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Addressing Procedure Cancellation in Elective Surgeries

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MS, Pace University, 2013

BS, Adelphi University, 2007

Project Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

When conducting elective surgeries, one of the challenges that healthcare providers experience is procedure cancellation. Across various healthcare settings, practitioners are employing relevant strategies to reduce the prevalence of procedure cancellations. The gap addressed in this project was the impact of calling patients to remind them to stay away from NSAIDs and blood thinners a few days prior to elective surgeries to avoid procedure cancellation. The administration of NSAIDs and blood thinners within that period may result in excessive bleeding in patients, which requires attention to improve elective surgery procedure outcomes. Erroneous administration of blood thinners too close to surgical procedures tends to give rise to cancellations, typically, done to mitigate further risks. The purpose of this staff education project was to determine whether providing evidence-based teaching to providers involved in peri and postoperative care might result in the reduction of procedure cancellations. Deidentified data were analyzed using descriptive statistics. The scheduled procedures completed improved to 73% postintervention with a 12% improvement compared to the preintervention rate of 61%. Prior to the education, 73% of cancelled procedures were due to patients taking NSAIDs or blood thinners within 5 days of their procedure. Following education, a 23% improvement was noted with 51% of cancellations attributed to NSAIDS or blood thinners. This educational process has potential to offer relevant insights regarding the need for nurses to receive adequate training as ways of achieving desirable health outcomes when monitoring the administration of blood thinners prior to surgical procedures to save essential resources and affect a positive social change.

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Dedication

I dedicate this work to my parents and my family. Without the patience, understanding, support and most off all love, the completion of this work will not have been possible.

Acknowledgments

I would like to express my special thanks and gratefulness by acknowledging my depth to all those who have helped me to put these ideas, well above the level of simplicity and into something concrete.

I would like to express my special thanks of gratitude to my teachers, preceptors and mentors who gave me the golden opportunity to do this wonderful project on the topic of "Addressing Procedure Cancellation in Elective Surgeries," which has given me the opportunity to implement the concepts I have learned during my training. I am really thankful to them.

Any attempt at any level can't be satisfactorily completed without the support and guidance of my husband, my family and friends.

I would like to thank my parents who watch over me.

Thanking you,

Vicky Marie Deuboue

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Section 1: Nature of the Project

Introduction

Patients suffering from chronic back pain often receive nonsteroidal anti-inflammatory drugs (NSAIDs) prescriptions. Across practice settings, a significant number of patients use NSAIDs and blood thinners for various reasons. For those patients, when they need a surgical procedure, there is a risk of increase bleeding. Clinical evidence has showed that the combination of NSAIDs and blood thinners increases the risk of bleeding, especially in instances where the patient is due to undergo a surgical procedure (Desta et al., 2018). Due to the increased risk of bleeding. McKendrick et al. (2014) contended that patients on both forms of medications often have their procedures canceled to mitigate the risk of excessive bleeding. Thus, procedure cancellations not only put a strain on patients and healthcare facilities' resources but may also result in psychological trauma for affected patients (Desta et al., 2018). Cancellations have been a long-standing problem that healthcare organizations are working to resolve. In this regard, healthcare facilities' main objective is to reduce financial constraints, waste of resource, and safeguard patients' interests. Reducing healthcare costs is among the significant accomplishments attributed to quality care delivery. In this DNP project, I focused on improving procedure cancellations at an outpatient practice.

Evidence-based guidelines recommend avoiding NSAIDs and blood thinners at least 5 days before an elective surgical procedure is done. By educating providers and their staff to remind patients of this guidance, I determined whether this step can lower

procedure cancellations. A reduction in procedure cancellation rates will have a positive social impact as it will improve patient outcomes and resource utilization for both healthcare facilities and patients.

My goal was to lower procedure cancellations by more than 60% for chronic back pain patients scheduled for spinal injection in an outpatient setting. I introduced an educational program to refresh elective surgery care providers and staff knowledge on NSAID and bleeding risk. I theorized that providers understand how to mitigate the risks of bleeding beforehand. This way, they can consider specific measures that lead to desirable outcomes.

Problem Statement

NSAIDs are a common form of treatment for patients with chronic back pain. Some patients with such conditions may have other diseases that require the use of blood thinners. Consequently, the combined use of blood thinners and NSAIDs for patients with chronic back pain is problematic as it increases bleeding risk in any surgical procedure. According to Choi et al. (2010), using anticoagulants, such as warfarin and NSAIDs, increases the risk of bleeding. Furthermore, according to McKendrick et al. (2014), factors such as high risk of bleeding often result in high rates of procedure cancellations, a situation that imposes strain on both healthcare and affected patients' resources. The problem was relevant at the practicum facility. During the process of organizational needs assessment, the facility's chief nursing officer (CNO) highlighted the rate of procedure cancellations at the facility stood at 12.5%. Furthermore, in a study conducted by Elrahman et al. (2014), the findings revealed that the average rate of elective

procedure cancellations stood at 10.6%. Consequently, these considerations reveal that procedure cancellations at the practicum facility were a concern because of the potential delay in care which may prolong patient symptoms.

Despite the use of NSAIDs and blood thinners being a considerable risk factor for bleeding, there is a lack in adequate interventions that can educate patients on such risks, especially prior to elective procedures. According to Goldstein and Cryer (2015), both providers and patients are ill informed on the dangers of using NSAIDs and blood thinners. Consequently, it is evident that a gap in healthcare exists with regard to informing patients on the risks associated with the use of blood thinners and NSAIDs generally, and also specifically, prior to surgical procedures. In this DNP project, I addressed the issue by implementing a staff development project. The staff development project involved teaching healthcare staff the proper guidelines to follow in holding of NSAIDs and blood thinners prior to surgery and so, achieve desirable outcomes across the implicated patient populations.

Purpose Statement

Procedure cancellations are a cause for concern in healthcare. Therefore, efforts aimed at addressing the problem should be adopted; however, as highlighted by Goldstein and Cryer (2015), both patients and providers are ill informed on how to address the issue. This outcome is evidence of a gap-in-practice. The purpose of this project was to fill the gap-in-practice by conducting care providers and staff education on evidence-based guidelines with the aim of reducing procedure cancellations caused by the use of NSAIDs and blood thinners before elective surgery procedures. As evidenced

by Kalb et al. (2015), the professional standards and competencies that inform nursing practice are replete with the need for evidence teaching. Furthermore, while drawing from extant literature, the authors contended that teaching strategies should incorporate goals to be achieved within a specific field of nursing practice. Based on this perspective, however, it is evident that an effective staff education, and more so, assessments, is necessary for caregivers to address issues related to the administration of NSAIDS and blood thinners before elective surgeries. The implications of evidence-based practice in regard to error reduction can also be attributed to the essentiality or nursing competency when conducting medical procedures. As Kalb et al. (2015) pinpointed, with more experience, nurses can handle complex tasks and are more decisive, as compared to caregivers with less experience. As such, it is evident that the level of expertise correlates with the level of errors attributed to care delivery processes.

