

A DNP Project

**A Quality Improvement Project to Assess Anxiety of Family Members who Receive
Standard Communication During the Intraoperative Period**

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Abstract

Introduction: The waiting period for surgical patients' family members can be stressful, causing increased frustration and fear. Most patients and families do not regularly experience the surgical environment in the same way that the operating room (OR) staff do, making this area unfamiliar. If there are inconsistent and insufficient information provided to the family, anxiety levels may increase. It is essential that staff attend to family members' needs while the patient is in surgery. The evidence is overwhelming that structured patient status updates to family members and varying waiting room techniques are critical in decreasing their anxiety.

Methods: This quality improvement (QI) project was conducted at a single-center ambulatory surgical location over three months. To assess the magnitude of the local problem, family member participants were asked to complete the State-Trait Anxiety Inventory for Adults (STAI). The STAI survey assessed the anxiety levels of the families who were waiting in either the waiting room, patient's OR, or another location such as outside the facility. The results of the needs assessment contributed to an understanding of the family's anxiety while they waited for their loved one in surgery.

Results: A total of 26 patients took part in this quality improvement project. Data revealed that 84% of the participants experienced no or low anxiety levels during the waiting period.

Conclusion: It was shown that this self-reported STAI anxiety survey did aid in determining low anxiety levels for family member participants at the surgical site based on the communication strategies currently used.

A Quality Improvement Project to Assess Anxiety of Family Members who Receive Standard Communication During the Intraoperative Period

Problem Description

Old Moultrie Surgical Center staff shared that there was no one set way to measure communication scores for only the OR (J. Caudill, personal communication, May 3, 2021). The overall patient experience is affected by the complete surgical center experience, including the OR (Saver, 2011). Patients and family members relate more to the non-clinical experience than to the clinical. Surgery times can never be exact, so effective communication with the families can play a huge role in positively impacting patient surveys (Saver, 2011). The ambulatory surgical center provided each patient with a satisfaction survey that was submitted to the Agency for Health Care Administration. The patient satisfaction survey was based on health quality assurance and assisted the Agency in identifying opportunities for improvement (Agency for Health Care Administration, 2021). The patient evaluation of health care services contained questions focusing on whether the patient felt quality care was received at the facility. The questionnaire had questions including if the staff were professional and courteous, the staff identified themselves, the medical concerns were addressed, the examination was professional and complete, the procedure was scheduled in a timely manner, the staff provided privacy, the questions were answered promptly, completely, and to the patient's understanding, the staff responded promptly to the patient needs and concerns, and if the patient would recommend that facility to others (Old Moultrie Surgical Center, 2021). The results of the survey were reported to the Center for Medicaid and Medicare Services (CMS) every two years to maintain accreditation. The Agency for Health Care Administration (2021) is responsible for Medicaid which is the low-income families and individual's medical assistance program. This agency can account for \$25.2

billion of Medicaid dollars with a program that serves approximately 4.27 million people in Florida. If the satisfaction scores are consistently low, a hospital's accreditation may be pulled; therefore, it is vital for Old Moultrie Surgical Center's customers to report a positive satisfaction survey to maintain CMS accreditation (2021).

The rationale for choosing this QI study was that the project site encouraged education to improve the care of the patient and decrease family anxiety. The surgeon also stated that patients and families would appreciate being a part of a scholarly project to enhance satisfaction of the surgical experience (J. Caudill, personal communication, May 3, 2021). The surgical waiting room area had a television, magazines, and music to help distract the families. The family waited in the waiting room or outside the facility until the patient's surgery was completed, and the surgeon updated the families after the case. The families were notified of meaningful intraoperative information, such as surgical time estimated prior to the start of the procedure. There were no consistent updates on surgical start, stop, and closing times due to the shorter duration of the minor procedures. There were often expected delays with the intravenous catheter insertion, patient arrival delays, induction of anesthesia, positioning, and draping of the patient before the surgery started, increasing the time the family believed was included in the actual surgical procedure time given by the staff. Once the patient left the preoperative room, the family did not receive any updates on the patient's status until the physician updated them when the procedure was done, regardless of how long the surgery took. Often, the surgeon did not update the family if there was no family with the patient or the procedure did not involve any details that the surgeon felt was necessary to give to the families. The surgeon would typically schedule the patient for a two-week postoperative appointment to update the patient and family on any specific details at that time. There was no standard or guide at the project facility site regarding

how often the families should be updated, even with the current literature stating that regular updates are optimal to reduce family anxiety.

The patients and families at the project site often reported feelings of anxiety when they arrived for their procedure due to the recent cancer diagnosis, this being their first surgery, risk of anesthesia, or worried about specimen results. Although the surgeon explained the diagnosis and procedure, the patient and families were still left with confusion and worry about what the next step of their medical journey would be. Doctor reviews from patients and families were listed on websites for public view.

CareDash (2021) is a website that advertised ratings on multiple healthcare providers for patients to get honest and transparent opinions from previous customers. The project site surgeon's reviews were 4.3 out of 5.0 stars on overall patient experience (CareDash, 2021). The lowest scores discussed customer's satisfaction from general feedback from the surgeon, the surgeon's understanding and interpretation of outcomes, provider's follow up, patient loyalty to provider, and amount of time spent with the patient (CareDash, 2021). Healthgrades (2021) was another website that provided facts about doctors that were important to patients and their family members. The surgeon's survey results were 4.5 out of 5.0 stars with the focus of areas of improvement such as appointment times being rushed, trusting of the provider, explaining conditions, difficulty in questioning, difficulty in scheduling appointment, office environment, and long wait times (Healthgrades, 2021). It was through these survey responses that recommendations to decrease surgical patients' family members anxiety and improve satisfaction were made.

Family members of surgical patients were often instructed to wait in a designated waiting room. Croke (2018) found that family members often felt that they could not leave the area at all

in fear of missing updates from the surgical staff. Typically, after the surgery is complete, the surgeon goes to the waiting room to find the patient's family member and gives an update. Occasionally, the doctors could not locate the family members, causing more time-consuming duties for the staff attempting to locate them (Croke, 2018). The nurses or surgeons would then have to go to the patient's chart to locate the family's contact number and place a phone call to provide an update. This created more anxiety for the families.

The most stressful element of going to a doctor's office is waiting in the waiting room (UPshow, 2018). Fortunately, a few simple and inexpensive modifications to the waiting room could improve the experience, allowing a business to function more smoothly and save money. Providing engaging and educational information on the television, comfortable furniture with soothing decorations, light refreshments, free Wi-Fi, and large tables for families to have the ability to entertain themselves could all help distract families from anxious thoughts and assist in providing a positive mindset (UPshow, 2018). The standard for waiting room friendliness is sometimes set far too low. Healthcare is a service, and a pleasant environment, like any other service industry organization, is critical (UPshow, 2018).

Due to the global pandemic of the new Coronavirus Disease 19 (COVID-19) beginning in early 2020 and extending into 2021, many facilities limit or restrict the number of visitors (ACS, 2020). To reduce exposure to COVID-19, many patients could not have their families wait in the waiting room while they underwent surgery. This new model of care in some facilities created an added problem related to the pandemic. Also, many families did not want to enter a medical clinic with the fear of becoming infected with the virus. Therefore, family members had a strong desire to remain outside of the clinic. Due to this reason, there had to be an alternative way to communicate with the families waiting for updates on the patient's surgery. The current

visitor policy for the OR at the project facility site allowed one visitor per patient during preoperational and recovery times (Old Moultrie Surgical Center, 2021). All visitors must pass a COVID-19 screening checklist, temperature check, and wear a mask at all times. With the organization's COVID-19 visitation policies and the family's fear, family members had the potential to experience an even higher level of anxiety while waiting for their loved one who was in surgery.

The focus of healthcare has shifted to more of a patient-centered care approach. According to the Agency for Healthcare Research and Quality (AHRQ), patient-centered care is one of the six key elements along with safety, timeliness, efficiency, effectiveness, and equity that improves healthcare scores (AHRQ, 2020). The AHRQ (2020) recognizes families as a part of this patient-centered care to create an environment of patient and family engagement. Patients and families expect to be communicated to and receive high quality, safe care (AHRQ, 2020). Care providers must meet these expectations because patient satisfaction is an indicator of the patient's quality of care, and full Medicare reimbursement is obtained only for adequate scores (Saver, 2011).

There are approximately 234 million surgeries performed each year, and the waiting room experience for families can be a time of stress and concern, causing negative clinical impacts (Kynoch et al., 2017). The overall literature review provided information supporting improving the waiting room experience and communication to family members during the patients' surgical procedure to decrease the family's anxiety. Unmitigated stress can interfere with family members' ability to understand information, sustain family functioning, cope, and provide support, and may cause disruptive behavior of the family toward staff (Kynoch et al., 2017). According to the Association of Perioperative Registered Nurses (AORN) (2017),

involving patients' family members as collaborative partners with the healthcare team can directly influence patient satisfaction, experience, and outcomes in surgery centers. Every single interaction with the patient and family is essential for the entire OR experience, and every occasion has an impact on how well the patient answers the survey (Saver, 2011). Nurses in the OR are often the only ones who can update the families. Therefore, the job relies on them, and they need to make time for it (Kynoch et al., 2017). Updating family members consistently is desirable when it comes to reducing their anxiety.

Definition of Key Terms

The following are definitions of key terms used for the project.

Anxiety: The feeling of fear, dread, and uneasiness may cause someone to feel tense or restless when faced with a stressful event (MedlinePlus, 2020). Subjective characteristics of anxiety feelings consist of tension, apprehension, nervousness, and worry (Spielberger, 1983).

Intraoperative: A term used to describe an event occurring during surgery (Merriam-Webster, 2021).

Perioperative: A term used to describe an event relating to the period around the time of a surgical operation (Merriam-Webster, 2021).

Postoperative: A term used to describe the period following a surgical operation (Merriam-Webster, 2021).

Surgery: A term used to describe medicine that includes conditions of disease that require operative procedures (Merriam-Webster, 2021).

Available Knowledge

Search Process

The search criteria for the literature review included keywords and mesh terms such as *anxiety, intraoperative, communication, quality improvement, quality indicators, intervention, update, surgery, patient's progress, relatives, patient-centered care, family-centered care, intraoperative progression reports, operative nurse, family members, intraoperative communication, satisfaction, waiting room, and operating room*. Inclusion criteria for best practice search included waiting room, families, anxiety, patients, and surgery. The search databases used to review literature were accessed through the Jacksonville University Carl S. Swisher Library and included Cumulative Index of Nursing and Allied Health Literature (CINAHL), Ovid MEDLINE, and PubMed. Organizational websites such as AORN, CMS, Medicare, and AHRQ were also used to gather additional literature. Delimiters consisted of full text, English, and time ranges of 1983 to 2021 based on specific articles that focused on patients, families, and updates. The clinical practice problem aligned with the literature search. The articles included in this review focused on communication with the surgical patients' family, psychological symptoms of families, perioperative strategies to reduce anxiety, recommended communication techniques, and financial impact of improved communication. Assessing family member's anxiety while they wait seems fit and feasible for the project organization site. Based on these observations and an evidence-based literature search, the critical question of "Do families experience anxiety while they wait for the patient during surgery?" was conceptualized.

Purpose of the Literature Review

The purpose of this literature review was to explore if family members experience anxiety while they wait for the patient during surgery. Assessing anxiety of family members was one of the clinical nurse's key concerns, and because of this, the office manager of the facility supported the QI project fully (M. Cozart-Rodriguez, personal communication, May 3, 2021).

The ambulatory surgery center owner discussed the need for new ways to decrease the anxiety of the families intraoperatively and agreed with the readiness for change (J. Caudill, personal communication, May 3, 2021). Furthermore, the surgical facility's satisfaction of patients is typically financially rewarding for the facility: the higher the patient survey scores, the higher the surgical patient volumes, resulting in higher revenue (Farber, 2010). Interviews were completed with the surgery center owner, manager, front desk assistant, and clinical nurse to identify processes that need to be updated at the project facility and any interventions suggested to reduce family members' anxiety.

Communication and the Surgical Patients' Family

Perioperative nurses observed increased levels of anxiety in family members during the time families waited for their relative undergoing a surgical procedure (Kynoch et al., 2017). It is during this time that minimal communication is provided to the families. Structured interventions that included status updates from the health care professionals to families resulted in decreased anxiety in family members. Kynoch et al. (2017) conducted a peer review of the literature to investigate the results of structured communication plans with family members while waiting for their relatives during their elective surgery. The study's aim was to increase communication between the families and health care professionals and decrease the family members' anxiety. Communication updates to families were given by in-person updates, and an informational card provided help to reduce anxiety levels. The in-person update discussed the patient's nursing care plan and was given when the patient arrived in the recovery room area. The informational cards were given to the families before the procedure, and described the surgical process, duration of the procedure, and waiting room specificities (Kynoch et al., 2017).

The staff within the surgical site noted that the most significant challenge with the waiting room was communicating with families (Kynoch et al., 2017). Having someone provide interventions to reduce family anxiety was essential for the patient, families, and the perioperative staff to provide collaborative care (Kynoch et al., 2017). Further exploration was needed on different communication methods with families, such as text messaging, tweeting, or having a dedicated nurse or phone application. More anxiety reduction interventions during the surgical phase were needed (Kynoch et al., 2017). This project illustrates the need for improved communication techniques with families to possibly reduce anxiety during the intraoperative period.

Patient-centered care in surgery includes providing ways to best communicate with the patient's family (Howe, 2016). High-quality care is becoming increasingly important as medical professions place emphasis on patient and family-centered care. Howe (2016) suggested that perioperative communication is effective in reducing family member anxiety. Communication also improves the family total care experience (Howe, 2016). A medical student who shadowed an orthopedic surgeon constructed a randomized study focusing on patient-centered care (Howe, 2016). The results of the study suggested that there was no standard time frame to communicate information to the families intraoperatively (Howe, 2016). The physicians typically set the time frame, and usual family communication was preferred to be given before the procedure was completed. The control group received communication when the patient entered and left the operating room. The intervention group received additional electronic updates at vital points during the surgical and recovery phases (Howe, 2016). The project process provided Howe (2016) with a better understanding of the family's perspectives on the surgical environment and experiences that would improve the author as a better medical practitioner in the future. Howe

(2016) focused on determining the satisfaction and anxiety outcomes of strategic communication with patients' families and hypothesized to increase satisfaction and decrease anxiety during the perioperative period. As a medical industry professional, Howe (2016) stated it was essential to consider family anxiety when focusing on the surgical patient.

