7-11-2018

Evaluation of Educating Registered Nurses Prior to Implementing New Evidence-based Protocol: Enhanced Recovery After Surgery (ERAS)

Lisa Brooks
ldbwc6@mail.umsl.edu

Follow this and additional works at: https://irl.umsl.edu/dissertation

Part of the Other Nursing Commons

Evaluation of Educating Registered Nurses Prior to Implementing New Evidence-based

Protocol: Enhanced Recovery After Surgery (ERAS)

Doctor of Nursing Practice Project Presented to the

Faculty of Graduate Studies

University of Missouri – St. Louis

In Partial Fulfillment of the Requirements

For the Degree of Doctor of Nursing Practice

By

Lisa Brooks, MSN, RN

Dr. Nancy Magnuson, DSN, CS, FNP-BC Chairperson

Dr. Tonya Haynes, DNP, RN

Dr. April Schmidt, DNP, APRN, BC

August 2018

Abstract

Evidence-based protocols promote standardization of care and patient safety. The inclusion of major stakeholders is imperative to the success of implementation of a new protocol. The "Enhanced Recovery After Surgery" (ERAS) protocol was implemented at the Veterans Administration Medical Center – St. Louis prior to formal education of direct-care registered nurses (RNs), a major stakeholder group. Due to the lack of knowledge, the RNs who were expected to implement and adhere to the ERAS protocol were not prepared and displayed a lack of confidence. Subsequently, an educational training intervention was designed and executed with thirty-five RN participants. Prior to this training, a pre-test was administered followed by a post-test after the training. The data analysis reported a significant increase in knowledge of the correct ERAS protocol process among all the participants. An increase in confidence related to the correct implementation of the ERAS protocol was also shown among the participants. The outcome of this project implies that structured, program-specific training can impact the knowledge and perceived confidence of direct-care RNs to adhere to and correctly implement the ERAS protocol.

Introduction

The Veterans Administration Health Care System utilizes evidence-based practice to ensure quality of care. Enhanced Recovery After Surgery (ERAS), an innovative surgical protocol, was implemented on March 1, 2017 at the John Cochran Veterans Administration St. Louis Health Center (VASTLHC). The ERAS protocol helps to reduce the impact of surgery on the body as it relates to recovery time. The goal of the ERAS protocol is to decrease the length of stay, which will increase in-patient bed availability and subsequently, lead to increased access to care. In addition, the cost of care will decrease, making more resources available for the

veteran patient population (Appendix I). The ERAS protocol was supported by the chief of the

medical center, key surgeons, and other members of the healthcare team; however, direct-care

medical-surgical registered nurses (RNs) were not educated prior to implementation. Medical-

surgical RNs at the John Cochran VASTLHC who had not received formal education on the

ERAS protocol verbalized and demonstrated a lack of understanding and adherence to the ERAS

protocol as evidenced by inconsistent and varied execution of the protocol when ordered by

providers. Due to this lack of understanding, three of the first five cases to follow the ERAS

preoperative protocol were not initially successful, with one case being cancelled and the other

two cases delayed. This negatively affected productivity of the operating room time and

increased the emotional distress of the patients who experienced a delay in surgery.

Purpose

The purpose of this project was to assess whether the delivery of education related to the

ERAS protocol implemented at the John Cochran VASTLHC will prove effectiveness. This

implementation was to increase the knowledge and understanding of direct-care medical-surgical

RNs about the ERAS protocol as determined by comparison of pre- and post-test scores. An

additional desired outcome was an increase in confidence of the RNs in implementation of the

ERAS protocol determined by questions on the pre- and post-test.

Direct-care medical-surgical nurses at the John Cochran VASTLHC participated in a

formal in-person education program regarding the preoperative surgical protocol, ERAS

(Appendix C). The primary focus of this project was the delivery of safe and quality care.

PICO – The Veterans Administration St. Louis Health Center medical/surgical registered nurses participated in education regarding the new surgical protocol ERAS. It was predicted that registered nurses who are educated on the ERAS protocol would have a greater chance of implementing the protocol more confidently. As a result, this education improved facility-wide ERAS implementation outcomes and improved the confidence of medical-surgical RNs.