Based on the conceptualization of this perspective, it is thus evident that evidence-based teachings of care providers and their staff could improve and enable them to make better clinical and administrative decisions regarding employment of NSAIDs and blood thinners during elective procedures. Based on the above-noted considerations, the practice-focused question that I used to guide this DNP project was as follows: Will a staff education on evidence-based guidelines for handling patients on NSAIDs and blood thinners before elective surgery reduce the number of procedure cancellations using a pre and postlearning evaluation.

Nature of the Doctoral Project

Sources of evidence that I used in the DNP project were divided into two levels. The first category consisted of the published evidence, such as articles, books, and reports. The second category was the primary evidence that I collected during the course of the DNP project's intervention levels. The sources of published evidence were from electronic databases focused on the field of healthcare. The databases were as follows: PUBMED, MEDLINE, and EMBASE. I also used Cochrane Reviews as a source of published evidence for the DNP project.

My goal was to enhance staff development. Furthermore, the project was role-specific and my goal was to analyze the outcomes of educating care providers with relevant competency to administer NSAIDs and blood thinners to reduce challenges attributed to procedure cancellations. With the information, the caregivers can be sufficiently decisive in determining the best changes to make in order to achieve desired outcomes, which in this case, was imparting necessary skills to care providers. With information drawn from the aforementioned databases, caregivers reduce procedure cancellations attributed to elective procedures.

I employed a search strategy to extract relevant evidence from the databases. I used certain key terms. The specific forms of evidence that I gathered from published evidence included an evaluation of whether educating providers on evidence-based guidelines is an appropriate intervention for the practice problem identified and a determination of how common the problem is and its implication in nursing practice and healthcare in general.

The source of primary evidence was the practicum facility's procedure cancellation rates before and after the project implementation and did not include collection of either patients' or providers' personal information. The approach that I used in organizing the published evidence involved conducting a literature review. I selected relevant articles and other publications from the aforementioned electronic databases. I selected only those articles that directly addressed the practice-focused question or aspects related to the practice-focused question as published evidence. I, then, organized evidence from the articles in the form of a literature review. I analyzed thematic areas such as the efficacy of educating patients as a means of reducing procedure cancellations using similar or different populations to that of this DNP project.

I organized and analyzed the primary evidence. The evidence was organized in the form of a pre-/post-implementation assessment for the staff development project in which, procedure cancellation rates in the practicum facility prior to the intervention were compared to the procedure cancellation rates in the facility after the intervention. The anticipated finding of the DNP project was that a staff education assessment on evidence-based guidelines for handling patients on NSAIDs and blood thinners before surgery would result in a reduction in procedure cancellation rates at the practicum facility.

Significance

There were a number of stakeholders associated with this DNP project. These individuals included patients, providers, and administrators in the practicum facility. Addressing the identified practice problem may have positive implications for these stakeholders. According to Desta et al. (2018), procedure cancellations affect patients

psychologically, socially, and economically. Patients are negatively impacted in the form of psychological trauma, lost working hours, and increased costs of healthcare hence addressing the practice-focused question may lower psychological, social, and economic burdens of the affected patients. On the hand, reduced procedure cancellation rates may lower the work burden for providers at the facility as well as result in improved utilization of procedure lists in the facility. According to McKendrick et al. (2014), procedure cancellations result in under-utilization of procedure lists in a healthcare setting, a factor that results in inefficiency. In a healthcare setting, such inefficiency has cost, quality, and regulatory implications hence positive outcomes from this DNP project will have a positive effect on the practicum facility's administration.

The approach that I used in this DNP project is by no means restricted to this project. The approach that I used is for purposes of staff development. According to Paterick et al. (2017), educating providers is generally associated with improved patient outcomes. Paterick et al. (2017) stated that the approach is an important element in advancing patient-centered approaches in healthcare. Consequently, it is the case that transferability of the doctoral project to similar practice areas is feasible. The positive change that I intended in this DNP project, a reduction in procedure cancellation, is postulated to have numerous implications for the healthcare sector. Reduction in procedure cancellations rates may result in an improvement use of the operating room (OR) given that OR procedures result in the greatest cost outlay for a healthcare facility (Yu et al., 2017), improved use of OR facilities will result in overall lower costs of healthcare, a factor that has positive implications for patients and providers.

Summary

Based on an initial organizational needs' assessment, it is evident that procedure cancellation for chronic back pain patients in the practicum facility is a common problem, especially for patients on NSAIDs and blood thinners. However, preliminary investigations showed that educating patients, clinic staff, and providers on evidence-based guidelines on the need to avoid NSAIDs and blood thinners at least 5 days prior to a procedure resulted in a reduction in procedure cancellation rates, as teach-back methods were applied.

To address the practice-focused question that I put forth in this DNP project, it was necessary to determine the theoretical basis to guide the project development as well as to highlight the relevance of the project to nursing practice. In Section 2 this DNP project, I evaluate the models and theories that were applicable, my role as the DNP scholar, and the relevance of the project in nursing practice.

Section 2: Background and Context

Introduction

Procedure cancellations are unavoidable (Sathya, 2020). However, in specific scenarios, providers may opt for cancellations if they suspect that proceeding with a clinical intervention might result into negative outcomes. Based on some reports, in situations such as pandemics, surgery cancellations become commonplace across most of the United States hospitals. In these cases, the American College of Surgeons and the United States Surgeon General recommend the need to cancel elective surgeries (Sathya, 2020). This project addresses specific cases in which hospitals take actions to prevent the exposure of patients and healthcare providers to certain risks. This project addresses the practice-focused question: Will a staff education on evidence-based guidelines for handling patients on NSAIDs and blood thinners before elective surgery reduce cancellation procedures determined using a pre- and post-learning evaluation.

Concepts, Models, and Theories

Numerous theoretical models can be used to explain the rationale behind the intervention chosen for a DNP project. The theoretical model that I used for this project was Knowles's theory of andragogy.

In this DNP project, the focus is on making staff at the facility aware of the need to educate patients on NSAIDs and blood thinners. Staff members need to educate the particular patient population on the need to avoid the use of NSAIDs and blood thinners at least 5 days before an elective surgery is due. Education for staff at the practicum facility must include a unique approach relative to the usual method used in educating

individuals. This is because staff members at the practicum facility constitute adults. According to Spies et al. (2015), adults require a unique approach to learning when compared to children and the youth. Consequently, the most appropriate theoretical approach was the Knowles theory of andragogy.

The Knowles theory of andragogy evaluates the concept of adult learning. Malcolm Knowles developed the theory. Knowles makes a number of assumptions as regards adult learning. The first assumption under Knowles' theory is that adult learning is purposive in nature; adults need to know from the onset what it is that they are learning and why they are learning it (Spies et al., 2015). Therefore, with regard to the staff education about the guidelines to follow for patients on NSAIDs and blood thinners prior to elective surgery, it was necessary to make it clear from the onset why staff were invited to participate in the process. Consequently, prior to the onset of the staff development project, all participating members of staff were taken through the importance of the guidelines.