The waiting room creates a lot of uncertainty for the experience of family members of patients (Stone & Lammers, 2012). One way to manage this challenge is to create better communication with them through the staff support. Providing better communication efforts can also improve family members' experiences. Participants were asked questions about their experiences in the waiting room to identify critical challenges for the staff and family members. The team described those surgical cases that lasted longer than anticipated increased the family's concern. The families automatically assumed that the worst was happening (Stone & Lammers, 2012).

In Stone and Lammers' (2021) study, the waiting room attendant also described family anxiety due to the surgeon often forgetting to explain the amount of time it takes for anesthesia induction, surgical positioning, and recovery time in addition to the actual surgical time. Participants describe situations where there are constraints to what information can be given based on Health Insurance Portability and Accountability Act (HIPAA). These guidelines are clear as to who and what information are allowed to be given. Different ways to manage the waiting room uncertainty were to provide varying distraction techniques (Stone & Lammers, 2012). Volunteers in the waiting room can talk with the families about topics that cheer them up but avoid medical issues and provide reading materials and snacks to help prevent the quiet sense that diffuses throughout the waiting room. Participants also reported that having someone in the waiting room to answer questions and provide additional support reduced anxiety (Stone &

Lammers, 2012). Overall, the waiting room's uncertainty creates unnecessary anxiety, which can be reduced by providing better communication.

Patient and family needs in the perioperative period for elective surgeries are essential to understand to improve their experience (Alsabban et al., 2020). Alsabban et al.'s, 2020 descriptive cross-sectional survey explored the importance of the family's needs and rated being informed if the procedure was taking longer than expected and communicating with the surgeon after the surgery was completed the highest. It is beneficial to involve a family member in the patient's perioperative care on a regular basis (Alsabban, 2020). Questionnaires were given to the participants after consent was obtained. The family member's questionnaire had 18 needs and the participants were asked to complete a survey with a four-point Likert scale rating which needs were not important at all, not important, important, or very important. The following were the top-ranked perioperative needs for family members: being treated with respect by hospital employees, having communication with the surgeon or other physicians after the procedure, and being notified about operating room schedule delays (Alsabban, 2020). Other family members' needs that were assessed were having information about the procedure, having information about what to do on the surgical day, having questions answered before coming to the facility, having opportunities to ask questions, being with the patient in the preoperative location, having information about procedures to be performed prior to surgery, and being comfortable in the waiting room. In Saudi Arabia, family members are a key component of culturally appropriate healthcare delivery; thus, sensitivity to patients' and family members' needs is a competency that, when accepted, could result in a better experience and outcome (Alsabban, 2020).

Psychological Symptoms of Illness

Patients' family members are an integral part of care and having a family-centered approach needs to be adopted while in the hospital care setting. McAdam et al. (2012) conducted a longitudinal descriptive study on family members of high-risk patients with a high likelihood of developing psychological symptoms. This study was conducted in an intensive care setting and focused on the signs of the persons who would be the most involved in the patient's care. When patients cannot make decisions for themselves, families often have the burden placed on them, causing them high stress, anxiety, and depression (McAdam et al., 2012). These symptoms need to be recognized as early as possible and eliminated to help support families during this challenging time. McAdam et al. (2012) gave a questionnaire to the families three to five days after the patient's admission. It was used as a screening tool to measure anxiety, depression, and other clinical disorders. The families were also contacted three months after the patient's discharge to reassess their psychological symptoms. The symptoms at each interval were measured. The results suggested that the psychological symptoms of anxiety, stress, and depression were the highest when the patient was admitted to critical care (McAdam et al., 2012). Nurses could provide support through discussions, referrals, reassurance, and key players in different attempts to lessen these psychological symptoms. Frequent interactions between the nurses and family members build trust and rapport, making this intervention possible in alleviating psychological symptoms (McAdam et al., 2012).

During the surgical process, a critical phase is attending to the family's needs while they wait. One family described the experience in the waiting room as complex and complicated where "time stood still" (Vocera, 2016). As staff tried to make them feel welcome, they still felt like an uninvited guest at an unfamiliar location. As families try to cope, the experience can create anxiety. Families often forget about the preoperative discussion by the nurse because they

are so focused on the element of the unknown. During the hours of waiting, each family experiences that time uniquely (Vocera, 2016). There can be an array of emotions ranging from anxiety, fear, happiness, relief, sadness, anger, hope, all the way to desperation. With each emotion, they also experience the process of anticipated and unanticipated news differently. There is an awkward silence that fills the waiting room while families remain in suspense (Vocera, 2016). This uncertainty creates anxiety and makes the wait feel longer than it actually is.

Facilities have tried various ways of updating families to provide accurate and current information (Vocera, 2016). One institution provided informational cards with important telephone numbers and estimated length of surgical times. This method proved to reduce family members anxiety only by 50%. Another facility had the OR nurses contact the volunteer in the waiting room to relay each update to the families (Vocera, 2016). This intervention proved to be disruptive to the busy OR environment, taking time away from the nurse focusing on the patient. This also created more anxiety for the families because they were obtaining second-hand information and were unable to ask questions. There was supporting evidence that face-to-face interaction with families by nurses helped in reducing anxiety, but this is not practical because it required the family to always remain in the waiting room and the nurses to leave the OR (Vocera, 2016).

Vocera (2016) performed a meta-analysis of different studies. Facilities used an electronic patient status board for family updates. The board only informed the families if the patient's surgery was in progress, complete, or of the patient's location (Vocera, 2016). Personal information had to remain confidential so what was relayed was very impersonal. In addition, the accuracy of the information was based on the timeliness of the nurses inputting the data into the

chart. A randomized study was completed regarding use of the electronic tracking board in the OR waiting area which failed to show any reduction in the anxiety of family members while they waited (Vocera, 2016). As technology advances, healthcare increases use of mobile applications for communication. One facility used mobile technology to send preloaded HIPAA compliant text messages to update the families by the OR nurses. The nurses were reminded with an alert to send messages every 30 minutes to update the family with a quick real time text, picture, or video (Vocera, 2016). These updates were recognized by the nurses to be easier than any other notification system they had used. Frequent communication enhanced trust and transparency with each family member. The mobile updates were also viewed by the family as an intervention that greatly reduced anxiety (Vocera, 2016). This study illustrated that families experience a variety of feelings in the waiting room varying from hope, to fear, to happiness, to sadness, and therefore it is vital to communicate with them on the patient's progress.

The time spent in a waiting room causes stress, fear, isolation, and anxiety for family members. It is exacerbated if the health care team has inconsistent communication with them about patient status (Muldoon et al., 2011). When one member of the family is stressed, the rest of the family will most likely be affected. High anxiety levels will make the family's ability to rationalize or make clear decisions difficult. Families are most anxious about the risk of surgery, length of procedure, delayed communication, long waits, being separated from the health care team, and prior surgical experiences.

Muldoon et al. (2011) distributed a survey in the waiting room regarding evaluating useful information about family phone numbers, estimated surgical times, and other helpful information. The researchers suggested a card as other interventions took too much time away from the staff and their job duties. Providing informational items in the waiting room caused less

stress, enabling the family's ability to make decisions easier (Muldoon et al., 2011). The study results also reported that having a telephone conversation relaying information about the patients' status reduces anxiety. The survey also identified that even having a volunteer in the waiting room to answer questions did not make the family feel more informed. The volunteers were in the waiting room and were incapable of providing real-time updates as the volunteers did not know what was going on during each patients' surgery (Muldoon et al., 2011).

Targeted areas for improvement included inadequate communication between the staff and family members during the waiting period, estimated surgical times that were stated differently between doctors and staff, the inability of the family members to be able to call the post-anesthesia recovery, and lack of information provided to the family members detailing the patient's surgery (Muldoon et al., 2011). Further, making a phone call to the waiting area to update the family member about the patient's status is ideal, but phone calls can be missed if families leave the waiting room area. Nurses often felt unsure about what to say, therefore causing the family members more anxiety and confusion. Family members have suggested that there must be a process to update the family before the meeting with the physician. The results supported that the informational card was the best choice and helped reduce anxiety during the wait time (Muldoon et al., 2011). Further exploration is needed to focus on a consistent and reliable way to provide effective communication to the family members to reduce anxiety.

Fear, anxiety, stress, and uncertainty can make even the shortest wait feel unbearable to the families who wait for their loved ones in surgery (Campbell, 2012). As the staff member walks into the waiting room, the families perceive that presence as a vital update on their family member. Campbell had a personal experience in the waiting room as family member of a patient and not as a physician. Campbell spent two hours in the preoperative area, which went by

extremely fast, but then was guided to the waiting room where time slowly passed (Campbell, 2012). While waiting for the family member, Campbell researched articles about psychological stressors families felt in the waiting room (Campbell, 2012).

The first principle Campbell hypothesized was that unoccupied time felt longer than occupied time. The anxiety waiting for any word from the surgeon made the wait seem longer (Campbell, 2012). Dr. Campbell was a physician, and he knew the many risks of surgery. The more he focused on what could go wrong, the higher his anxiety, and the slower the wait seemed. He started to question how he would live his life differently if something happened to his loved one (Campbell, 2012). During the surgery, the surgeon did call the waiting room to update the family, and this significantly reduced anxiety. The second principle Campbell found was that being in the unknown made the wait seem longer (Campbell, 2012). Reasonable time expectations given to the families made a significant difference in the quality of the waiting period. Surgeons usually are cautious with reporting surgical time to prevent an unnecessary alarm. The third principle Campbell found was that being in the waiting room made the wait seem longer (Campbell, 2012). He stated that having the support of friends, family, and clergy made the wait seem shorter through this experience.

Campbell had a good outcome and experience in the waiting room. Having a better understanding of the surgical waiting room enhanced Campbell's compassion as a physician (2012). Additionally, Campbell improved his communication with the families by ensuring each family had guidance and support, setting reasonable time expectations, and making telephone calls with procedure updates and immediate feedback. Campbell shared his experiences with his colleagues, medical students, and residents in the hope they would provide the same care to their patients and families (Campbell, 2012).

Perioperative Strategies to Reduce Anxiety

Effective strategies of timely communication to family members during the patient's surgery reduced anxiety levels. As the number of surgeries increases and patients' discharges are occurring more rapidly, more family members are experiencing the pressure of providing physical and emotional support for surgical patients during the perioperative phase. Munday et al. (2013) conducted a study comparing different information-sharing strategies with families such as a nurse liaison, intraoperative reporting by phone call or in person, informational cards, visual tracking screens, or paging devices. The family members' anxiety levels were measured primarily by the S-Anxiety portion of the State-Trait Anxiety Inventory and secondarily by their vital signs (Munday et al., 2013). In-person communication with the family members had better anxiety reduction capabilities than phone updates. The face-to-face information made the updates seem more personable. These types of updates allowed two-way communication and the families to ask questions. Alternatively, the paging system tested seemed to increase anxiety levels due to causing more frustration with an ineffective piece of technology.

Further QI projects are needed that suggest using different forms of timely and effective communication interventions such as more up to date technologic devices, a nurse liaison to assist with communication, the timing of the communication interventions, and better tools to measure anxiety levels (Munday et al., 2013). The current QI project evaluated a facility's current process of communication to surgical family members and the relationship of this process to anxiety levels experienced by the family.

Restructuring and creativity does not need to happen only in the operating room (UPshow, 2018). One study showed that 63% of patients reported that the wait in the waiting room was the most stressful part of a doctor's visit. The front desk area and waiting room reflects

the office and is the initial point of contact for patients. Upgrading the waiting room will help a practice function more efficiently by ensuring that patients and families arrive for their appointments better informed, relaxed, and satisfied. There are ways to entertain, calm, and update patients in the waiting room. UPshow (2018) had a social television platform for businesses that provides offices with entertainment, instruction, and marketing ideas. The television newsfeeds also stream top content to distract the visitors when they become fixed on the screen instead of their stress and anxiety from waiting. This platform also allows for educational trivia games to be connected to their mobile device. Adding light refreshments and a beverage station added a nice touch and can have a huge impact on the family's mood in the waiting room. This simple gesture also let customers know that their needs were taken into consideration, and this enhanced their waiting times (UPshow, 2018). Also, exhibiting plants as decorations is a way to help customers feel relaxed and happier. Comfortable furniture with soothing fabric has a welcoming impact on the environment the patients and families are arriving in. It is important to provide distractions for the families waiting in the waiting room. Providing free Wi-Fi, plenty of outlets, and large table space allows the families to work or entertain themselves while they wait (UPshow, 2018). This gesture will engage the families and make the wait seem shorter and more productive.

The patients' family members can experience anxiety waiting for news about their family member during surgery (Rowe, 2008). This waiting period has been described as agonizing for family members. One way to reduce the anxiety of family members was to place a one-minute phone call giving the family member an update. Placing this simple phone call can also increase family and patient satisfaction (Rowe, 2008). One family member shared a personal experience

of being informed that the patient's surgery would only last an hour but ended up lasting five hours. They had not received any updates during that time.

Surgical team members should call the family during surgery every two hours to give brief messages such as "the surgery is progressing as planned, and we will call you again in two hours" (Rowe, 2008). The families that received the phone call updates rated the operating room experience as useful and stated the updates decreased their anxiety. The families that did not receive the phone call updates rated the perioperative experience as unfavorable and said the updates would have reduced anxiety (Rowe, 2008). The nurses in the study stated that even though they had minimal contact with the family members, they were pleased to comfort them just by making a quick phone call (Rowe, 2008). The findings from this study are consistent with other critical care areas regarding the needs of family members during stressful times. Additional studies are needed to explore the needs of families while waiting for updates during a surgical procedure and to reduce anxiety (Rowe, 2008).

