care of my patients		
Strongly agree	6	(5.7)
Agree	1	(14.3)
Neutral	0	(0)
Disagree	0	(0)
Strongly disagree	0	(0)
The outcome of this project helped me learn more about pain management of my patients perioperatively.		
Strongly agree	5	(71.4)
Agree	2	(28.6)
Neutral	0	(0)
Disagree	0	(0)
Strongly disagree	0	(0)
Was this project beneficial to your facility?		
Strongly agree	5	(71.4)
Agree	2	(28.6)
Neutral	0	(0)
Disagree	0	(0)
Strongly disagree	0	(0)
Were you aware of the Surgery Departments Pain Management Policy?		
Yes	5	(71.4)
No	2	(28.6)

Plans for Recommendations

The facility is going to make the recommendations for their Quality Improvement Project within the Surgery Department for 2023. They will incorporate recommendations into their policy and do education of the nurses. They then will do chart audits to see if documentation and assessment of patients have improved. As to what specifically they will check in charts has not yet been shared with the project manager.

DNP Essentials

DNP programs a built on the AACN DNP Essentials (AACN, 2006). Within a DNP project, those essentials are utilized to accomplish the project. The following essentials were applied in this specific project and helped the project manager achieve the goals.

Essential I: Scientific Underpinnings for Practice

Nursing science is the basis for all nursing knowledge (AACN, 2006). The DNP is trained to apply nursing science. While pain is specific to each patient, nurses should acknowledge it and treat it appropriately. Nursing science promotes finding the best ways to treat patients. This includes finding the best ways to alleviate pain for patients. In this project, nursing science was used to recommend the best treatments for pain.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

The project was based on improving the quality of care provided to patients by advancing pain treatment. The current pain management policy was evaluated using quality improvement principles for accuracy and evidence-based practice. Through the questionnaire, patients could share if they were satisfied with their pain management while at the hospital. This information was used to give recommendations for improving

the policy and patient care.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

With the increased opioid overdoses nationally, it becomes important to treat patients' pain to help prevent these issues. Evidence about pain management is emerging. Focusing on current evidence-based guidelines supported by agencies involved in perioperative care is essential. The recommendations provided to the facility were all evidence-based and, at times, even recommendations from agencies guiding perioperative care.

Essential V: Health Care Policy for Advocacy in Health Care

The facility is improving its pain management policy, and this is an example of the Health Care Policy for Advocacy. Finding ways to improve patient care and their comfort is advocating for health care. Many patients suffer with pain after surgery. However, when using evidence-based practices, patients may find relief from pain after surgery.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Within any surgical department, there has to be a collaboration between surgeons, CRNAs, and nurses. They rely on each other to provide their care. With reviewing and evaluating the surgical services department pain management policy, it becomes evident that collaboration is evident in this facility. However, the recommendations also promote continued collaboration among providers. The project also required collaboration with the nurses and the supervisor, and the CNO.

Spiritual Application

Pain can be traumatizing to patients. Perioperative pain can contribute to chronic pain (Hyland et al., 2021). Pain can also affect someone's quality of life. This chronic pain is contributing to the opioid epidemic. In Job 14:22 it states, He feels only the pain of his own body and mourns only for himself. Humans do not always understand the pain that someone else is going through. Projects like this can give insight to someone's pain and if it is being treated appropriately, especially in a perioperative setting.

APPENDIX A

Patient information and assent

Dear Sir \ Madam,

We would be grateful if you would participate in our survey on how patients feel after surgery. The aim of the questionnaire is to improve the management of pain after surgery in this department. This survey is part of a scholarly project being conducted by Lisa Malakowsky BSN-RN, a graduate student at Andrews University.

Your participation is ***voluntary*** and the information you provide will be made anonymous once you hand in this questionnaire. This means that your name or other form of identification will be deleted from the questionnaire after you hand it in and will not be included in any records we will have.

Other information that we would like to collect is current pain medication use, pain medications and other pain management techniques used while here for surgery. This information will be collected anonymously and will only be identifiable to your questionnaire by a number. That number will not be in your chart to be identifiable to you once information is collected.

We can assure you that your team will treat you in the same way whether or not you choose to participate in our survey.

If you choose to participate, please sign the attached consent and fill out the following survey.

Many thanks for *considering* to take part in this survey.