The second assumption in Knowles' theory is that learning is a factor of problem solving (Spies et al., 2015). In essence, learning must be intentional. Consequently, in the staff development project, members of staff at the practicum facility needed to be informed of the existing problem (procedure cancellations due to continued use of NSAIDs and blood thinners prior to surgery) and how participating in learning of the guidelines had potential to help them solve the problem.

The third assumption of the Knowles theory is that adult learners need to see the immediate value of their learning in order to obtain buy-in into a particular learning

program (Spies et al., 2015). Therefore, in the staff development project, it was necessary to highlight how members of staff at the practicum facility might benefit from applying the guidelines being taught. For example, it would be important to highlight that the reduced rates of procedure cancellations for the project's patient population may result in lower work burden for the concerned members of staff at the practicum facility.

Another key assumption of Knowles' theory is that through experiential learning, outcomes of adult learning are maximized (Spies et al., 2015). This assumption had much relevance for this practicum project. According to Spies et al. (2015), experiential learning implies that there should be more focus on the learning process as opposed to the content itself. Consequently, in teaching the guidelines to the providers, a teach-back method was applied. In the teach-back approach, the participating members of staff are required to reiterate what they have learnt in their own words, a process that ensures understanding of the guidelines.

Relevance to Nursing Practice

Procedure cancellations have for a long time been considered as a major problem in nursing practice. However, most of the focus has been on an inpatient setting as opposed to an outpatient setting as I envisaged in this DNP project. Furthermore, most of the research on the issue has focused on factors such as unavailability of adequate theatre space. For example, according to Azari-Rad et al. (2013), the main form of intervention to reduce procedure cancellation rates has been demand capacity management in healthcare facilities. However, while demand capacity management may contribute to a

reduction in procedure cancellation rates, it does not address all factors that result in procedure cancellations such as the risk of excessive bleeding during a procedure.

In instances where the intervention proposed is to educate providers, there has been minimal specific focus on evidence-based guidelines on NSAIDs and blood thinner use as a means of reducing excessive bleeding as instigated by Mullan et al. (2016). Therefore, for this DNP project, I adopted a shift in that there would be an evaluation of how provider education on following evidence-based guidelines could provide a means of reducing bleeding risk before elective surgery. The guidelines highlight the need for a patient to avoid NSAIDs and blood thinners at least 5 days before an elective surgery is due. The approach is beneficial for nurse practitioners and providers in general. It aligned with some presumptions in Klaiber et al. (2018), who contended that, during the education process, nursing staff involved in the process may also benefit in terms of gaining new knowledge on how to reduce procedure cancellation rates for chronic back pain patients.

Local Background and Context

The practicum facility offers pain-management care with a significant number of clients diagnosed with chronic back pain. An exploratory organizational needs assessment took place before I settled on this particular DNP project. The organizational needs assessment took place with the assistance of the facility's CNO. The CNO noted a number of problems prevalent at the facility. The issues included staffing challenges, avoidable patient days, and procedure cancellations. Of the three major issues noted by the CNO, procedure cancellations took priority. The rate at the facility stood at 12.5%. In

a study conducted by Elrahman et al. (2014), the findings revealed that an average rate of elective procedure cancellations stood at 10.6%. Therefore, procedure cancellations at the practicum facility were higher than the average.

The practicum facility is a pain management clinic and the use of pain management medications including NSAIDs is prevalent. Additionally, data from the practicum facility's administration indicate that over 60% of the facility's patients on NSAIDs also used blood thinners for curing various other ailments. The combination of the two forms of medications creates a situation where the practicum facility faces an above average rate of procedure cancellations due to the increased risk of bleeding. Consequently, the practicum facility provided a suitable environment in which to conduct the DNP project.

With a 12.5% rate of cancellation as mentioned above, there was a need to address the issue. Procedure cancellations not only affect the patient, but also other stakeholders in the healthcare sector. According to Desta et al. (2018), affected patients may experience trauma. Other than the psychological trauma, a patient is also affected socially and economically given that such cancellations may result in the patient having to forego work or other social engagements without the scheduled procedure being undertaken.

Additionally, procedure cancellations also present a significant burden to the healthcare system given that they represent a waste of resources for a healthcare facility. According to Keller et al. (2014), as a result of procedure cancellations, most of the time in OR is spent on non-operative activities. Yet, Yu et al. (2017) considered the OR as the

most cost-intensive area in a healthcare facility, which then illustrated that time spent on non-operative activities is a significant loss of resources.

Furthermore, in a study conducted by Gonzalez-Arevalo et al. (2009), an estimated 50% of all cancellations in a Spanish hospital were attributed to a medical reason (risk of excessive bleeding due to NSAIDs and blood thinners use falls into this category). While outcomes of the study by Gonzalez-Arevalo et al. (2009) were domiciled in a Spanish hospital's context, the authors intimate that such an outlook is reflective of the situation in the healthcare sector across much of the developed world including the United States. Therefore, an urgent need to address the issue existed.

In addition, the approaches currently being used to address the issue, while effective, do not necessarily address the underlying causes of procedure cancellations due to risk of excessive bleeding especially for chronic back pain patients. According to Azari-Rad et al. (2013), most of the interventions aimed at addressing procedure cancellations have been focused on demand management in the OR yet it is medical reasons (rather than facility constraints) that result in a significant portion of procedure cancellations. The ineffectiveness of current approaches is addressing the issue at hand is also illustrated by Dimitriadis et al. (2013). According to Dimitriadis et al., most patient pre-assessment activities are undertaken about 30 days before an elective procedure is undertaken. Dimitriadis et al. hold that such assessments, while necessary, take place too early to be able to reduce risks associated with procedure cancellations. In that regard, I proposed a staff education intervention in this DNP project for care providers and staff.

Role of the DNP Student

I am a nurse practitioner pursuing doctoral studies in the field of nursing. To undertake my doctoral studies successfully, studying the DNP course including the DNP project is a requirement by Walden University. However, despite conducting this DNP project being a requirement of the university, it is nonetheless on a topic that I am passionate about given my experience in a pain management clinic.

My primary role in the DNP project was designing an intervention aimed at effectively educating participating providers on evidence-based guidelines on NSAIDs and blood thinners use before a surgery is due. Nonetheless, my role was not limited to designing the intervention; I was also responsible for all the activities associated with the DNP project. For example, I was responsible for evidence collection, both published and primary evidence, organizing and analyzing the collected evidence, educating participating patients, as well as crafting the final report after conclusion of the DNP project. I also played a role as a DNP student in conducting public relations exercises especially in my engagements with my instructor and preceptor.

Therefore, my relationship with major stakeholders in the project, as well as all forms of evidence, was strictly professional. Professionalism in my relationship with stakeholders such as participating providers was illustrated by virtue of the fact that engagement was only be limited to those aspects that touched on the DNP project. Professionalism in my relationship with evidence collected will be illustrated by maintaining privacy and confidentiality.