Creating an anxiety reduction approach in the waiting room can impact the experience of the family members positively (Lombardi, 2019). A survey mentioned in the article stated that more than half of the participants felt that the waiting room was the most anxiety producing area when going to the doctor. It is important for people to understand waiting room anxiety exists and understand interventions to be able to reduce their apprehension. Techniques to reduce anxiety also reduces stress and tension (Lombardi, 2019). Mindful meditation exercises are great at helping cope with stress. For example, family members can take five minutes of their time to guide their mind from head down their body to consciously relax each area while deep breathing. Relaxing the body and deep breathing can incorporate active mindfulness. Tuning into emotions and feelings of tensions is a way to accept the feelings and perform interventions to reduce

anxiety (Lombardi, 2019). Possibly providing brochures and educational material on techniques for relaxation in the waiting room can be one of the most important aspects at decreasing overall anxiety for family members.

Consistent communication can be beneficial to the family in reducing anxiety. Croke (2018) produced a peer-reviewed article stating families have higher anxiety while in the waiting room if they lack information regarding their loved one. Although consistent communication with the families is the primary goal, it can also be difficult if family members leave the waiting room or staff members are unavailable to give the messages. Ideally, the overall goal is to provide communication to the family members in a clear, precise, and consistent manner that allows them to be mobile during the waiting period and does not require the nurse to leave the operating room (Croke, 2018).

A nurse liaison's phone call is regular communication, but widely accepted communication techniques include mobile devices, texting apps, and other technologies. There are new ways of contacting families allowing for faster, reliable, and more advanced care to improve family satisfaction. The electronic medical record paging system will enable families to communicate by text from the nurse's computer. This system allows for secure messaging to the family if they choose to leave the facility. The messages that could be texted were one of four preset messages or a customized message. The link between the family and patient was set at registration to ensure correct patient identification (Croke, 2018).

Overall, the results of Croke's (2018) study confirmed an improvement in family satisfaction. The families felt comfortable leaving the waiting room. A mobile app allowed real-time updates to families by messaging, pictures, and videos at 30-minute intervals. After the texting app was implemented, the family's satisfaction experience increased and anxiety levels

decreased (Croke, 2018). The staff and physicians that were interviewed said they felt the app was user-friendly, allowing for more flexibility for the families and intraoperative nurses. The physicians were better able to locate the families for a post-op update. A web-based communication device was trialed and reviewed, allowing multiple messages or emails to be sent to the families by any staff member involved in the patient's care (Croke, 2018). Most patients, families, and staff that were surveyed were satisfied. The families felt that it improved their stay, and they would recommend the hospital to others. Families felt more connected to the patients during surgery.

A hospital in Pennsylvania utilized the texting app during surgery (Croke, 2018). According to the director of surgery, the goal was to improve communication with the families by uncovering the mystery associated with surgery. They used a mobile application device to make communication transparent with the patient's family members. The hospital facility consulted the legal and risk management team to create messaging that was straightforward and appropriate. They rolled out the study in phases to allow for staff and family members' understanding and compliance. The operating rooms used were ones where surgeries were to be longer than an hour (Croke, 2018). The nurses would text families at different milestones, such as when the patient arrived in the OR, when the surgery started, and when the surgeon was closing. For robotic cases, the team sent photos of the surgeon operating the robot at the beginning of the case. The nurses also used the app to prompt families to return to the waiting room to speak with the surgeon. The app was also helpful in collecting statistics and data to assess the satisfaction of patient and family experiences with the app service. After the use of the app, the users stated the hospital demonstrated caring and transparency (Croke, 2018).

One institution chose to implement a mobile texting app called Electronic Access for Surgical Events (EASE) to improve communication with the pediatric population's families. The staff compliance and family satisfaction of pre-EASE and post-EASE implementation were compared, which demonstrated improved staff compliance with frequent updates that also statistically increased family satisfaction (Hodge et al., 2018). At this facility, families expressed dissatisfaction with communication during lengthy procedures when answering satisfaction surveys. The parents were asked their opinions on if they wanted phone call updates or digital texting updates every two hours. The parents chose digital updates to address their concerns, so the facility decided to complete a mobile health application's QI initiative (Hodge et al., 2018). Before the EASE implementation, the surgery protocol was for the staff to update the families every 90 to 120 minutes via in-person or phone calls. Simultaneously, the families waited in the waiting room for up to four to 12 hours. If the family left the waiting room, they were at risk of missing critical surgical updates. Noncompliance with staff on updating the families was high due to the family leaving the waiting room.

An electronic family communication system (EFCS) at various hospitals has been initiated (Poulsen, 2019). One concern was that this program might be risky because of the privacy and confidentiality regulations. One hospital used its electronic medical record (EMR) to assist in perioperative family communication to reduce the cost and timing of introducing any new technology. This system allowed for emails or text messaging, but the facility used the email option because texting requires a third-party provider (Poulsen, 2019). Also, if the family did not have texting capabilities, the nurse would call the family instead. The staff stated that this was more time consuming, and they were anxiously waiting on the texting option. The families

would get emails every two hours depending on the procedure, but for operations that lasted less than one-hour, families would not receive any updates (Poulsen, 2019).

Another hospital implemented the EFCS in its OR and procedure rooms with plans to implement it hospital-wide (Poulsen, 2019). The staff used standardized text messaging because creating their text messaging would require additional staff education. This facility updated the patients' families every hour during the procedure (Poulsen, 2019). The parameters chosen were to send a minimum of five messages to help achieve positive satisfaction survey results. When the staff provided updates to the families, the EMR system automatically documented the incidents. One downfall of the system was that the family could not respond to the staff's updated messages, so the team still had to go to the waiting room to answer questions (Poulsen, 2019).

Before implementing mobile communication devices, hospitals must guarantee that they comply with HIPAA. Improving intraoperative communication in any way will improve patient and family satisfaction, as well as decrease their anxiety with the healthcare experience (Croke, 2018). This project heightened the awareness of the need for updated technology advances on staff communication with the surgical patient's family members at consistent intervals to improve satisfaction and decrease anxiety. The waiting period can be a very stressful time for families. Each institution has its processes for updating families that vary based on each case and the community's population. Although there is no universal standard time-frame policy that operating rooms must follow, it is important to provide an update to families that is timely and relevant and this may ease the stress families feel (Hodge et al., 2018).

Recommended Communication Techniques

Anxiety of families is an ongoing challenge for health care staff and leaders in the perioperative industry. The nurses' focus is on the patient, but the attention also needs to be

focused on the families due to their continued support during the perioperative phase (Poulsen, 2019). Family satisfaction may influence patient satisfaction, so keeping the family informed is a high priority while the patient is asleep for surgery. Frequent updates can increase happiness and decrease anxiety, which is vital due to governmental reimbursements based on patient satisfaction surveys. Many facilities use a patient tracking board to enhance communication efforts, but this should not take the place of regular updates to the families regarding their loved ones (Poulsen, 2019). Studies mentioned in this article support that the more time that passes without updates, the higher the family's anxiety levels rise. Perioperative nurses have desired easier ways to communicate with the families than the traditional way of making phone calls. The phone calls are time-consuming and challenging during busy procedures. Families want consistent updates, and the OR nurses are eager to provide this while also keeping privacy and confidentiality intact (Poulsen, 2019).

The electronic status board, informational handouts, and phone communications have been provided to help reduce family members' anxiety. Facilities also used a surgery reception team to provide updates and contacts for families while remaining in the waiting room. Delivering consistent communication was stressed (Poulsen, 2019). Family members have requested text message updates to decrease the reliance on the pagers. All the improved and consistent communication interventions improved family satisfaction. The nursing healthcare leaders reported that text messages were the preferred communication method for most families (Poulsen, 2019). The mobile messaging is simple, secure, offers real-time updates to families regarding patient status, and provides the staff with additional time to provide for the patient's needs intraoperatively (Poulsen, 2019).

Due to the text message simplicity, OR nurses can increase the frequency of updates while also giving them more time to focus on the surgical patient. Features such as this also allow the families to explore areas outside the waiting room and ultimately increase staff, patient, and family member satisfaction (Poulsen, 2019). This project illustrates the importance of updating families using mobile devices, especially in situations where the visitors are limited and waiting room restrictions are in place due to the recent COVID virus pandemic. It also illustrates that the stationary patient status board is not sufficient for family updates (Poulsen, 2019).

Understanding the importance of family engagement while the patient is in surgery is critical when figuring out the barriers, facilitators, and motivators of communication (AHRQ, 2021). Patient and family-centered care involves communication at all levels of care and verifies that families are essential to a patient's health. Characteristics of this type of care include dignity, respect, information sharing, participation, and collaboration. Surgical centers must create environments where patients, families, and staff are able to collaborate to improve the quality and safety of health care, increase satisfaction, improve safety, and provide optimal patient outcomes (AHRQ, 2021). There should also be interest for clinicians and leaders to update policies and procedures if needed. Family engagement is essential in providing feedback to create awareness and build a trusting relationship and rapport with the staff. Family involvement may decrease medical errors by allowing the opportunity for families to be engaged, informed, and participate in the patients' care (AHRQ, 2021). Patients and families expect their health care team to listen to them, communicate information to them, be supported emotionally, and receive high quality, safe care.

Barriers to patient and family engagement include fear, uncertainty, comprehension, literacy levels, bedside manner, family reaction, resources, and dismissive attitudes (AHRQ,

2021). Barriers for health care personnel to provide optimal patient and family-centered care include time, effort, communication challenges, navigating patient and family preferences, understanding of engagement, negative experiences, or fear of litigation (AHRQ, 2021). Privacy barriers with HIPAA also create another challenge for proper family engagement but share similar principles, including restoring trust among patients, families, and health care professionals, enhancing patient experiences, improving efficacy and effectiveness of care, and enhancing the patient's rights. It is important to maintain complete HIPAA compliance by maintaining confidentiality, providing information about privacy to the patients and families, only sharing information at the patient's discretion, and including family members in details before and after surgery. Although there are barriers to facilitating engagement, it is vital to create an environment that encourages open communication (AHRQ, 2021).

Criteria for engagement at a healthcare facility involves the alignment of patient safety and facility goals, leadership models for engagement, experience with patient and family engagement, and increased teamwork (AHRQ, 2021). Facilitators of engagement can participate with confidence in the abilities to engage in health care and understand the importance of family involvement. There are varying methods of engaging patients and families. It is vital to ask for patient permission and understand what is important to them to be able to determine the level of family engagement (AHRQ, 2021). Other techniques utilized by nurses to engage patients and families include proper introductions, as well as including patients and families as members of the health care team, asking about patients and families' needs and concerns, helping them understand the overall care, and making sure they know the health information. Overall, surgery centers should be proactive in providing effective engagement and communication towards

patients, family members, and the health care team to positively impact health outcomes and patient and family satisfaction (AHRQ, 2021).

Financial Impact of Improved Communication

Facility reimbursement by Medicare includes data on how well the facilities perform on the survey that measures the Physician Payer Quality Collaborative (PPQC) score. Saver (2011) produced a peer-reviewed article describing how reimbursement is calculated based on the hospital's patient experience, including the OR. A patient's perception of care can reduce malpractice claims, limit nurse and physician turnover rate, improve staff recruitment, and increase patient volume as other patients recommend the hospitals with high ratings (Saver, 2011). The reimbursement the facility receives will not be the most significant financial impact. Surprisingly, it will be the patient and employee retention and referral. PPQC is measured on how well and consistent the nurse communicates with the patients and how their needs are met. Although families are not asked to complete the survey, their experiences can positively or negatively affect how they complete the survey.

Communicating well with families can have a positive effect on the patient satisfaction survey (Saver, 2011). One OR facility reports that the highest priority at positively affecting patient satisfaction is keeping the families updated. To do so, the nurses update the families with a phone call every hour. The recovery room nurses also notify the families if the recovery is prolonged. Delays are common sources for families' dissatisfaction, so frequent updates are crucial (Saver, 2011). The surgical services can positively increase the survey results by communicating effectively. With this survey functioning as a reimbursement measure, many facilities may start feeling the pressure to improve their PPQC (Saver, 2011). Effective and

consistent communication interventions to improve satisfaction survey results can impact the facility financially.

The Institute for Healthcare Communication (2019) reports a strong relationship between healthcare members and the patient's ability to participate in medical recommendations. Studies have shown that the clinician's ability to explain into words, actively listen, and provide empathy can influence patient satisfaction and care experience. The patient's perception of the quality of care is directly tied to interactions with the healthcare team members. Some key points reflecting patient satisfaction include communication, clinical team involvement, and continuity of care. When healthcare team members do not communicate effectively, patient care suffers. Communication skills can always be improved upon, which requires commitment and practice (Institute of Healthcare Communication, 2019).

The Healthy People 2020 (2019) initiative summarizes that communication in the healthcare system and healthcare-related technology is a big focus on public health and the way our society views well-being. The article discusses how communication and information technology build social network support systems and provide accurate and accessible health information tailored for each patient. By providing useful communication tools and technology systems, there is a chance to improve health care quality and safety, increase healthcare efficacy and support staff, facilitate patient decision-making, and increase knowledge (Healthy People 2020, 2019). Most patients need support during their hospitalizations, and families can provide this for them. Providing different communication forms is vital due to the variability in the patients' family members' ability to understand information technology. This initiative supports the need to expand health communication and information technology to understand population health outcomes and healthcare quality (Healthy People 2020, 2019).

Synthesis of Findings

For the integrated literature search, approximately 100 articles were reviewed, 30 articles were selected, and ten articles were returned after the search was complete. The review indicated that a lack of communication to family members while they wait for their loved one during surgery can create unnecessary anxiety if they are not communicated to consistently throughout the patient's surgical procedure. The families are left waiting and wondering about the status of their loved ones no matter how long the patient's surgery may be. Many facilities institute interventions that support improving intraoperative communication to family members of patients undergoing a surgical procedure. The review also indicated that there are simple measures to be taken in the waiting room that can reduce anxiety. These interventions include anxiety reduction techniques and simple waiting room changes that can make a big impact on patient and family satisfaction. The literature's central theme focused on consistent and timely communication efforts towards the surgical patient's family members and conforming the waiting room to the needs of the patients and families. These changes resulted in reduced anxiety of the family members, which indirectly increased satisfaction. Providing better communication and relaxation techniques improves the perioperative experience for families. This QI project contributed to existing information on the level of anxiety that the family members experienced during the intraoperative period based on interventions they received.

