

12-7-2022

## Preoperative Education Regarding the Enhanced Recovery After Surgery (ERAS) Guideline for Colorectal Surgical Patients: A Quality Improvement Project

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### Recommended Citation

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Preoperative Education Regarding the Enhanced Recovery After Surgery (ERAS) Guideline for  
Colorectal Surgical Patients: A Quality Improvement Project

A Scholarly Project Presented to the Faculty of the  
Nicole Wertheim College of Nursing and Health Sciences

Florida International University

In partial fulfillment of the requirements  
For the Degree of Doctor of Nursing Practice

By

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Date: 11/28/2022

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## **Acknowledgements**

I would like to acknowledge my fiancé Rodan Dalmacio Jr. for all his love and support throughout this tremendous experience. It has been a long three years and much of the inspiration behind this doctoral project stems from his willingness to put my needs before his own, a true nurse's heart. Thank you to my family, my number one supporters (Juliette, Samsie, Eliza, Thor, Alyssa, Andrew, and Adam). Thank you to Dr. Deborah Sherman, my doctoral clinical professor for the hourless support. A special thank you to Dr. Charles Lago, my clinical preceptor, for trusting me and believing in this project. Another special thank you to Liz Gassew, the surgical patient navigator at the facility where I conducted my DNP project for all your help. This project would not have been possible without every one of these individuals to whom I am forever grateful.

## Abstract

**BACKGROUND:** Advancements in colorectal surgeries can be attributed to the adoption of the Enhanced Recovery After Surgery (ERAS) clinical guideline, which is a system of perioperative interventions bundled together cohesively to enhance a patient's surgical experience, especially their post-operative recovery. One of the first interventions that initiates the ERAS process is the delivery of patient education before surgery. However, there are currently no standardizations on the kind of content or method of delivery for this education.

**PURPOSE:** This Quality Improvement (QI) project determined the effects of a private, in-person, educational program discussing in detail the ERAS guideline adopted by their treating facility and the patient's active role in the recovery process. An enhanced quality of recovery for these colorectal surgical patients was evaluated by measures of an early return to normal activities of daily living (ADLs), symptom incidence, levels of anxiety, and patient satisfaction when compared to patients who receive usual care.

**METHODS:** A multivariate, repeated measures design was used, which followed the Plan, Do, Study, and Act (PDSA) model. The sample consisted of ten participants who were scheduled for colorectal surgery at a community medical center. Participants were given code numbers where odd numbered participants received the educational intervention and even numbered participants represented the usual care, control group. After informed consent, a Demographic and Clinical Data form was completed for each participant. The Quality of Recovery- 40 (QoR-40) questionnaire was administered to the intervention and usual care groups at two time points: upon hospital discharge and one week following hospital discharge. Descriptive analysis was used to identify trends in the Demographic and Clinical Data forms, while changes in the scores on the QoR-40 questionnaires was measured by independent and paired t-tests.

**RESULTS:** A two-tailed paired t-test analyzed the difference in mean scores of the intervention group on Discharge Day and One-week Post-Discharge, revealing statistical significance with a t-score (5) = 3.9198 and p-value = 0.0173. Another two-tailed paired t-test analyzed the difference in mean scores of the control group on Discharge Day and One-week Post-Discharge, revealing statistical significance by a t-score (5) = 2.9994 and a p-value = 0.004. However, completing a one-tailed independent t-test on Discharge Day scores between the intervention and control group revealed no statistical significance as demonstrated by t-score (5) = 0.6551, and a p-value = 0.5308 ( $p > 0.05$ ). Another one-tailed independent t-test on One-week Post-Discharge scores between the intervention and control group revealed no statistical significance as demonstrated by a t-score (5) = 1.2421, and a p-value = 0.2494.

**DISCUSSION:** The results of this QI project indicate that for elective colorectal surgical patients, education regarding the ERAS guideline is not required to enhance their surgical recovery, measured by an early return to ADLs, decreases postoperative symptoms, decreased levels of anxiety, and overall increased patient satisfaction. Further research is needed to study the effects of different preoperative educational material to determine what content is most influential on patients' surgical recovery.

**Keywords:** Enhanced recovery after surgery, education, colorectal surgical patients

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## I. Introduction

Colorectal cancer is the third most common cancer in the world (World Health Organization [WHO], 2022). In the United States, the American Cancer Society (ACS) has projected approximately 52,580 colorectal cancer deaths for the year 2022, establishing colorectal cancer as the third leading cause of cancer-related deaths today (American Cancer Society [ACS], 2022). For every 100,000 persons, 37 new colorectal cancer cases are reported, and from those 37 cases, 13 people die from the disease (Centers for Disease Control and Prevention [CDC], 2018). However, despite these alarming statistics, advancements in colorectal screening recommendations have shown a steady decline in colorectal cancer incidence and prevalence. Appropriate and timely screenings including annual fecal testing and or direct visual examinations every five to ten years has demonstrated an opportunity for prevention and early detection of colorectal cancers (ACS, 2022) But, for those already diagnosed with later-stage cancer, swift intervention can be lifesaving.

One of the main treatments for diagnosed colorectal cancer is surgical intervention. The type of colorectal surgery performed will depend on the type, stage, and location of the cancer. Generally, colorectal surgery is a stressful physical and psychological process on the body, which requires comprehensive preparations for the overall success of the procedure. For a major abdominal surgery, colorectal surgical complications can range on a spectrum throughout the perioperative phases (Kirchhoff et al., 2010). The most common types of complications following colorectal surgery include surgical site infections, anastomotic leakages, intraabdominal abscesses, ileus formation, and bleeding (Kirchhoff et al., 2010). According to Tevis and Kennedy (2016), one-third of all patients undergoing colorectal surgery will experience some type of postoperative complication. When compared to other surgical

procedures, colorectal surgery is considered to have a high-risk morbidity and mortality rate, with morbidity rates between 1 – 16.4%, and mortality rates as high as 35% (Tevis & Kennedy, 2016).

To mitigate complications and decrease the morbidity and mortality rates for colorectal surgeries, the Enhanced Recovery After Surgery (ERAS) clinical guideline was developed. Some of the ways the guideline addresses the incidence of surgical site infections is by incorporating antimicrobial skin preparations and the use of oral or intravenous antibiotics before surgery. For anastomotic leakages, intraabdominal abscesses and bleeding, the guideline endorses the use of robotic-assisted or laparoscopic technique for surgical access. For the prevention of ileus formation in the post operative phase the guideline supports early mobilization, early resumption of oral intake, and the use of a gastrointestinal motility-promoting drug. Overall, the development of this colorectal clinical guideline was a surgical milestone because some of its elements challenged traditional medical practice. But its design ultimately focuses on assisting surgical patients through an early and enhanced recovery process with less risk for complications, morbidity, and mortality, alongside the goal of improving overall patient outcomes.

Although there is supporting evidence that validates the benefits of incorporating the ERAS clinical guideline into the surgical plan of care, there is little detail on the effects of the educational component. As the first intervention of the ERAS guideline, this demonstrates the importance of patient education on the recovery process. However, there are currently no standardizations on the type of content or method of delivery for this kind of patient education. In fact, a large part of the recovery process does not take place in the hospital but rather during the patient's attempt to transition back to their normal routine activities of daily living in their



home environments. Therefore, to properly prepare patients for both surgery and recovery, preoperative education and re-education on the ERAS guideline is warranted. Patients must be better informed on the evidence-based ERAS interventions in order to be able to actively participate in their recovery process and actively engage with their multidisciplinary team.

### **Background**

Enhanced recovery programs (ERPs) or “fast track” programs, were first designed during the 1990’s with colorectal surgery being one of the pioneers towards its development (Melnik et al., 2011). Initially, a group of European general surgeons, led by Dr. Henrik Kehlet, aimed to explore the ultimate model of care for open colorectal procedures. Their original goal was to discover efforts that would decrease the incidence of one of the most common complications from major abdominal surgery, postoperative ileus, which detrimentally affects length of stay and overall healthcare costs (Taurchini, Del Naja, & Tancredi, 2018). They conducted an extensive literature review and compiled the highest level of research. After the first protocols were finalized and disseminated, other surgical disciplines and from other countries began to show interest and then, the nonprofit international medical academic society was created and named the Enhanced Recovery After Surgery Society for Perioperative Care or the ERAS Society (Ljungqvist, 2014). Now, there are more than 20 different ERAS guidelines today for several other disease processes like cardiac, thoracic, and urologic surgeries. It is expected that more guidelines will be developed in the future for all surgical procedures (Park, 2021). But on its fourth revision by the ERAS Society, the colorectal surgical guideline has created a consistently coordinated plan of care for this targeted population (Pisarska et al., 2016). Since its

inception about a decade ago, it is only recently that these guidelines are becoming an integral component of the surgical treatment process.

The ERAS clinical guideline is a system of perioperative interventions bundled together cohesively to enhance a patient's surgical experience, especially their post-operative recovery. Interventions are organized according to the sequence of the surgical experience: pre-admission, pre-operative, intra-operative, and post-operative. Together, these interventions assist in decreasing the physical and psychological stresses of colorectal surgery by reducing the risk of complications and improving patient outcomes using key perioperative interventions focused on education, nutrition, and optimization (Gustafsson et al., 2019). They range in responsibilities of the entire multidisciplinary team from pre-admission patient education by the preoperative nurses, nutritional preparation completed by the patient, the surgeon's use of the laparoscopic technique, and the multimodal analgesia management supervised by anesthesiology. Currently, there are two available versions of an ERAS guideline for colorectal surgery: the first from the Enhanced Recovery After Surgery (ERAS) Society and a second guideline from the American Society of Colon and Rectal Surgeons (ASCRS) with the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). The ASCRS and SAGES guideline was compiled in 2017, where the joint-committee aimed to define the most current, up-to-date best quality care for enhanced recovery after colorectal surgery since the ERAS Society's publication (Carmichael et al., 2017).

The ERAS Society outlines a 25-item guideline beginning with patient education, health optimization, prehabilitation, nutritional care, and management of anemia in the pre-admission phase. In the pre-operative phase, there is an emphasis on the prevention of nausea and vomiting using medication or alternative therapies, pre-anesthetic medication, antimicrobial prophylaxis

orally or intravenously with skin preparation, no mechanical bowel preparations, fluid and electrolyte balance maintenance, and the shift from fasting to carbohydrate loading or drinking a carbohydrate-dense clear liquid prior to surgery. The intra-operative phase includes a standard anesthetic protocol that avoids the use of benzodiazepines to ensure rapid awakening, fluid and electrolyte therapy to maintain euvolemia, maintenance of normothermia, use of the laparoscopic technique, and the avoidance of peritoneal and pelvic drainage tubes. Lastly, in the post-operative phase, the guideline recommends the avoidance of nasogastric tubes, a multimodal opioid-sparing analgesia regimen, thromboprophylaxis for clot prevention, fluid and electrolyte balance, avoidance of a urinary drainage catheter, ileus prevention using gut-motility promoting drugs like alvimopan (Entereg), prevention of hyperglycemia, early resumption of nutritional care, and early, progressive mobilization.

In comparison, where the ERAS Society distinguishes the surgical process as four separate phases: the preadmission, preoperative, intraoperative, and postoperative phase, the ASCRS and SAGES guideline combines both the preoperative and intraoperative phases together as the perioperative phase. There are 13 interventions detailed in the ASCRS and SAGES guideline, including begins with preadmission counseling, nutritional care and bowel preparation, health optimization and the use of preadmission order sets. The perioperative phase focuses on surgical site infection prevention, pain control methods, nausea and vomiting management, fluid and electrolyte balance, and a laparoscopic surgical approach. Lastly, in the postoperative phase, the guideline elaborates on early mobilization, ileus prevention, fluid management, and the appropriate use of urinary catheters.

Although there are some clear differences between the two guidelines, like the number of elements, both emphasize similar interventions that hallmark an early and enhanced recovery.