Surgical Services Department

&

Lisa Malakowsky BSN-RN

Consent to Participate in Post-Surgery Questionnaire

I, _____ consent to participating in the Post-
Please Print
Surgery Questionnaire. I understand that this questionnaire is part of a research project being conducted by Lisa Malakowsky BSN-RN, a graduate student at Andrews University. The information shared will be kept anonymous.

I also understand that my chart will be reviewed related to my appointments with my surgeon, the anesthesia provider, any phone calls received about this surgery, and the charting created today by the providers and nurses.

I understand that I will need to complete the survey and then mail it back to the Surgery Department. I also understand that this consent gives permission to Lisa Malakowsky BSN-RN to look at my chart and collect necessariy information (i.e., type of surgery, medications used before during and after surgery). If I have any questions, I will contact the Surgery Department at 509-447-6293.

The information shared by me will not be identifiable to me once I submit the questionnaire.

_____

Signature Date

Post-Surgery Questionnaire

Please circle the answers that apply to you.
The following questions are about you please answer to your best ability.

1. Please indicate your age :

___18-24 years old
___25-34 years old
___35-44 years old
___45-64 years old
___65-84 years old
___85 and older

2. Are you- _____ Male, _____ Female, ____ Other ?

3. What race do you identify with?

____White ____Hispanic ____Asian
____American Indian or Alaska Native ____Black, African American

4. What is your marital status?

___Single
___Married, or in a domestic partnership
___Widowed
___Separated
___Divorced

5. What is your educational level?

____Highschool/GED ____Less than highschool diploma ____Some college
____Associates Degree ____Batchelors Degree ____Professional/Doctoral Degree

6. What is your income?

____Less than $20,000
____$20,000 to$34,999
____$35,000 to $49,999
____$50,000 to $49,999
____$75,000 to $99,999
____Over $ 100,000
___Prefer not to answer

The following questions are about the pain you experience before your surgery

7. On this scale, please indicate the least pain you had 24 hours before surgery:

0	1	2	3	4	5	6	7	8	9	10

No Pain Worst Pain Possible

8. On this scale, please indicate the **worst** pain you had 24 hours before surgery:

0	1	2	3	4	5	6	7	8	9	10

No Pain — Worst Pain Possible

9. How often do you take pain medication?

__ Once Daily __2-4 times Daily __2-3 times Weekly

__4-6 times Weekly __Only as needed

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

10. On this scale, please indicate the least pain you had in the first 24 hours after surgery:

0	1	2	3	4	5	6	7	8	9	10

No Pain — Worst Pain Possible

11. On this scale, please indicate the worst pain you had in the first 24 hours after surgery:

0	1	2	3	4	5	6	7	8	9	10

No Pain — Worst Pain Possible

12. How often were you in severe pain (rating 7 or greater) in the first 24 hours?

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

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Never in Sever pain — always in severe pain

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

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

0	1	2	3	4	5	6	7	8	9	10

Does not interfere — Completely interferes

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

0	1	2	3	4	5	6	7	8	9	10

Does not interfere — Completely interferes

c. **Falling asleep**

0	1	2	3	4	5	6	7	8	9	10

Does not interfere — Completely interferes

d. **Staying asleep**

0	1	2	3	4	5	6	7	8	9	10

Does not interfere — Completely Interferes

14. Pain can affect our mood and emotions.

On this scale, please circle the one number that best shows how much the pain caused you to feel:

a. **Anxious**

0	1	2	3	4	5	6	7	8	9	10

Not at all — All the time

b. **Depressed**

0	1	2	3	4	5	6	7	8	9	10

Not at all — All the time

c. **Frightened**

0	1	2	3	4	5	6	7	8	9	10

Not at all — All the time

d. **Helpless**

0	1	2	3	4	5	6	7	8	9	10

Not at all — All the time

15. Have you had any of the following side effects from medication?
Please circle "0" if no; if yes, circle the one number that best shows the severity of each:

a. **Nausea**

0	1	2	3	4	5	6	7	8	9	10

None — Severe

b. **Drowsiness**

0	1	2	3	4	5	6	7	8	9	10

None — Severe

c. **Itching**

0	1	2	3	4	5	6	7	8	9	10
None										Severe

d. **Dizziness**

0	1	2	3	4	5	6	7	8	9	10
None										Severe

16. In the first 24 hours, how much pain relief have you received?
Please circle the one percentage that best shows how much relief you have received from all of your pain treatments combined (medicine and non-medicine treatments):