Rationale

Roger's Diffusion of Innovations Theory

Roger's Diffusion of Innovation Theory (Appendix A) is a common readiness to change model used to understand how, over time, an idea gains attention and then begins to spread throughout a specific population (LaMorte, 2019). This model highlights the idea of a process

change by first evaluating the current method with the hope of improving the process after the final outcome is assessed. The important aspect of this theory was the awareness that innovation does not happen simultaneously within a social system. The stages of innovation are vital to process through to be able to achieve diffusion. Communication channels are a major part of the diffusion process and allowed for knowledge, persuasion, decision, implementation, and confirmation of a change to occur (LaMorte, 2019).

Becoming aware that a problem exists is the first step in a process change by creating a needs assessment and identifying the problem. Socioeconomic characteristics, personality variables, and communication behaviors all play a part in the first step of process change (LaMorte, 2019). The population then begins to understand the advantage of possibly investing in a change in the environment and considers a process change based on how compatible the change is with the site's values, experiences, and needs. Relative advantage, compatibility, complexity, trialability, and observability play an important part in the persuasion part of the process change. At the third stage of this innovation diffusion process, there has to be a decision made to either reject or adopt the idea of a process change based on the knowledge gained (LaMorte, 2019). This is an important, complex part of the process because it can lead to discontinuation or possible later adoption of the idea. The usability of the idea was tested and experimented with before a commitment was made. If adoption of the new idea is decided upon, the site begins to visualize and understand what the innovation results might produce. Throughout the implementation stages of the QI project, diffusion was possible and then finally reassessed and confirmed. It was through these steps that Roger's Innovation of Diffusion Process worked. This theory has been used successfully in many fields of communication such

as public health. It is used to understand an innovation and accelerate its adoption of important ideas that can lead to change of behavior in a social system (LaMorte, 2019).

Institute for Healthcare Improvement (IHI) Model

The IHI Model (Appendix B), combined with Roger's Diffusion of Innovation Theory, guided aims, established measures, selected changes, and tested the change (Monsen, 2018). Using these combined models allowed for conceptualizing and understanding the health system problem of a specific population, interventions to identify, and outcomes that were measured during a particular time. The project assessed the baseline level of anxiety in family members in one local operating room setting, determined the best evidence-based interventions based on the literature that addressed the problem, and focused on the effectiveness of possible interventions. The IHI model for improvement goes further and suggests that changes may be attempted based on inspirational ideas and experiences of facilities proven to be successful (Monsen, 2018). This practical and straightforward guide accelerated improvement and did not replace any change model the facility already had. Implementing the QI project assisted with knowledge regarding the current process of families waiting and if process change would be necessary based on the anxiety levels of families.

Plan Do Study Act

The PIO MM-PDSA (Appendix C) mapping guide was used to explore the variables needed to assess intervention effectiveness, QI interventions, and program evaluation models, which was useful when conducting this project in a real workplace setting (Monsen, 2018). The IHI model was associated with the Plan, Do, Study, Act (PDSA) model in that it focused on what other organizations have learned or failed from, and was a shorthand way of testing a change in the real work setting (Pelletier & Beaudin, 2018). The PDSA model was also simple in structure,

used a small test of change methods, and accelerated improvement in an action-oriented QI effort (Pelletier & Beaudin, 2018). The model and framework chosen gave awareness that improved communication techniques were needed. The fundamentals of this model are plan, do, study, and act, which were required for small-scale cycle change. This process was vital for organizations to improve their practices. While setting the aims, it was essential to follow safe, effective, patient-centered, timely, efficient, and equitable principles during project implementation (Institute for Healthcare Improvement, 2021).

Purpose Statement

The purpose of this QI project was to evaluate the current process of family members waiting during a surgical procedure and to understand the level of anxiety family members felt. In this QI project, the patient's family members waited in the waiting room, the patient's operating room, or another location outside the facility.

Specific Aims

Do family members experience anxiety based on current interventions at the project facility? This was the primary aim of the project. The staff's observation of this communication gap was supported by the literature confirming regular patient status intraoperative updates are optimal and facilitated by other hospitals. Specific objectives of the project included:

- 1) create heightened awareness of the staff on the needs of the family as well as the patient intraoperative experience to build a stronger connection with them;
- 2) based on the outcome of the project, suggest other measures to communicate with the family members during the intraoperative session, lessening their anxiety.

Context

The QI project site was an Ambulatory Surgery Center located in Saint Augustine, Florida. The surgery center has been a CMS accredited facility since 1999 and is also licensed with the Agency for Healthcare Administration. Patients can be discharged after the recovery process for post-operative monitoring. Most patients who have surgery at the facility live within 60 miles of its location. According to the owner of the project site, it is a facility that is welcoming to medical students and open to change. Since previous studies have shown that family members often experienced anxiety in the waiting room, the organization wanted to assess if their patients' family members also experienced anxiety in efforts to improve their facility in any way possible.

The volume of minor surgical procedures performed are approximately seven per day, with about six surgeries being completed with general anesthesia and six surgeries under local anesthesia. The general cases require the assistance of an anesthesia provider to keep the patient comfortable. The general case patients had to bring a family member with them to be able to drive them home due to the type of anesthesia being delivered. The local case patients required one nurse for assistance, and the surgeon allowed the family members to stay by the patient's side during the procedure to keep them comfortable. Most of the time, the local case patients did not bring a family member with them because they could drive themselves home. The project's purpose, aims, and specific details of the project were shared with the clinic staff. There was also discussion with the surgeon to create awareness and allow for a smooth transition during the project. The student project lead explained the project to the patient and family member and obtained consent. Patients and family members were detailed on the project's expectations and specific aims. There was no impact on workflow. There was no financial cost to the patients or families. There was no additional equipment or supplies necessary for the facility to purchase for

the project. The purchase of the STAI license, printing of informed consent forms, STAI surveys, and demographic surveys were provided by the student (Appendix D).

The “family” was considered anyone over the age of 18 and included anyone the patient chose to designate as the contact person. All surgical patients were asked to participate. Survey exclusion criteria occurred for different reasons including those patients or family members who would not give consent to participate in the project, family members who would not complete the STAI survey, or if there was any question regarding COVID-19 status with the family member. There were no survey exclusions. Participants who consented were entered into the QI project. A power analysis suggested that approximately 25 total participants were needed to obtain a reasonable amount of reliable data based on inclusion and exclusion criteria. The population sample's demographics were obtained from a survey that the family members completed (Appendix E). The demographic survey was completed after the STAI survey to reduce any added stress. It consisted of information such as gender, age, relationship to the patient, type of surgery, surgery length, and where the family member waited during the intraoperative period.

At the project site, innovation and creativity were supported through policies that encouraged providing the best quality care. The surgical center mission is "optimizing health and well-being of the community we serve through compassionate, high quality, patient centered care. Efficient. Personal. Delivered," and its vision is "provide communities a cost effective, high quality, and convenient alternative to hospital care, for outpatient surgical procedures. We are focused on providing services with the highest levels of customer satisfaction" (Old Moultrie Surgical Center, 2021). According to the owner, one of the organization's key priorities is maintaining the facility's reputation by providing safe and high-quality care (Old Moultrie Surgical Center, 2021). Some of the facility's 2021 goals include achieving the highest level of

quality, safety, and standards of services with the highest level of customer satisfaction and keeping patients and families healthy (Old Moultrie Surgical Center, 2021). This information supports the ambulatory surgery center's mission, vision, and critical priorities, focusing on providing exceptional care to give patients better experiences through personal attention and trusting relationships.

Intervention

Plan

The project leader implemented a three-month surgery center project for approximately 25 total participants who met all of the inclusion criteria. Participants completed the STAI survey after the patient's surgery was completed. The STAI surveys completed by the participants assessed the anxiety levels of the family member who received the current patient updates during the intraoperative period.

At the conclusion of the project, the participant questionnaires were assessed. The steps that were followed to complete this project were discussed with the surgeon and staff. Key persons were informed of the project's plan, purpose, and end goals. Once Jacksonville University's (JU) Institutional Review Boards (IRB) and the project facility approved the QI project, the project began. The project facility site formal letter of approval to complete this project was obtained from the owner (Appendix F). The informed adult and COVID-19 combined consents (Appendix G), STAI questionnaires, and demographic survey documents were collected.

Do

The student met with the team members included in the project facilitation. The student lead met with each participant and family member. The project was explained, and informed

consent was obtained. The student lead explained the project's purpose, aims, and STAI survey in a private location. All names were numerically coded for confidentiality and no identifiers were present on the surveys. The family member completed one paper STAI survey once the patient's surgery was completed. This process took approximately 20 minutes to complete. The project student gave the survey to the family member and explained that the paper survey should be completed with pencil. Surveys were collected and placed in a private location.

After the patient went to surgery, the family member either waited in the waiting room, the OR with the family if a local procedure, or another location such as outside the facility based on personal decision. Families waiting in the waiting room had access to a television, magazines, and music as distractions against anxiety. For the procedures with general anesthesia, the patient's status was communicated to the family members after the procedure was complete. The families did not have any information regarding the patient's current status until the procedure was completed. The families waited for an update from the surgeon or nurse after the patient arrived to recovery. Typically, the surgeon would update the families after the surgery was complete. Families who went to the OR with the patient were notified of all updates during the procedure. Once the patient arrived to recovery, the student lead obtained the STAI survey form completed by the family member, checked for its completeness, and returned it to the private STAI survey location. As the project proceeded, the student lead became more comfortable and confident in approaching patients and their family members about participation in the QI project.

Study

The findings from the family member STAI questionnaires were evaluated. The levels of anxiety were summarized with mean and percentages, demographic bar charts/tables, and

analyzed by the project leader. Once the results were obtained, the study was transitioned to the act phase.

Act

The data were analyzed to determine the level of anxiety families experience, and possibly guide implementation of new communication interventions and distraction techniques for the OR to disseminate throughout the project facility. The knowledge obtained from this QI project allowed the organization to advance procedures on how best to communicate with surgical patients' families and different interventions to implement while they waited.

Study of the Intervention

The project site's owner, as well as Jacksonville University IRB, approved the project. Including team members in discussions before the project starts facilitates engagement, making them feel connected and valued (Dearholt, 2018). The key stakeholders and project champions identified, discussed project details and barriers that they might foresee. One day was dedicated to the staff ensuring everyone could ask questions and visualize the project process. Staff members were educated on possible changes in workflow with increasing time to get the patient ready for surgery and provide project details before beginning. The project leader held weekly meetings to discuss any staff concerns and project information.

The project lead assisted with the preparation of the patient's surgical experience allowing for additional time to complete informed consents. The office secretary, physician, anesthesia team, and perioperative nurses assisted the patients as they prepared for surgery. The key stakeholders understood the nature of the problem about anxiety's effect on the family member's experience. After the patient and family member arrived to the surgical center and were checked in, they waited in the waiting room until the surgical team was ready for them to

come back to get prepped for surgery. The project lead approached the patient's family member to discuss possible participation in the QI project. When the surgical team was ready for the patient, the student project lead obtained consent from the family member. The project leader was the sole implementer of obtaining the consent and collecting surveys, and made the information consistent when introducing the QI project. The project lead explained the project to the patient and family members in detail and answered any questions. Once the patient's surgery was completed, the surgeon typically gave the family member an update if necessary.

Occasionally, the surgeon did not update the family member, only the patient postoperatively or at the two-week follow up appointment to discuss surgical results. The project lead obtained the completed survey results, which were placed in a secure location to ensure confidentiality. Also, the entire explanation of the project along with collection of consent and surveys were done in a private area to maintain privacy.

The project champion was the surgeon's clinical nurse because of the leadership skills needed to implement a project. With the staffs' ongoing working relationship, they have the drive and desire to make evidence-based improvements to the OR department. Additional backup project support was the office manager, anesthesia, recovery team, and secretary who helped educate staff and facilitated the project. All staff members expressed support for the project at the facility.

Measures

The STAI survey with license and permission was purchased from Mind Garden (Appendix H) and was used to assess the family member's anxiety level while they waited during a patient's surgical procedure. Anxiety is used to describe an unpleasant emotional state at any given moment in time (Spielberger, 1983). The STAI survey was developed by Charles

Spielberger in 1983 and is used in many evaluations. This adult self-evaluation tool is one of the most accurate tools to assess anxiety in a specific situation and as a general trait (McDowell, 2006). The survey was an easy to read, short communication tool appropriate for at least a sixth-grade reading level, and it took approximately twenty minutes to complete.

The tool included two self-report ratings that measured two different types of anxiety: state anxiety and trait anxiety. There were 40 questions included in the survey, with 20 measuring state anxiety (Form Y-1) and 20 measuring the trait anxiety score (Form Y-2) (McDowell, 2006). State anxiety is a term that describes fleeting unpleasant feelings of apprehension, tension, uneasiness, or worry and is often accompanied by autonomic nervous system activation representing how dangerous a person thinks his environment is (McDowell, 2006). Trait anxiety is a personality trait that indicates a person's proclivity to perceive situations as hazardous. State anxiety is situational and occurs during a moment in time (McDowell, 2006). Emotions are important in deciding how people react to a diagnosis, and anxiety is a big part of it. State anxiety is transitory and is driven by the trait anxiety of an underlying state of a person's anxious tendency.