Those key interventions identified as contributing towards the success of ERAS include the provision of information through preoperative patient education, preoperative carbohydrate loading, a minimally invasive surgical technique, multimodal opioid-sparing treatments, early oral feeding, and intense, progressive mobilization (Aasa, 2013). The ERAS Society's optimization strategy goes into detail about risk assessments and stabilizing risk factors before surgery, like comorbidity maintenance, smoking cessation, and alcohol abstinence. The ASCRS and SAGES guideline regards optimization as solely prehabilitation, which is the maximization of a patient's overall health status before surgery, but more specifically a measure of maximum functional capacity (Carmichael et al., 2017). Whereas the ERAS Society's guideline separately describes prehabilitation as the implementation of a multimodal structured protocol involving aerobic and resistance exercise coupled with protein supplementation and relaxation strategies for patients who seem less fit (Gustafsson et al., 2019). In this example, the ERAS Society's guideline identifies prehabilitation as its own separate intervention while the ASCRS and SAGES guideline does not, but still acknowledges its importance and discusses prehabilitation as part of their patients' health optimization element.

Other key differences include the ERAS Society guideline mentions anemia management with a strong recommendation that anemia should be corrected before surgery, an emphasis on postoperative mechanical or chemical thromboprophylaxis to prevent asymptomatic deep vein thrombosis or clot development, and the discussion about glycemic control during the postoperative phase (Gustafsson et al., 2019). None are not mentioned in the ASCRS and SAGES guideline. However, in retrospect, the ASCRS and SAGES guideline underlines interventions that are not mentioned in the ERAS Society's guideline, which are ileostomy education, a preadmission order set for the continuity of care amongst the multidisciplinary team,

and also sham feeding, which is the mimicking of normal process of eating, specifically chewing gum (Carmichael et al., 2017). Another unique feature about the ERAS Society's guideline is the incorporation of the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) system to evaluate the quality of evidence for each intervention. After an extensive literature review, each intervention is classified with either strong or weak recommendations, and either high, moderate, or low quality of evidence. Most interventions had strong recommendations, with very few weak recommendations and most were graded with moderate to high quality of evidence.

Despite the many differences between the two guidelines, at each of its core is the dynamic role the patient is encouraged to take on by actively participating in their recovery. This active participation predominantly occurs in both the preoperative and postoperative phases. Preoperatively the patient attends educational meetings, manages comorbidities, refrains from smoking or drinking, and consumes a carbohydrate drink. In the postoperative phase, the patient tolerates oral intake immediately after surgery, mobilizes immediately after surgery, and applies compression stockings to prevent clots. But in the preadmission period, there is an ideal opportunity for education to heighten or increase a patient's awareness to assume an active role in their recovery. The preadmission educational meetings allows the patient to gather knowledge, but also allows the healthcare team to answer their questions and manage their expectations. The ERAS Society guideline recommends that all surgical patients should receive dedicated preoperative education routinely (Gustafsson et al., 2019). Providing a detailed, procedure-specific, and patient-centered information exchange will prepare them for the physical and psychological stresses that surgery will entail (Gustafsson et al., 2019).

### **Scope of Problem**

Due to appropriately individualized screening recommendations for high-risk patients, the incidence of colorectal cancer in older adults is steadily declining. However, an illness once considered a diagnosis of the older population with an average age of occurrence at 72 years old in the United States, is now alarmingly affecting more younger adults today (Lucente & Polansky, 2018). According to the American Cancer Society's (ACS), since 2000, the incidence of colorectal cancer in adults older than 50 years has significantly decreased by 32%, but in comparison with adults younger than 50 years, there has been a 22% increase (Lucente & Polansky, 2018). In a closer look, colorectal cancer rates for adults ages 50 to 64 have increased by 1% each year from 2011 to 2016 and increased by 2.2% for adults younger than 50 (ACS, 2022). Death rates from colorectal cancer have also increased by 1.2% in adults younger than 50 years (ACS, 2022). These numbers indicate that colorectal cancer is becoming a more common occurrence in young adulthood and with an increasingly poorer prognosis. Colorectal cancer is no longer a disease of the older population as more younger people are dying from colorectal cancer. If screening measures are applied at the initial onset of symptoms and colorectal cancer is diagnosed at an earlier stage, then potential curative surgery alongside the application of ERAS can be a realistic goal for this newly impacted population.

### **Significance and Consequences of the Problem**

It is well documented within the literature that utilizing the ERAS guideline for colorectal surgery results in positive patient outcomes, such as decreased complication rates and decreased length of stay (Campbell, 2022). However, there is a lack of evidence that distinguishes whether full compliance of the guideline is required for early or enhanced recovery (Pisarska et al., 2016).

In other words, it cannot be delineated whether a few, a specific combination, or all of the interventions are required for the outcome of an early recovery after surgery. Currently, there are studies taking place to determine whether different percentages of compliance will change patient outcomes. Similar studies too are determining the feasibility of reaching full ERAS guideline compliance given that little is known about the influence of the number of interventions, or which specific groups of interventions will have the most influence on recovery with the most benefits (Pisarska et al., 2016). However, this research on the individual or grouped interventions of the ERAS guideline that result in enhanced recovery is limited. For this DNP QI project, the one intervention that is being evaluated for its contribution towards enhanced recovery is the first step, which is the patient education contribution. The results of this QI project will describe the impact of preoperative education on ERAS and its effects on the recovery process.

In retrospect, it is not clear whether omitting some interventions will negatively affect recovery such as in increase the risk for complications, increased length of hospital stays, delay the return of bowel function, or delay resumption of regular activities. It is assumed that the predetermined interventions are applicable to all colorectal surgical patients without taking into consideration unique patient characteristics or non-modifiable traits. While it is the health care team that is responsible for taking these types of variables into account to ensure the delivery of individualized care, the patient should also be held accountable for reporting pertinent health information at the preadmission education meeting. This is an example of one of the first ways patients are encouraged to take a more involved role in their surgical experience as key members of the healthcare team. During the educational session, the patient can openly inform the healthcare team about their priorities, expectations, and goals for the surgery. At the same time,

the healthcare team can provide acknowledgement and understanding through answering questions and offering explanations. An important aspect of patient education should cover elaborations on the ERAS guideline that the healthcare team endorses throughout the surgical process. Doing so will aid in aligning both the patient's and healthcare team's goals creating a shared awareness, which makes reaching those agreed-upon goals more attainable. Exposing the patient to the concepts of ERAS and the evidence supporting its use, increases their knowledge and fuels their participation in healing after surgery.

### **Knowledge Gaps**

The main knowledge gap exists between the patients and their awareness of the ERAS guideline being followed. The ERAS guideline is a multi-dimensional tool used to ensure the successful recovery of patients undergoing elective colorectal surgery. This has not been applied nor studied with emergent cases, rather the guideline discussed here is tailored towards patients who have been diagnosed with colon or rectal cancer and have decided to intervene with surgery. ERAS involves patient educational meetings, specific pre- and post-operative nutritional measures, multimodal anesthetic and analgesic management, early mobilization, early return of bowel function, and ultimately early return to pre-surgery routine. When the patient is appropriately informed regarding the ERAS guideline and all the interventions that are enforced, they will better understand what is required of them to recover from surgery and how to do so more effectively and efficiently. Providing patients with information which increases their knowledge about what they need to do and why they need to do it will increase their confidence in their abilities to be independent again following surgery. With an increased understanding of the surgical process and details such as the use of ERAS, patients can look beyond their fears and



anxieties about surgery and focus on a more positive and productive recovery (Roche & Jones, 2021).

## **II. Summary of the Literature**

### **Development and Implementation of a Search Strategy**

A literature review was conducted to address the clinical practice question about preoperative patient education. The healthcare-related databases used were CINAHL, MEDLINE or PubMed, and PsycINFO. These databases were accessed remotely through the online Florida International University's Library portal. An initial search using the keywords: "enhanced recovery after surgery" retrieved a total of 3,752 journal articles across the three databases. In attempts to locate the most related articles on the educational component of the ERAS guideline, a secondary search was conducted but with the addition of the keyword "education." This search strategy resulted in a total of 144 articles from the three databases. There were also other search filters applied during the second search strategy. Articles were selected if they were full texts and were published in English between the years 2000 – 2022. From a first glance of the articles, only titles with the keywords "ERAS," "enhanced recovery after surgery," or "education" were selected for a closer review. From this selection, other inclusion criteria were used to determine the articles with the most supportive information regarding the educational component of the ERAS guideline. These criterium were: 1) the presence of some factors involving the preadmission patient education intervention, and 2) the targeted population were colorectal surgical patients. Overall exclusion criteria included non-English articles that did not discuss the educational component of the ERAS guideline published outside of the 10-year time period. After examining the articles using these inclusion and exclusion criteria, a total of 12 articles

were used in the literature review, including the two ERAS guidelines from the Enhanced Recovery After Surgery Society and the American Society of Colon and Rectal Surgeon (ASCRS) with the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES).

### **Literature Appraisal**

For patients planning to have major colorectal surgery, it is anticipated that they will experience some level of anxiety for a multitude of reasons. One reason especially can be due to the fear of the unknown. These anxieties can begin early on from the time of the colon cancer diagnosis and extend throughout the surgical hospitalization time. Patients' anxieties can persist up until the time of discharge, demonstrated by their unreadiness or unwillingness to return home. Most patients' anxieties originate from their need for information (Sjöstedt et al., 2011). According to Sjöstedt et al. (2011), there are four categories of surgical patient's needs for information: information about how to decrease their anxiety, information to develop a sense of assurance, information about pain management, and information in order to be knowledgeable about the entire surgical process (Sjöstedt et al., 2011). Providing quality preoperative patient education can address these informational needs and subsequent anxieties by clearly communicating what is expected of them. Preoperative patient education also manages their expectations early by explaining exactly what specific actions they are responsible for or what it is they need to do. Answering patient's questions can offer the healthcare team insights on what patients consider important information. This will also assist educators on the healthcare team with tailorizing information throughout the patient education meeting. Providing explanations for things that are perceived as important by the patient acknowledges their informational needs but will reinforces their understanding and retention. When you provide information that is

personally important to the patient, they are more inclined to remember. Explanations can also convince patients do things they normally would not (Aasa, 2013). A concerned or unaware patient will naturally feel insecure about surgery, but an appropriately informed and knowledgeable patient will have more sense of control and security, which will facilitate their active involvement during recovery (Roche & Jones, 2021).

Traditionally, the dynamics of the healthcare model a paternalistic approach, where providers dictate the course of treatment while the patient maintains a passive role following their recommendations. However, the introduction of the ERAS guidelines demands an engaged patient as a vital part in manifesting an enhanced and early recovery (Roche & Jones, 2021). The ERAS guideline was designed to reduce perioperative stress, maintain postoperative physiological function, and support an accelerated recovery using a multimodal and multidisciplinary stress-reducing approach (Gustafsson et al., 2019). In order to employ ERAS to enhance the surgical recovery, patients must fully cooperate to reach daily goals and meet discharge criteria in juxtaposition with the ERAS-guided efforts of the multidisciplinary team. Often, patients enjoy being part of the team process. They welcomed the call to play an active role in their recovery, but only when they were aware of it (Roche & Jones, 2021). In a qualitative study conducted by Gillis et al. (2017) regarding colorectal surgical patients, half of the participants did not know what an enhanced recovery program was nor were they aware that their surgical experience was a part of an accelerated pathway. However, in that same study, it was found that those same patients admitted “if you tell us why, help us understand what we need to do, we will be happy to do all we can” (Gillis et al., 2017). It was concluded that patients wanted to be informed about the ERAS process (Gillis et al., 2017). Therefore, part of the ERAS preoperative patient educational intervention must involve the understanding of what ERAS is.