Review of the Literature

The process of initiating this literature review began with the databases: Cumulative Index of Nursing and Allied Health, Cochrane Library, PubMed, and Joanna Briggs Institute were the primary databases used for research. The key words used were: *surgical nurse, Enhanced Recovery After Surgery protocol, nursing education, evidence-based practice, stress related to nursing practice, implementing change, and educational barriers*. These specific terms were chosen based on their ability to accurately and contextually derived at the most relevant information for this study.

The search date range was set for January 2010 to present. This was to provide a comprehensive and current research overview of relevant literature. The inclusion criteria included English published articles, adult (male and female) only surgical patients, colorectal surgical patients, nursing and medical peer reviewed articles. Exclusion criteria included pediatric surgical patients and patient education.

Healthcare is changing from volume-based care to value-based care (Spruce, 2015). This transition of care is affected by evidence-based research, which results in evidence-based practice. The ability and willingness of RNs to deliver evidence-based care may be challenging. The challenges that may arise include understanding of the importance and the reason why

evidence-based practice is relevant. Patient care driven by traditional or provider practice may not always be cost-effective. Evidence-based practice can empower the RNs at the bedside to explain to patients the reason for care-related instructions, which will help the patient understand the importance of care that is being delivered (Spruce, 2015).

When a new evidence-based policy is mandated to be implemented, priority must be given to adequate education and preparation of individuals who will utilize the new process. Spruce (2015) recommends providing teaching sessions for team members who are affected by the policy. After the education has been completed, Spruce (2015) notes that it is useful to encourage feedback and make needed changes for future teaching. For research and quality related to healthcare implementation of evidence-based practice, a team member champion can be chosen to identify potential and actual challenges to implementing evidence-based policy. One area can be piloted before applying to other areas, and organizational personnel should assess their culture for evidence-based policies and identify barriers and develop a plan to address them. The absolute key is providing education and mentorship to achieve evidence-based practice change (Spruce, 2015).

The ERAS protocol can be used as an example of understanding the importance of evidence-based practice pathways. The history of ERAS dates to the late 1990s according to Melnyk, Casey, Black, &. Koupparis (2011) and was pioneered by Professor Henrik Kehlet from Denmark. Professor Kehlet's goal was to reduce postoperative morbidity and mortality while promoting quicker recovery, leading to reduced physiological surgical stress for the patient. Foss (2011) notes that the appeal of early discharge of patients is partly driven by economic and performance-related factors, providing a financial interest for adopting ERAS.

Although the ERAS protocol has been researched extensively, proven effective, and adopted by the American Society of Colon and Rectal Surgeons (ASCRS), there is still resistance, not only from nurses, but also surgical personnel (Kim, Park, Park, & Roo, 2017). Kim, et al., (2018) believes the research is lacking on how to most efficiently integrate knowledge into practice. Despite this, some surgical disciplines, such as urology, vascular, and thoracic have begun to adopt the ERAS protocol (Melnyk, et. al 2011). The ERAS protocol has twenty-two elements. These elements are incorporated throughout the perioperative stages: preoperative, intraoperative and postoperative.

An important aspect of the ERAS protocol is embarking on evidence-based practice of clinical pathways. Betit (2015) asserts that evidence-based clinical pathways or care maps improve quality of care. The guided approach is to improve patient outcomes, increase patient satisfaction, promote patient safety, and provide standardization of care to optimize outcomes (Betit, 2015). In addition, the "Institute for Healthcare Improvement" has three objectives: improving healthcare, improving the patient experience of quality satisfaction, and reducing the cost of health care (Morris & Aarone, 2017). These are essential principles of the ERAS protocol. Morris and Aarone (2017) discuss the outcome of a study in which 581 health care providers participated in a randomized controlled clinical trial to evaluate the impact of clinical care pathways among an acute care healthcare team. According to this study, the clinical care pathways improve patient outcomes and teamwork, increase the level of care, and reduce the risk of burnout for the acute health care team.