Forms Y-1 and Y-2 were both used to ensure accuracy, with each response having an assigned score from one to four. The results for Form Y support the state-trait significance. However, the anxiety driven item verses absent item distinction reflects severity of numbers, with anxiety absent statements sensitive to low levels of worry and anxiety present statements sensitive to higher levels of anxiety, as reported by Spielberger (McDowell, 2006). Each item in the questionnaire had a four-point Likert scale used as a psychometric scoring method to allow individuals to express how much they agree or disagree with a particular statement (Kynoch et al., 2017). Respondents were asked to identify "How you feel right now, that is, at this moment"

for the state questions. On a scale of one to four, responses range from "not at all" to "slightly," "moderately so," and "very much so". (McDowell, 2006). A positive statement example on this form was "I feel at ease." A negative statement example on this form was "I feel upset." After the participant read the statement, they had to circle their response. Respondents were then asked to identify "how you normally feel," and the response scale is "nearly never," "occasionally," "frequently," and "virtually often." A positive statement example on this form was "I am a steady person" A negative statement example on this form was "I lack self-confidence." After the participant read the statement, they had to circle their response. There were 20 questions on each subscale, so a score of 20 is all 1's and a score of 80 is all 4's; a score with a higher number indicates the more significant the anxiety rate (Kynoch et al., 2017).

Previous QI studies in the clinical and surgical areas have supported use of the STAI questionnaire, and the questionnaire has been evaluated extensively for reliability, validity, and bias while being used to assess family anxiety during the intraoperative period (Kynoch et al., 2017). Internal consistency coefficients range from 0.86 to 0.95. Test-retest reliability coefficients range from 0.65 to 0.75 over two months (Spielberger, 1983). Accuracy may be an issue if the key family member completed the survey differently than what that family member told the staff. For example, if the family member conveyed to the nurse and doctor that everything was satisfactory but completed the survey as if the communication process was not satisfactory or vice versa. This may be due to a misinterpretation of the survey. Other study design threats to validity could be inappropriate patient procedure selection, the disappearance of the family member, or inability to get in contact with the family member due to poor cell phone service or low battery.

The QI project assessed family member anxiety levels based on the current method of communication the family member received and distraction techniques used in the waiting room during the patient's surgery. The same survey and demographic questionnaire were completed by the participant family member. Educating and involving the staff, along with responding to any uncertainties with the families encouraged participation in the project.

Ethical Considerations

JU IRB approval was obtained on June 24, 2021, board reference number 2021-041. The approval by the facility's risk manager and owner was required to complete the QI project that involved human subjects as participants. Permission to conduct a QI project at the project site was granted on June 23, 2021. Informed consent was needed to outline the required elements for recruiting the human subjects participating in QI projects and was approved by both facilities. Included in the informed consent was COVID-19 information and details about the project. There was not an increased risk of harm for the patients and family members, and all data were kept anonymous. This process also protected the university during the project process. The collected data was protected by keeping it in a safe, secure place and will be held for up to five years and then destroyed. The QI project's information was held on an encrypted drive of a designated computer.

Key stakeholders included the facility's owner and staff to approve any details about the scholarly doctoral project. Keeping in close contact with all stakeholders and providing them with recommendations of the project outcome was necessary. These stakeholders were not directly participating in the project but were impacted as the project unfolded and outcomes achieved by having a QI project implemented at their facility.

Although there were specific demographics collected including gender, age, relationship to the patient, and ethnicity, there was no identifying information collected and reported. The participants understood that their participation was voluntary, and they could withdraw at any time. The project lead collected the documents in a private location and was nearby for any survey questions. There were no conflicts of interest or exclusion criteria met for the participants.

Analysis and Results

Aim

The primary aim of this QI project was to evaluate the anxiety level of family members with the standard communication process during the intraoperative period. The anxiety level was based on the current method of communication families received at the project facility site. The project's data analysis plans included obtaining the collected data from the STAI instrument and demographic surveys. This data were analyzed after the project completion. The data collected were organized on an Excel spreadsheet with columns titled age, gender, ethnicity, family member relationship to the patient, type of surgery, length of surgery, and survey results. Every family member filled out the survey completely. Each participant in the study had a separate column of survey results with no patient identifying information. The end goal of the project, after analyzing the data, will assist in understanding if family members experience anxiety while waiting in the waiting room and possibly improve knowledge with the goal of implementing a practice change.

STAI Tool

The STAI survey was a two-part tool used because it was the most accurate form to evaluate adult anxiety. Form Y-1, which is state anxiety, includes items numbers 1-20 and measured situational anxiety. Form Y-2 items, which is trait anxiety, includes numbers 21-40 and

measured underlying anxiety as a personality. Each question in the survey included a four-point Likert scale, which was used as a scoring system to allow people to express best how much they agreed or disagreed with a statement. Both forms were used during this study to show accurate correlation between state and trait anxiety. State ratings fluctuate in response to threats, although trait scores do not. Trait scores are more stable than state scores, as one might predict given the STAI's conceptual formulation. However, the two scores have a strong correlation. Furthermore, it appears that the extent to which trait scores predict change in state scores under a threat is predictable.

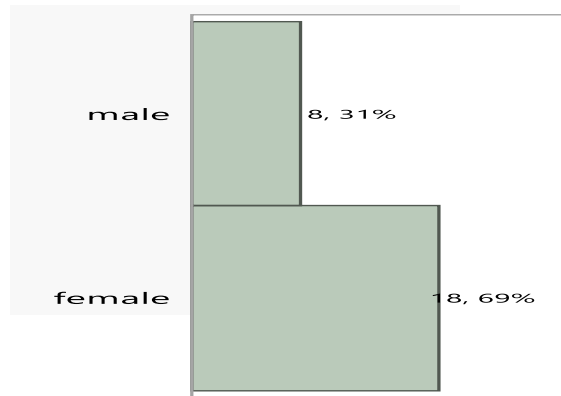
Because the STAI forms contained both positive and negative statements, the positive statements' scores in each form had to be reversed to reflect accurate measurements. Ten statement scores in form Y-1 and nine statement scores in form Y-2 scores had to be reversed so the totals would be measuring the same thing. State and trait values were summed electronically, ranging from 20 to 80, and were determined after reversing values for positively-worded items, which is the standard way. STAI scores are typically divided into three categories with standard interpretation: "no or low anxiety" (20-37), "moderate anxiety" (38-44), and "severe anxiety" (45-80) (Kayikcioglu, 2017).

Demographics

The demographics questionnaire was collected after the STAI anxiety survey and stored on a spreadsheet. Family members of 48 surgical patients were given the opportunity to participate in this project, but only 26 agreed and met the inclusion criteria. Family members who refused to participate in the project cited reasons such as they felt rushed to take their loved one home, they felt the survey was going to require too much of their time, they did not have anxiety so therefore did not want to participate, they did not understand English, they did not feel

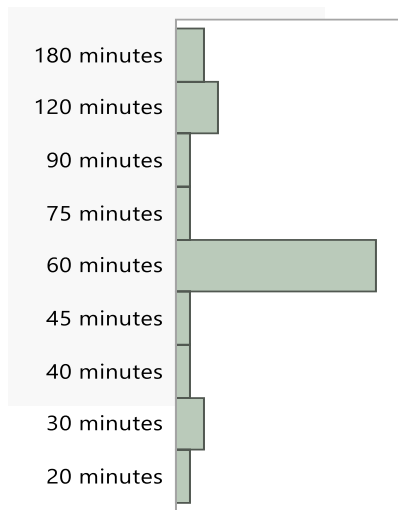
well, or the participant did not feel comfortable completing the survey. Of the participants who took part in this project, the majority were 58 years old and above. Women accounted for 18 participants, and men accounted for the remaining 8 participants as shown in Figure 1.

Figure 1. Gender



The majority of the length of surgeries was 60 minutes, shown in Figure 2, with the average time of the wait 73 minutes.

Figure 2. Length of Surgery



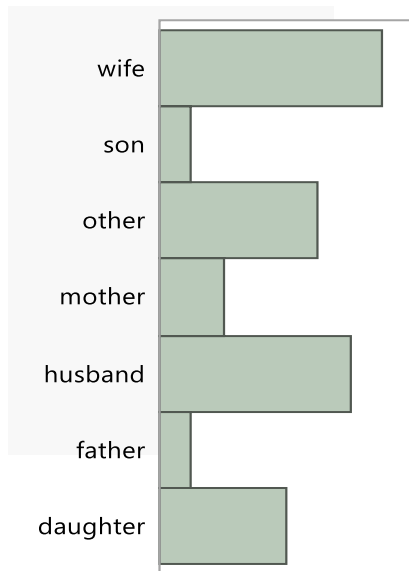
The most common place the family waited was in the waiting room, although other families decided to wait in either the patient’s waiting room or another location, as shown in Table 1.

Table 1. Where the Family Waited for the Patient

Level	Count
another location	9
patient's operating room	1
waiting room	16
Total	26

The participants’ relationship to the patient consisted mainly of husband and wife with the most common relationship as the wife, as shown in Figure 3.

Figure 3. Relationship to patient



The procedures varied from colonoscopy, esophagogastroduodenoscopy, excision of a cyst, inguinal hernia repair, excision of a lipoma, excision of a lesion, and incision and debridement with removal of cyst, with the highest surgical volume being colonoscopies. Ethnicity data were collected but was determined to be nonessential after the final data analysis.

Findings

In this QI project, the participants' anxiety was assessed based on the communication they received intraoperatively while they waited for their loved one in surgery. After obtaining consent from the selected family member, the participant started the waiting period. The two-part State-Trait Anxiety Inventory for Adults self-evaluation questionnaires were distributed and completed after the patient's surgical procedure. The adult STAI survey scores assessed the relationship between family's anxiety level and the communication they received to determine if statistically significant high levels of anxiety had occurred. The average scores with percentages were chosen as the appropriate model for the data gathered. The anxiety level results of the 26 participants who completed the STAI questionnaire are summarized in Table 2 to easily visualize comparisons of each form.

Table 2.

	Mean	No or Low Anxiety
Y-1 (State Anxiety)	31.5	84%
Y-2 (Trait Anxiety)	31.07	88%

The STAI questionnaire anxiety scoring demonstrated that out of the sample the student project lead analyzed, the results showed no to low anxiety. The STAI questionnaire scoring demonstrated by the mean of the average Likert score within each form. Since each Likert score of the STAI survey is additive, the sum of the score is interval and can be treated as interval continuous for analysis. For the State anxiety scale, the mean was 31.5 out of a potential of 40 which revealed no or low anxiety according to the standard interpretation. This meant out of the 26 participants interviewed, 84% of them experienced no or low anxiety while they waited for the patient having surgery. The mean of the State anxiety score correlates with the mean of the Trait anxiety based on the calculations, indicating that the participants in general had very little

anxiety to begin with, and therefore they had little anxiety with their family member in surgery. For the Trait anxiety scale, the mean was 31.07 out of 40 which revealed no or low anxiety according to the standard interpretation. This meant out of the 26 participants interviewed, 88% of them showed no or low anxiety in how they generally felt. Overall, there was low anxiety felt by the family members at the facility while they waited for their loved one in surgery based on the standard communication used. Due to the low anxiety score, no comparative data with each covariate was analyzed because it would be considered descriptive data with no significant differences.

One of the main contextual elements was the shorter duration of waiting times and lower acuity of procedures. This was believed to have an influential impact on the intervention of measuring the participant's anxiety level. Had the waiting times been longer and the acuity of the surgeries been higher, the participant's anxiety level may have been higher. Because the doctoral project took place at an outpatient surgical center, the nature of this element could not be changed.

Summary

Each year, roughly 234 million procedures are conducted, and the waiting room experience for families can be stressful and worrying, resulting in unfavorable clinical outcomes (Kynoch et al., 2017). The literature supported evidence that enhancing the waiting room and communicating with family members during the surgical procedure helped patients feel less anxious (Croke, 2018). Unmanaged stress can make it difficult for family members to grasp information, maintain family functioning, cope, aid in patient assistance, and produce disruptive behavior toward staff (Kynoch et al., 2017). With substantial evidence at hand, the facilitation of

this project began to heighten the staff's awareness of the importance of the patient's family member's needs.

The project site supported education to improve patient care and reduce family concern, which was the basis for adopting this initiative. Patients and their families, according to the surgeon, would enjoy being a part of a QI initiative aimed at improving surgical satisfaction. Although the results indicated a low anxiety level of family members, the main rationale for choosing this project was achieved. The surgical site's staff became aware of the importance of keeping the family members updated intraoperatively, which is crucial to help reduce potential anxiety in future family members. Also, the surgeon was correct in his statement that his patient's and family members would appreciate being a part of a scholarly project. This information may have supported the lower anxiety survey scores. Physically observing patients and their noticeable shift in behavior and facial expressions in a favorable way was rewarding. The project leader mentally marked it as a significant impact that was unquestionably a positive outcome. The surgeon also communicated to most of the family members consistently after the procedures were completed which could have aided in the low anxiety scores.

The STAI survey was utilized in other projects evaluating anxiety level of family members while they waited for their loved ones in surgery. Using both the State and Trait portions of the survey allowed for a better understanding of the participant's anxiety while they waited and if they had anxiety in general (Kynoch et al., 2017). Data analysis revealed the STAI anxiety survey results showed no or low anxiety levels, while literature reveals family members anxiety levels can be high based on lack of updates.

The first objective of this QI project was to create a heightened awareness of the staff on the needs of the family during the patient intraoperative experience to build a stronger

connection with them and decrease their anxiety. The issues that create anxiety and dissatisfaction in family members based on the literature were reviewed with stakeholders to create awareness. By completing a QI project at the surgical site, the stakeholders became more aware of how important it was to address the family members' needs too in order to help lower their anxiety and increase satisfaction. They became aware that the family member's and patient's needs are essential to the surgical experience.

The second objective of this QI project was based on the project's outcome, suggesting other measures to communicate with the family members during the intraoperative session to lessen their anxiety. Based on the available knowledge presented and input from the team at the facility, ways to reduce family members' anxiety included making a phone call to update the family members and have the staff communicate to the family members if surgery was taking longer than expected.

The low STAI anxiety survey results suggested it was a strength to have a surgical procedure in an outpatient surgical center and with the short duration of surgery, less anxiety was felt from the family members from not having to wait if compared to the hospital setting. Also, the facility's small size allowed for a close working relationship with the staff on the QI project. The team gave the project leader ample time to interview the participants and collect the surveys without interruption.