## **Variables of Preoperative Education**

Preoperative patient education is the cornerstone of the ERAS guideline. It sets the foundation for a successful surgical experience. Although patients will require a chain of information throughout the entire perioperative process, it is the education delivered before surgery that is most critical and influential. During this time, there are very few environmental stressors or distractions, which capitalizes on the opportunity for a fully engaged patient who is truly interested in what information is being disseminated (Squeo, 2021). When patients are focused and receptive to what is being discussed, it increases their ability to retain information long term (Squeo, 2021). If the information is individualized and tailored to what is perceived as important to the patients, it increases their ability to understand and recall that same information later on. Patients will have some difficulty understanding preoperative education simply because healthcare information can be complex. There is a large amount of information they may need to process especially under the stress of a cancer diagnosis or a patient's first surgical procedure (Aasa, 2013). According to the Centers for Disease Control and Prevention (CDC), Florida, more specifically Broward County, has one of the lowest health literacy rates in the United States, which is a person's ability to access, understand, and use information in ways to maintain and promote good health (CDC, 2022). Identifying a patient's health literacy level is an important variable when considering how to effectively conduct patient education, for example, the type of verbiage used when explaining information.

Squeo (2021) further discusses factors to consider and strategies to apply when organizing preoperative education to maximize a patients' understanding of the ERAS guideline for example, the most appropriate type of materials to use and the kind of delivery approach. A combination of written and verbal information works best as the type of educational materials

used (Aasa, 2013). This method aids in addressing health literacy differences amongst patients by incorporating both audio and visual interpretations. Printed materials such as handbooks or packets, using bullet points, checklists, drawings or images offers patients easy access to refer back to information later on (Squeo, 2021). For the delivery of education, direct one-on-one meetings are more intimate than group settings, which creates a safer environment for patients to feel comfortable enough to voice their concerns and openly ask questions (Squeo, 2021). Generally, effective patient education should utilize plain language and basic terminology without elaborate or complex medical jargon (Squeo, 2021). Information is only useful if the patient understands it and medical jargon can lead to misunderstandings and subsequent loss of information (Samuelsson, 2018).

Other patient factors to consider when conducting preoperative education are age, gender, and culture, especially in efforts to individualize information (Samuelsson, 2018). All patients are unique, and therefore, some needs of information may be greater or lesser than another. Younger patients tend to have more questions which require more clarification than the older patient because of their ability to search for information online (Sjöstedt et al., 2011). Patients who have a history of previous hospitalization or surgeries, may have less but more specific questions than those who have never been hospitalized or is having surgery for the first time (Sjöstedt et al., 2011). Also, depending on the diagnosis and prognosis of a benign or malignant disease process, there may be an even greater need for information. There are many variables that may affect patient education, as a result, it is essential that information given during the preoperative educational meeting is not solely based on standardized procedures but based on individual needs for information.

Careful attention is especially needed when composing and conducting preoperative education for the older adult population. This is critical since a large portion of colorectal cancer mainly affects older adults. While older adults might be more concerned about the uncertainty of a cancer diagnosis and the effects of surgical intervention on their ability to regain preoperative function or better, younger adults may be focused on more acute issues like postoperative pain (Samuelsson, 2018). Addressing patient's priorities at the beginning of the educational meeting will decrease their anxieties early and create a calm environment conducive for learning. Taking patient factors like age into consideration will assist in anticipating informational needs, including what to emphasize during the preoperative education and what to reiterate following the course of the surgery and recovery. Samuelsson (2018) discovered that when there was an insufficient amount of information delivered, the overall care experience was perceived in a negative way, with decreased patient satisfaction (Samuelsson, 2018). However, if ample information is given, the care received will be a positive experience, despite any obstacles that may occur during recovery (Samuelsson, 2018). Again, this relies on the patient's ability to understand the information delivered. Another critical component of this understanding is the time allotted for the exchange of information. Inadequate time or the inappropriate timing of education can lead to a lack of understanding due to a loss of information (Samuelsson, 2018).

### **Patient's Active Role in Preoperative Education**

Generally, when patients receive preoperative education, it makes them feel a sense of being seen, security, trust within the healthcare providers, a heightened sense of responsibility, and accountability to actively participate in their own care (Aasa, 2013). As patients begin to feel acknowledged and secure after having their questions or concerns addressed, it gives them the

courage and confidence to heal. Patients are able to assume a lead role assuming full responsibility of their care by acting on their own accord rather than simply following instructions. For example, instead of waiting for directions by the nurse to mobilize or move from lying to sitting position in the bed, patients will recall and recognize the importance of moving after surgery and will do so without hesitancy. The success of the ERAS guideline begins with creating a foundation of understanding between the patient and the multidisciplinary team. The preoperative educational session is important for this relationship to create feelings of acknowledgment, readiness, competency, and empowerment (Aasa, 2013). When patients are well-informed, they have a clear idea of what is to be expected of them, challenging any fears of the unknown.

### **Effects of the ERAS Guideline**

Taurchini et al. (2018) describes the ERAS guideline as something far from a single, rigid protocol that can be followed in a stepwise manner. The guideline was intended to be used by experienced healthcare professionals as a tool to advance or upgrade a current, existing policy or practice (Gustafsson et al., 2019). In this healthcare environment attempting to transition from a fee-for-service to a value-based care model to emphasize more patient-centered care, the ERAS clinical guideline is a timely development for patients utilizing surgical services (Gillis et al., 2017). ERAS presents a new way of thinking about multidisciplinary teamwork, centered on making real time changes as new information is discovered and as knowledge evolves (Taurchini et al., 2018). However, discussing or establishing an ERAS protocol is not enough to achieve sustainable change as in the translation of evidence into practice. Gustafsson et al. (2019) believes that repeated education about the ERAS clinical guideline throughout the course of the

surgical experience and the use of auditing systems to provide feedback on implemented ERAS protocols will drive meaningful improvements in the quality of care for all surgical patients in addition to colorectal surgical patients.

The ERAS clinical guideline improves quality of care for colorectal surgical patients through an early and accelerated recovery process. One of their widely known successes is their ability to shorten the length of stay after surgery. This means that patients remain in the hospital for a shorter amount of time and are able to go home quicker. Long, unnecessary, hospitalizations are perceived negatively and also increases the risk for complications. For major abdominal surgeries, the usual duration of hospitalization was approximately nine to ten days (Zhuang et al., 2015). After the implementation of ERAS protocols in the early 2000's, recovery time has been significantly reduced to about two to three days postoperatively (Ljungqvist, 2014). Instead of having to stay in the hospital for an entire week, patients are prepared and ready to go home in just a couple of days after surgery. Another breakthrough that ERAS protocols are able to produce are decreases in complication rates by 30 – 50% (Ljungqvist, 2014). The incidence of surgical site infections, postoperative ileus, leakages, abscesses, and bleeding is almost reduced in half. Although ERAS is a fast-track process and patients are discharged from the treating facility faster, it is the quality of the recovery that allows this early discharge and should be the priority of all ERAS protocols. Recovery is a complex, multidimensional process encompassing physical, emotional, and social health. It will require the engagement of the entire surgical and nursing team, alongside the patient, and their families. In an accelerated care plan such as ERAS, a shorter treatment time presents a challenge for the amount of information patients need to prepare for their surgery and recovery. For example, limited time is not conducive for collaborative work between the many specialties in the



multidisciplinary healthcare team (Sjöstedt et al., 2011). Limited time also does not allow the opportunity for reflection of information or relaxed discussions (Sjöstedt et al., 2011).

Due to the short amount of time of a supervised recovery in the hospital, a large part of the recovery process continues when the patient is discharged to their home environments. Burch and Taylor (2012) refer to this as the “post-discharge recovery.” In this way, the ERAS guideline must assist with preparing patients for this responsibility through the foundation of the preoperative patient education. It is the healthcare professional’s responsibility to increase the patient’s awareness of their duties in their recovery by providing them with the sufficient knowledge and skills to prepare them for their continued rehabilitation. Patients need to know that although implementing ERAS interventions may be challenging, it is rewarding. One of the major barriers to patient involvement is their lack of awareness that they need to participate (Squeo, 2021). And according to Turchini et al. (2018) patients want to be better informed during the preoperative educational meeting about what ERAS is and how they are supposed to contribute. These contradicting statements demonstrates the importance of effective preoperative education composed of meaningful discussions about patients’ surgical experience.

### **ERAS Compliance**

In order to better the healthcare experiences for our patients, patient-centered care approaches should focus on health promotion rather than disease prevention. This requires advocating for better health choices rather than a reactive stance such as the optimal treatment plan for the stabilization of a pre-existing condition. Despite the potential benefits that the ERAS guideline can offer to change the course of healthcare, its implementation remains an ongoing effort. Research has shown that it takes up to 15 years for a proven treatment to be translated into common practice (Ljungqvist, 2014). According to Bordonada (2020), the successful

implementation of the ERAS guideline relies on the full engagement of the key stakeholders including the patient, continuous education regarding the adopted ERAS policy at the facility, and re-evaluations of the results of the implementation process. There are many barriers that prevent the adoption of ERAS including lack of knowledge regarding ERAS, resistance to change of practice, inadequate multidisciplinary support, insufficient time allotted for implementation, scarce staffing, and selective adherence or compliance.

Currently there are several studies being conducted to determine which elements of the guideline is the most influential for surgical outcomes. A very popular topic of conversation regarding the ERAS guideline is compliance. Compliance is the number of ERAS interventions fulfilled or completed according to the facility's adopted program (Shen et al., 2021). In this way, discussing compliance can be very controversial as different organizations and facilities adopt varying versions as part of their ERAS protocol, which may not include all of the suggested interventions from the original two guidelines. In Pisarska et al. (2016), a prospective cohort study researching the need for full compliance in laparoscopic versus open colorectal surgeries, it was discovered that most facilities with surgical services routinely use less than the recommended 25-items of the ERAS Society's guideline. Actually, the study was unable to find an institution that did incorporate all 25-items. This further poses the question if true ERAS compliance can be attainable since ERAS protocols differ between facilities. In addition to this, another major argument against the feasibility of ERAS compliance regards the lack of standardization within ERAS interventions (Pisarska et al., 2016). There can be many different definitions and interpretations for some interventions. For example, a highlighted feature of an ERAS-recovery is the use of early, progressive mobilization which is subjectively determined by the multidisciplinary healthcare team. Some ERAS protocols may interpret patient mobilization

as assisting a patient to a sitting position at the edge of the bed with their feet dangling for a few minutes. But it can also be understood as the patient walking a certain distance for a specific length of time. There is little information regarding the subjectiveness of the ERAS interventions including what qualifies as early mobilization, or early nutrition, or preoperative patient education. Due to these debilitating variables, there is no evidence-based simple answer for identifying those ERAS elements that are most important for successful outcomes after surgery. This DNP quality improvement (QI) project attempts to address this by assessing the first step in the ERAS guideline, patient education, by producing and implementing an educational program that specifically discusses the background, history, components, and patients' role in the Enhanced Recovery After Surgery guideline.

### **III. Goal, PICOT Question, and SMART Outcomes**

#### **PICOT Question**

Despite the need for an intense information exchange process, as in preoperative education for colorectal surgical patients' preparation, there is no standardization in the type of information provided or the methods for delivering this education. It is not delineated as to what is considered to be the minimum or insufficient amount of information nor the ideal amount. There are also no criteria that outlines what information is necessary to include. As a result, the following clinical practice question was created by the DNP candidate to be examined in this QI project: Does the implementation of a preoperative educational program discussing the Enhanced Recovery After Surgery (ERAS) guideline result in an enhanced quality of recovery as measured by return to normal ADLs, symptom incidence, levels of anxiety, and patient satisfaction for

colorectal surgical patients upon discharge and one week after discharge when compared to patients who do not receive the educational program?

### **Primary Goals**

The primary goal of this DNP QI project is to determine if a detailed preoperative patient education focused on the underpinnings of the ERAS guideline will enhance the quality of recovery for colorectal surgical patients. This QI project will help distinguish the effects of a single component of the ERAS guideline, which is the preoperative education intervention. ERAS is a multidimensional framework carefully selected and designed to improve surgical outcomes (Gustafsson et al., 2019). Research studies are still being piloted to determine the validity of this guideline and whether full compliance is necessary to produce enhanced surgical patient outcomes (Pisarska et al., 2016). This QI project will examine the first component of the adopted version of the ERAS guideline at the targeted facility and determine its effects on patient's physical and psychological surgical outcomes.

