## REDUCING SAME-DAY SURGICAL OCCURRENCES

# REDUCING SAME-DAY SURGICAL DELAY & CANCELLATION OCCURRENCES: A QUALITY IMPROVEMENT PROJECT IN AN OUTPATIENT SURGERY CENTER

By

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#### Abstract

Patients presenting for surgical procedures must meet specific criteria in order to be deemed ready for surgery. Same-day surgical delays and cancellations often occur due to patients' inability to follow preoperative instructions. The goal of this quality improvement project was to decrease the number of same-day surgical delay/cancellation occurrences due to patient nonadherence of preoperative instructions. The Institute for Healthcare Improvement's Plan-Do-Study-Act (PDSA) Cycle was used in order to test an intervention on a smaller scale in order to determine if it leads to improvement. An evidence-based, standardized preoperative instruction pamphlet was developed and distributed to the patients across three specialties at an outpatient surgery center over a four-week time period. Surgical delay/cancellation occurrences decreased from 4.94% in the pre-intervention phase to 0.57% in the intervention phase. All same-day case cancellations during this project occurred due to patients' nonadherence to preoperative instructions, more specifically, fasting guidelines. Evidence supports using a standardized, evidence-based, written pamphlet for delivery of preoperative instructions in successfully reducing same-day surgical cancellations. Further research is needed in preoperative instructions for patients speaking languages other than English as well as for patients who cannot read.

*Keywords:* preoperative instructions, preoperative guidelines, surgical cancellations, surgical delays, NPO, quality improvement, outpatient surgery center, ASC

### Table of Contents

Introduction
Problem Background
Need for Study
Literature Review9
Framework13
Specific Aim14
Definitions Specific to Study15
Assumptions15
Methodology16
Design16
Sample Protection16
Study Site17
Inclusion/Exclusion Criteria17
Sample Recruitment Methods17
Preoperative Teaching Tool18
Data Treatment
Time Schedule
Results

### REDUCING SAME-DAY SURGICAL OCCURRENCES

Discussion
Limitations23
Summary
Conclusion25
Sustainability
Recommendations
References
Appendix A
Appendix B

### List of Tables

1: Same-Day Surgical Cancellation Data Pre and Post Intervention

### List of Figures

- 1: Institute for Healthcare Improvement's Model for Improvement
- **2:** *Total number of pre and post intervention surgical cases with number of occurrences*

# List of Appendices

- A: Study site approval letter
- **B:** Riverview Ambulatory Surgery Center Preoperative Instructions

#### Introduction

#### **Problem Background**

Fifty years ago, all surgical procedures were performed in hospitals, where patients were often faced with long waits for appointments and inpatient stays several days in length followed a surgical procedure. Challenged by frustrations like slow operating room turnover times, case delays, limited operating room availability and the necessity to follow hospital policies, physicians created the ambulatory surgery center in 1970. As of 2011, over 5,300 ambulatory surgery centers (ASCs) in the United States performed over 23 million surgeries on an outpatient basis (Ambulatory Surgery Center Association, n.d.).

According to Lee, several advantages exist to outpatient anesthesia: patients recover from anesthesia faster, leading to earlier discharge times, which leads to early resumptions of daily activities. Not only are patients more satisfied with care, but healthcare costs are decreased, proving great benefits to providers, third-party payers and hospitals (2017). Because of these advantages, ASCs are typically more desired by patients and physicians if a patient is having surgery. Because these facilities are fast-paced environments with high turnover of patients, any delays or cancellations in surgical case flow minimize the overall advantages of the ASC setting and operating room efficiency.

#### **Need for Study**

In the ambulatory surgery center in which the QI project took place, the most often reason for surgical delay or cancellation is failure to follow fasting guidelines as presented in the preoperative instructions. The reason behind fasting guidelines prior to the administration of anesthesia is a concept often misunderstood by patients. Patients are asked to fast prior to a procedure "in order to allow for sufficient gastric emptying and prevent pulmonary aspiration" (Stanford Medicine, n.d., p.1). While anesthesia is generally safe, pulmonary aspiration can be fatal. Anesthesia-related aspiration occurs as often as 1 in every 3,000 anesthetics (Nason, 2015).

A ten-year observational study (Jimenez et al., 2006) studied the reasons for surgical cancellations in an ambulatory day surgery center. The researchers concluded that of 424 case cancellations, 23.3% were cancelled due to patients' inability to follow preoperative instructions. It was concluded that more than half (57%) of the overall case cancellations in the studied setting could have been prevented, including these patients who failed to adhere to preoperative instructions. Overall study recommendations include the implementation of new preoperative instruction methods.