Interpretation

The intervention that took place assessed the family members' anxiety level while they waited for the patient at an outpatient surgical site. The primary project goal was to determine the family members' level of anxiety while they wait during the intraoperative period. The literature revealed that when families waited during the intraoperative period, perioperative nurses noticed

an increase in anxiety in family members (Kynoch et al., 2017). More specifically, when communication is limited, anxiety and worry are raised for the surgical patient's family members (Campbell, 2012). High stress can make it difficult for family members to cope, grasp information, and support a patient undergoing surgery (Kynoch et al., 2017). According to research, the most common need of families is prompt information about the surgery progress and any unintentional delays (Alsabban et al., 2020). Although there is no set guideline that operating rooms must follow, it is critical to offer timely and pertinent updates to families since this can help to reduce the stress that families experience (Hodge et al., 2018).

The QI project measured the level of anxiety the surgical patient's family members experience while waiting for their loved one in surgery based on the current waiting room strategies used at the project facility site. The family members received communication on surgical time estimates prior to surgical start, updates intraoperatively only upon request, and surgeon updates post operatively if the surgeon thought it was necessary based on the surgical outcome. The surgeon updated the patient and family member most of the time at the post op follow-up two weeks following surgery. The outcome was measured by the State and Trait portion of the STAI anxiety survey. The STAI surveys were obtained after the patient's surgery was completed. The implementation of this QI project demonstrated that family members of patients at the project facility site had no or low anxiety levels while they waited for their family members intraoperatively with the standard communication system. This could be due to the shorter duration of the wait time due to the typically quicker procedures being performed at an outpatient surgical facility. The surgeon at the facility also stated his patients would enjoy participating in a QI project and be responsive to the intervention of completing the anxiety survey. It is possible that the family members felt lower anxiety levels due to the project lead

completing a QI project assessing their current state and trait personality characteristics. This may make the family member feel like their needs are being attended to, which would help lower anxiety levels.

Although the data analysis did not support the significance of anxiety in family members who wait during the intraoperative period, previous studies did reveal that families in the waiting rooms typically experience anxiety while they wait for their loved ones during surgery. This could be from lack of regular perioperative updates, not being unable to leave the facility in fear of missing updates, the unfamiliarity of the surgical site and expectations, and lack of communication from the staff when the patient's surgery is taking longer than expected. The surgical facility team stated that in their experience, the family typically gets anxious when the surgeries last longer than an hour. The average time of the surgical procedure during the project was 73 minutes which did not include recovery time.

Surgery times can never be exact, so effective communication with the families can play a huge role in positively impacting the patient perception of care surveys (Saver, 2011). The staff's observation of this communication gap was supported by literature confirming regular patient status intraoperative updates are optimal. The ambulatory surgical center provides each patient with a satisfaction survey submitted to the Agency for Health Care Administration. The patient satisfaction survey is focused on health quality assurance, and it helps the Agency identify areas where it may improve (Agency for Health Care Administration, 2021). The patient evaluation of healthcare services includes a series of questions with a focus on whether or not the patient believed that the institution provided high-quality care. Receiving a potential negative satisfaction experience survey could have an effect on the project site to maintain CMS accreditation.

The project lead observed two situations where it seemed that the family members were experiencing anxiety because the procedure was taking longer than expected and there were no updates given. The selected family member may have completed the survey differently than what that family member conveyed to the staff. The surgical team suggested that it may be essential to place a phone call to the families for updates. They may also start introducing frequent meaningful patient updates to the family members in the waiting room. A simple phone call can improve patient and family satisfaction (Rowe, 2008). Although the participants' satisfaction was not measured, there was positive feedback about participating in the QI project and families felt that the surgical site cared about them during the waiting period. To improve health outcomes and satisfaction, surgery centers should be proactive in delivering effective involvement and communication to patients, family members, and the health care team (AHRQ, 2021).

The evidence-based knowledge gained from this project includes providing healthcare facilities with information that demonstrated family members of the outpatient surgical site did not experience anxiety based on the communication they received while they waited for their loved one during surgery. Although the project lead was unable to support high anxiety levels by family members during the intraoperative period, the facility could still benefit from regular, meaningful updates. If the results revealed higher anxiety scores, the literature highlighted interventions that could be done to reduce the family member's anxiety levels. Based on the staff and student project lead's observations, along with the literature results provided, changes in intraoperative communication may include telephone calls intraoperatively or in-person updates every 30 minutes. The facility could also have the surgeon follow up with them as a standard of practice with every surgical case. The relevance of the participants' demands was addressed in one study, and the highest rated items were being informed of procedural delays and interacting

with the surgeon after the surgery was completed (Alsabban, 2020). Regularly including a family member in the patient's perioperative care is advantageous (Alsabban, 2020). These interventions would provide some reassurance to the families to let them know the team was addressing their needs. Prior studies suggested frequent updates were optimal no matter how long the procedure takes. Fear, anxiety, stress, and uncertainty can make even the shortest wait feel unbearable to the families who wait for their loved ones in surgery (Campbell, 2012).

Limitations

During the IRB process approval, the project site location had to be changed from a hospital facility to an outpatient facility, which reduced the acuity of the surgical patients. The original project intention was to assess the anxiety of the family members while they waited during surgery at a hospital where surgical wait times were significantly longer, and communication to them was minimal. In the outpatient facility, it was possible that anxiety levels were not as high as they would have been if the surgery had been more complicated and lengthier.

The articles reviewed showed that the longer the family waits in the waiting room, the higher the anxiety (Muldoon et al., 2011). Although the wait times were shorter at the new project location, the uncertainty of the surgical outcomes along with the awkward quietness of the waiting could still produce anxiety, according to Vocera (2016). This QI project focused on the anxiety levels of family members in an outpatient surgery setting. There were shorter surgical times, which produced shorter wait times, decreasing the amount of time the family was in the waiting room. Munday et al. (2013) noted that while waiting for information, family members of patients undergoing surgery suffer several stressors, including heightened worry and anxiety. The absence of continuous communication, rather than the type of surgery, heightened anxiety,

according to Munday et al. (2013). As noted in previous studies, the intraoperative waiting time for families produced anxiety, however, the QI project could not demonstrate this.

Before the project, it was determined that the project should include 50 participants, but due to the site change and limitations of surgical days, only 26 family members participated in the QI project. The project's small sample size may have been a factor in insufficient data collection. Although some participants stated the anxiety survey was too long to complete, it has been one of the most widely used surveys to assess anxiety since 1983 (Spielberger, 1983)..

There were no threats to validity or exclusion of datasheets that could create a weakness in the project design. Previous QI projects in the clinical and surgical areas have supported the use of the STAI questionnaire, and the questionnaire has been evaluated extensively for reliability, validity, and bias while being used to assess family anxiety during the intraoperative period (Kynoch et al., 2017). The project leader was the sole implementer of obtaining the consents and collecting of surveys, ensuring reliable and valid results.

Conclusion

A crucial component of the surgical experience is attending to the requirements of the surgical patient's family members (AHRQ, 2020). When waiting for updates on the surgical patient's progress, family members feel anxious and stressed (Muldoon et al., 2011). The purpose of this project was to assess the anxiety level of the family members at the surgical center based on the communication they received while they waited for their loved one's surgery to be completed. It was the intent that this project would add to the literature on surgical patient's family members' anxiety while they waited during the intraoperative period. The QI project outcome did not support high anxiety levels of family members during the intraoperative period based on the communication strategies used at the surgical site. Recommendations for future

projects include increasing the number of participants, implementing different communication interventions such as texting or phone call updates, and implementing this project in a larger facility that includes longer surgical times and higher acuity procedures.

The student project lead provided the owner and facility staff with the project results. As the STAI anxiety tool is owned by Mind Garden and the student project lead, the student provided the surgical site owner the information to obtain this survey for future use if desired. Anxiety evaluation tools that are shorter could be suggested to allow for more family participation. The student project lead played an active role in assessing family members' anxiety at the outpatient surgical site. It is possible that the student project lead provided a sense of comfort to the family members in assuring them their feelings were essential to the staff and owner. If high anxiety levels were the outcome, the student project lead would have suggested ways to reduce their anxiety by providing informative updates during the operation, as the literature suggests (Croke, 2018). These include an informative brochure in the waiting room with surgical details such as standard wait times and relaxation interventions such as deep breathing and meditation (Lombardi, 2019). Also, the staff could mention to the family prior to surgery to bring something for distraction such as a tablet for distraction. The television in the waiting room could be set to OR educational channels or display relaxation techniques (UPshow, 2018). Also, the facility could have the front desk employee check on the families periodically to ask if they need anything, such as refreshments or patient updates, to make them feel more relaxed (UPshow, 2018). The project lead asked the family members for suggestions on ways to reduce their anxiety. Their suggestions were to have more updates if the procedure took longer than expected or to give a phone call to the patient's family member. The phone call would consist of information such as the completion of the patient's surgery or the procedure was taking

longer than expected. In addition, many families are afraid of contracting the COVID-19 virus and avoid going to a medical center. Family members, as a result, have a strong urge to remain outside the clinic (ACS, 2020). As a result, there may be a need for a different method of communicating with families waiting for information regarding the patient's procedure. A phone call would be a simple intervention that could help during this current pandemic.

Sustainable evidence suggests that specific waiting room interventions and regular intraoperative updates to the families of surgical patients decrease anxiety (Poulsen, 2019). Measuring the family's anxiety at the project facility site brought awareness to staff and managers that the family member's needs are important to address. Understanding the level of family members' anxiety with the current interventions at the project facility site led to identifying other potential interventions to help decrease the family's anxiety. Improving communication between the OR nurses and families along with the waiting room experience may also potentially affect the patient's perception of care. Improving patient satisfaction leads to Medicare reimbursement, which positively affects the facility financially (Saver, 2011). Although the results of the STAI survey were not significant, the staff at the facility should continuously monitor the anxiety levels of family members while they wait during the intraoperative period. The facility team stated that they will attempt to be more thorough about updating the families when the surgical time is longer than expected. Currently, at the project facility, no intraoperative updates are offered unless the family member in the waiting room requests an update. The staff also suggested providing a phone call to update the families waiting outside the facility to decrease communication barriers. One method of reducing worry among family members was to make a one-minute phone call to provide an update (Rowe, 2008).

Instituting these simple interventions could potentially improve their facility and reduce periodic anxiety in family members by reducing the communication barrier.

The project results will be disseminated at the JU research symposium and at the facility with the conclusion of the QI project. The project will be explained and presented in a way that is easily understood. The presentation will describe the project in detail along with the results to give the audience a clear understanding of the project outcome. After completing all critical reviews, the article will be submitted to the Virginia Henderson Repository at JU library for other doctoral students to review. The manuscript will be submitted to AORN for possible publication. The manuscript will contribute to the current evidence and provide additional insight about family members who may experience anxiety during the intraoperative period.

The final article and data analysis will be presented to the project facilitation site and all of the key professional team members who assisted with the project with a summary of the information. There are currently no guidelines for the nurses to follow regarding updates to families of patients intraoperatively. The project outcome goal was to assess the anxiety level of family members as they wait during the intraoperative period.

Project Funding

The funding for the project was provided directly by the student project lead and indirectly by the Old Moultrie Surgical Center, which was minimal. The sources for direct funding included the cost of the 50 STAI survey forms, scoring keys, and permission with copyright guidelines at the cost of \$125.00. All other required materials were printed at the student's house, including 25 pages of the demographic questionnaire at \$0.15 per page, 50 pages of the Y-1 and Y-2 anxiety survey at \$0.15 per page, 25 copies of the recruitment flyer at \$0.15 per page, and 250 pages of the consent forms that included the COVID information at

\$0.15 per page. Initially, the cost of the copies of consents and ink were not calculated. The student project lead incurred the cost of the ink to print the necessary materials, which was approximately \$40. Additional copies of the consent that some participants desired were around 50 pages at the cost of approximately \$10. The cost for the JU research symposium is approximately \$100 for the presentation materials. There were no grants awarded for project funding. The participants and staff at the project site, along with the facility, were not compensated for their time and help with the project. The facility did not have any additional cost except for the printing of the copies of five consents for the participants. The student project lead paid all indirect costs such as gas required to travel to the study site. Potentially, the long-term effects on decreased family anxiety could increase satisfaction, impacting the facility financially and bringing in more revenue. Patients and families who have had a positive experience at a facility are more likely to return for subsequent surgeries.

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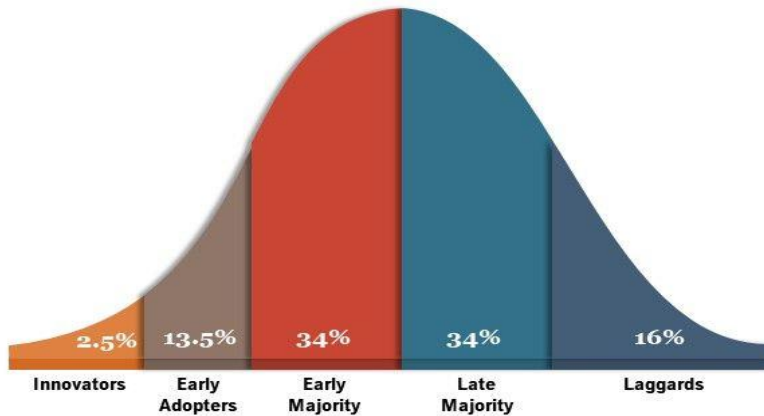
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Appendix A
Roger's Diffusion of Innovation
Theory

Diffusion of Innovations Curve with Five Adopter Categories

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.



Innovators
These people are very willing to take risks and want to be the first to try the innovation.