### **SMART Goals and Outcomes**

Goals are meant to help refocus attention on the main purpose of the DNP QI project. One of the most common frameworks used by researchers for goal setting is the SMART-goal model (Bowman et al., 2015). Utilizing the SMART-goal methodology, the acronym for Specific, Measurable, Attainable, Relevant, and Time-related, designs goals with the intention to answer the PICOT question being studied (Bowman et al., 2015). Specific goals will be able to directly answer questions like, "Who will be involved in this project?"; "What will be accomplished?"; "Where and when will the project occur?"; and "Why this project?" A measurable goal will incorporate metrics to allow the DNP candidate to follow the progress of the project and determine any expected or non-expected outcomes. Goals that are attainable or

achievable encourage researchers think creatively on different approaches to making goals tangible. Relevant goals ensures that each component of the DNP QI project align and are not contradictory. And lastly, timed goals with set timelines or set time periods make goals more realistic.

For this DNP quality improvement project, the SMART goals are as follows:

- Develop an individualized preoperative educational PowerPoint presentation using evidence-based research on the ERAS guideline and the interventions adopted by the treating facility by August 1, 2022.
- Evaluate colorectal surgical patients physical and psychological health outcomes as measured by return to normal ADLs, symptom incidence, levels of anxiety, and patient satisfaction after the implementation of an ERAS-specific preoperative education program upon discharge and one week after discharge beginning June 1<sup>st</sup>, 2022.

#### **IV. Organizational Assessment and SWOT Analysis**

This DNP QI project took place at an academic community tertiary medical center located in central Planation, Florida. For 45 years, this hospital has served the Broward County and South Florida area with a commitment to the care and improvement of human life. This 250-bed facility provides around the clock comprehensive medical care including emergency services and surgical services. In fact, this hospital is one of nine facilities in the United States that is certified by The Joint Commission in minimally invasive colorectal surgery. Its many other accolades include certifications as a Comprehensive Stroke Center and a Thrombectomy Capable Center. The hospital also proudly serves the future of medicine by offering Graduate Medical Education programs in podiatry, surgery, and internal medicine as a leading teaching and

research facility. The colorectal surgical program at this facility involves an interprofessional team involving nursing, medicine, nutrition, home healthcare, and administration. It extends from outpatient and elective services to emergent surgical services. However, it is the elective or pre-planned colorectal surgeries that are growing in recognition because of extraordinarily successful patient outcomes due to the support of the ERAS-guided interventions.

### **The Program Structure & Stakeholders**

The elective surgical process is one of the most rigorous works of collaboration in a healthcare system. At this facility it begins in the outpatient setting when the patient is initially diagnosed with colorectal cancer and is referred to a colorectal surgeon. The decision to have curative surgery is made and then surgery is later scheduled. A key player within this process is the surgical patient navigator whom the patient is instructed to contact after establishing a surgery date to set up their preoperative educational meeting. For this facility, the colorectal program starts on a Monday, when the patient receives their preoperative education from either the Surgical Patient Navigator or the preoperative nurse. Then, on Wednesday of that same week is when patients are usually scheduled for surgery. At the end of that week on Friday, the program hosts their Multidisciplinary Rounds where the entire multidisciplinary team including dietary, case management, and pharmacy, join to round on the colorectal patients on what would be their postoperative day number two. During this time, the surgeon mainly discusses with the patient alongside the other members of the healthcare team present, about their readiness and preparedness for discharge that same day or possibly the next. The surgeons of this facility's colorectal program attribute much of their progress and surgical success to the implementation of the Enhanced Recovery After Surgery (ERAS) guideline within their practice.

During the preoperative educational meeting, the surgical patient navigator conducts an informational exchange on the expectations of and for the patient. This meeting also offers the patient an opportunity to retrieve information for their questions in person and in real time. Although not officially admitted into the facility yet, the preoperative nurse also joins this meeting to help assess the patient's readiness for surgery. There are some differences between the education and preparation that the surgical patient navigator and what the preoperative nurses discuss. The nurse navigator takes a lead role and discusses the entire surgical process starting from the insertion of an intravenous access, the induction of anesthesia, the transport from the surgical table to a bed to the post-anesthesia care unit, and all the postoperative ERAS-related interventions that occur on the surgical unit. The nurse navigator also discusses the surgical outcomes that are expected of the patients, which are needed to meet discharge criteria. In contrast, the preoperative nurses collect preliminary medical and surgical history including insurance coverage and Covid vaccine status, and reviews medications that the patient may or may not continue in preparation for surgery. Both healthcare team members address any questions or concerns that the patient or caregiver may have. However, the information that is provided by the surgical patient navigator emphasizes more on the ERAS-guided interventions like the antimicrobial skin preparation, carbohydrate-dense drink, and early mobilization. The type of information that patients receive from both the surgical navigator and the preoperative nurses are directional and instructional rather than based upon increasing the patient's knowledge.

On the day of surgery, the patient is admitted to the treating facility after proper registration while facilitation from the surgical patient navigator reconvenes. In the surgical waiting area, the preoperative nursing team prepares the patient for surgery by starting an

intravenous access, administering pre-medications, and reinforcing previous education including the plan of care after surgery and into the recovery process. The surgeon meets with the patient one more time before the surgery. In addition, the patient also gets acquainted with the intraoperative team including the operating room nurse, surgical residents, and the anesthesiology team, which is the anesthesiologist and certified registered nurse anesthetist (CRNA). After the appropriate signatures are acquired on the consent forms, the patient goes on to the surgical procedure. In the post-anesthesia care unit (PACU), the nursing team is responsible for overseeing the re-stabilization of patients after receiving anesthesia from surgery. Once the patient recovers from sedation, these patients are transferred to the surgical unit where they are rehabilitated back to their most optimal health, in preparations for discharge. Although this QI project focuses on the education that is delivered to patients before surgery, it is important to acknowledge need for re-education of that same information again after surgery.

While the focus of implementing the ERAS guideline into the facility's surgical services relies heavily upon patient's outcomes, it is clear the main stakeholder who benefits the most from the results of this quality improvement (QI) project is the patient. In that, if a distinct, intentional preoperative education enhances the quality of recovery for patients, then all patients should receive that receive that same content and delivery method. However, the surgical patient navigator is an essential stakeholder within this systems' process as they facilitate the entire perioperative process for the patient and the rest of the healthcare team. The patient navigator continues to exceed expectations by conducting all post-discharge follow up telephone calls seven days after each patient has left the hospital. Despite having a vast role in enabling the hospital course for the surgical patient, the navigator is most influential in their responsibilities during the preoperative education. As mentioned earlier, the type of education that the surgical



patient navigator provides is different in comparison to that provided by the preoperative nursing team in that instructions based on the ERAS guideline are provided. The patient navigator discusses some of the ERAS-related interventions like the antimicrobial prophylactic skin preparation and the carbohydrate-loading drink to complete at home before coming to the hospital.

For this QI project, the DNP candidate will create an educational program that will explain the evidence-based research supporting those instructions that were provided by the patient navigator. The DNP candidate will also deliver education about ERAS, beginning with its history and development into surgical practice. The DNP candidate will determine any significances with delivering specific ERAS content on the quality of surgical patient outcomes. Another one of this project's aims is to tailor the educational component of ERAS to contain underlying supporting evidence behind its implementation. In addition to that, this project hopes to continue the dissemination of knowledge regarding ERAS through the preoperative education of colorectal surgical patients.

### **SWOT Analysis**

#### **Strengths**

As a main stakeholder, the surgical patient navigator who is also a registered nurse at this facility is one of this system's ultimate strength. Their tasks range from planning, facilitating, and advocating for the surgical patient throughout their entire hospital course. The navigator collaborates with the surgeon and their residents, nursing team, dietary, social services, and case management to ensure patients' satisfaction through a positive surgical experience. One of their most active roles is cooperating with the nursing staff to ensure the implementation of some of the important ERAS-specific interventions like immediate mobility post-surgery, diet advancement as tolerable, as well as appropriate pain management. But in addition to prioritizing

the patient's needs, the navigator also attends to the educational needs of the nurses in considering their preparation to caring for colorectal surgical patients. For example, since March is colorectal awareness month, this past year the surgical patient navigator decided to coordinate a Colorectal Class for all nurses to educate or reinforce previous nursing knowledge on how to care for colorectal surgical patients. In this class, keynote speakers like the colorectal surgeons, the anesthesiologist, and the ostomy nurse elaborated more on information like the disease processes, proper consent form attainment, and colostomy and ileostomy care techniques. Another way that the surgical patient navigator strives to include nursing into the facility's colorectal program is through the colorectal surgical experience. Postoperative nurses from the surgical unit are given the opportunity to observe the perioperative processes by following the patient before surgery, during surgery, and then into recovery by resuming care of the patient once they are transferred back to the surgical unit. This experience allows the nurse to gain insight on the entire surgical process and sheds light on the importance of their responsibilities in the post-operative care of the patient.

### **Weaknesses**

One of the major weaknesses identified within this system's colorectal program is the lack of knowledge regarding the utilization of the ERAS guideline from the patients. Surprisingly, there was also an apparent lack of knowledge regarding ERAS amongst the post-operative nurses as well. From the patient's point of view, they are instructed to do certain tasks after surgery by the nursing team to kick start their surgical recovery. The nurses initiate immediate mobility, first introduction of oral intake, the use of a gut-motility medication, and a pain regimen after surgery. However, most patients are unsure of why these tasks are required or what their purpose is in the recovery process, which increases their hesitancy to initiate tasks.

This lack of knowledge coincides with their lack of engagement because their focus is on the result of the surgery, their current perception of the surgery like their pain experience, and when they will be discharged. However, if patients are informed of the logic behind the tasks or goals required for discharge, they will be motivated to complete these tasks and reach their goals with more effort and initiative. For example, part of the ERAS pain management entails using some type of abdominal wall nerve block to numb the immediate postoperative pain near the surgical incision(s). As a result, most patients are hesitant to begin the ERAS pain medication regimen because at that moment post-surgery they are not experiencing any severe pain. But if patients are made aware of the evidence-based research supporting the early use of specific pain medications for the management of pain before anesthesia wears off, including the benefits towards an enhanced recovery, they will be more inclined to do so.

On the surgical unit, nurses are depended upon to rehabilitate patients back to their highest level of functioning after having gone through a major abdominal surgery. While the nurses are proficient in completing the necessary tasks to adequately care for these patients, it was discovered that some post-operative nurses were also unaware of the evidence-based research supporting their interventions. When asked to identify and describe the ERAS guideline there was an identifiable difference in responses between the surgical unit nurses who worked during the day and those who worked at night. Dayshift nurses were able to provide a wide descriptive answer when describing what and how the facility practices ERAS. On the other hand, more nightshift nurses were unable to define the acronym ERAS alone. This may be attributed to the surgical unit's profound staffing changes due to the high turnover rates during the covid pandemic. There are more agency or contract nurses than there are core personnel, whom are not as familiar with the specialty care required for these colorectal surgical patients.

Usually, novice nurses hired by the facility are trained during their orientation through preceptorship from a more experienced staff nurse, on exactly how to provide ERAS-specific care for these patients. However, there is a loss of knowledge transfer when there are less experienced veteran nurses to conduct these preceptorships, which has been exacerbated due to the Covid pandemic. Many expert nurses were called upon to alleviate the crisis in other affects areas in the United States.

### **Opportunities**

In the beginning, the Covid-19 pandemic presented many difficulties by cancelling elective surgeries and procedures. However, it challenged the surgical department to create innovative methods to safely resume planned and necessary minimally invasive colorectal surgery. One of the modifications towards preoperative education was the switch from group meetings to contactless drive-by meetings. Instead, patients were instructed to drive to the hospital and meet at a designated area in front of the main entrance and call a specific number when they arrived. Then, the patient navigator and or the preoperative nurse would meet the patient at their care and provide the hospital's standard preoperative education at their window-side. While it may have been natural to return to normal routine with group meetings, this presents a timely opportunity to enhance the preoperative educational component of the colorectal program. This DNP quality improvement project will present an alternative form of delivering preoperative education in a private setting, using a PowerPoint presentation in a more relatable environment in a meeting room on the actual postoperative surgical unit. The opportunity that this QI project presents will offer the hospital's colorectal program other approaches to conduct preoperative educational meetings which will also assist in the individualization of care.