The above conclusions of Jimenez et al. (2006) are consistent with those of Chang et al. (2014). In this case review analysis, authors discuss the rate of surgical cancellations due to patients non-adherence of preoperative instructions, most often being fasting guidelines (4.5%) and emphasize the need for better patient/provider communication. Authors concluded that these case cancellations are preventable, point to inadequacies in procedures, and show room for improvement.

#### **Literature Review**

According to Vetter et al., it is estimated that patients forget between 40-80% of medical information relayed by healthcare providers, and of the information that is recalled, nearly half of the details recalled are incorrect (2014). Preoperative doctors' office visits and phone calls often consist of patients receiving large amounts of information and preoperative instruction during a short time period, often in times of increased emotional stress. Patient non-adherence to preoperative instructions often leads to surgical delays and cancellations.

Cancellations on the day of procedure have negative impacts on all involved, including patients, their families, surgeons, and healthcare facilities. Patients often complain of emotional distress, worsening symptoms, disruption in work schedule and lengthier hospital stays. For facilities, this equates to lower patient satisfaction scores, as well as lost revenue. According to Childers and Maggard-Gibbons (2018), the mean cost per minute of operating room time in 2014 was between \$36-\$37/minute. In the case of a cancellation, revenue is lost in several ways: equipment often needs reprocessing and repackaging, requiring extra time of staff and supplies. The operating room is sitting out of use, instead of generating revenue. Furthermore, surgeons and other high-earning professional staff (like anesthesia) are not providing billable services.

In order to determine what knowledge exists regarding preoperative instruction adherence and same day cancellations, a literature review was performed. Electronic searches were completed in July 2020 using the CINAHL and PUBMED databases. Search terms included surgery center, ambulatory surgery, elective surgery, elective procedure, surgery cancellation, surgery delay, non-adherence, compliance, non-compliance and preoperative instructions. Articles were excluded if their population focus was pediatric patients, or the article was older than fifteen years of age.

All sources in the literature review (Allison, 2014; Boyle, 2012; Falconer, 2013; Kaddoum, 2016; Pfeiffer, 2016; Ravindra, 2012; Smith, 2018; Stewart, 2019; Talalwah, 2019 & Vetter, 2014) focused on the problem of patient nonadherence to preoperative instructions and concluded that effective communication between surgical team members and patients during the preoperative instruction process is vital in order to prevent same-day cancellations or delays. Several sources (Boyle, 20120; Ravindra, 2012; Stewart, 2019) created new standardized preoperative instructions and evaluated whether or not these methods were superior to previous methods used.

The most commonly associated problem with surgical cancellations was the loss of revenue when a surgical case is delayed or cancelled. According to Stewart et al., last minute surgical cancellations lead to a substantial loss of revenue for the facility, as operating room costs range from \$1,430-1,700 per hour, not including anesthesia services (2019).

An integrative review by Talalwah & McIltrot (2019) looked at twenty-three sources that previously studied surgical cancellations in order to classify overall reasons for surgical cancellations. Authors described all surgical cancellations as fitting into one of three categories: facility related, surgeon related, or patient related. Authors further described that while some surgical cancellation reasons are unavoidable on the day of surgery, some reasons are avoidable, including patient non-adherence to preoperative instructions. Authors finally conclude that further effort should be made into decreasing avoidable surgical cancellations.

Stewart et al. (2019) and Kaddoum et al. (2016) agree with Talalwah & McIltrot (2019) concluding that efforts need to be made in order to decrease avoidable day of surgery cancellations. Both sources conclude that interventions need to be performed in order to increase preoperative instruction compliance and decrease surgical cancellation rate. According to Kaddoum et al., day of surgery cancellation rates below 2% should be attainable, since the majority of reasons for cancellations are avoidable (2016).

Several sources (Boyle, 2012; Ravindra, 2012; Stewart, 2019) created new standardized preoperative instructions and evaluated whether or not these methods of administration were superior to previous methods used at their facilities. Stewart et al. (2019) created and implemented standardized preoperative instructions via a smartphone application in order to

increase adherence and decrease day of surgery cancellations. Among 85 application users, there were zero surgical cancellations. Ravindra & Barrett (2012) and Boyle (2012) both designed and implemented standardized, evidence-based written leaflets for preoperative instructions in order to increase patient compliance. Ravindra & Barrett (2012) increased patient adherence by 22%. Boyle (2012) noted a decrease in patient non-compliance with preoperative instructions, which led to a decrease in delays, decrease in patient waiting lists for appointments, and overall increase in patient satisfaction scores.