Researcher bias while research is common. For my DNP project, the most likely form of bias I may have is confirmation bias. According to Allahverdyan and Galstyan (2014), confirmation bias refers to the tendency to be inclined toward sources of evidence that support one's beliefs. For the case of my DNP project, preliminary investigations through evaluation of literature on the subject indicated that educating providers may have a positive impact on reducing procedure cancellation rates. However, outcomes from primary evidence may vary, resulting in the need to avoid having confirmation bias. Allahverdyan and Galstyan (2014) held that objectivity in research helps to lower the occurrence of confirmation bias. Consequently, in my DNP project, I ensured objectivity by relying upon known methodologies. The proposed methodology in analyzing primary evidence in this project was the use of a pre-/post-implementation assessment.

Role of the Project Team

In the implementation of the project, the project team was made up of all the providers and their clinical staff, who had certain responsibilities that defined their interactions. First, identification of outcomes attributed to evidence-based teaching enabled the members to collaborate and work more effectively in other healthcare areas. Second, the team members were an essential part in setting primary and secondary objectives to be achieved through the evidence-based teachings. Specifically, by consideration of the members' strengths and weaknesses, it was possible to identify how to execute the project. Third, the team members conducted the evaluation process, which included analyzing and reviewing programs. In this regard, the individuals, based on the

part that they played, were able to provide insights regarding the areas to consider for improvements.

Summary

Procedure cancellations are not only a problem within the practicum facility, but also in the wider healthcare sector. As illustrated by Gonzalez-Arevalo et al. (2009), it is a widespread problem in developed countries. Part of the problem is that interventions aimed at addressing the issue do not necessarily focus on the root cause of the issue. For example, according to Gonzalez-Arevalo et al. (2009), while medical reasons account for an estimated 50% of all procedure cancellations, most of the interventions focus on demand management at the OR. Consequently, I completed this DNP project to fill the practice gap identified by focusing on staff education, more specifically the need to avoid NSAIDs and blood thinners, which was one of the medical reasons intimated by Gonzalez-Arevalo et al. (2009). I describe an evaluation of the approach that was adopted in the collection and analysis of evidence for this DNP project in the next section.

Section 3: Collection and Analysis of Evidence

Introduction

Patients with chronic back pains often receive NSAIDs prescriptions. In a practice setting, a considerable number of patients on NSAIDs are also on blood thinners. The combination of NSAIDs and blood thinners increases the risk of bleeding especially in instances where the patient is due to undergo a procedure. Due to the increased risk of bleeding, McKendrick et al. (2014) contend that patients on both forms of medications often have their procedures canceled to mitigate the risk of excessive bleeding. Procedure cancellations not only put a strain on patients' and healthcare facilities' resources but also result in psychological trauma for the affected patient (Desta et al., 2018).

This DNP project addressed the problem by educating providers on evidence-based guidelines on the need to avoid NSAIDs and blood thinners at least 5 days before an elective procedure if they are to lower chances of a procedure cancellation. A reduction in procedure cancellation rates has a positive social impact as it improves patient outcomes and resource utilization for both healthcare facilities and patients concerned.

Practice-Focused Question

In this DNP project, the practice-focused question was as follows: Will care provider and staff education on evidence-based guidelines for handling patients on NSAIDs and blood thinners prior to surgery reduce procedure cancellation rates?

A considerable number of patients at the practicum facility suffer from chronic back pain which is managed with NSAID medication. Of the said patients, data from the

practicum facility's administration show that 60% are on blood thinners to treat other forms of ailments. As a result, the procedure cancellation rate in the facility is significantly high given that combination of the two forms of medication increases the risk of excessive bleeding during elective procedures. Consequently, the purpose of this DNP project was to educate providers and their staff on evidence-based guidelines on handling patients on NSAIDs and blood thinners before an elective procedure is due.

I adopted staff education in this DNP project to achieve the overall purpose of the DNP project in the following way. Educating providers and their staff on relevant guidelines was developed to help improve procedure cancellation. According to studies conducted by Klaiber et al. (2018) and those conducted by Waller et al. (2015), there are significant improvements associated with preoperative preparation in reducing both procedure cancellation rates and risks associated with performing procedures for patients on NSAIDs and blood thinning medication. Consequently, it was evident that the problem highlighted in this DNP project's practice-focused question could be effectively addressed by the proposed intervention.

Sources of Evidence

The quality of evidence was an important aspect in determining project outcomes. In that regard, it was necessary that evidence for this DNP project be sourced from reliable databases that command authority in the field of healthcare. In that regard, the primary databases that I relied upon in this DNP project were PUBMED, MEDLINE, and EMBASE. Additionally, Cochrane Reviews were also used as a source of evidence in this DNP project.

From the databases, I searched for relevant publications on the use of NSAIDs and blood thinners prior to surgical procedure. Additionally, evidence base publications on NSAIDs management prior to surgical procedure were searched. The evidence sourced will helped to support the development of this DNP education project effort to stop NSAIDs and blood thinners prior to surgical procedure.

Evidence Generated for Doctoral Project

A study by Kelly et al. (2011) showed that the use of NSAIDs for patients due for intracranial surgery impedes homeostasis function. In the research, Kelly et al. (2011) noted that an estimated 2.2% of patients scheduled for intracranial surgery experience hematoma, with 88% of them experiencing hematoma within six hours of the surgery. Younan et al. (2013) noted that the risk associated with excessive bleeding for NSAID users undergoing interventional procedures is well documented. However, Younan et al. (2013) contended that the only controversy that exists concerns the period of withdrawal prior to an interventional/elective procedure. Sourcing of primary evidence involved the steps as follows: first, I obtained data on cancellation rates and developed an education plan based on the evidence base. Then, I completed provider and staff education followed by obtaining the cancellation rates again. I completed the project by comparing cancellation rates before and after the education.

The sample population that took part in the intervention was drawn from the practicum facility. All the participants were providers at the facility. Secondly, they were involved in providing both peri- and post-operative care to patients on NSAIDs and blood thinners.

Ethics and human protection are important elements in healthcare activity. During the course of the DNP project, neither I nor the project team handled individual patient clinical information. Therefore, confidentiality concerns for patient information were not a cause for concern. Instead, I relied on procedure cancellation rates data prepared by the practicum facility and that was made available. Not using patient records eased the process of the project's approval by Walden University's Institutional Review Board (IRB).

Analysis and Synthesis

Following the intervention, which involved educating the providers and their staff on evidence-based guidelines on handling patients on NSAIDs and blood thinners before surgery, data were collected as required for the project. Therefore, the primary form of data was the number of procedure cancellations, which were monitored. To ease the process of collecting such data, I used Microsoft Excel software as a means of recording, keeping, and storage.

Once the data had been obtained, the analysis procedure was based on the pre- and posteducation cancellation numbers. I evaluated whether the number of procedure cancellation had decreased. The rationale for choosing this assessment is in accordance with Savelberg et al. (2015), who suggested that such an analysis approach is not only simple, but also the most effective in evaluating the impact and effect of interventions that are short-term in nature. Additionally, the authors contended that that pre- and postimplementation assessments tended to illustrate a high level of causality between

variables in question hence; they were effective for staff development projects such as this DNP project.