## Threats

A potential threat that presents itself within this system's process of the colorectal program involves the many roles that the surgical patient navigator is responsible for. In addition to following colorectal surgical patients, the navigator is also responsible for orthopedic and spine surgical patients whose surgeons have not yet adopted the facility's ERAS guideline in their practice. This might present an internal conflict of interest and a potential ethical dilemma for the surgical patient navigator. While the navigator employs the ERAS guideline for those who have elective colorectal surgeries, she does not for other surgical patients. A major factor that comes into play is the fact that certain surgeons are particular in not including some ERAS interventions in their surgical practice. For example, one of the more controversial ERAS components that clearly diverts from traditional medicine is the carbohydrate loading or consumption of a carbohydrate-dense drink two hours right before surgery (Melynk et al., 2011). As a result, the implementation of the ERAS guideline – although supported by evidence-based research – is still delayed in some areas at this institution for other surgical patients.

## V. Definition of Terms

The following terms for definition have been identified as necessary for explanation to ensure complete understanding: colorectal cancer, a guideline, the enhanced recovery program, perioperative, and a surgical patient navigator.

- **Colorectal cancer**, also called colon cancer for short, is defined as the uncontrollable overgrowth of cells in the colon or the rectum. The colon is the large bowels or large intestines, and the rectum is the passageway between the end of the colon to the anus (CDC, 2022).

- A **guideline**, short for clinical practice guideline, is a systematically developed group of statements designed to assist patient and practitioner decisions about appropriate health care measures for specific clinical circumstances (Field & Lohr, 1990).
- **Enhanced Recovery Program “ERPs”** are standardized, coordinated, multidisciplinary perioperative care plans incorporating multiple interventions shown to improve recovery into one integrated patient-centered package (SAGES, 2022).
- **Perioperative** means around the time of surgery, which usually lasts from the time the patient goes into the hospital or doctor's office for surgery until the time the patient goes home (National Cancer Institute, 2022).
- A **surgical patient navigator** is a person who guides a patient through the healthcare system during their surgical plan of care. They also help patients communicate with their healthcare providers, so they get the information they need to make decisions about their health (National Cancer Institute, 2022).

## VI. Conceptual Underpinning and Theoretical Framework

This DNP QI project was conceptually guided by Imogene King's (1981) middle-range Theory of Goal Attainment (Zaccagnini & White, 2017). The foundation of King's theory is based on the dynamic relationships of the patient in three interacting systems: personal, interpersonal, and social (Fronczek, 2022). It focuses on the relationships of the patient with themselves, with their multidisciplinary healthcare team, and with their postoperative recovery environment. When a patient personally feels unprepared or unsure entering surgery, they may become hesitant towards their multidisciplinary team due to a lack of confidence in their performance. In this way, this perception might negatively affect a patient's transactions with the

surgical experience and result in poor surgical outcomes. Therefore, it is imperative that at the first patient interaction during the preoperative educational meeting, it is positive and productive meeting. The philosophy of King's Theory of Goal Attainment focuses on concepts such as self, perception, communication, interaction, transactions, roles, and decision-making (Zaccagnini & White, 2017). King describes a transactional process model, where an action causes a reaction, creating an interaction, and ending with a complete transaction (King, 1981). During the preoperative education meeting, the DNP candidate and patient will establish mutually agreed upon goals that are also aligned with the projected outcomes the healthcare team aims to achieve. Then, in a strategic manner, the patient will be able to effectively receive the education and identify their key active role in their recovery process, leading to an enhanced surgical experience.

## **VII. Methodology**

### **Introduction of the QI Methodology**

The need to change the current colorectal healthcare environment through quality improvement efforts is exacerbated by high morbidity and mortality rates. The Plan, Do, Study, Act (PDSA) model is one of the leading methodologies used in the development and implementation of most quality-improvement projects (Christoff, 2018). Using this method has shown significant improvements in the quality of healthcare provided to patients through better patient outcomes (Taylor et al., 2013). The PDSA models assists healthcare researchers who have identified a problem which they would like to address, by testing a proposed change intervention. In this model, there are four phases representing a cyclic thinking process of implementing a change, which constantly evaluates the outcomes, determine new ways to

improve the change intervention, and then, re-implementation or to test the reformed change intervention (Christoff, 2018). Essentially, it is an ongoing process of continued improvement which constantly strives to discover improved processes. First, a plan to test a change is developed (Plan). Then, the test is conducted (Do) and observations are collected and analyzed (Study). Finally, modifications are made to the change intervention, and then test is deliberated upon again (Act) (Institute for Healthcare Improvement, 2022). The PDSA model mimics the principles of the well-established scientific experimental method in developing a hypothesis, testing the hypothesis, collecting data, analyzing the results, and making inferences regarding the proposed hypothesis (Taylor et al., 2022). As a result, when compared to more traditional research methods such as randomized controlled trials, the PDSA method is a more practical approach for testing changes within a complex system like a tertiary facility, on a smaller scale.

In this QI project, the plan was to increase patients' knowledge and awareness of the ERAS guideline, which influences their surgical process, and determine any significance this has on their surgical recovery. Then, an additional, specific educational program focused on ERAS and its interventions was delivered to select interventional grouped colorectal surgical patients. After, telephone calls were made to conduct questionnaires to measure the quality of recovery. Lastly, based on the outcomes, new ways to improve the proposed preoperative education is explored and deliberated, and then the PDSA cycle continues.

### **Study Design**

The DNP QI project used a repeated measures study design comparing the changes in means score of independent T-tests. The DNP candidate measured the quality of recovery of colorectal surgical patients between those who receive the DNP's educational intervention compared to those who receive the usual care preoperative education standard to the facility's



current process. Quality of Recovery was measured at two different time points during the patient's recovery process: on the day of discharge, and one week following their discharge day. As mentioned above, this DNP QI project also followed the Plan, Do, Study, Act (PDSA) model to guide the implementation of a change intervention, which is the DNPs private, one-on-one, in person meeting held in a designated room on the surgical unit.

### **Setting**

The DNP QI project took place at a local academic community hospital serving the South Florida and Broward County area. This facility is also Joint-Commission certified in minimally invasive colorectal surgery in part due to their colorectal surgical program. As a result of this high honor, the surgical unit was relocated to the second floor in the new south tower development in 2019. This expansion created privatized units including the surgical specialties as in the postoperative care of orthopedic, spine, vascular, gastrointestinal, urology, and gynecological patients. As one of the newest and largest units in the hospital, there are ample meeting spaces available where educational interventions can take place such as conference rooms. Allowing surgical patients to walk through the unit offers them an opportunity of familiarity and a sense of secureness when they begin their surgical journey.

### **Sample**

This DNP QI project was a small-scale study, with a sample size of 10 colorectal surgical patients. Again, these patients had elective, pre-planned surgeries. Half of the sample received the intervention, while the other half will served as the control group. Both groups received the hospital's current preoperative education. Patients were categorized in the sequential order that their phone call was received. The first person to contact the DNP candidate was identified as

participant number one, the second person was identified as participant number two, and so on. Every odd numbered participant received the intervention, while every even numbered participant was in the control group. Inclusion criteria were as follows: English speaking and literate, and able to give informed consent. Exclusion criteria are as follows: emergent surgeries, non-English speaking or reading, physically and mentally disabled, and unable to obtain informed consent. Convenience sampling was used in this QI project because the DNP candidate was able to recruit participants from a pool of preexisting patients at the surgeon's office.

### **Intervention**

The change intervention of this DNP QI project was a preoperative educational program developed by the DNP candidate. The intervention took place privately, in person in the meeting room on the surgical unit before surgery. Usually, one to two days before the scheduled surgery is the routine time frame the hospital completes their preoperative education. The educational program entailed a 30-minute evidence-based, informational Powerpoint Presentation. Alongside the presentation, a printout copy of the Powerpoint slides was provided for the patient. During the presentation, patients were able to take notes in the spaces provided on the printout. The presentation defined ERAS, discuss its history, and key ERAS interventions of the facility's adapted version. A key difference in the education that is provided by the DNP candidate versus the patient navigator and the preoperative nurse, was that it is not instructional. Preoperative nurses assist with collecting pre-surgical information such as medical and surgical history, current medications, and more clerical services like photocopying Covid vaccines and insurance or identification cards. Then, the preoperative nurses go over any pertinent information that would need to be reviewed prior to surgery including what medications to stop or continue taking the morning of surgery like a beta-blocker antihypertensive medication. On the other

hand, the patient navigator explores more procedural related information related to what happens during the registration time, immediately after surgery, and the steps involved in the recovery process leading to discharge. They also go over the tasks that need to be completed, or the goals that need to be achieved in order for the patient to have a successful surgical experience. The patient navigator provides stepwise instructions, for example, for pain management she will inform the patient that they will receive a pain medication pump in which they are allowed to deliver monitored and controlled narcotics themselves, but that it will be discontinued on their second post-operative day. In contrast, the presentation by the DNP was informative, providing explanations on the details and evidence supporting the interventions of the ERAS guideline. There were opportunities for answering questions and discussions throughout the entire presentation.

### **Instruments**

Firstly, a written informed consent form approved by Florida International University was signed by all participating patients in person. A Demographic and Clinical Data Form recorded basic participant clinical information including age, gender, ethnicity, highest educational status, occupation, marital status and other clinical data like the diagnosis, type of colorectal surgery and previous hospitalizations. The main instrument used for this QI project in order to appropriately measure the studied patient outcomes was the Quality of Recovery 40-item (QoR-40) questionnaire developed by the Department of Anesthesia and Pain Management at Alfred Hospital in Australia in 2013. With excellent validity, reliability, and clinical acceptability, this ideal tool assesses physical and psychological health by inquiring about emotional state, physical comfort, psychological support, physical independence, and pain (Myles et al., 2000). In assessing the emotional state, it asks about feelings of being comfortable,

having a general feeling of well-being, feeling in control, having bad dreams, feeling anxious, angry, depressed, or alone, and difficulty sleeping. In the area of physical comfort, the questionnaire asks about being able to breath easily, have a good sleep, enjoy food, nausea, vomiting, or dry retching, feeling rested or restless, shaking or twitching, shivering, feeling too cold, or feeling dizzy. For psychological support, the questionnaire asks about the patient's ability to communicate with the hospital staff, with family or friends, support from hospital doctors and nurses, support from family and friends, ability to understand instructions or advice, and feeling of confusion. For physical independence, the ability to return to work or usual activities, write, normal speech, wash or shower, and look after their own appearance is evaluated. And lastly, in the pain section, the questionnaire clearly asks about whether the patient experiences moderate or severe pain, if they are experiencing headaches, muscle pains, backache, sore throat, and or sore mouth. Each item was scored on a five-point Likert scale. Positive items were scored with one being the worst and five being the best (1= none of the time, 5= all of the time). This was reversed for negative items, which were scored with five being the best and one being the worst (5= none of the time, 1 = all of the time). Each item's points were added together, with a potential summation minimum of 40 points and a maximum of 200 points. Lower scores correlate with a poorer recovery, while higher scores correlated with a more positive recovery (Shida et al., 2015).