While all sources (Allison, 2014; Boyle, 2012; Falconer, 2013; Kaddoum, 2016; Pfeiffer, 2016; Ravindra, 2012; Smith, 2018; Stewart, 2019; Talalwah, 2019 & Vetter, 2014) concluded that preoperative instructions are vital to preventing surgical delays and/or cancellations, some sources made further conclusions. Allison & George (2014) did not recommend a specific format for providing preoperative instructions, but did state that instructions need to be clear and concise. Another source (Falconer et al., 2013) evaluated 293 surgical patients and their fasting times, discovering that many patients over-fasted due to both misunderstanding and misremembering preoperative instructions from both written and verbal groups. Authors recommended standardized preoperative instructions in either written or verbal format, also emphasizing the explanation of the rationale behind preoperative fasting guidelines, as well as the adverse effects of both under/over fasting. Pfeifer et al. (2016) studied patient adherence to preoperative instructions on the day of surgery and concluded that for increased compliance, patients need a consistent, standardized approach for receiving preoperative instructions. Three sources (Boyle, 2012; Ravindra, 2012; Vetter, 2014) concluded standardized preoperative instructions in written format are superior to verbal format.

Effective communication during preoperative instruction is essential in order to ensure patient adherence and decrease day of surgery delays and cancellations (Allison, 2014; Boyle, 2012; Falconer, 2013; Kaddoum, 2016; Pfeiffer, 2016; Ravindra, 2012; Smith, 2018; Stewart, 2019; Talalwah, 2019 & Vetter, 2014). While authors suggest different formats for delivery of instructions, all collectively recommend that surgical facilities develop a preoperative instruction delivery process which is clear, concise, standardized and thorough. Multiple sources (Kaddoum, 2016; Stewart, 2019; Talalwah, 2019) emphasize that same-day surgical cancellations due to preoperative non-compliance by patients is an avoidable problem with the potential for improvement in many settings.

#### Framework

This quality improvement project was developed and guided based on the Plan-Do-Study-Act (PDSA) cycle as recommended by the Institute for Healthcare Improvement (2020) as the model for improvement in healthcare. First, three fundamental questions were addressed, regarding what is trying to be accomplished, how it will be known when a change is an improvement, and what change can be made that will result in an improvement. In the healthcare setting, the PDSA cycle is used in order to determine if changes lead to improvements. In the Plan-Do-Study-Act cycle, steps include planning the test, implementing the change on a small scale, observing results and what is learned, and acting on what has been learned by implementing the change on a larger scale (U.S. Department of Health & Human Services, 2013). A visualization of the Model for Improvement by the Institute for Healthcare Management (2020) is presented in Figure 1.

#### Figure 1

Institute for Healthcare Improvement's Model for Improvement



The use of the PDSA cycle to implement standardized preoperative instructions with several operating physicians will enable the doctoral student to plan, implement and observe the results of the change in same day surgical delays/cancellations. If same day surgical cancellations (related to preoperative instructions) decrease, implementation of this intervention can be used on a larger scale by adopting across all operating physicians at this outpatient surgery center.

#### **Specific Aim**

The aim of this quality improvement project was to reduce the number of same-day surgical delay/cancellation occurrences due to patient nonadherence of preoperative instructions.

#### **Definitions Specific to Study**

Adult: person over the age of 18 years old

<u>Elective procedure</u>: surgical procedure for a non-life-threatening condition (Johns Hopkins Medicine, 2020)

<u>ASA Physical Class</u>: system used across anesthesiology in assessing and communicating a patient's overall medical comorbidities (American Society of Anesthesiologists, 2019).