Morris and Aarone (2017) report there are elements to achieve a more successful clinical pathway by developing three categories. First, a champion of personnel is necessary. In this case, an RN who has been trained and has an in-depth knowledge of the clinical pathway prior to

implementing it to the masses. This champion can provide support and offer clarification of the

clinical pathway. This could help decrease stress for those implementing clinical pathways and

assist with increasing their confidence and decreasing the barriers of carrying out the pathways.

Second, Morris and Aarone (2017) encourage utilizing the National Quality Forum to help guide

how the clinical pathway is written. Maintaining a rigorous scientific process of development to

best ensure the clinical pathway will produce reliable and credible results while also analyzing

the usability. This to make sure it is feasible to implement the clinical pathway. Therefore, the

implementation is made without undue burden. Third, perhaps when a change is needed;

managing the process of the clinical pathway and receiving input from those utilizing the clinical

pathway can provide insight into the effectiveness of realistically applying the clinical pathway.

There will be barriers with the implementation of any change. To advance a change,

there should be a process in place to overcome those barriers. Those who are noted to be

stakeholders must be influenced to implement change. Clinical pathways are a change in the

process of caring for patients and have expanded among many healthcare disciplines, ranging

from primary care to surgical care.

When there is an implementation of a new protocol, the change process needs to be

appropriately managed, meaning the RNs need to understand the process steps of ERAS protocol

and possess the knowledge and tools to carry them out.   This can facilitate a reduction in

resistance to change.

<div align="center">Theoretical Framework</div>

Canadian psychologist Albert Bandura expanded on the social learning theory known as

the social cognitive theory. Bandura argues that human behavior is influenced by personal,

behavioral, and environmental influences (Sullivan, 2018). This theory can be applied to

learning and obtaining achievement in an educational environment, such as the educational teaching proposed for this project. Chang and Crowe (2011) note this theory has been influential in changing behavior of health care professionals; however, the individual must believe that their actions will influence the outcome before they will change or perform a behavior. To increase the compliancy in application of the ERAS protocol properly, the registered nurses must believe that the adherence to this clinical evidence-based protocol will improve patient outcomes. The belief theory that behavior will determine a specific outcome was applied to this project.

The Logic model was incorporated with the project as a management tool to evaluate the effectiveness of this project. The resources were evaluated by examining the stakeholders who support this ERAS protocol intervention. The budget of this project was evaluated to ensure feasibility. The expected outcome of this project was to increase RN confidence in the ability to correctly execute the preoperative ERAS protocol, and subsequently, facilitate improved adherence to the protocol. This educational intervention was expected to change the RNs' attitudes about practice regarding ERAS and improve the perceptions of care among patients and RNs. Additional intended outcomes include decreased surgery cancellations, reduced length of hospital stay postoperatively and increased access to care for veterans.

<div align="center">Method</div>

For this project, direct care medical-surgical nurses at John Cochran VASTLHC received formal education on the steps of the preoperative ERAS protocol (Appendix C). The preoperative stage is of great importance, as it sets the foundation for enhancing the recovery of the patient. Importantly, if this stage is not implemented efficiently and correctly, surgery could be delayed or even canceled. This leads to a loss of time, financial constraint, and stress of disappointment for patient and nurse.

Design: A pre-test/post-test survey design was used for this project. Participants were asked to complete a 10-item pre-intervention survey on the preoperative John Cochran VASTLHC ERAS protocol. During the pre-test, the following demographics were collected: verification of RN status, home nursing unit, and length of practice as an RN. Post-intervention, the participants were asked to complete the survey again, including two additional questions that inquired about the participant's confidence to correctly executing the preoperative ERAS protocol.

Setting: This intervention was implemented on four medical-surgical units and one outpatient ambulatory unit at John Cochran VASTLHC.

Sample: Inclusive criteria: RN must have been a registered nurse permanently assigned to one of the units providing care for patients preoperatively. Exclusive criteria: RNs permanently assigned to intraoperative and postoperative care areas were excluded since this project focuses primarily on the preoperative instructions of this ERAS protocol.