To ensure efficacy of the project, only providers and staff who directly communicated with patients scheduled for elective surgery were recruited for the project. By using this group as the primary sample, it was possible to meet the staff development goal, as the primary aim of the project is to equip the participants with relevant knowledge to improve NSAIDs and blood thinner management prior to procedure. Additionally, it is relevant that regarding this project, procedure cancellations constitute challenges that arise out of increased risk of excessive bleeding and not any other factor.

Summary

Educating healthcare staff on guidelines aimed at reducing procedure cancellations for patients on NSAIDs and blood thinners entails pre-operative preparation. Studies by Klaiber et al. (2018) and Waller et al. (2015) indicated that a close correlation between preoperative preparation and a reduction in procedure cancellation rates exists. Therefore, I developed this DNP project's proposed intervention (staff development on the recommended guidelines) to address the problem at hand. The design of the intervention was a pre and postimplementation assessment. The approach was suitable for determining staff development outcomes of short-term interventions as intended in this study. Additionally, I planned an analysis of the evidence to enable me to come up with sound findings and recommendations. The findings and recommendations will be described in the next section.

Section 4: Findings and Recommendations

Introduction

Patients suffering from chronic back pain often receive NSAIDs has part of their medicine regimen. However, it has been shown by several publication such as McKendrick et al. (2014) that there is an increased risk of bleeding for patients on either NSAIDs or blood thinners or on both forms of medications. Often, their procedures are canceled to mitigate the risk of excessive bleeding.

The purpose of this DNP project was to address this problem in two major steps. I obtained the procedures cancellation data to provide a baseline understanding of the impact on productivity. Next, I developed the staff education and obtained the data postimplementation of the education to determine the impact of our intervention.

Findings and Implications

The historical data in regard to procedure cancellation is presented in Table 1 and Figure 1 based on the data collected from medical records.

Table 1 shows data collected over 30 days of procedure prior to May, 2021. It shows the number of procedures scheduled, the number of procedures cancelled, and the number of procedures realized. During that period, 648 procedures were scheduled. Only 390 were completed while 258 were cancelled. These data illustrated the percentage of procedures realized daily. For the period collected, the clinic had a mean 61% productivity rate.

Table 1

Table Showing Productivity Over 30 Procedure Days

Historic Productivity before May 2021

DAYS	# Patients scheduled	# Procedures completed	# Cancelations	Productivity
Day 1	21	14	7	67%
Day 2	20	11	9	55%
Day 3	21	11	10	52%
Day 4	24	13	11	54%
Day 5	24	15	9	63%
Day 6	23	13	10	57%
Day 7	21	14	7	67%
Day 8	18	12	6	67%
Day 9	21	13	8	62%
Day 10	23	12	11	52%
Day 11	18	13	5	72%
Day 12	21	14	7	67%
Day 13	25	14	11	56%
Day 14	18	11	7	61%
Day 15	21	14	7	67%
Day 16	19	11	8	58%
Day 17	18	12	6	67%
Day 18	28	14	14	50%
Day 19	25	10	15	40%
Day 20	22	14	8	64%
Day 21	21	14	7	67%
Day 22	19	12	7	63%
Day 23	22	15	7	68%
Day 24	21	14	7	67%
Day 25	23	14	9	61%
Day 26	18	12	6	67%
Day 27	27	16	11	59%
Day 28	21	12	9	57%
Day 29	21	13	8	62%
Day 30	24	13	11	54%
M				61%

This performance is otherwise illustrated by Figure 1 showing the contrast between the number of procedures scheduled and the one realized.

Figure 1

Bar Graph Showing the Numbers of Procedures Scheduled and Completed

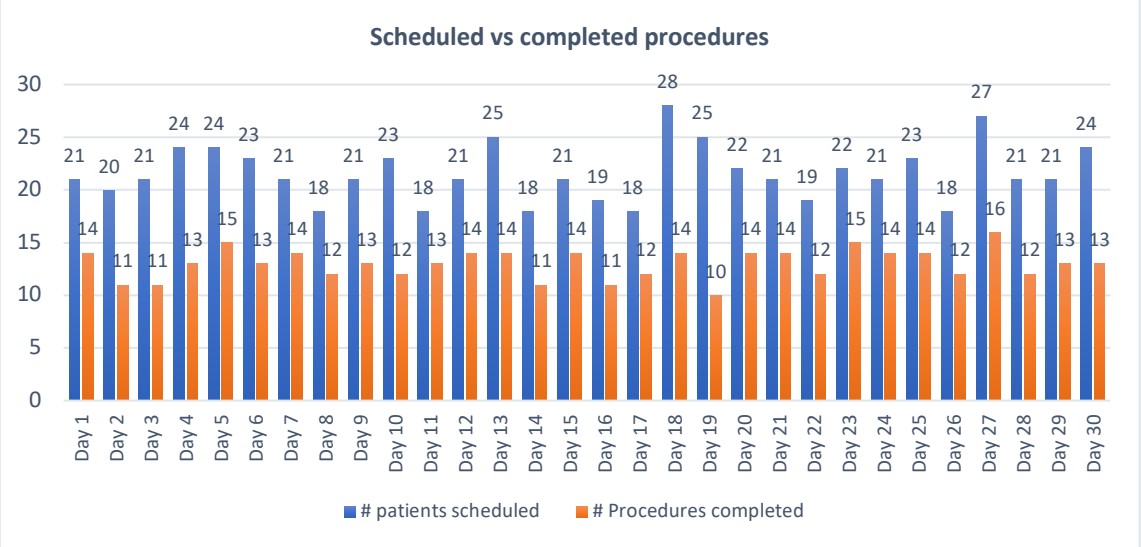


Figure 1 shows the difference between the number of procedure that way schedule in blue and the number of procedures that were completed in orange. For each day at the number of procedures completed was far less than the number of procedures scheduled. That reflects the findings of Table 1 which has shown that only 61% of the schedule procedures were completed. The reasons noted for the cancellations are shown in Table 2, Figure 2 and Figure 3.

Table 2

Table Showing the Reasons for Procedure Cancellations

DAYS	# Cancelations	Reasons		% Cancellation due to NSAIDS & blood thinner
		NSAIDS & blood thinner taken	Other	
Day 1	7	5	2	71%
Day 2	9	6	3	67%
Day 3	10	5	5	50%
Day 4	11	6	5	55%
Day 5	9	7	2	78%
Day 6	10	5	5	50%
Day 7	7	5	2	71%
Day 8	6	6	0	100%
Day 9	8	8	0	100%
Day 10	11	9	2	82%
Day 11	5	5	0	100%
Day 12	7	6	1	86%
Day 13	11	9	2	82%
Day 14	7	7	0	100%
Day 15	7	7	0	100%
Day 16	8	5	3	63%
Day 17	6	6	0	100%
Day 18	14	11	3	79%
Day 19	15	9	6	60%
Day 20	8	6	2	75%
Day 21	7	2	5	29%
Day 22	7	4	3	57%
Day 23	7	6	1	86%
Day 24	7	7	0	100%
Day 25	9	7	2	78%
Day 26	6	4	2	67%
Day 27	11	5	6	45%
Day 28	9	9	0	100%
Day 29	8	4	4	50%
Day 30	11	10	1	91%
Total	258	191	67	
%		74%	26%	

I reviewed data for the the various causes of cancellation. Out of the 258 procedure cancellations, 191 were due to patient taking NSAIDs or blood thinner within 5 days of

their procedure. This yields a 74% contribution to procedure cancelation overall. These findings are further illustrated by Figures 2 and 3 shown below.