ASA I = a normal healthy patient (non-smoker, minimal to no alcohol use)

ASA II = patient with mild systemic disease, BMI<40, 1 disease well-controlled

- ASA III = patient with severe systemic disease; examples: poorly controlled hypertension diabetes or COPD; BMI >40, alcohol dependence/abuse, implanted pacer, etc.
- ASA IV = patient with severe systemic disease that is a constant threat to life; MI < 3 months prior, CVA/TIA, ongoing cardiac ischemia, severely low ejection fraction, sepsis, end-stage renal disease

ASA V = a moribound patient who is not expected to survive without the operation

ASA VI = patient declared brain-dead scheduled for organ harvest for donor purposes <u>Preoperative instructions</u>: the process in which a patient is given information prior to the day of surgery; can occur at doctor's office or via phone from surgery center, by physician or registered nurse; teachings include what to expect on the day of the procedure, fasting guidelines

#### Assumptions

For this QI project, it is assumed that through changing the current manner in which patients are given preoperative instructions, from one with minimal structure, to a more standardized, clear and concise method, the rate of same-day surgical delays or cancellations could be decreased. It is believed by the anesthesia department, operating physicians, and the DNP student that the most common reason for surgical delays and case cancellations related to the patient is due to non-compliance of NPO status related to preoperative instructions. It is also assumed in this project that patients will not lie when answering questions pertaining to their NPO fasting time when presenting for surgery.

Patients scheduled for surgery without anesthesia will be excluded from this QI project as they are not expected to follow preoperative fasting guidelines prior to arrival for surgery.

#### Methodology

#### Design

This project was a non-experimental quality improvement (QI) project with an intervention plan in order to address the problem of avoidable same-day surgical cancellations due to patient non-adherence of preoperative surgical instructions.

#### **Sample Protection**

In order to protect data regarding the population, data obtained was stored on a passwordprotected USB drive, and stored in a drawer in the locked anesthesia office at the study site. No identifying health information was recorded, and charts reviewed received a number in numerical order in which they were reviewed. The DNP student/project lead investigator has completed the collaborative institutional training initiative program.

According to Berman, Raval, and Goldin (2018), a QI project does not need approval from an institutional review board or patient consent. This project was reviewed by study site stakeholders and the DNP student's project advisory panel. Study site permission can be found in Appendix A.

#### **Study Site**

This project took place at the Riverview Ambulatory Surgical Center in Kingston, Pennsylvania. This facility is an outpatient surgery center with three operating rooms, one minor procedure room, and eleven bays which function as both pre-operative or post-operative bays. This facility performs approximately 4,000 surgeries/procedures per year. Surgical specialties include ear, nose and throat (ENT), gastroenterology, general surgery, orthopedic, urology, plastic surgery and pain management. This facility does not utilize electronic medical records, and a physical paper chart exists for each surgical patient. The practice site does not have an institutional review board. Project site approval documentation was obtained and is listed in Appendix A.

### Inclusion/Exclusion Criteria

Inclusion criteria for this quality improvement study includes English-speaking, adult patients, ASA physical status classes I-III, scheduled for surgery at this facility during the data collection period. Patients were excluded from this project if they presented for care outside of the implementation period. Members of vulnerable populations, including prisoners, pregnant women, and pediatric patients were also excluded. This project also excluded patients whose native language is not English, as well as patients who cannot read.

#### **Sample Recruitment Methods**

Patients schedule surgery in this facility for outpatient surgery after first presenting to an appointment at the office of their surgeon/procedurist. Because most surgeons at this surgery center are also part owners of the facility, all have strong beliefs and investment into this quality improvement project. All patient charts of three chosen surgeons (who meet inclusion criteria) during the specific data collection times will be included in this project.

#### **Preoperative Teaching Tool**

Prior to the implementation of this quality improvement project, there is a lack of consistency among surgeons regarding preoperative instructions at this facility. Some surgeons distribute written preoperative instructions, while some have office staff members verbalize preoperative instructions. Among the written instructions distributed, inconsistencies exist. The week of a patient's procedure, one of five surgery center registered nurses calls each patient and gives verbal instructions regarding the day of the procedure. These verbal instructions are also inconsistent.

Current evidence proves effective preoperative teaching using evidence-based tools reduces last-minute surgical cancellations (He et al., 2018). A current, evidence-based, written preoperative instruction tool was developed by the DNP student in collaboration with operating physicians, surgical center administration and anesthesia providers. This pamphlet was printed and distributed to three operating physicians' offices for distribution to patients scheduled for surgery during the intervention phase. A copy of the preoperative instructions is available in the appendix. Physicians and/or their office staff were asked to distribute the surgery center preoperative instructions to patients at the time of scheduling surgery.

#### **Data Collection Procedures**

Data was collected from both the pre-intervention and intervention phases. Data was collected from patients' paper charts by the DNP student. Charts were reviewed within the surgery center and returned to the chart rack immediately after reviewing. A password-protected Microsoft Excel spreadsheet was used to organize the following data:

- date of procedure
- surgical specialty

- date preoperative instructions delivered
- manner in which preoperative instructions were delivered
- whether an occurrence occurred in which the case was delayed or cancelled,
  - $\circ$  and if so, the reason for delay/cancellation.