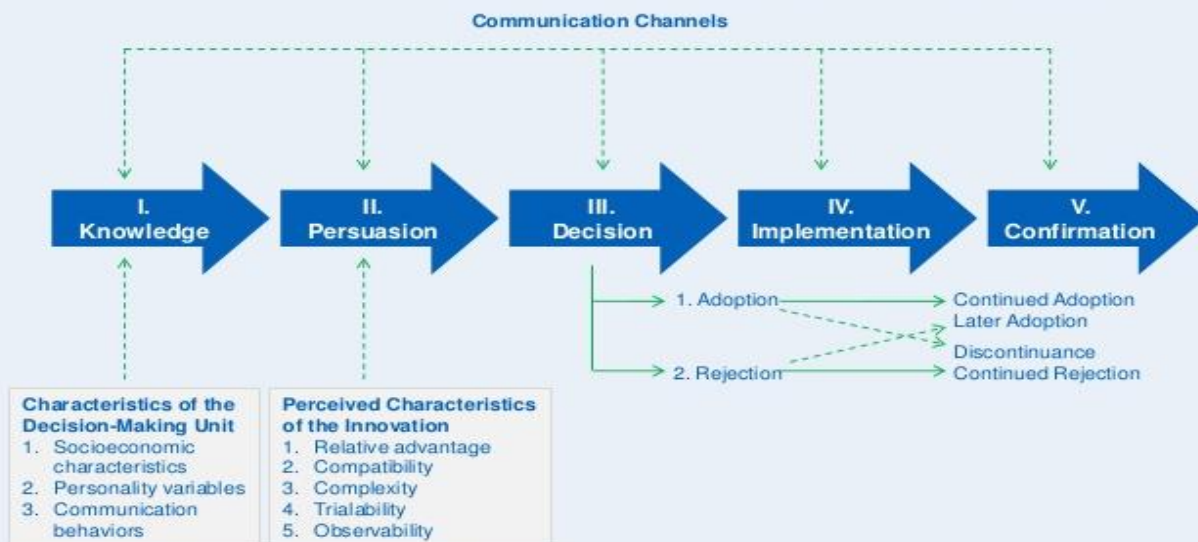
Early Adopters
These people are already aware of the need to change and are very comfortable in adopting new ideas.

Early Majority
These people adopt new ideas after seeing evidence that the innovation works.

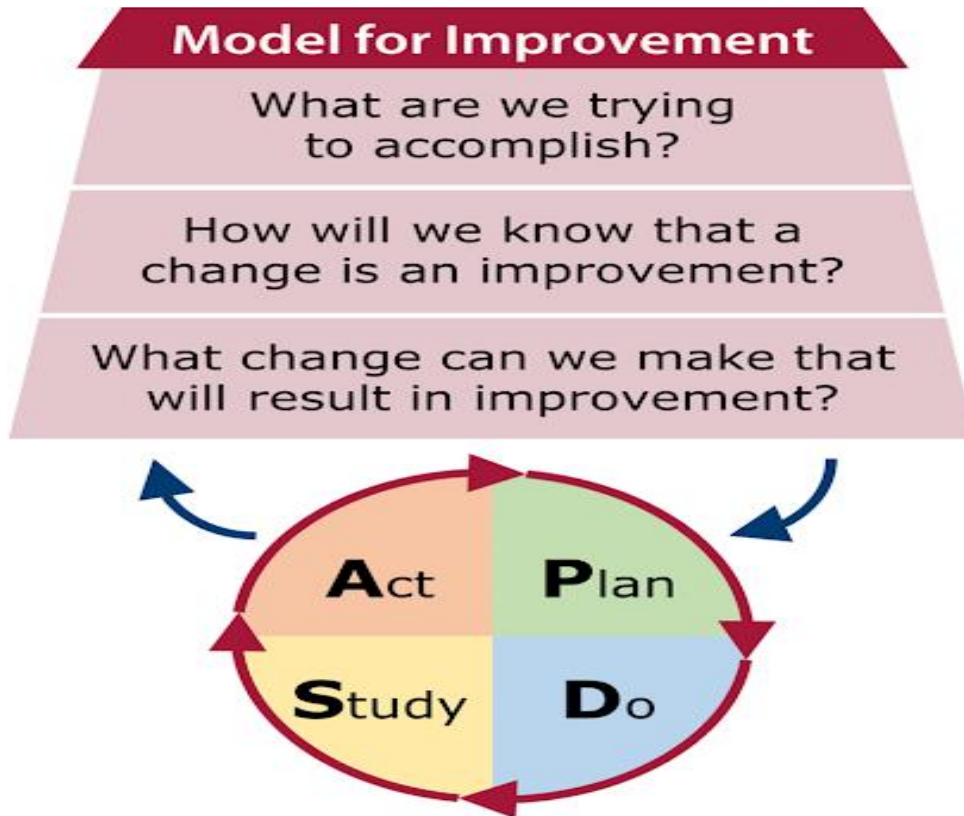
Late Majority
This slide is 100% editable. Adapt it to your need and capture your audience's attention.

Laggards
This slide is 100% editable. Adapt it to your need and capture your audience's attention.

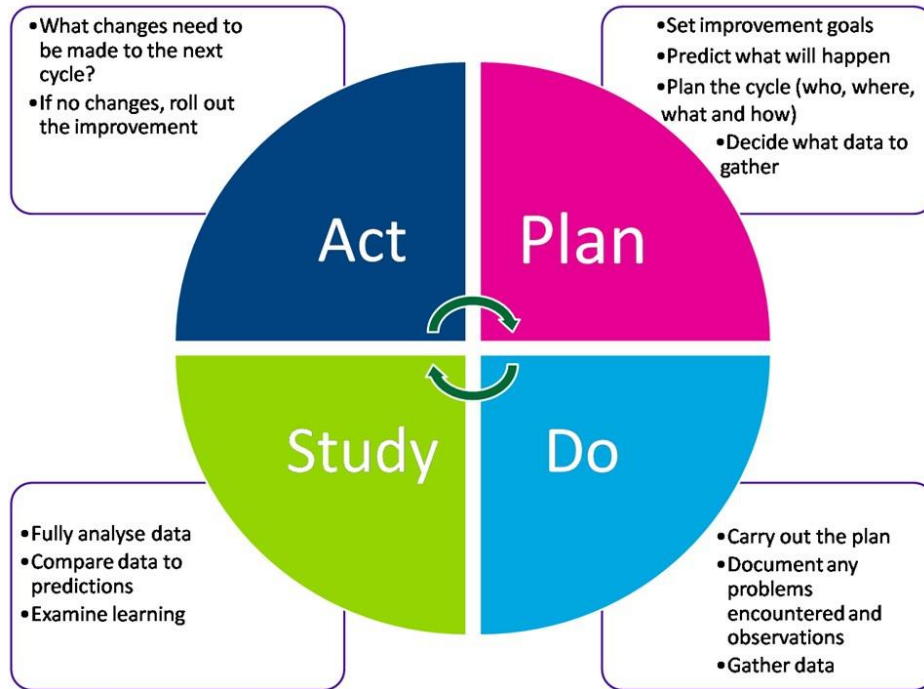
The Innovation Diffusion Process



Appendix B
IHI Model



Appendix C
PDSA Model



Appendix D
DNP Project Financial Cost

DNP Project Financial Cost

Total

\$185.00

Item	Cost
STAI-AD pencil and paper survey with license	\$125.00
Printing STAI-AD Surveys	\$20.00
Printing Demographic Surveys	\$20.00
Printing Consent Forms (Adult Informed COVID)	\$20.00

Appendix E
Family Demographics

1.) I am:

1=Male, 2=Female

2.) I am ____ years old

1 = 18-25, 2 = 26-36, 3 = 37-47, 4 = 48-57, 5 = 58-70, 6 = 71 and above

3.) I am the patient's:

1 = Mother, 2 = Father, 3 = Sister, 4 = Brother, 5 = Daughter, 6 = Son,

7 = Husband, 8 = Wife, 9 = Partner, 10 = Other

4.) Ethnicity:

1 = Caucasian, 2 = African American, 3 = Hispanic, 4 = Asian, 5 = Indian, 6 = Other

5.) Type of patient surgery:

6.) Length of patient surgery:

7.) I waited for the patient in the:

1=Waiting Room, 2=Patient's operating room, 3=Another location

Appendix F
Formal Letter of Approval from Project Site

March 2, 2021

Ms. Renee Rossi
Director, Research and Sponsored Programs
Jacksonville University
2800 University Blvd., North
Jacksonville, FL 32211
PH: (904) 256-7458
E: rrossi@ju.edu

Dear Ms. Rossi:

The purpose of this memorandum is to confirm that Old Moultrie Surgical Center has given Dr. Kathryn Kott, Project Chair, PhD, APRN, FNP-C, and Ashlie E. Sinclair, Student Project Lead, BSN, RN, from Jacksonville University permission to conduct a quality improvement Project at Old Moultrie Surgical Center for her study on Measuring Anxiety Levels of Surgical Patient's Family Members While They Wait Based on the Intraoperative Communication They Received.

Ashlie E. Sinclair project will be conducted over three months from approximately June, 2021 through August, 2021 on approximately 25 participants. There will be one treatment group used throughout the selected time period and they will complete the State-Trait Anxiety Inventory for Adults (STAI), based on how they felt during the waiting period. The STAI survey completed by the treatment group will assess the anxiety levels of the families that waited in either the waiting room, patient's operating room, or another location. The STAI survey will be completed by the families on the communication and waiting room interventions they received during the patient's operation. Use of the STAI survey results will contribute to an understanding of the project outcomes of assessing family's anxiety while they wait for their loved one in surgery.

Should the JU Institutional Review Board have any questions, please do not hesitate to contact me directly at jcaudill44@gmail.com, Office: 904-797-6627, Mobile: 248-701-8469.

Sincerely,
Jeremy Caudill, DO
Old Moultrie Surgical Center

Appendix G
Informed Adult Consent

JACKSONVILLE UNIVERSITY

2800 University Blvd N, Jacksonville, FL 32211 • (904) 256-8000

COVID -19- Message to Quality Improvement Participants

Jacksonville University takes the safety of our quality improvement project participants very seriously. We need to provide you with important information about the coronavirus, which is also called COVID-19. It is a virus that can be spread from person to person. We need to tell you about ways your participation in this study might change because of the risks caused by the coronavirus.

If you are considering joining this quality improvement project, it is important that you consider the following information to determine if study participation is right for you at this time.

How is COVID-19 spread? COVID-19 is a respiratory virus that can be spread through small droplets that come from us as we breathe. This can happen between people who are in close contact with one another (less than 6 feet). It is also possible that a person can get COVID-19 by touching a surface or object (such as a doorknob or counter surface) that has the virus on it, then touching their mouth, nose or eyes.

Can COVID-19 be prevented? Current ways to minimize the risk of exposure to COVID-19 include “social distancing” which is a practice to decrease the potential for direct exposure to others who may have been exposed to COVID-19, for example by avoiding large gatherings or refraining from shaking hands with others. It is important to understand that since your participation may include increased travel outside of your home and increased exposure to others within a clinical care environment or research site (e.g., dance studio, JU Campus) that your possible exposure to COVID-19 may increase.

What are the risks of COVID-19? For most people, the coronavirus causes only mild or moderate symptoms, such as fever and cough. For some, especially older adults and people with existing health problems, it can cause more severe illness, including pneumonia. While we are still learning about this virus, the information we have right now suggests that about 3 out of 100 people who are infected might die from the virus.

Who is most at risk? Individuals over 60 and those with chronic conditions such as cancer, diabetes, and lung disease have the highest rates of developing serious complications from the virus.

How could your participation in this quality improvement project change as a result of COVID-19? There are several ways for us to try to lower your risk of exposure.

- The project lead may limit the number of times you come to a clinical care or research/project site, as for example, the JU Campus, an offsite clinic, or dance studio. Please know that by coming to a project site, you are assuming the risk of exposure to the coronavirus (or other public health risks). This risk may increase if you travel by public transportation, cab, or ridesharing service.
- Do not come to the JU campus or a research/project site if you or someone in your household has tested positive for COVID-19 in the past 14 days, or if you are exhibiting symptoms of illness such as fever, cough or shortness of breath.
- For JU research/project sites, before coming to campus, visitors must review a medical disclosure statement (see below) acknowledging that they have followed a series of steps to check their health and that they will comply with University policies, including bringing a mask to wear on campus. Those unwilling to comply with policies regarding social distancing and masks will be asked to leave campus. For other research sites, e.g., dance studios, or clinics, please inquire about site specific policies.
 - **JU's Medical Disclosure Statement:** Visitors with members of their household who have tested positive for COVID-19 in the past 14 days or who are exhibiting symptoms of illness such as fever, cough or shortness of breath are not permitted on campus. Please perform a self-health check and take your temperature prior to arriving on campus to ensure you are not exhibiting COVID-19 symptoms and your temperature reading is below 100.4 degrees F. *Please note Jacksonville University reserves the right to temperature check visitors upon arrival to campus.*
- If there is a reappearance of the COVID-19 virus or if other health concerns arise, the project lead may substitute face-to-face interactions with remote contact options such as using the phone, Zoom, or other means, whenever possible.
- If a face-to-face interaction or intervention is required, the project lead may pre-screen for COVID-19 over the phone. As part of the pre-screening process, you will be asked if you have had symptoms of COVID-19 or have been in close contact with anyone who has or had COVID-19. If you have a positive risk/symptoms screening, please consult your healthcare provider, visit the Florida Department of Health COVID-19 Response website, or call center for further information.
 - Florida Department of Health COVID-19 Response Team

- Website: <https://floridahealthcovid19.gov/>
 - 24/7 Call Center: (866) 779-6121
 - Email: COVID-19@flhealth.gov
- Project participants with possible exposure or symptoms of the illness may be rescheduled if medically cleared for COVID-19, excluded, or withdrawn from the study.
 - The project lead may try to reduce the time you are exposed to other people/participants as much as possible. For example, the project lead may limit the number of participants at the site by providing individual appointment times.
 - The project lead will use masks, gloves, face-shields, etc., to minimize your exposure. Participants will also wear masks, gloves, and clean their hands often while on the research site or the JU campus. For JU research sites, all guests and visitors must bring their own face coverings and wear them in the designated mask-required areas or when interacting with people on campus.
 - If during the course of the project you are suspected to be positive for COVID-19, there may be last minute changes to how procedures are performed (such as a change from an in-person visit to a telephone call) or cancellations of research tests or procedures to ensure your safety. It is even possible that your research procedures will be put on hold or stopped because of COVID-19.
 - Participants will inform the members of the research team if there is a change on their health status.

The information related to risks of COVID-19 changes every day. Jacksonville University continues to monitor the risks and make decisions about how these risks should change our research process. If you have questions about COVID-19 and your participation in this quality improvement study, please talk to your project lead.