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No relief										Complete relief

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

0	1	2	3	4	5	6	7	8	9	10
Not at all										Very much so

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

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

19. Did you receive any education about pain while at the hospital? ____No, ____Yes.

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

0	1	2	3	4	5	6	7	8	9	10
Not at all helpful										Extremely helpful

20. Did you receive any **information** about your pain treatment options?

___No ___Yes.

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

0	1	2	3	4	5	6	7	8	9	10
Not at all helpful Extremely helpful										

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

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

_____ cold pack

_____ deep breathing

_____ distraction (such as watching TV, reading)

_____ heat

_____ imagery or visualization

_____ massage

_____ meditation

_____ listen to music

_____ prayer

_____ relaxation

_____ walking

other (please describe)

_____

22. Did the **non-medicine method** work to relieve your pain? _____ No _____ Yes.

22. How often did a nurse or doctor **encourage you to use** non-medicine methods?
_____ never _____ sometimes _____ often

23. Did you receive a nerve block before or after surgery? _____No _____Yes.

If yes, how long did the block last before you started having pain? _____

Thank you for your time and feedback.

24. Check here if the patient received help in filling in the questionnaire	

This questionnaire was adapted from the American Pain Society Patient Outcome Questionnaire

APPENDIX B

Chart Review Patient Code:

Type of surgery:
Laterality:
Was a nerve block given?
What kind of nerve block was done?
Medication used for the nerve block:
Was local infiltration used?
Medications used for local infiltration:
Medications given before surgery:
Medications given during surgery:
Medications given after surgery:
Was the patient admitted to the hospital?
If yes, What medications were given?
How long did they stay?
Was the patient sent home with a prescription?
If Yes, what medication?
How many?
Is pain education documented in patient chart?
How long was patient in PACU?

How long was patient in Phase II?
Is patient a chronic pain patient?
Location of pain
Was surgery for the chronic pain?
Was a family member educated about pain management?
Is there a history of substance abuse? If Yes- what kind?
Date and time of last pain medication prior to surgery:
Was pain documented in PACU?
Was pain documented in PACU in numeric numbers?
First pain rating documented in PACU
First pain rating documented in PACU

APPENDIX C

Andrews University
Office of Research & Creative Scholarship

August 2, 2022

Lisa Malakowsky (PI)
Tel: 208-304-5202
Email: malakowsky@andrews.edu

Timothy Chavis (Co-PI): Tel. 509-589-0707; timothy.chavis@nhhsqualitycare.org

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS
IRB Protocol #: 22-077 **Application Type:** Original **Dept.:** Nursing
Review Category: Expedited **Action Taken**: Approved **Advisor:** Carol Rossman
Title: Perioperative pain control: Evaluating perioperative pain measures.

This letter is to advise you that the Institutional Review Board (IRB) has reviewed and approved your IRB application for research involving human subjects entitled: *"Perioperative pain control: Evaluating perioperative pain measures"* IRB protocol number 22-077 under Expedited category. This approval is valid until August 2, 2023. Research involving collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures invlfing x-rays or microwaves. If your research is not completed by the end of this period you must apply for an extension at least four weeks prior to the expiration date. We ask that you inform IRB whenever you complete your research. Please reference the protocol number in future correspondence regarding this study.

Any future changes made to the study design and/or consent form require prior approval from the IRB before such changes can be implemented. Please use the attached report form to request for modifications, extension and completion of your study.

While there appears to be no more than minimum risk with your study, should an incidence occur that results in a research-related adverse reaction and/or physical injury, this must be reported immediately in writing to the IRB. Any project-related physical injury must also be reported immediately to the University physician, Dr. Katherine, by calling (269) 473-2222. Please feel free to contact our office if you have questions.

Best wishes in your research.

Sincerely,

Mordekai Ongo, PhD.
Research Integrity & Compliance Officer

Institutional Review Board -8488 E Campus Circle Dr Room BUL 234 - Berrien Springs, MI 49104-0355
Tel: (269) 471-6361 E-mail: irb@andrews.edu

APPENDIX D

Newport Hospital & Health Services

714 W. Pine Street, Newport, WA 99156 • (509) 447-2441
www.NewportHospitalAndHealth.org

June 24, 2022

Institutional Review Board

Andrews University

Re: Lisa Malakowsky (Investigator)

Perioperative Pain Control: Evaluating Best Practices in Perioperative Pain Measures (Scholarly Project)

Dear Sir or Madame

This letter serves as institutional consent for Lisa Malakowsky to perform the aforementioned scholarly project at Newport Hospital & Health Services as approved by the Medical Staff on April 21, 2022.