Data collected from the charts will be presumed reliable and valid. No protected health information will be collected.

#### **Data Treatment**

The overall goal of this project is to determine if implementing this intervention will better measured outcomes and provide a possibility to be implemented on a larger scale. According to Parsley & Corrigan (2002), in quality improvement projects, "results do not need to be generalized to the population and will not be used to develop new theories or knowledge...Quality improvement makes use of mostly descriptive statistics and the issue of statistical significance is not usually relevant" (p. 121).

#### **Time Schedule**

The initial stages of this project included developing background, purpose statement, operational definitions specific to study, the need for the study, and performance of a literature review with the guidance of a DNP project advisor. These steps allowed for developing the project and possible solutions. A quality improvement framework with intervention was chosen. These steps were completed by September 2020.

Obtaining approval for implementation of the proposed project occurred by meeting with my advising panel as well as study site leadership. These steps were completed by the beginning of October 2020.

A current, evidence-based preoperative instruction tool was developed and disseminated to three participating surgeons. Implementation was four-week phase. Data will be collected pre-intervention and post-intervention. The pre-intervention phase was 9/4/20 to 10/9/20. The intervention phase was 10/12/20 to 11/13/20.

Dissemination of the final QI project finding and submission of project write-up to the AORN Journal, occurred in December 2020.

#### **Results**

Retrospective data was obtained in order to determine a baseline cancellation/delay occurrence rate prior to implementing the quality improvement project intervention. Data from 9/4/2020 to 10/9/2020 examined 162 patients presenting across three surgical specialties. Overall, 8 patient occurrences were noted, demonstrating 4.94% of scheduled cases were delayed and/or cancelled on the day of the procedure.

The intervention phase data was collected between 10/12/2020 and 11/13/2020. In this phase, the same three surgical specialties had a total of 174 patients. Overall, 1 cancellation occurred on the day of procedure, demonstrating a 0.57% occurrence rate.

During both intervention phases, reasons for surgical delay/cancellation occurrences were also recorded by the investigator. All same-day surgical cancellations occurring during this QI project occurred due to the patients' nonadherence to NPO guidelines as described in the preoperative instructions.

### Table 1

	Pre-Intervention	Post-Intervention
Number of Total Cases	162 patients	174 patients
Number of	8	1
Cancelled/Delayed Cases		
Cancelled/Delayed	4.94%	0.57%
Occurrence Rate		

### Same-Day Surgical Cancellation Data Pre and Post Intervention

### Figure 2

Total number of pre and post intervention surgical cases with number of occurrences



### Surgical Cancellations on Day of Surgery

According to Parsley & Corrigan (2002), in quality improvement projects, "results do not need to be generalized to the population and will not be used to develop new theories or

knowledge...Quality improvement makes use of mostly descriptive statistics and the issue of statistical significance is not usually relevant" (p. 121). In reviewing the project's aim, to reduce the number of same-day surgical delays and/or cancellations due to patient nonadherence of preoperative instructions, this project has met its aim. The tested intervention decreased the surgical delay/cancellation rate from 4.94% to 0.57%.

While the aim for this study was to decrease same-day surgical delays/cancellations related to fasting guidelines, patients did give feedback on several occasions that they were thankful to have the preoperative instruction pamphlet in their possession because it had the address and phone number on the front cover. It may be beneficial to include a small diagram map of the facility's location in the future.

#### Discussion

The overall goal intended by this QI project with intervention, to decrease same-day surgical delay/cancellation occurrences, was met. Kaddoum et al. (2016) states that day of surgery cancellation rates below 2% should be attainable by surgical facilities, due to the majority of cancellation reasons being avoidable. Pre-intervention data showed the facility had a baseline delay/cancellation occurrence rate of 4.94%. The post-intervention delay/cancellation occurrence rate of 0.57% allowed this facility to attain a surgical cancellation rate in the author's acceptable range.

An integrative review by Talalwah & McIltrot (2019) describes all same-day surgical cancellation reasons as fitting into one of three categories: facility related, surgeon related, or patient related. Authors further describe patient related cancellations as most often being due to patient non-adherence to preoperative instructions, an avoidable issue. The findings of this QI project are consistent with this integrative review: all patient related same-day surgical

cancellations were due to patient non-adherence to preoperative instructions, and all were avoidable. Reducing the surgical delay/cancellation occurrence rate from 4.94% in the preintervention phase to 0.57% in the intervention phase led to an overall improvement in avoidable occurrences. This decrease in same-day surgical cancellations avoids associated problems including loss of facility revenue, increased emotional distress for patients and families as well as lost revenue from time lost by surgeons and anesthesia providers.