Figure 2

Bar Graph Showing the Number of Procedures Cancelled Daily by Reason

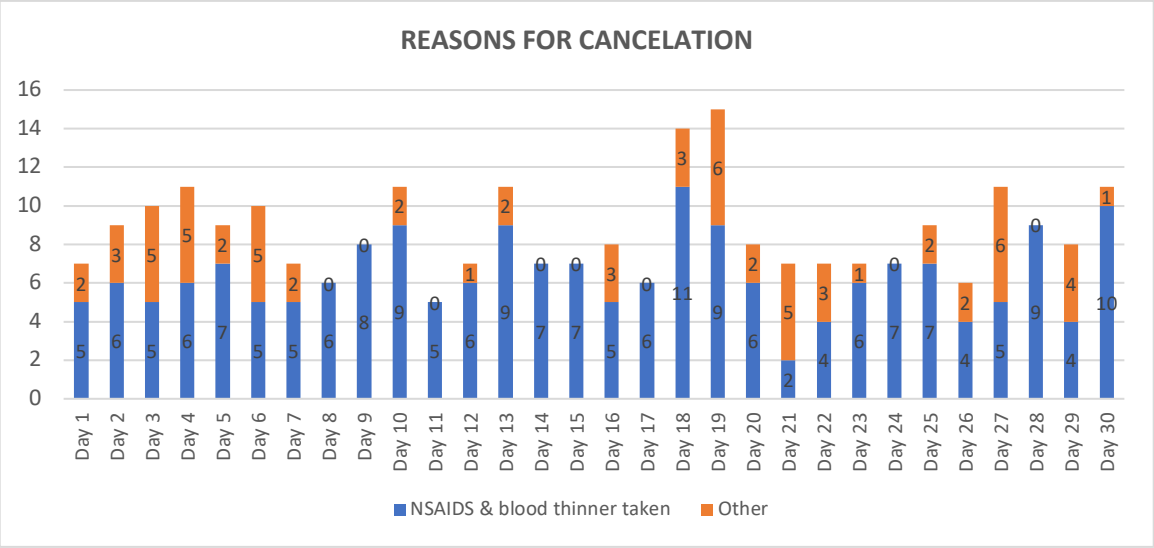
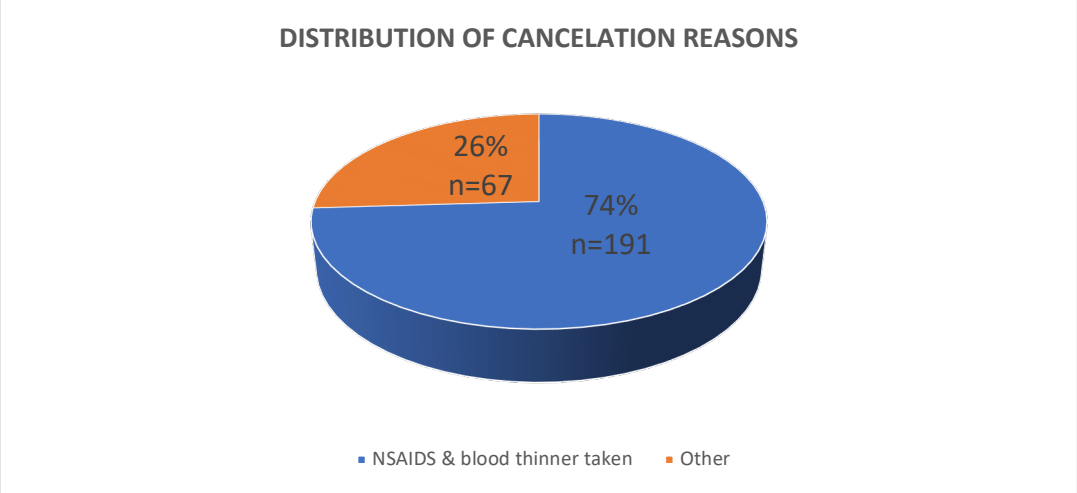


Figure 3

Pie Chart Showing the Proportion of Procedure Cancelations Over the Studied Timeframe



The bar chart in Figure 2 illustrates that for each procedure day during the time frame studied, the number of procedures cancelled due to NSAIDs or blood thinner intake far exceeded the number of procedures canceled due to other causes. The findings are summarized in the Figure 3 pie chart; 74% of the procedure cancelations were related to NSAIDs or blood thinner intake.

Recommendations

Given the findings presented in the section above, I recommend that more attention be given to the pre-procedure preparation phase in practice. The intervention that I proposed was to educate providers and their staff so that patients may be reminded over a phone call 5 days prior to their scheduled procedure to hold any NSAIDs or blood thinners (see Mullan et al., 2016).

Contribution of the Doctoral Project Team

In collaboration with the clinic management, I organized a "lunch work meeting" regarding the number of procedure cancellations. During that gathering, I presented the historical findings as shown in the previous section. Discussion was conducted about the overall cancellation rate. I also discussed the large contribution of the number of cancellations due to NSAIDs or blood thinner. I also presented the evidence base supporting the practice which according to studies conducted by Klaiber et al. (2018) and by Waller et al. (2015), there are significant improvements associated with pre-operative preparation in reducing both procedure cancellation rates and risks associated with performing procedures for patients on NSAIDs and blood thinning medication. At the end of the training session, the providers and clinic management assigned each provider's

nurse the task of identifying and call patients on NSAIDs and blood thinning medications. The nurses were charged to reach out to their respective providers to confirm for patient each patient what medicine needed to be held.