### **Data Collection, Management Procedures, and Protection of Human Subjects**

For recruitment, the DNP candidate created a flyer that was available at the surgeon's office with the scheduler. Ideally, when the patient met with the scheduler and decided on a date for surgery, the flyer was presented to the patient at that time. A flyer was also given to the

patient navigator to reinforce with the patients when they call to schedule their preoperative meeting date. On the flyer was a brief engaging statement, the purpose of the study, endorsement by the surgeon and the treating facility, and the DNP candidate's contact information by email, text message, or phone call for interested patients. At the first interaction by email or telephone, the DNP candidate explained the purpose of the study a second time, the process of the study including the telephone questionnaire once the patient is discharged from the hospital and again a week later. An adult informed consent was obtained at the time of the intervention for the intervention group and at the time of their regular scheduled preoperative education for the control group. The consent form elaborated on the purpose of the project, the voluntary nature of participating by the patient, and the right to withdraw from the project without any negative consequences. It explained that there are no anticipated risks with participating but if there was any unintended negative emotional distress, they were referred to their primary care provider. It was also highlighted that their personal information would be kept confidential, so once informed consent was received, each participant received a coded number to be referred by within the study. The Demographic and Clinical Data Form was completed at the time informed consent was collected. The QoR questionnaire was conducted via telephone by the DNP candidate upon discharge and one week after discharge. The DNP candidate coordinated with the surgical patient navigator to anticipate discharge dates for these patients to conduct the first questionnaire, which was typically the Friday or Saturday in the same week as their surgery. One week after discharge the surgical patient coordinator also conducts ERAS-guided follow up phone calls. At the same time, the DNP student coordinated with the navigator to conduct the second questionnaire of the study. Participant confidentiality was protected and kept safe as all research-related documents and data were stored electronically in a password protected laptop in

a locked file cabinet of the locked office of the DNP candidate, which only the DNP candidate had access to.

### **Data Analysis for Study Outcomes**

Simple descriptive analysis was used to analyze the data collected from the Demographic and Clinical Data Form. Independent t-tests were used to analyze the data collected from the Quality of Recovery Questionnaire based on the changes in mean scores at two different time points (Time 1: upon discharge and Time 2: One week following discharge).

## **VIII. Results**

### **Demographic and Clinical Data Form**

Ten participants were recruited for this study and ten participants completed the study. A majority of the participants that completed the study were predominantly older than 55 years of age. Of the ten participants, eight (80%) were older than 55 years old and two (20%) were surprisingly younger than 55. The youngest participant was 34 years old, and the oldest participant was 76 years old. This corroborates the increased incidence of colorectal cancers among younger adults. However, the average age was 62 years. In addition, a majority of the participants that completed the study identified as female. Of the ten participants, eight (80%) were female in comparison to the two (20%) male participants, and zero (0%) participants identifying as “Other.” In contrast, it is reported in the literature that the incidence rates are usually 30% higher in men than in women (ACS, 2022). The participants mainly identified as African American (10%), Hispanic/Latino (30%), Caribbean (20%), and Caucasian (40%). No participants identified as Asian American/Pacific Islander (0%) or Native American (0%). Of the ten participants, three (30%) were single, five (50%) were married, one (10%) was divorced, and one (10%) was widowed. Interestingly, this data significantly affected whether participants had a

family member present during their preoperative education. The five participants that were married (50%) and the one participant that was widowed (10%) each had a family member present at the preoperative educational meeting. On the other hand, the three participants that were single (30%) and one participant who was divorced (10%) did not have someone present at their preoperative educational meeting. Nine out of ten participants (90%) have children and one out of ten participants (10%) had no children. The sample consisted of four (40%) full-time professionals, five (50%) retired participants, and one (10%) participant on disability. Lastly, all ten (100%) participants reported a High School diploma as their highest level of education.

The sample was made up of elective colorectal surgical patients who planned to having surgery for many different clinical reasons. Of the ten participants, seven (70%) were diagnosed with colon cancer, two (20%) with diverticulitis, and one (10%) with rectal cancer. Of the ten participants, five (50%) had a left colectomy surgery, 2 (20%) had a right hemicolectomy surgery, and 3 (30%) had a Hartman's reversal surgery. Nine (90%) out of ten participants were hospitalized within the last five years for various health issues, and one (10%) participant had not. Of the ten participants, four (40%) had a past colorectal surgery as part of their surgical history and six (60%) participants were having colorectal surgery for the first time. Below the Demographic and Clinical Form data is categorized in Table 1.

**Table 1.** Demographic & Clinical Form Data

	<b>Frequency</b>	<b>Percentage (%)</b>
<b><u>Age</u></b>		
Less than 55 years old	2	20%
Older than 55 years old	8	80%
<b><u>Gender</u></b>		
Female	8	80%
Male	2	20%
Other	0	0
<b><u>Ethnicity</u></b>		
Black or African American	1	10%

Asian/Pacific Islander	0	0
Native American	0	0
Hispanic	3	30%
Caribbean	2	20%
Caucasian	4	40%
Other		
<b><u>Marital Status</u></b>		
Single	3	30%
Married	5	50%
Divorced	1	10%
Widowed	1	10%
<b><u>Parental Status</u></b>		
Children	9	90%
No children	1	10%
<b><u>Employment Status</u></b>		
Full time	4	40%
Part time	0	0
Unemployed	0	0
Retired	5	50%
Disabled	1	10%
<b><u>Highest Level of Education</u></b>		
High School	10	100%
Associate's degree	0	0
Bachelor's degree	0	0
Master's degree	0	0
Doctoral degree	0	0
<b><u>Diagnosis</u></b>		
Colon Cancer	8	80%
Rectal Cancer	2	20%
<b><u>Type of Surgery</u></b>		
Left Colectomy	5	50%
Right Colectomy	2	20%
Hartman's Reversal	3	30%
<b><u>Hospitalization within 5 years</u></b>		
Yes	9	90%
No	1	10%
<b><u>Past Colorectal Surgeries</u></b>		
Yes	4	40%
No	6	60%

]Note. N=10.

### **Post-Intervention Results**

The Quality of Recovery- 40 questionnaire was used to assess colorectal surgical patients' enhanced recovery in four different domains: an early return to normal ADLs,



decreased symptom incidence, decreased levels of anxiety, and increased patient satisfaction. Table 2 discerns the questions allocated for each of the domains. Participants completed the questionnaire at two separate time points (on discharge day and one-week post-discharge). Each question was graded on a five-point Likert scale. The lowest possible score is 40, which is equivalent to an extremely poor quality of recovery, and the highest possible score is 200, which equates to an excellent quality of recovery.

To evaluate the mean scores for each group of participants (intervention, control) at both time points, scores were calculated using Graphpad. Paired t-tests were used to determine the difference of scores on Discharge Day and One-week Post-Discharge for the intervention group and control group. For the intervention group, Discharge-Day scores revealed a Mean (M) of 172, a Standard Deviation (SD) of 15.57, and a Standard Error of the Mean (SEM) of 6.96. One-week Post-Discharge scores revealed a M of 185.2, a SD of 9.28 and a SEM of 4.15. The results of the two-tailed paired t-test showed statistical significance as demonstrated by an alpha value of 0.05, a t-score (5) of 3.9198, and a p-value of 0.0173. For the control group, Discharge-Day scores revealed a M of 178.8, a SD of 17.21, and a SEM of 7.7. One-week Post-Discharge scores revealed a M of 192.4, a SD of 9.04, and a SEM of 4.04. The results of the two-tailed paired t-test showed statistical significance as demonstrated by an alpha value of 0.05, a t-score (5) of 2.9994, and a p-value of 0.004.

On the other hand, independent t-tests were used to determine the difference in mean scores between the intervention and control group on Discharge Day and One-week Post-Discharge. This data was important in identifying any statistical difference between the two groups, those participants that received the education intervention compared to those participants that received the usual care. For Discharge Day, the intervention group scores revealed a M of

172, a SD of 15.57, and a SEM 6.96. The control group scores revealed a M of 178.8, a SD of 17.21, and a SEM of 7.7. The results of the one-tailed independent t-tests showed no statistical significance as demonstrated by a t-score (5) = 0.6551, and a p-value = 0.5308 ( $p > 0.05$ ). For One-week Post-Discharge, the control group scores revealed a M of 185.6, a SD of 9.28, and a SEM of 4.15. The control group scores revealed a M of 192.4 a SD of 9.04, and a SEM of 4.04. The results of the one-tailed independent t-tests showed no statistical significance as demonstrated by a t-score (5) = 1.2421, and a p-value = 0.2494.

Table 3, 4, 5, and 6 simplifies these results. Figure 1 visually presents the difference between Discharge Day scores and One-week Post-Discharge scores for the intervention group. Figure 2 shows the difference between Discharge Day scores and One-week Post-Discharge scores for the control group. Figure 3 shows Discharge Day score differences between the intervention and control group. Figure 4 illustrates One-week Post-Discharge score differences between the intervention and control group.

**Table 2.** Domain Questions from the Quality of Recovery Questionnaire

<b>Domain</b>	<b>Question</b>
Return to Normal Activities of Daily Living	Have normal speech
	Able to wash, shave, or brush teeth
	Able to look after your own appearance
	Able to write
	Able to return to work or usual home activities
Symptoms Incidence	Bad dreams
	Angry
	Depressed
	Alone
	Difficulty falling asleep
	Able to breath easily
	Able to enjoy food
	Nausea
	Vomiting
	Dry retching
Shaking or twitching	
Shivering	

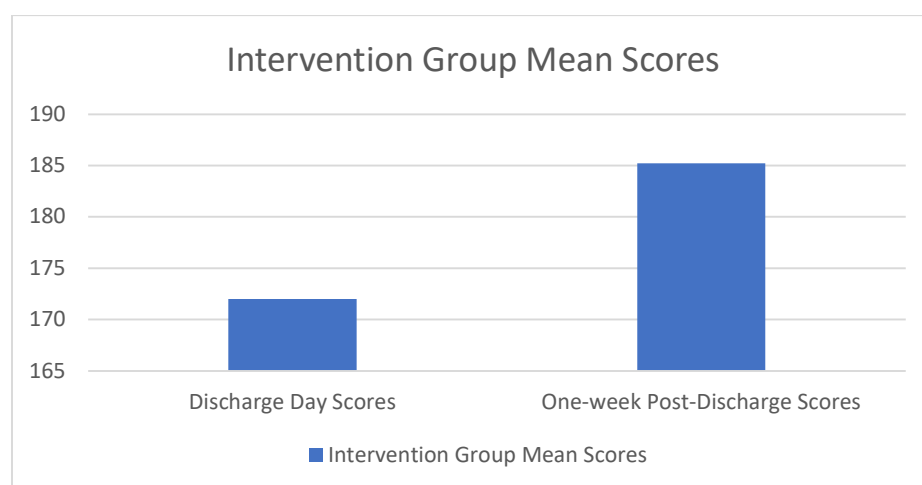
Level of Anxiety	Headache
	Muscle pains
	Backache
	Sore throat
	Sore mouth
	Moderate pain
	Severe pain
	Feeling anxious
	Able to have a good sleep
	Feel rested
	Having feelings of general well being
	Feeling in control
	Feeling comfortable
	Patient Satisfaction
Able to communicate with family and friends	
Getting support from hospital doctors	
Getting support from hospital nurses	
Having support from family and friends	
	Able to understand instructions and advice

**Table 3.** Differences Between Discharge Day Scores and One-week Post-Discharge Scores for the Intervention Group

Discharge Day Scores			One-week Post-Discharge Scores		
M	SD	SEM	M	SD	SEM
172	15.57	6.96	185.2	9.28	4.15

Note. N=5, and p=0.0173.