Approval Process: A submission of the project proposal was submitted to the VA's Evidence-Based Practice council, which governs quality improvement projects. The Associate Director of Nursing at the VA and the University of Missouri – St. Louis Institutional Review Board also granted approval prior to project implementation.

Procedures: A PowerPoint presentation inclusive of participant discussion was used to deliver the educational content. The educational content included a description and explanation of each component of the John Cochran VASTLHC ERAS preoperative protocol. A laptop was used to display the PowerPoint. The education sessions were performed individually during all shifts. A pre-test and post-test were developed and administered to the participants. The data was statistically analyzed.

Data Collection/Analysis: Data from pre- and post-intervention surveys were analyzed using the paired t-test, which assesses the difference between two independent group means.

Results

The sample demographics utilized for this study were RNs at the Veterans Administration St. Louis Health Center (VASTLHC). There were thirty-five RNs who participated in this study.   Twenty participants had prior ERAS training, and fifteen had no prior ERAS training. Each participant completed a pre-test, actively engaged in a Power Point presentation regarding information on the preoperative aspect of ERAS, then in the same setting, completed a post-test. Appendix D displays the pre-test and post-test scores of all participants utilizing a histogram graph. A histogram graph was chosen to provide a visually accurate representation of the numerical data of the pre-test and post-test scores. The pre-test scores ranged from 52% to 78%, and the post-test scores ranged from 89% to 100%. While some participants demonstrated minor improvement, others demonstrated a dramatic improvement. Appendix E further identifies a significant increase of the test scores by displaying the mean score of all the participants. The pre-test mean score is 66.67% and the post-test mean score is 98.41%. The pre-test standard deviation 18.67 while the post-test standard deviation is 3.94. Resulting in a p-value 0.0135E-9, which is statistical significant which is less than 0.05 which supports this study's hypothesis. Appendix F displays the data of the mean percentage as the comparison of the pre-test score differentiating from participants who had prior training versus those who had not had prior training on the ERAS protocol. Twenty of the thirty-five participants had prior training before the intervention. The mean score of those who did not have prior training per pre-test is 51.85% with a standard deviation of 14.42, and the pre-test mean score for the participants who had prior

training is 77.78% with a standard deviation of 12.36. Resulting in a significance t-test p value

0.02400E-04, which is less than 0.05. However, the post-test score of all participants regardless

of prior training was not statically significant at 0.2484 which is greater than 0.05. This supports

the hypothesis that the intervention of the educational teaching resulted in a positive outcome.

All participants gained knowledge after the educational intervention. Appendix G displays the

data of the of the years of RN experience as it relates to the participant's pre-test and post-test

scores. The results display the more experience the RN possessed, the lower the pre-test

scores. However, after the intervention, the post-test scores of experienced RNs are relevantly

comparative with the RNs with less experience. This data will provide insight on if experience

was relevant for this study. Perhaps a conclusion may be deduced that the more experience the

more resistance to new knowledge. Appendix H displays the results of the qualitative questions

from the pre-test and post-test. All participants indicated increased comfort with implementation

of the ERAS protocol following intervention. In addition, all but one participant believes

evidence-based practice protocols are important. Reintegrating, most importantly there was a

statistical significance (< 0.05) related to the pre-test score of the nurses who had prior training

compared to nurses with no prior training. However, there was no statistical significance

regarding all the participants' post-tests scores. Concluding, regardless of prior training, all

participants' scores were above average after the educational teaching.