Table 3

Table Showing Productivity After Education Intervention

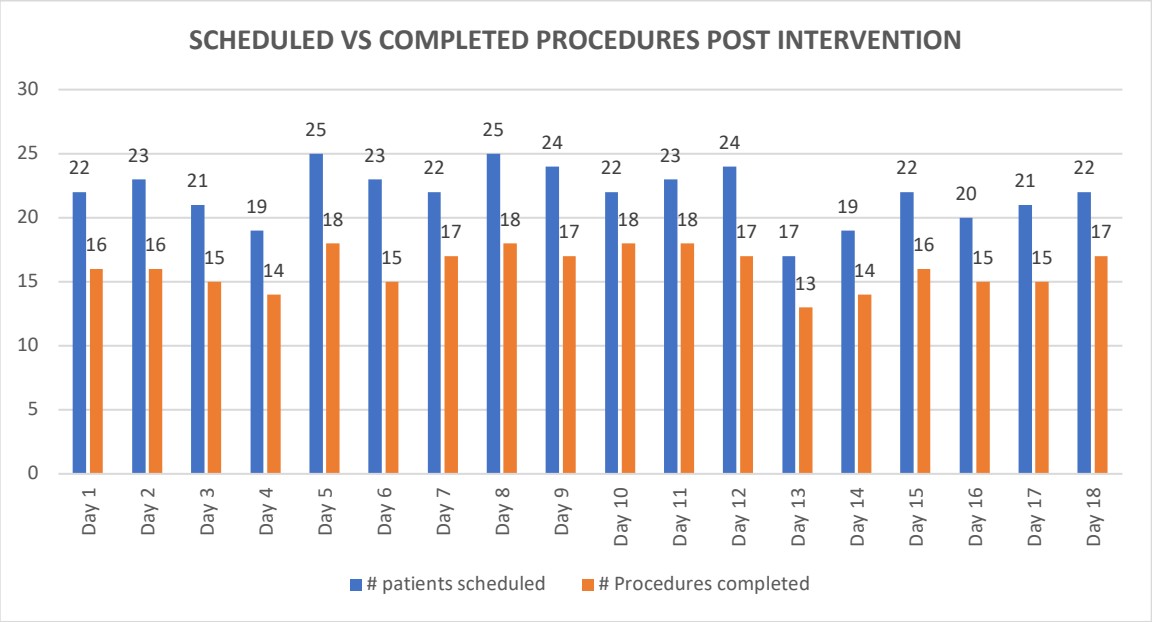
DAYS	# Patients scheduled	# Procedures completed	# Cancelations	Productivity
Day 1	22	16	6	73%
Day 2	23	16	7	70%
Day 3	21	15	6	71%
Day 4	19	14	5	74%
Day 5	25	18	7	72%
Day 6	23	15	8	65%
Day 7	22	17	5	77%
Day 8	25	18	7	72%
Day 9	24	17	7	71%
Day 10	22	18	4	82%
Day 11	23	18	5	78%
Day 12	24	17	7	71%
Day 13	17	13	4	76%
Day 14	19	14	5	74%
Day 15	22	16	6	73%
Day 16	20	15	5	75%
Day 17	21	15	6	71%
Day 18	22	17	5	77%
M				73%

Data collected post intervention showed that there was a significant improvement in productivity. The findings are shown in Table 3. Over 18 days, 394 procedures were scheduled. Up to 289 were completed and 105 canceled. That yielded a 73% average

productivity rate. This is a 12% improvement compared to the preintervention rate of 61%. That improvement is illustrated in Figure 4 which bar chart show a less prominent difference between number of procedures scheduled and completed.

Figure 4

Bar Graph Showing the Number of Procedures Scheduled and Completed



The strength of the impact of the intervention is visible through a computed Odds Ratio (Cancelation/procedure completed) of 0.549207 and with a Z-score of 4.299905. To further explore the findings, I looked deeper into the data to explore the various cancelation reasons and compare them to the preintervention data. The results shown in Table 4 revealed differences between the number of cancellations due to patients taking NSAIDs or blood thinning medications within 5 days of their procedure and other reasons for postponement.

The data in Table 4 show that out of the 105 cancellations, 54 were due to NSAIDs or blood thinner intake within few days scheduled procedure. Also, 51 cancellations were due to other causes. This illustrates that 51% of the cancelation were attributed to NSAIDs or blood thinner. This represents a 23% improvement compared to the 74% contribution noticed preintervention.

Table 4

Table Showing the Reasons for Procedure Cancellations Postintervenition

DAYS	# Cancelations	NSAIDS & blood thinner taken	Other	% Cancellation due to NSAIDS & blood thinner
Day 1	6	4	2	67%
Day 2	7	5	2	71%
Day 3	6	4	2	67%
Day 4	5	2	3	40%
Day 5	7	4	3	57%
Day 6	8	4	4	50%
Day 7	5	1	4	20%
Day 8	7	4	3	57%
Day 9	7	3	4	43%
Day 10	4	0	4	0%
Day 11	5	3	2	60%
Day 12	7	4	3	57%
Day 13	4	1	3	25%
Day 14	5	2	3	40%
Day 15	6	3	3	50%
Day 16	5	3	2	60%
Day 17	6	4	2	67%
Day 18	5	3	2	60%
Total	105	54	51	
%		51%	49%	

These findings are further illustrated by Figures 5 and 6 shown below.

The bar chart in Figure 5 illustrates that for each procedure day during the time frame studied, the number of procedures cancelled due to NSAIDs, or blood thinner intake

frequently exceeded the number of procedures canceled due to order causes. However, on day 10, we had no cancellation due to NSAIDs, or blood thinner intake.

Figure 5

Bar Graph Showing the Procedure Cancellation Daily

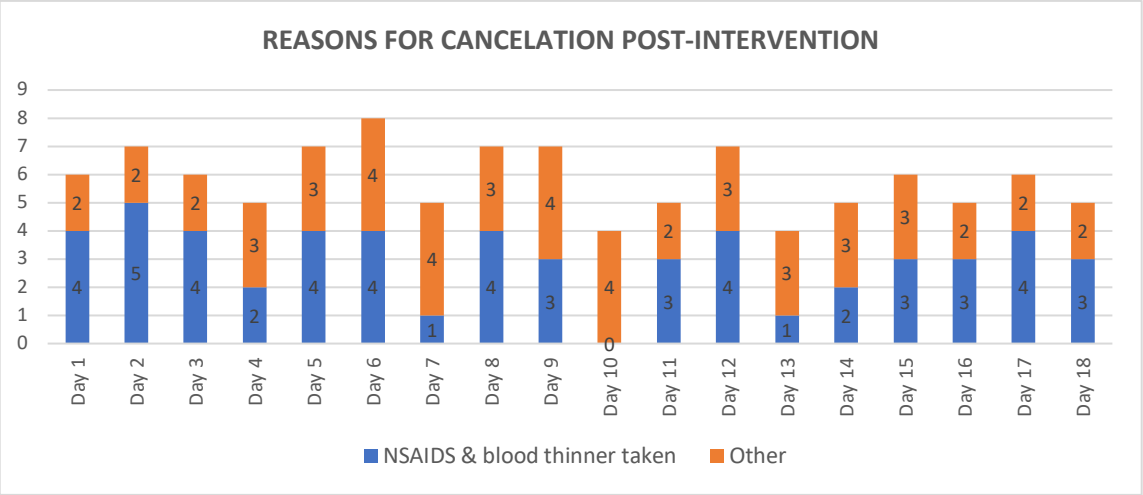
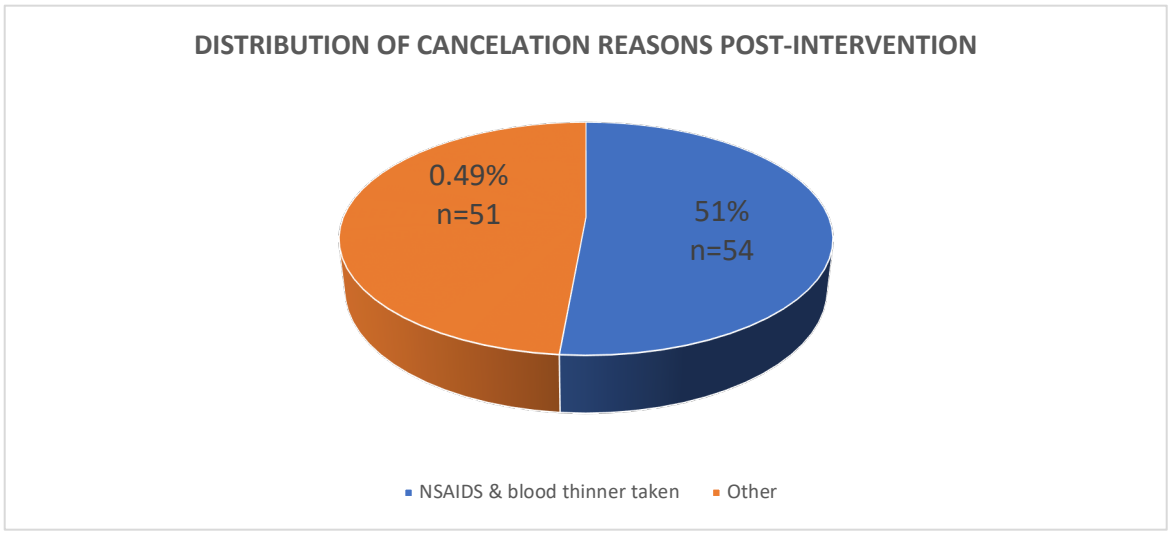