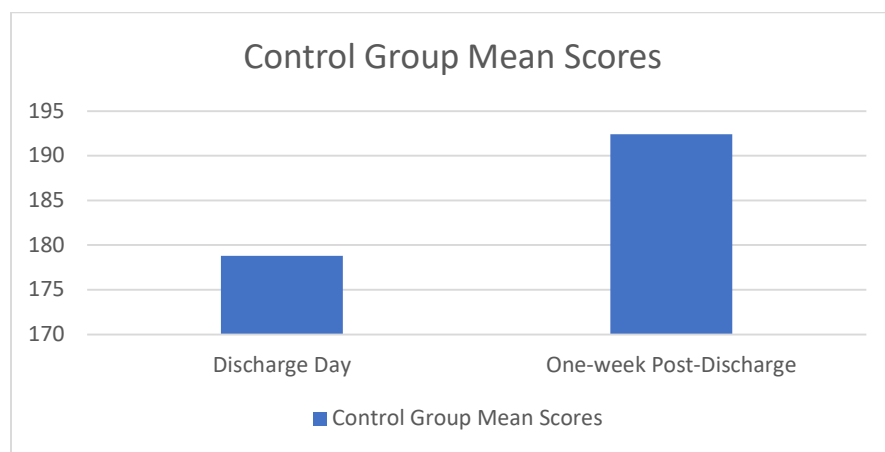
**Figure 1.** Differences Between Discharge Day Scores and One-week Post-Discharge Scores for the Intervention Group



**Table 4.** Difference Between Discharge Day Scores and One-week Post-Discharge Scores for the Control Group

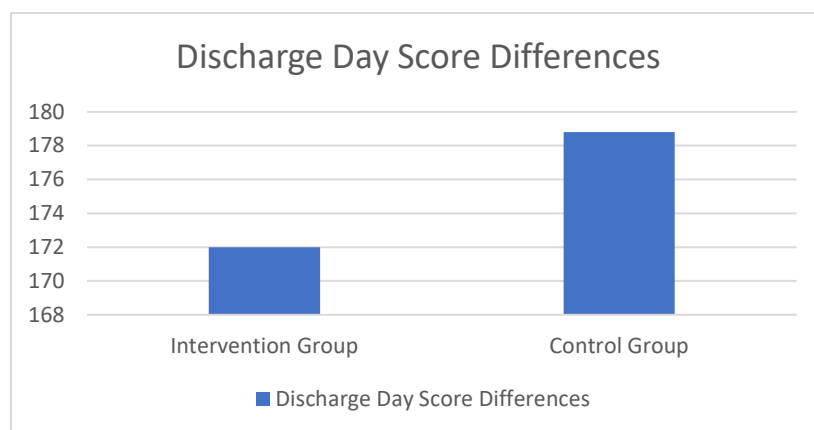
Discharge Day Scores			One-week Post-Discharge Scores		
M	SD	SEM	M	SD	SEM
178.8	17.21	7.7	192.4	9.04	4.04

Note. N=5, and  $p = 0.004$ .

**Figure 2.** Difference Between Discharge Day Scores and One-week Post-Discharge Scores for the Control Group**Table 5.** Discharge Day Score Differences Between the Intervention and Control Group

Intervention Group			Control Group		
M	SD	SEM	M	SD	SEM
172	15.56	6.96	178.8	17.21	7.7

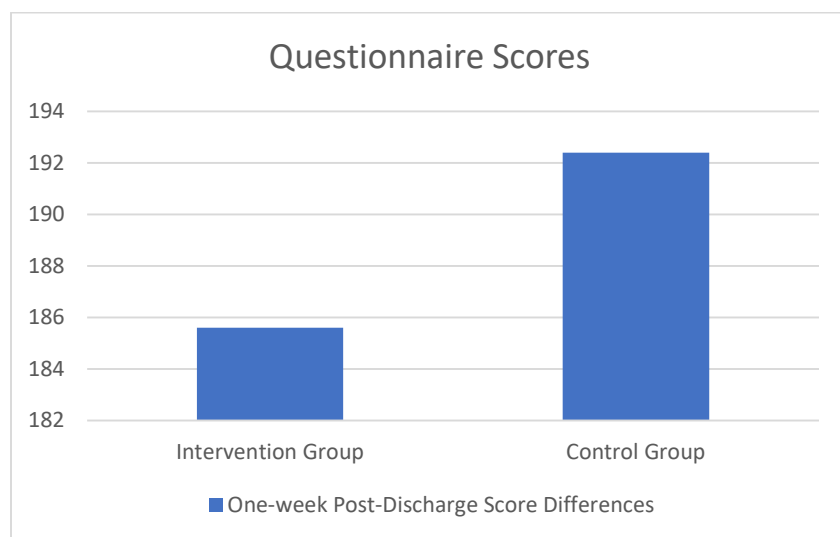
Note. N=5, and  $p = 0.5308$ .

**Figure 3.** Discharge Day Score Differences Between the Intervention and Control Group

**Table 6.** One-week Post-Discharge Score Differences Between the Intervention and Control Group

Intervention Group			Control Group		
M	SD	SEM	M	SD	SEM
185.6	9.28	4.15	192.4	9.04	4.04

Note. N=5, and  $p = 0.2494$ .

**Figure 4.** One-week Post-Discharge Score Differences Between the Intervention and Control Group

## IX. Discussion

This Quality Improvement project examined the effects of additional preoperative education within a preparedness process at an academic community hospital. Using evidence-based research, the change intervention educational program was developed focusing on the Enhanced Recovery After Surgery (ERAS) guideline, including its history, interventions specific statistical data, and outcomes. The Quality of Recovery-40 questionnaire was used to assess an enhanced quality of recovery for colorectal patients by comparing participants who received the additional education with participants who received the usual care education. When analyzing the results from the QoR questionnaires, the findings showed no statistically significant difference in mean scores between the intervention and control group scores on discharge day

and one week after discharge. Although the study does not suggest incorporating discussing ERAS as part of the standard preoperative education material for colorectal surgical patients, patients might benefit from learning about the ERAS guideline during their preoperative meetings. Gillis et al. (2017) conducted a qualitative study of colorectal surgical patients and their awareness of the ERAS guideline. The results indicated that half of participants did not know what an enhanced recovery program was nor were they aware that they were a part of it. However, it was concluded that patients were interested in the concept of an accelerated process and wanted to be more informed about ERAS (Gillis et al., 2017).

According to Sjöstedt et al. (2011), surgical patients experience varying levels of anxieties before surgery due to their need for information, like how to decrease their anxieties, how to manage their pain experience postoperatively, and information regarding the entire surgical process. The ERAS guideline attempts to create this sense of assurance for patients by providing this knowledge through an information exchange during the preoperative education time. However, there are no standards or metrics to follow when it comes to developing the content for preoperative education. As a result, this QI project introduced an additional content-specific educational program about the ERAS guideline as part of a standard preoperative process and observed its effects on colorectal surgical patients' quality of recovery. In this case, both the intervention and control group received the usual preoperative education, while only the intervention group received the additional preoperative educational program created by the DNP candidate. Due to the statistical results, it can be deduced that the current preoperative education adopted at this hospital is sufficient enough in preparing colorectal surgical patients demonstrated by a good quality of recovery from hospital discharge to one-week post discharge.

From the literature, Aasa (2013) reports that providing information that is perceived as important by the patient acknowledges their informational needs, aids in understanding and retention, but also convinces patients to do things they normally would hesitate to do. In this QI project, participants' informational needs were not assessed, other than the inquiry about their highest level of education on the Demographic and Clinical Data form. In other words, the change intervention, although evidenced based, might not have targeted the tailored needs of colorectal surgical patients. Participants might have perceived the information from the DNP candidate's educational program as unimportant or not central to their personal situation. One potential, future QI project might assess the informational needs of colorectal surgical patients as a preliminary study in determining what preoperative educational content will positively affect their quality of recovery as measured by return to ADLs, symptom incidence, levels of anxiety, and patient satisfaction.

### **X. Limitations of the Project**

There were several limitations within this QI project. One of the major limits of the project was its smaller sample size (n=10). Using convenience sampling, participants were recruited from an existing pool of one particular surgeon's office. This method was used, rather than recruiting participants from additional surgical practices in the healthcare center to increase the access to patients. This particular surgical group conducts multidisciplinary rounds two days after surgery, which is an opportunity for the healthcare team, including the DNP candidate, to collaborate with the patients in real-time. However, this might have restricted access to other potential participants of other colorectal surgical groups at the facility.

Participation in this QI project was completely voluntarily, making the recruitment process another potential contributor to the small sample size. Patients who were interested in

volunteering were instructed to contact the DNP candidate. At first, very few patients reached out to the DNP Candidate after receiving the recruitment flyer from the surgical scheduler at the surgeon's office. But, during their phone calls with the surgical patient navigator from the hospital, when patients were scheduling their preoperative educational meeting dates, patients were reminded about the study and then reached out to the DNP candidate more frequently. It is important to note that flyers were being distributed during a time when patients were receiving an abundant amount of information about their surgery. An overload of information might have caused some patients to overlook the flyer. Overall, the project was implemented based on a small group of English-speaking and literate adults with a planned colorectal surgery, which limits generalizability. Another limitation in this project which directly contributes to the small sample size, was the restricted study time frame.

### **XI. Implications for Practice**

Since no statistical significance was found in this study between the intervention and control groups, additional education regarding the ERAS guideline is not required in the standardization of preoperative preparedness process of colorectal surgical patients. The findings from this QI project confirm that the preoperative education on the history of ERAS, statistical data, or evidence supporting the ERAS-adopter interventions per the facility's protocol might not be necessary. However, these results do suggest that the multidisciplinary surgical team, especially the preoperative nurses and the surgical patient navigator, reconsider what information is provided to patients before surgery. Further research on preoperative education for colorectal surgical patients should focus on determining what content is most influential on patient's surgical recovery. Again, assessing the informational needs of colorectal surgical patients might shed light on what information is crucial to delivering to these patients before surgery. Another



potential quality improvement project might compare a completely new evidence-based preoperative educational program with the current protocols at the facility. Due to the variable limitations within this study, future studies should be conducted on a larger scale with a larger sample size and over a longer time period.

## **XII. Conclusion**

The Enhanced Recovery After Surgery (ERAS) guideline is an enhanced recovery program made up of perioperative interventions bundled cohesively together to improve a patient's surgical experience (Gustafsson et al., 2019). It was designed to reduce perioperative stress, maintain postoperative physiological function, and support an accelerated recovery using a multimodal and multidisciplinary stress-reducing approach (Gustafsson et al., 2019). ERAS is a powerful tool used by healthcare providers to ensure positive surgical outcomes, which equally, colorectal surgical patients should be more knowledgeable about in order to be actively involved in their care. However, despite the findings from this DNP QI project that information regarding the ERAS guideline is not required in the standardization of preoperative education for colorectal surgical patients, ERAS has proven to decrease complication rates, length of stay, and overall healthcare costs. Therefore, knowledge about the ERAS guideline can be valuable for colorectal surgical patients. Alternative methods to delivering education on what ERAS is to patients should be explored. In addition, further studies to identify components essential for a thorough and comprehensive preoperative education program should continue. With no current metrics on what topics are necessary to discuss during the preoperative educational meeting, further research is warranted.

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#### **XIV. Dissemination**

Successful preoperative education sets the tone for the surgical experience for patients, families, and healthcare providers. During this time, patients' questions, fears, anxieties, and expectations are managed. The main goal of preoperative education is to prepare the patients for their anticipated surgery to avoid any complications or mishaps. In this way, preoperative education has a direct influence on surgical patient outcomes. It is vital that the multidisciplinary surgical team understands how an effective preoperative education can affect a patient's recovery. Through the dissemination of these preliminary findings, multidisciplinary surgical teams will be able to further explore the necessary requirements of a successful preoperative education.

The primary setting for this QI project was a Joint Commission accredited hospital certified in performing minimally invasive colorectal surgery with a comprehensive colorectal program. Therefore, the first step in disseminating the knowledge acquired from this study is the presentation of the findings from this study at the facility's next quarterly colorectal meeting. Subsequently, an abstract will be submitted to the American Association of Nurse Practitioners (AANP) organization to be peer-reviewed for their National Conference. Lastly, a manuscript will be submitted to the *Journal of the American Associate of Nurse Practitioners (JAANP)*, which supports nurse practitioners (NP) and is devoted to promoting best practices by informing



NPs on new developments in healthcare. However, publications alone will not suffice in translating evidence into practice. In order to maintain change, future nurse leaders, researchers, and educators must continue refining the process and content of preoperative education through subsequent quality improvement studies.

## XV. Appendix

### IRB Approval Letter



**Office of Research Integrity  
Research Compliance, MARC 414**

#### MEMORANDUM

**To:** Dr. Deborah Sherman  
**CC:** Andrea Dipokromo  
**From:** Maria Melendez-Vargas, MIBA, IRB Coordinator *W*  
**Date:** September 1, 2022  
**Protocol Title:** "Preoperative Education Regarding the Enhanced Recovery After Surgery (ERAS) Guideline: A Quality Improvement Project"

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The Health Sciences Institutional Review Board of Florida International University has approved your study for the use of human subjects via the **Expedited Review** process. Your study was found to be in compliance with this institution's Federal Wide Assurance (0000060).