Discussion

For this project, the impact of structured education of direct care medical-surgical nurses on the

relevance and correct utilization of the ERAS protocol was evaluated. The project results support

the project hypothesis and literature findings. Following the intervention, an increase in the

knowledge and confidence of direct care medical-surgical nurses at the John Cochran VASTLHC

regarding the ERAS protocol was demonstrated as evidenced by a comparison of pre- and post-

test scores. The post-test scores of RNs who did not receive education on the ERAS protocol at

the time of initial hospital implementation exceeded the post-test scores of RNs who received a

form of education at the time of initial hospital implementation. This is attributed to the existing

knowledge of the ERAS protocol of participants who received a form of education of the

protocol prior to this project. On average, participants who received education on the ERAS

protocol by a provider at the John Cochran VASTLHC at the time of implementation scored

higher on the pre-test than participants with no prior training. The additional desired outcome to

increase the confidence of the RN's in implementing this protocol was also accomplished

according to the reported responses on the questionnaire. Limitations of this project are the

small sample size of participants and that some of the participants received brief/incomplete

education on the ERAS protocol from a provider at the time of the protocol's initial

implementations.

Conclusion

The impact of structured, program-specific training on the knowledge and perceived

confidence of direct care RNs regarding adherence and correct implementation of the ERAS

protocol was recognized in this project. The initial hypothesis stated that providing education

related to the ERAS protocol to the RNs at the John Cochran VASTLHC would increase

knowledge and confidence regarding correct utilization and adherence. The hypothesis was

supported with a p-value statistical significance less than 0.05, reporting at 0.0135 E-9. The

rationale for implementation of the ERAS protocol is patient safety and enhanced healthcare

delivery. As evidenced by the previously described adverse patient events and pre-test scores,

direct care RNs are major stakeholders in the correct implementation and sustainment of the

ERAS protocol. The findings of this project align with Bandura's social learning theory in that

the RN must believe in his / her ability to influence positive outcomes. Post-intervention, ninety-

seven percent of the participants reported the belief that evidence-based protocols such as ERAS

are important. It is imperative that health care administrators and leaders place priority on

training, resources and sustainment of evidence-based practice with the goal of ensuring safe,

quality care.

References

Betit, P. (2015). Guidelines, Pathways, Bundles, and Protocols: Clinical Recipes for Success. *Respiratory Care,* 60(3), 469-470. Doi: 10.4187/respcare. 03985

Chang, A.M., Crowe, L. (2011). Validation of scales measuring self-efficacy and outcome expectancy in evidence-based practice. *Worldviews on Evidence-Based Nursing,* 8(2), 106-115. Doi:10.1111/j. 1741-6787. 2011.00215x.

Foss, M. (2011). Enhanced recovery after surgery and implications for nurse education. *Nursing Standard*, *25*(45), 35-39.

Kim, B., Park, S., Park, K., Ryoo, S., (2017). Effects of a surgical ward care protocol following open colon surgery as part of an enhanced recovery after surgery programme. *Journal of Clinical Nursing*. 26(21-22). http:https://doi.org/10.1111/jocn.13682.

Melnyk, M., Casey, R. G., Black, P., & Koupparis, A. J. (2011). Enhanced recovery after surgery (ERAS) protocols: Time to change practice? *Canadian Urological Association Journal*, *5*(5), 342–348. http://doi.org/10.5489/cuaj.11002

Morris, J., Aarone, B. (2017). Pathways can improve health care quality. *Hosptials and Health Networks*. Retrieved from https://www.hhnmag.com/articles/8165-pathways-can improve-health-care-quality on June 14, 2018.

Spruce, L. (2015). Back to basics: implementing evidence-based practice. *Association of perioperative Registered Nurse Journal*. Vol 101, issue 1 (106-111). doi: http://dx.doi.org/10.1016/j.aorn.2014.08.009

Sullivan, E. (2018). *Effective Leadership and Management in Nursing* (9th edition). New Jersey: Pearson. ISBN: 978-0-13-415311-7

Appendix A

Pre-Test RN Survey:

John Cochran VASTLHC Preoperative ERAS Protocol

On which unit do you primarily work?   4N   6N   7N   7S   7B

Are you a Registered Nurse?   Yes   No

How long you have you been a registered nurse?   _____years

What is your age range in years?   18-37   38-53   54-72   73-91

Have you received prior education on the ERAS protocol? Yes   or   No

      If yes, did you receive education at this facility?   Yes   or   No

1. **What does the acronym ERAS stand for?**

    _____

2. **The ERAS protocol**:

    a). reduces the metabolic and endocrine response to surgery

    b). increases the length of stay

    c). Increases re-admissions rates

    d). all the above

3. **The ERAS protocol at VASTLHC is currently used on:**

    a). surgical hip patients

    b). surgical knee patients

    c). colon patients

    d). cardiothoracic patients

4. **Preoperative nutritional support for ERAS protocol includes consumption of Impact supplement drinks three times per day with meals beginning 5 days prior to surgery:**

Yes   No

5. **Preparation for surgery for the patient following the ERAS protocol includes NPO after midnight on the day before surgery:**   Yes   No

6. **Preoperative fasting guidelines for the patient following the ERAS protocol includes:**

   a) Drink 20 ounces of Gatorade 3 hours before surgery

   b). Intake of clear fluids up until 3 hours before induction of general anesthesia

   c). Solids are allowed up until 24 hours before anesthesia

   d). All the above

7. **Preoperative hydration/carbohydrate loading guidelines for the patient following the ERAS patient include:**

   a) Gatorade 20 fl. Oz. the night before surgery and another Gatorade 20 fl. Oz. 3 hours prior to surgery.

   b). One can of nutritional supplement Impact 3 hours before surgery

   c) NPO after midnight

8. **Preoperative preparation for the patient following the ERAS protocol includes the following except:**

   a). bowel prep with Miralax the day before surgery

   b). CHG shower the night before surgery

   c). 1 bottle (20 oz.) Gatorade 3 hours before surgery

   d). IV narcotics for pain

9. **The prophylactic antibiotics for the patient following the ERAS protocol are Metronidazole 500 mg oral and Neomycin 1000 mg oral.** The administration times for these medications are: 1 p.m., 2 p.m. and 10 p.m.: True   False

10. **Do you believe evidence-based new protocol practices are important?**   Yes   No

Appendix B

Post-Test RN Survey:

John Cochran VASTLHC Post-operative ERAS Protocol

Post-test included questions #1 - #10 of the pre-test in addition to these two questions:

1. **I feel confident in my ability to correctly perform the interventions listed in the preoperative ERAS protocol.**   Yes   No

2. **After completing this training, will the ERAS patients benefit?**   Yes   No

Appendix C

ST. LOUIS VAMC ERAS PROTOCOL (Enhanced recovery after Surgery) for Colorectal

Surgery 1 PREOPERATIVE WORK-UP

1. Preoperative Preparation:

      a. Bowel Prep - Bisacodyl (Dulcolax) @ 10am and 12 noon

      b. Metronidazole 500 mg - @ 1pm, 2pm and 10 pm

      c. Neomycin 1000mg- @ 1pm, 2pm and 10 pm

      d. Ondansetron (Zofran 8mg) as needed for nausea

      e. Polyethylene Glycol (MiraLAX) – @11 am Start drinking 8 oz. every 10-15

mins until completely gone

      f. Bathing Chlorhexidine Cleanser: Shower using CHG Cleanser the night before

surgery and the morning of surgery

2. Pre-operative hydration/carbohydrate loading with oral drinks. In addition to bowel prep with

MiraLAX – patient is required to drink 1 bottle (20 FL OZ) of Gatorade the night before surgery

and 1 bottle (20 FL OZ) 3 hours before surgery.

3. Preoperative fasting Guideline: NPO: Patient may continue to drink clear liquids up to 3 hrs.

prior to surgery. No solid food /OJ/Milk products for 24hrs prior to surgery

4. Preoperative nutritional support: ADVANCED RECOVERY NUTRITION SUPL IMPACT -

Quantity: 15 (Instructions: 1 can TID for 5 days prior to surgery). No nutrition supplements after