This QI project was implemented using the Plan-Do-Study-Act (PDSA) cycle by the Institute for Healthcare Improvement (2020). This framework is used in the healthcare setting to determine if small-scale changes can lead to improvements before being implemented on a larger scale. In this project, the intervention was first planned. An evidence-based, standardized preoperative instruction pamphlet was created. Next, the intervention was implemented. Standardized preoperative instruction pamphlets were delivered to operating physicians' offices in order for their dissemination to patients upon scheduling for procedure. During the study phase of the cycle, the data collection took place, leading to the result of decreased same0day surgical delay/cancellation occurrences. In the final phase of the PDSA cycle, the act phase, the facility and operating physicians have the opportunity to use this intervention on a larger scale, across all operating physicians at this facility.

### Limitations

The main limitation to this quality improvement project involved changing the culture in which the current physicians' offices give patients preoperative instructions when booking surgical appointments. Prior to this project, all physicians of this ambulatory surgical center had their own individual set of preoperative instructions which are given to their patients either 1) at their preoperative appointment in-person, or 2) when booking an operative appointment over the phone. Many variables exist, including format (written vs. oral), and standards (fasting hours). A retrospective analysis of reasons for cancelling elective surgeries by Huda (2014), recommended establishing effective preoperative assessment protocols and improving communication with patients regarding preoperative instructions. This QI project involved shifting the culture of these doctors' offices (with prior approval from the surgery center) to a universally accepted practice across all offices, consistent with the standards of the anesthesia department at the surgery center. Standardized preoperative instructions were created based on evidence-based, current practice standards.

Limitations for this QI project also included a short time period for implementation and the COVID-19 national pandemic. Both of these limitations led to a small sample size. The intervention phase data was obtained from a four-week period during the COVID-19 national pandemic, a time when many patients are delaying elective outpatient procedures. This time period also fell during influenza season, and many restrictions are in place regarding scheduling patient procedures. Evaluating a policy change over a longer time period will increase sample size as well as emphasize its value.

#### **Summary**

This quality improvement project set out to reduce same-day surgical delay and cancellation occurrences in an outpatient surgical center in the patients of three surgical specialties over a four-week period. The chosen intervention included the development of an evidence-based, standardized preoperative instruction pamphlet that was distributed to patients at their physicians' offices when they were scheduled for surgery. Baseline data collected during the pre-intervention phase showed 8 out of 162 patients having a same-day surgical cancellation, or an occurrence rate of 4.94%. The intervention phase had 1 out of 174 patients with a same-day

surgical cancellation, or an occurrence rate of 0.57%. All delay or cancellation occurrences during this project occurred due to patient nonadherence to preoperative instructions. Overall, this project met its project aim to reduce same-day surgical delay/cancellation occurrences.

#### Conclusion

This quality improvement project demonstrated an intervention implemented in order to positively change practice. This evidence-based quality practice change decreased the facility's same-day surgical delay/cancellation occurrence rate. This project can be used as a reference for future healthcare staff in outpatient surgery centers.

#### **Sustainability**

The last step of the PDSA Cycle would be to implement this practice change on a larger scale. Currently, this outpatient surgery center is collaborating with the lead investigator on this quality improvement project. After the dissemination of project results, if all surgical center board members were in agreement, it would be possible that a preoperative instruction policy update/change could take place on a larger scale, with the adoption of the written preoperative instruction pamphlet being distributed to all operating physicians of the facility. Adoption of this pamphlet has the potential to improve patient outcomes, decrease overall costs and increase patient satisfaction scores.

#### Recommendations

This project had specific inclusion criteria, and further research should be done in the areas of preoperative instructions for members of vulnerable populations (like pediatric patients, or pregnant women). Language barriers and/or illiteracy were considered exclusion criteria. Developing the intervention pamphlet in languages other than English, as well as offering the

preoperative instructions via recording or electronically may be other interventions that may warrant investigation.