**IRB Protocol Approval #:** IRB-22-0401      **IRB Approval Date:** 08/30/22  
**TOPAZ Reference #:** 112006      **IRB Expiration Date:** 08/30/25

As a requirement of IRB Approval you are required to:

- 1) Submit an IRB Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved by the IRB prior to implementation.
- 2) Promptly submit an IRB Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 3) Utilize copies of the date stamped consent document(s) for obtaining consent from subjects (unless waived by the IRB). Signed consent documents must be retained for at least three years after the completion of the study.
- 4) **Receive annual review and re-approval of your study prior to your IRB expiration date.** Submit the IRB Renewal Form at least 30 days in advance of the study's expiration date.
- 5) Submit an IRB Project Completion Report Form when the study is finished or discontinued.

**HIPAA Privacy Rule:** N/A

**Special Conditions:** N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

MMV/em

## Facility Letter of Support



8201 West Broward Boulevard  
Plantation, Florida 33324  
Phone (954) 473-6600  
[www.westsideregional.com](http://www.westsideregional.com)

June 21<sup>st</sup>, 2022

Dear Ms. Dipokromo and Dr. Sherman,

This letter is to confirm the agreement and support of your project, "Does the implementation of a preoperative educational program regarding the Enhanced Recovery After Surgery (ERAS) guideline result in enhanced quality of recovery as measured by an early return to normal ADLs, symptom incidence, levels of anxiety, and patient satisfaction for colorectal surgical patients upon discharge and one week after discharge as compared to patients who do not receive the educational program?" at our institution, HCA Florida Westside Hospital. The goals of this project coincide with the vision and core values of our organization in the commitment to the care and improvement of human life. This project will be supervised by your clinical professor, Dr. Deborah Sherman, in association with Florida International University (FIU). After review and approval of this quality improvement project through FIU's IRB, no additional IRB approval will be required through HCA Florida Westside Hospital.

Thank you,

A handwritten signature in blue ink, appearing to read "Kathleen Morris".

Kathleen Morris  
VP Regulatory Compliance  
HCA Florida Westside Hospital  
954-476-3982 Office

## Recruitment Flyer

# ERAS? WHAT IS THAT?

We need YOUR help!

**ERAS stands for the Enhanced Recovery After Surgery guideline. We are conducting a study to see if education about what ERAS is will impact your *quality* of recovery after colorectal surgery.**

This quality improvement project is being conducted by an FIU DNP Candidate with endorsement from colorectal surgeon, Dr. Lago, and is aimed at determining the benefits of patient education about ERAS.

If you are a patient who will be having colorectal surgery, all you have to do is pick up the phone!

**Confidential. Educational. Empowering.**



For interested patients, please contact  
Doctor of Nursing Practice Candidate,  
**Andrea Dipokromo, MSN, APRN, NP-C**  
at (786) 271-2564 or [adipo002@fiu.edu](mailto:adipo002@fiu.edu)

## Consent Form



**ADULT CONSENT TO PARTICIPATE IN A RESEARCH STUDY**  
 Preoperative Education Regarding the Enhanced Recovery After Surgery (ERAS)  
 Guideline: A Quality Improvement Project

### SUMMARY INFORMATION

This study investigates if the implementation of an evidence-based educational program regarding specific details about the Enhanced Recovery After Surgery (ERAS) guidelines affect the quality of recovery in patients having elective colorectal surgery.

Things you should know about this study:

- Purpose:** The purpose of the study is to determine whether a specific educational program about ERAS will enhance the quality of recovery for colorectal surgical patients as measured by an early return to normal ADLs, symptom incidence, levels of anxiety, and patient satisfaction for colorectal surgical patients upon discharge and one week after discharge as compared to patients who do not receive the educational program.
- Procedures:** If you choose to participate, you will be asked to answer questions in a Demographic and Clinical Form as well as questions regarding your recovery in the form of a Quality of Recovery questionnaire via telephone calls.
- Duration:** This will take about 70 minutes.
- Risks:** The main risk or discomfort from this research is the possible time taken away to complete the questionnaires over the telephone or the possible distress with the discussion of a burdensome recovery that a patient experiences.
- Benefits:** The main benefit to you from this research is an increase in knowledge regarding the ERAS guideline.
- Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

### PURPOSE OF THE STUDY

The purpose of this study is to determine whether a specific educational program about ERAS will enhance the quality of recovery for colorectal surgical patients as measured by an early return to normal ADLs, symptom incidence, levels of anxiety, and patient satisfaction for colorectal surgical patients upon discharge and one week after discharge as compared to patients who do not receive the educational program.

### **NUMBER OF STUDY PARTICIPANTS**

If you decide to be in this study, you will be one of twenty people in this research study.

### **DURATION OF THE STUDY**

Your participation will involve at between 50 to 80 minutes (one hour and 20 minutes). For the intervention group, the PowerPoint presentation will take approximately 30 minutes. The first questionnaire will be administered on discharge day will take about 15 – 20 minutes. The same questionnaire administered one week after discharge will take about 15 – 20 minutes as well. Completing the this consent and the Demographic and Clinical Data Form will take about 10 minutes.

### **PROCEDURES**

If you agree to be in the study, we will ask you to do the following things:

1. Completely read and sign the informed consent.
2. Complete a Demographic and Clinical Data Form.
3. If assigned intervention group, attend a 30-minute PowerPoint presentation receiving education about the ERAS guideline. If not assigned to the intervention group, continue with usual preoperative education according to the facility's policies.
4. On the day of discharge, complete a 40-item questionnaire over the telephone regarding recovery.
5. One week after discharge, complete the same 40-item questionnaire over the telephone regarding recovery,

### **RISKS AND/OR DISCOMFORTS**

There are minimal risks and or discomforts associated with this study. The possible non-intended risks to you in this study may include the distress with discussion of your recovery. If there are any unintended negative emotional distress, you will be referred to their primary care provider.

### **BENEFITS**

The study has the following possible benefits to you:

1. Increasing knowledge about the ERAS guideline.

The study has the following possible benefits to healthcare:

1. Expanding the use of ERAS in other surgical specialties.
2. Decreasing healthcare costs for institutions and patients.
3. Assist in the transition to a more patient-center care model for institutions.

### **ALTERNATIVES**

There are no known alternatives available to you other than not taking part in this study. Any significant new findings developed during the course of the research which may relate to your willingness to continue participation will be provided to you.

### **CONFIDENTIALITY**

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report we might publish, we will not include any information that will

make it possible to identify you. Research records will be stored securely, and only the researcher team will have access to the records. However, your records may be inspected by authorized University or other agents who will also keep the information confidential.

#### **COSTS**

There are no costs to you for participating in this study.

#### **RIGHT TO DECLINE OR WITHDRAW**

Your participation in this study is voluntary. You are free to participate in the study or withdraw your consent at any time during the study. You will not lose any benefits if you decide not to participate or if you quit the study early. The investigator reserves the right to remove you without your consent at such time that he/she feels it is in the best interest.

#### **RESEARCHER CONTACT INFORMATION**

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Andrea Dipokromo at (786) 271-2564 or [adipo002@fiu.edu](mailto:adipo002@fiu.edu).

#### **IRB CONTACT INFORMATION**

If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at [ori@fiu.edu](mailto:ori@fiu.edu).

#### **PARTICIPANT AGREEMENT**

I have read the information in this consent form and agree to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. I understand that I will be given a copy of this form for my records.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name of Participant

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Date

## Demographic & Clinical Form

Code Number: \_\_\_\_\_

### Florida International University | College of Nursing and Health Sciences Doctor of Nursing Practice

#### Demographic and Clinical Data

Please fill out the information below to the best of your ability.

Age: \_\_\_\_\_

Gender:

 Female Male Other

Ethnicity:

 African American/Black Asian/Pacific Islander Native American Hispanic (Specify \_\_\_\_\_) White Hispanic Caribbean (Specify \_\_\_\_\_) Other (Specify \_\_\_\_\_)

Marital Status:

 Single Married Divorced Widowed

Parental Status:

 Children No Children

Occupation: \_\_\_\_\_

Employment Status:

 Full Time Part Time Unemployed Disability Retired



Code Number: \_\_\_\_\_

Highest Level of Education:

- High School
- Associate Degree
- Technical Degree
- Bachelors Degree
- Graduate Degree
- Doctoral Degree

Diagnosis: \_\_\_\_\_

Type of Surgery Planned: \_\_\_\_\_

Previous admissions to this hospital within the last five years?  YES  NO

Past Surgical History: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Quality of Recovery 40-question Questionnaire

### Quality of Recovery-40 Patient Survey

Date: \_\_\_\_\_ Code #: \_\_\_\_\_

#### PART A

DIRECTIONS: In Part A, please rate the following items from 1 to 5, where 1=poor and 5=excellent.

**For example:** If you have been able to breathe easily all of the time, you should indicate this by circling the response 5 = *all of the time* as shown below:

	None of the time	Some of the time	Usually	Most of the time	All of the time
Able to breathe easily	1	2	3	4	5

#### *How have you been feeling in the last 24 hours?*

	None of the time	Some of the time	Usually	Most of the time	All of the time
<b>Comfort</b>					
Able to breathe easily	1	2	3	4	5
Have a good sleep	1	2	3	4	5
Able to enjoy food	1	2	3	4	5
Feel rested	1	2	3	4	5

	None of the time	Some of the time	Usually	Most of the time	All of the time
<b>Emotions</b>					
Having a feeling of general well being	1	2	3	4	5
Feeling in control	1	2	3	4	5
Feeling comfortable	1	2	3	4	5

	<b>None of the time</b>	<b>Some of the time</b>	<b>Usually</b>	<b>Most of the time</b>	<b>All of the time</b>
<b>Physical Independence</b>					
Have normal speech	1	2	3	4	5
Able to wash, shave, or brush teeth	1	2	3	4	5
Able to look after your own appearance	1	2	3	4	5
Able to write	1	2	3	4	5
Able to return to work or usual home activities	1	2	3	4	5

	<b>None of the time</b>	<b>Some of the time</b>	<b>Usually</b>	<b>Most of the time</b>	<b>All of the time</b>
<b>Patient Support</b>					
Able to communicate with hospital staff (when in hospital)	1	2	3	4	5
Able to communicate with family or friends	1	2	3	4	5
Getting support from hospital doctors (when in hospital)	1	2	3	4	5
Getting support from hospital nurses (when in hospital)	1	2	3	4	5
Having support from family/friends	1	2	3	4	5
Able to understand instructions and advice	1	2	3	4	5

**PART B**

DIRECTIONS: In Part B, please rate the following items from 5 to 1, where 5=excellent and 1=poor.

*Have you had any of the following in the last 24 hours?*

	None of the time	Some of the time	Usually	Most of the time	All of the time
<b>Emotions</b>					
Bad dream	5	4	3	2	1
Feeling anxious	5	4	3	2	1
Feeling angry	5	4	3	2	1
Feeling depressed	5	4	3	2	1
Feeling alone	5	4	3	2	1
Difficulty falling asleep	5	4	3	2	1
Physical Comfort	5	4	3	2	1
Nausea	5	4	3	2	1
Vomiting	5	4	3	2	1
Dry retching	5	4	3	2	1
Feeling restless	5	4	3	2	1
Shaking or twitching	5	4	3	2	1
Shivering	5	4	3	2	1
Feeling too cold	5	4	3	2	1
Feeling dizzy	5	4	3	2	1

	<b>None of the time</b>	<b>Some of the time</b>	<b>Usually</b>	<b>Most of the time</b>	<b>All of the time</b>
<b>Patient Support</b>					
Feeling confused	5	4	3	2	1
<b>Pain</b>					
Moderate pain	5	4	3	2	1
Severe pain	5	4	3	2	1
Headache	5	4	3	2	1
Muscle pains	5	4	3	2	1
Backache	5	4	3	2	1
Sore throat	5	4	3	2	1
Sore mouth	5	4	3	2	1

**Please check that all items have been answered.**

**Thank you for your assistance!**