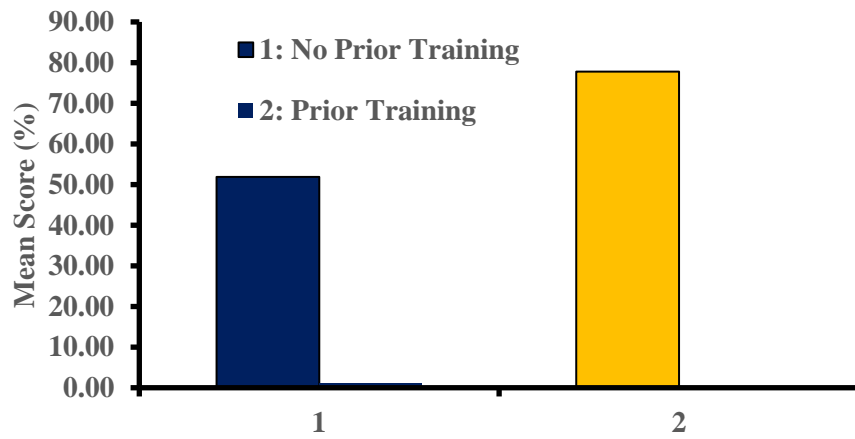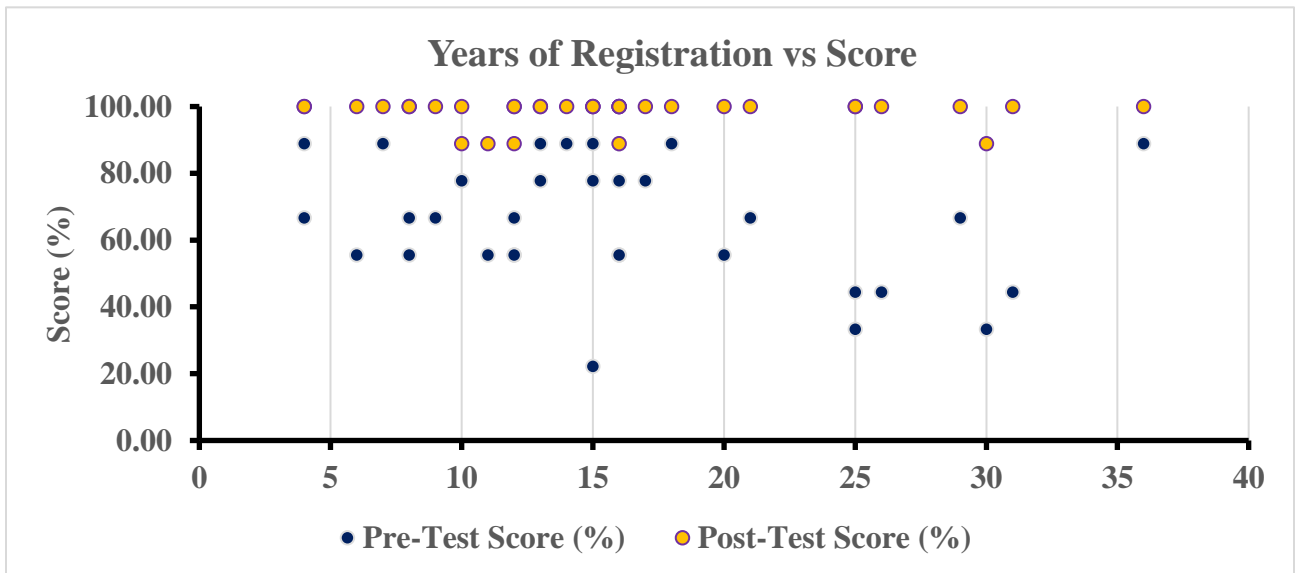midnight on day before surgery.