#### References

Allison, J. & George, M. (2014). Using preoperative assessment and patient instruction to improve patient safety. *AORN Journal*, 99(3), p. 364-375. https://doi.org/10.1016/j.aorn.2013.10.021

Ambulatory Surgery Center Association. (n.d.). A positive trend in healthcare. https://www.ascassociation.org/advancingsurgicalcare/aboutascs/industryoverview/aposit

ivetrendinhealthcare

American Society of Anesthesiologists. (2019). ASA physical status classification. https://www.asahq.org/standards-and-guidelines/asa-physical-status-classificationsystem

- Boyle, C.A. (2012). Summary of: Compliance with preoperative instructions for procedure with conscious sedation: A complete audit cycle. *British Dental Journal*, 212, p. 132-133. https://www.nature.com/articles/sj.bdj.2012.118
- Chang, J.H., Chen, K.W., Chen, K.B., Poon, K.S., & Liu, S.K. (2014). Case review analysis of operating room decisions to cancel surgery. *BMC Surgery*, 14(47). https://link.springer.com/content/pdf/10.1186/1471-2482-14-47.pdf

Childers, C.P., & Maggard-Gibbons, M. Understanding costs of care in the operating room. *JAMA Surgery*, *153*(4). https://jamanetwork.com/journals/ jamasurgery/fullarticle/2673385

Falconer, R., Skouras, C., Carter, T., Greenway, L., & Paisley, A.M. (2013). Preoperative fasting: Current practice and areas for improvement. *Updates in Surgery, 66*, p. 31-39. doi: 10.1007/s13304-013-0242-z

He, J., Gallego, B., Stubbs, C., Scott, A., Dawson, S., Forrest, K., & Kennedy, C. (2018).

Improving patient flow and satisfaction: An evidence-based pre-admission clinic and transfer of care pathway for elective surgery patients. *Collegian*, *25*(2), p. 149-156. https://doi.org/10.1016/j.colegn.2017.04.006

- Huda, F. (2014). A retrospective analysis of reasons for cancellation of elective surgeries in a teaching hospital. *International Journal of Scientific Study*, 2(2), 28-30. https://www.ijsssn.com/uploads/2/0/1/5/20153321/ijss\_may-06.pdf
- Institute for Healthcare Improvement. (2020). How to improve. http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementHowtoImprov e.aspx
- Jimenez, A., Artigas, C., Elia, M., Casamayor, C., Gracia, J.A., & Martinez, M. (2006). Cancellations in ambulatory day surgery: Ten years observational study. *Ambulatory Surgery*, 12(3), p. 119-123. https://doi.org/10.1016/j.ambsur.2005.09.002
- Johns Hopkins Medicine. (2020). Types of surgery. https://www.hopkinsmedicine.org/health/ treatment-tests-and-therapies/types-of-surgery
- Kaddoum, R., Fadlallah, R., Hitti, E., EL-Jardali, F., & El Eid, G. (2016). Causes of cancellations on the day of surgery at a tertiary teaching hospital. *BMC Health Services Research*, 16(1). doi: 10.1186/s12913-016-1475-6
- Lee, J.H. (2017). Anesthesia for ambulatory surgery. *Korean Journal of Anesthesiology*, 70(4). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5548941/#!po=7.14286
- Nason. K.S. (2015). Acute intraoperative pulmonary aspiration. *Thoracic surgery clinics*. 25(3), p. 301-307. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4517287/
- Parsley, K. & Corrigan, P. (2002). Quality improvement in healthcare: Putting evidence into practice (2<sup>nd</sup> ed.) Nelson Thornes Ltd.

- Pfeifer, K. Swalski, B., Manley, A-M., Nelson, V., & Haines, M. (2016). Improving preoperative medication compliance with standardized instructions. *Minerva Anestesiologica*, 81(1), p. 44-49. https://www.minervamedica.it/en/journals/minervaanestesiologica/article.php?cod=R02Y2016N01A0044
- Ravindra, P. & Barrett, C. (2012). Compliance with pre-operative instructions for procedures with conscious sedation: A complete audit cycle. *British Dental Journal*, 212(3). https://doi.org/10.1038/sj.bdj.2012.99
- Smith, B.B., Smith, M.M., Hyder, J.A., Mauermann, W.J., Warner, M.E., Licatino, L.K., & Barbara, D.W. (2018). Same-day cancellation in ambulatory surgery. *Journal of Ambulatory Care Management*, 41(2), p. 118-127.
  https://doi.org/10.1097/JAC.0000000000226
- Stanford Medicine. (n.d.). NPO status and aspiration. http://ether.stanford.edu/abdominal\_ surgery\_rotation/documents/1A-NPO%20and%20aspiration.Jennifer.5.9.12.html
- Stewart, J., Fayed, I., Henault, S., Kalantar, B., & Voyadzis, J. (2019). Use of a smartphone application for spine surgery improves patient adherence with preoperative instructions and decreases last-minute surgery cancellations. *Cureus*, *11*(3).
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6504025/pdf/cureus-0011-00000004192.pdf
- Talalwah, N.A. & McIltrot, K.H. (2019). Cancellations of surgeries: Integrative review. Journal of Anesthesia Nursing, 34(1), p. 89-96. https://www.jopan.org/article/S1089-9472(18)30002-9/fulltext
- U.S. Department of Health & Human Services. (2013). Plan-do-study-act (PDSA) cycle. https://innovations.ahrq.gov/qualitytools/plan-do-study-act-pdsa-cycle