Figure 6

Pie Chart Showing the Proportion of Procedure Cancelations Postintervention



Overall and compared to the similar chart preintervention, the difference between the two reasons is not so prominent. This observation is summarized by Figure 6 pie chart based on the aggregated data to show that only 51% of the procedure cancelations were related to NSAIDs or blood thinner intake. These data were consolidated by the Odd Ratio calculated between patients who had their procedure cancelled due to NDSAID intake within the preop designated period versus those with other reasons. Here, the Odds Ratio (Cancelation due to NSAIDs vs other) is 0.371420 with a Z-score of 4.102356.

Strengths and Limitations of the Project

Strengths

There was a positive correlation between provider and staff education and a reduction in procedure cancelation due to NSAIDs or blood thinner within preop period. Providers and staff through the clinic were receptive to the education and learning about current evidence-based practice to improve procedure cancellation. Implementing a step to remind patient to follow recommendations helped increase provider and staff awareness and improve rate of procedure cancellation.

Limitations

Limitations of this project involve both external and internal validity. Limitations of external validity involve population validity with limitation to the generalizability of the findings from this specific clinic patient population to other populations or settings. Another limitation is related to the internal validity. More information is needed to determine the reason why a patient procedure was cancelled. The small sample size is another limitation as well as the short period allocated for data collection

postintervention. I made efforts to minimize and adjust for limitations. Finally, another limitation derives from the fact that this project did not generate new knowledge typical of a research project; however, I created the project based on the needs of the institution to support the use of an evidence-based approach to support nursing practice.

Section 5: Dissemination Plan

There are many ways to dissemination the findings of this work. First, by sharing the positive successes which were achieved after the implementation of the project will certainly help spread the information about what was accomplished and how. Indeed, other providers or healthcare units could use this work as a framework to adapt to their own environment.

In order to disseminate the information about the results achieved during this DNP project to the organization, I will give a PowerPoint oral presentation and invite the providers and their support staff will be invited to attend. The effective packaging of results for practitioners is an important aspect of the dissemination of this project and one that promotes its adoption (see Hardey, 2013). I will also invite the staff of affiliated surgical center where some of the providers deliver services. I cannot stress enough the support of my project team.

The findings of the project and recommendations may assist other providers and organization unit to implement a similar staff education initiative. It will benefit staff positively if employees are trained and should they recognize this project as the opportunity for progressive change. Quality Improvement (QI) initiatives in primary care are effective at improving uptake of evidence-based guidelines, but are difficult to implement and sustain (Hespe et al., 2018).

Moreover, to implement new initiatives such as this and to be effective, frontline staff see the leadership of the organization engaged in the initiative (Jacobs et al., 2018). Beside sharing the information about the results accomplished at the clinical site, the publication

of this capstone will make this work public. This work will be made public as a terminal project, and I will defend it in a public forum. These events are also good ways to disseminate the results we achieved.

Some other venues to disseminate the work will include social media, scientific, peer-reviewed journals, and presentations in professional conferences. Brochures and posters will also be part of the communication strategy.

Analysis of Self

My journey over the past few years, has given me the opportunity to learn about research, healthcare, healthcare systems, and myself. Since I graduated from high school, I have always been in a pursuit of either an academic or professional accomplishment. Of all the various but I've taken, my Doctorate of Nurse Practice has been the most remarkable journey. It all started with those first courses, which were for the first time I had to participate in group discussion online. All my previous schooling was completed face-to-face. I was apprehensive at first whether I would be able to meet the challenge of an online program. It was not easy at the beginning, but with time and practice I got comfortable with the technology and today I really enjoy online learning. The confidence that grew over the years enabled me to get closer to achieving my personal and professional goal of obtaining my DNP.

In Becoming a DNP scholar, I developed the research skills that will advance nursing knowledge and the profession. In that role of DNP scholar, my objective will be the translation of existing evidence into a multidimensional staffing model for improving patient outcomes (see Timothy, 2020). My preceptor for my practicum courses was very

supportive. I had access to individuals in the organization who were instrumental in assisting me to get my survey posted and data collected.

My long-term professional goals include being involved with the training of the younger generations. I believe that my long experience as a floor nurse, then a nurse practitioner as well as the knowledge gained while working on my doctorate can be of use to train other nurses. I will be open to other leadership opportunities in nursing education that will enable me to engage in the community with other schools and healthcare systems.

Summary

Patients in need of procedures such as epidural injections which are crucial to control their pain symptoms, often reschedule because of bleeding risk due recent intake of contraindicated medication. This negatively affects the patients, the organization, and the provider. The patient is not getting the treatment needed in a timely manner. At the same time, the organization loses significant productivity. The findings from this DNP project support that the educational intervention has been effective in decreasing the number of procedure cancelation due to NSAIDs and blood thinner intake within the preprocedure period.

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Appendix: Statistical Calculation

Cancelation vs procedure completed

Odds Ratio (Exp/Control)	0.549207
95% Confidence Interval	[0.418 , 0.722]
95% Left-Sided Interval	[0.437 , +∞]
95% Right-Sided Interval	[-∞ , 0.691]
P-value	0.000009
Z-score	4.299905

Cancelation due to NSAIDs vs other

Odds Ratio (Exp/Control)	0.371420
95% Confidence Interval	[0.231 , 0.596]
95% Left-Sided Interval	[0.250 , +∞]
95% Right-Sided Interval	[-∞ , 0.552]
P-value	0.000020
Z-score	4.102356