Understanding that Lisa will conduct the study under the auspices of the Andrews University Institutional Review Board using protocols to protect the rights and welfare of patients participating in medical research, we resolve that:

1. Lisa will have access to any and all patients undergoing surgical procedures at our institution from July 1, 2022 through January 31, 2023 for interview and obtaining informed consent as well as subsequent chart review.

If I can be of any further assistance, please feel free to contact me at 509 589-0707 (cell) or email timothy.chavis@nhhsqualitycare.org

Sincerely

Timothy V Chavis MD FACS

Chief of Surgery

Director of Outpatient Services

APPENDIX E

NHHS Medical Staff Response

☒ Research Study Approved

☐ Research Study Approved with the following stipulations: _____

_____

_____

_____

_____

_____

_____

_____

☐ Research Study Denied:

- Please make the following changes and resubmit for reapproval:

  _____

  _____

  _____

- This study will not be approved at NHHS:

  _____

  _____

Chief of Medical Staff Signature: Date: 4/21/22

This application if approved will be good for one year from date of approval. If any changes are to be made to study, the lead investigator or their representative will need to submit another application for approval by NHHS Medical Staff with a description of changes to study. If a study is to be conducted for more than one year, an extension of approval shall be requested from NHHS Medical Staff prior to the expiration of this approval. Applications will be reviewed once monthly at medical staff meetings.

APPENDIX F

ASA and ASPAN recommend that facilities maintain pain management policies

1. Improve Pain documentation
    Follow current policy on documentation
    Document Pain in Preop (Crosson & Davidson, 2022a)
    Document if pain is chronic
    Document in on admission to Phase I and Phase II
    Document at discharge Phase I and Phase II and after extended care
    Numeric pain rating if given. Reassess in 15 to 30minutes depending on medication given.
    30 minutes of monitoring after last pain medication.
    Also need to be documenting a sedation score such as RASS

2. Improve quality of pain assessment
    Assessing on pain at Preadmission appointment (Crosson & Davidson, 2022a)
    Assess pain on admission
    Reassessments- should be ongoing.
    Assess if patients are having pain, where is the location, onset, improvement, type of pain (i.e. sharp, dull etc.). (The Joint Commission, 2022)
    Should be documenting sedation level prior to and after surgery.

3. Patient Education about pain and what is recommended (HHS)
    Family member and patient (Crosson & Davidson, 2022)
    Medications as prescribed
    Safe disposal and storage of opioids (WAC 246-919-865; Edward et al., 2019).
    Tapering schedule (Edward et al., 2019)
    Non-opioid medications for pain including doses (Edward et al., 2019)
    Non-pharmaceutical pain management methods (Edward et al., 2019)
    Involve patients in their pain management goals (The Joint Commission, 2022)

4. Nursing Education
    Onset of Medications (Crosson & Davidson, 2022b)
    What intraoperative medications do?
    I.e.. Magnesium pain adjunct
    Multimodal? What does that do for patients?

Revise Pain Management policy to meet ASA and ASPAN guidelines.

APPENDIX G

Evaluation of Lisa Malakowsky's Scholarly Project:

Perioperative Pain Control: Evaluating Best Practices in Perioperative Pain Measures

Please answer the following questions.

1. The outcomes of this project will improve the care of my patients
    A. Strongly agree
    B. Agree
    C. Neutral
    D. Disagree
    E. Strongly disagree

2. The outcome of this project helped me learn more about pain management of my patients perioperatively.
    A. Strongly agree
    B. Agree
    C. Neutral
    D. Disagree
    E. Strongly disagree

3. Was this project beneficial to your facility?
    A. Strongly agree
    B. Agree
    C. Neutral
    D. Disagree
    E. Strongly disagree

4. Were you aware of the Surgery Departments Pain Management Policy?
    A. Yes
    B. No

5. What are some strengths that you see with this project?

_____

_____

_____

6. What are some weaknesses that you see with this project?

_____

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