Vetter, T.R., Downing, M.E., Vanlandingham, S.C., Noles, K.M. & Boudreaux, A.M. (2014).
 Predictors of patient medication compliance on the day of surgery and the effects of providing patients with standardized yet simplified medication instructions.
 *Anesthesiology, 121*, p. 29-35. doi: 10.1097/ALN.00000000000175

### Appendix A



Riverview Ambulatory Surgical Center, L.L.C.

September 28, 2020

Colleen Barrett, DNP Associate Professor – Nursing Dept. Edinboro University

Dr. Barrett,

This communication is to make notice to you that Riverview Ambulatory Surgical Center, LLC is aware of and in agreement with Lauren Hostetler, CRNA, performing a quality improvement study at the center, as part of her Doctoral project with Clarion/Edinboro Universities. This letter may also serve as our agreement allowing her to conduct this study at our facility. We are supportive of her efforts in the area she chose to study, and will aide her by providing access to the necessary information to complete a thorough and accurate study.

Sincerely, GanTucell

Joan Purcell, CASC Administrator

#### **Appendix B**

#### OUR STORY

Riverview Ambulatory Surgical Center is dedicated to providing a healthy, safe environment for our patients. Our costeffective, outpatient treatments are an excellent alternative to traditional hospital surgery with proven results.

We are locally-operated in Kingston, PA and not affiliated with any hospital or health system.

Riverview Ambulatory Surgery Center is an AAAHC accredited, Medicare-certified facility and has been a member of the ASCA for more than 20 years.

### ABOUTUS

Founded in 2000, Riverview Ambulatory Surgical Center is an 8,781 square foot state-of-the-art multispecialty facility. Locally-owned and operated, our facility is specifically designed for outpatient procedures. Riverview Ambulatory Surgical Center offers three wellequipped surgical suites and one minor procedure room. Our patientfriendly design in the center ensures optimum flow and maximum privacy.

CONTACTUS

Riverview Ambulatory Surgery Center

423 3rd Ave, Suite D Kingston PA 18704 tel. (570) 331-2040

www.riverviewasc.com



#### **BEFORE YOUR SURGERY**

Please notify your doctor immediately if -It is possible you are pregnant -You experience any health changes (cough, cold, fever)

Arrange in advance for someone to drive you home following your procedure. You will not be allowed to drive, and you will not be permitted to leave the surgery center alone. You will need to be released in the care of a responsible adult.

One of our staff nurses will be contacting you prior to your surgery day to obtain a brief history, give instructions and answer any questions you may have.

#### DAY OF SURGERY

-Bring a copy of your insurance card & photo ID -Bath/shower on the morning of your procedure -Wear clean, loose, comfortable clothing -Do NOT consume alcohol -Do NOT smoke -Do NOT wear jewelry or bring any valuables

Do NOT eat anything (including chewing gum, cough drops) after

midnight day of your procedure unless otherwise instructed. You may have water until 3 hours prior to your arrival time.

In our preoperative area, you will complete paperwork as well as interview with the nurse and member of our anesthesia team. While we do our best at estimating time, please understand that unexpected delays may extend your wait prior to your procedure.

#### AFTER SURGERY

Following surgery, you will be in the recovery room until you are awake and stable. Once ready to go home, you will receive discharge instructions from your nurse regarding your home care. Our facility does not offer extended care.

You may continue to experience common side effects of surgery and anesthesia once at home, including drowsiness, headaches, dizziness, or a sore throat. Ask your doctor about expected side effects after surgery. **Call your doctor immediately if any unexpected side effects occur.** 

A nurse will call you on the next business day after your surgery to follow-up. If you would like to discuss any concerns before this call, do not hesitate to call our facility and ask to speak to a nurse.