Appendix D
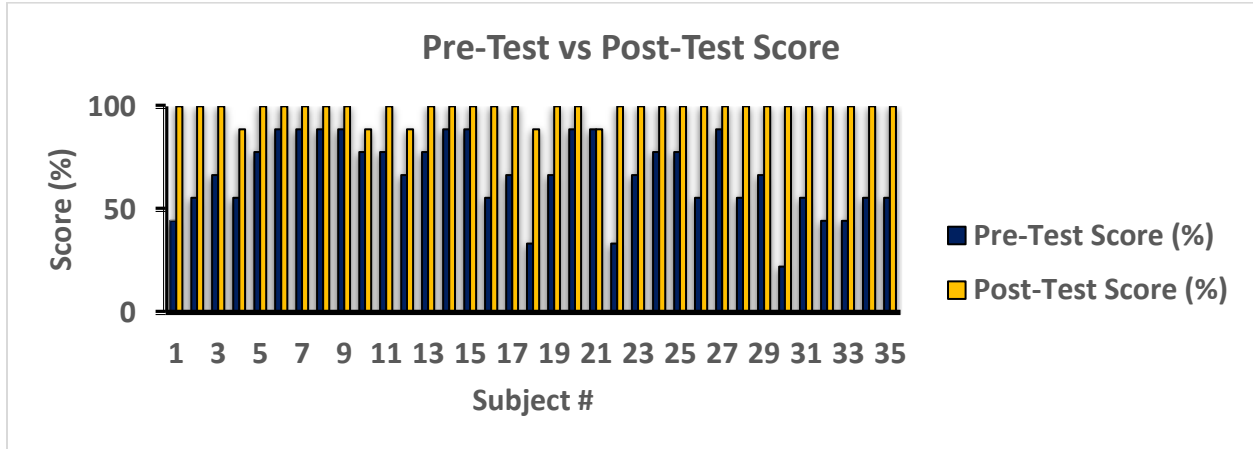
Appendix E
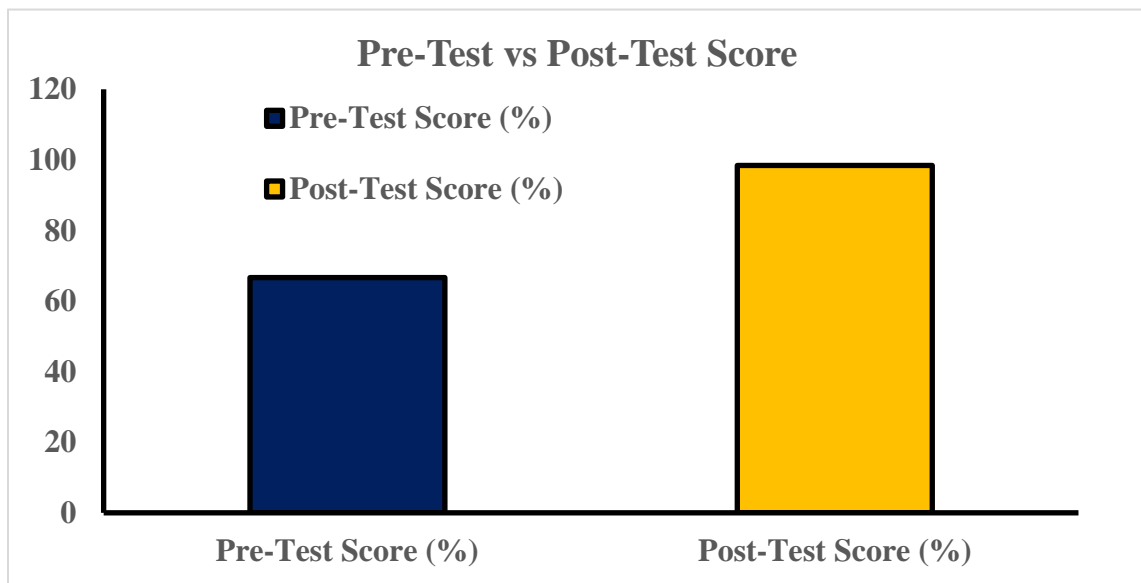
Appendix F

Pre-Test Score: No Prior Training vs Prior Training

Appendix G

Years of Registration vs Score

Appendix H

Number of Participants	Prior ERAS training at another facility	Pre-test: Believe EBP protocols are Important (Y)	Post-test: Believe EBP protocols are Important	Feel more confident implementing Preoperative ERAS (Y)	
35	5	33	34	35	