Acknowledgements

_____ I have read the COVID-19 message to project participants, and have been given the opportunity to ask questions. Based on this information,

_____ I agree to participate in this project. I understand that people infected with COVID-19 may not show symptoms, but they may still be highly contagious. I understand that Jacksonville University, the project leads, and project staff will use various strategies such as social distancing to lower the spread of COVID-19 while participating in this project. However, given the nature of the virus, I understand that even with these strategies

in place, there is a possibility that I can become infected with COVID-19. I assume the risk of potentially becoming infected with COVID-19 by voluntarily consenting to participate in this project.

Participant's

Name:

Participant's

Signature:

Date: _____

_____ I do not wish to participate in the study. (Stop here, and please return this document to the researcher. Thank you for your time and consideration).

Project Summary

Title of the Project: A Quality Improvement Project to Assess Anxiety of Family Members who Receive Standard Communication During the Intraoperative Period

Project Lead: Ashlie Sinclair, BSN, Jacksonville University

Faculty Advisor: Kathryn Kott, PhD, APRN, FNP-C, Jacksonville University

Project Statistician: Peter Wludyka, PhD, Jacksonville University

Project sponsor (applicable to external/sponsored funded projects): Not Applicable

You are invited to participate in a scholarly project. In order to participate, you must be over the age of 18 years old and understand English. You must have a family member scheduled for a surgery and you must be the contact person suggested by them to receive the updates from the staff. You must be able to complete the survey after the surgery with a pencil and it will take approximately 20 minutes. Taking part in this project is voluntary.

The purpose of the project is to understand the level of anxiety families feel while they wait during the intraoperative period.

If you agree to take part in this project, you will be asked to meet with the DNP Student Project Lead at the project site to complete a survey and questionnaire after the patient arrives to recovery. Prior to the surgery, you will be asked to sign the consent for permission to participate. Names will be coded by numbers and no identifying information will be associated with the names. I expect your involvement will take approximately 20 minutes to obtain consent and complete the questionnaires. I will collect the following data/information from you such as your gender, age, and ethnicity. I will also ask you the type of surgery the patient had, length of surgery, and where you waited for the patient while they were in surgery. Your data will not be linked to other data, research, protected health information, or administrative data such as US Census data.

There are some risks and or discomforts you might experience from being in this project. These are at a minimum, there could be a breach of confidentiality. Your data will be entered and stored in the secure database at the local organization with a protected password and encrypted server that is HIPAA compliant. The computer is password protected. The paper copies of all contents will be stored in a locked filing cabinet in a locked office at the local organization. Only the Student Project Lead, JU Faculty Chair, and JU statistician will have access to the file. In addition to confidentiality risks, there may be some psychological discomfort you may experience for participating in having to answer questions about anxiety levels in general and during a specific situation. This may cause embarrassment. The DNP Student Project Lead will be there to help you with any questions regarding the surveys, and give you enough time to complete them in a private area.

You may not benefit directly from participating in this project. Others might benefit from the knowledge learned from understanding the family's level of anxiety while the patient was in surgery.

If you decide to take part in the project, it should be because you really want to volunteer. You will not lose any services, benefits, or rights you would normally have if you choose not to volunteer. If you are a contact person of the patient, nothing about their medical status or services will change no matter what you decide.

If you are interested in learning more about the project, please continue to read below. If you are not interested stop here.

Thank You.



Office of Research
& Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

**INFORMED
ADULT CONSENT
Quality Improvement**

READABILITY SCORE: Readability score: 50. Flesch-Kincaid Grade level: 10.8 <http://www.readabilityformulas.com/free-readability-formula-tests.php> _____

PARTICIPANT'S NAME (Print): _____

TITLE OF THE PROJECT: A Quality Improvement Project to Assess Anxiety of Family Members who Receive Standard Communication During the Intraoperative Period

PROJECT LEADS:

DNP Student Project Lead: Ashlie Sinclair, BSN, Jacksonville University, Phone Number: 904-806-8161, email: asincla3@jacksonville.edu

Faculty Chair: Kathryn Kott, PhD, APRN, FNP-C, Jacksonville University, Phone Number: 309-634-6121, email: kkott@ju.edu

Project Statistician: Peter Wludyka, PhD, Jacksonville University, email:
pwludyk@ju.edu

PROJECT LEAD'S STATEMENT:

We are asking you to be in a scholarly project. The purpose of this consent letter is to give you the information you will need to help you decide whether to participate. Please read this form carefully. You may ask questions about the purpose of the project, the possible risks and benefits, and anything else about the project or this form that is not clear. When we have answered all of your questions, you can decide if you want to be in the project or not. This process is called "informed consent." We will give you a copy of this form for your records.

THE PURPOSE OF THE PROJECT: The purpose of this project is to understand the level of anxiety families feel while they wait for their relative during the operation.

PROCEDURES: (What is expected from the participant?):

You will be asked to meet with the DNP Student Project Lead at the project site to complete a survey and questionnaire after the patient arrives to recovery. The survey will focus on your anxiety level depending on the updates you received during the patient's surgery. The questionnaire will focus on your demographics and patient's surgery type and time. The survey and questionnaires will take approximately 20 minutes to complete with pencil. There will be a locked bin in the outpatient unit for survey placement. The DNP Student Project Lead will explain the updates that are to be expected and where you can wait while the patient is in surgery. The survey has 40 questions, with 20 assessing the anxiety about a particular event, and 20 assessing how the

person generally feels. For example, one of the statements about a particular event includes I feel calm with a response of 1 not at all, 2 somewhat, 3 moderately, and 4 very much so. One statement about how you generally feel includes I feel pleasant with a response of 1 almost never, 2 sometimes, 3 often, and 4 almost always. The responses of the survey and questionnaires will be evaluated to assess family member's anxiety levels.

About 25 participants will take part in the project.

If you decide to be in the project, the DNP Student Project Lead will collect the following information: such as your gender, age, and ethnicity. I will also ask you the type of surgery the patient had, length of surgery, and where you waited while the patient was in in surgery. Information will be collected at the local organization on an excel spreadsheet.

I will not be using the de-identified data in future work.

If you have any questions now or at any time during the project, you may contact anyone listed under Project Leads.

BENEFITS OF THE PROJECT: You may not benefit directly from participating in this project. Others might benefit from the knowledge learned from understanding your level of anxiety based on the patient status updates you received while your family member was in surgery.

No promise or guarantee of benefits has been made to encourage your participation.

RISKS OF THE PROJECT: The risks of taking part in this project are there could be a breach of confidentiality. In addition to confidentiality risks, there may be some psychological discomfort you may experience for participating in having to answer questions about your anxiety levels during a specific situation. This may cause embarrassment.

To minimize the risks associated from being part of the project, names will be coded by numbers and no identifying information will be associated with the names. The data will be entered and stored in the secure database at the local organization with a protected password and encrypted server that is HIPAA compliant. The computer is password protected. The paper copies of all contents will be stored in a locked filing cabinet in a locked office at the local organization. Only the DNP Student Project Lead, JU Faculty Chair, and JU statistician will have access to the file. The DNP Student Project Lead will be there to help you with any questions regarding the surveys and give them enough time to complete them. All data used during the project will be de-identified and made into aggregate data. The de-identified data will be shared with the local organization for quality improvement.

IN THE CASE OF INJURY OR ADVERSE EVENT (USE IF CONDUCTING A CLINICAL TRIAL OR A PROJECT WHERE CLINICAL OR STANDARD OF CARE IS BEING EVALUATED): Please contact the Project Leads immediately, but also in the case of emergency please seek medical attention. Jacksonville University has not set aside funds for any

medical costs, damages, or other financial loss from this project. The only exception is if it is proved that your injury or illness is directly caused by the negligence of a Jacksonville University employee. “Negligence” is the failure to follow a standard duty of care.

If you become ill or injured from being in this project, your insurer may be billed for your treatment costs. If you do not have insurance, or if your insurer does not pay, then you would have to pay these costs. If you believe you have become ill or injured from this project, you should contact Dr. Kathryn Kott at 309-634-6121 (24 hour cell number). You should also let any healthcare provider who treats you know that you are in a project.

COSTS / COMPENSATION: You will not have to pay for taking part in this project. You will not be paid to take part in this project. You or the patient’s insurance will not be billed for the extra time it takes for updates. This project is paid for by the DNP Student Project Lead. The family updates will not replace what the local organization routinely provides.

ALTERNATIVE TO BE IN THE PROJECT: The alternative to taking part in this project is not to participate.

CONFIDENTIALITY: Records or data obtained as a result of your participation may be reviewed by the Project Leads and/or The Jacksonville University’s Institutional Review Board. However, they are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law. These records will be kept private in so far as permitted by law. Also, other Jacksonville University officials have the legal right to review

records, and they will protect the secrecy (confidentiality) of these records as much as the law allows. Otherwise, your records will not be released without your permission unless required by law or a court order. However, if we learn that you intend to harm yourself or others, we must report that to the authorities.

I plan to publish the results of this project. To protect your privacy, I will not include any information that may identify you. To protect your privacy I plan to have no identifying information associated with the surveys. Electronic data will be destroyed 3 years after the study is completed as required by Federal Law.

To conduct this project, I would need access your demographic information. The DNP Student Project Lead will have to follow up with you in person at the end of your family member's surgery to complete the anxiety and demographic survey. The information and privacy of your information will be maintained at all times. All data used during the project will be de-identified and made into measurable data. The de-identified data will be shared with the local organization for quality improvement. The results from the anxiety surveys will not be included in the medical record or reported in any way.

CONFLICT OF INTEREST: In general, presenting results helps the career of a scientist. The Project Leads may benefit if the results are presented at scientific meetings or published

in scientific journals.

DNP Project Lead declares no financial interest in this project and declares no conflict of interest.

RIGHT TO PARTICIPATE OR WITHDRAW: You are free to stop taking part in this project at any time without penalty and without losing any benefits. You will be provided, as applicable, with any significant new findings developed during this project that may relate to your participation.

If you decide to stop taking part in this project for any reason, you should contact Dr. Kathryn Kott at 309-634-6121. If you choose to tell the DNP Project Lead why you are leaving, your reasons may be kept as part of the project record. If you decide to withdraw from the project, it may be impossible to exclude the data that has already been collected. In addition, Project Leads may retain and use data collected prior to your withdrawal, including Protected Personally Identifiable Information (PPII), as long as the uses are consistent with the project purpose and procedures as described in the IRB application and consent documents. If you have any questions regarding your rights as a project participant, you may call the JU Office of Research & Sponsored Programs at (904) 256-7151.

You may be withdrawn from the project without your consent for the following reasons: You do not meet the eligibility criteria, forms are not completed correctly or missing data, permission not being granted to complete the survey, inability to complete the survey, your

disappearance after the patient's surgery is complete, failure to turn in the survey, or any question regarding you or your family's COVID-19 results.

CONSENT TO PARTICIPATE: I have been informed about this project's purpose, procedures, possible benefits, and risks; and the alternatives to being in the project. I have been given the opportunity to ask questions before I sign, and I have been told that I can ask other questions at any time. I understand that my consent does not take away any of my legal rights. I also understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws.

By signing this form, I voluntarily agree to take part in this project. I am not waiving any of my legal rights. I will receive a copy of this form.

Name of Family Member Printed Signature Date

Person Obtaining Consent and Authorization:

Signature Date

Appendix H
STAI License

Permission for ASHLIE SINCLAIR to reproduce 50 copies within three years of January 24, 2021

**State-Trait Anxiety
Inventory for Adults™**

Instrument and Scoring

Developed by Charles D. Spielberger

in collaboration with R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

Published by Mind Garden, Inc info@mindgarden.com www.mindgarden.com

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whole or in part, contact Mind Garden, Inc.

Rubric

Element	Quality Improvement DNP Project Criteria	Met/ Not Met
1. Title	<ul style="list-style-type: none"> • Title notes key elements of the project initiative and specific healthcare improvement focus, broadly defined to include: <ul style="list-style-type: none"> ○ Quality ○ Safety ○ Effectiveness ○ Patient-centeredness ○ Timeliness ○ Cost ○ Efficiency ○ Equity • Mesh terms in title <ul style="list-style-type: none"> ○ Consider using MeSH terms in the title so the project is easily identified in searches ○ Example of healthcare improvement-related MeSH terms include: <ul style="list-style-type: none"> • Health Care Quality Access and Evaluation; Quality Assurance; Quality Improvement; Outcome and Process Assessment (Healthcare); Quality Indicators, Health Care; Total Quality Management; Safety Management (http://www.nlm.nih.gov/mesh/MBrowser.html) • Sample keywords which might be used in connection with improvement work include Quality, Safety, Evidence, Efficacy, Effectiveness, Theory, Interventions, Improvement, Outcomes, Processes and Value. 	
2. Abstract	<ul style="list-style-type: none"> • Abstract using IMRAD format <ul style="list-style-type: none"> ○ Introduction (e.g. Why did you start?) ○ Methods (What did you do?) ○ Results (What did you find?) ○ Conclusions (What does it mean?) 	
3. Problem Description	<ul style="list-style-type: none"> • Nature and Significance of the Problem <ul style="list-style-type: none"> ○ General problem reported in the literature – the broad context ○ Describe the nature and severity of the specific local problem or system dysfunction addressed by project <ul style="list-style-type: none"> ▪ Define the problem in terms of needs, and not solutions. ▪ Problem nature and severity should indicate the 	

	<p>difference between what is (e.g. current performance/outcomes), and what might or should be (benchmarks or target outcome measures)</p> <ul style="list-style-type: none"> ○ Alignment with strategic priorities of project site ○ Describe significance – why is the problem important 	
<p>4. Available Knowledge</p> <p><i>(Appraisal and synthesis of the evidence – review of literature)</i></p>	<ul style="list-style-type: none"> ● Search, Appraisal, and Summary of Evidence <ul style="list-style-type: none"> ○ Searchable question (e.g. EBP, PICOT, Clinical Question) ○ Search Process (e.g. databases used, keywords, delimiters, number of sources returned, and number of sources selected for final appraisal) ○ Critical appraisal and Summary of Evidence <ul style="list-style-type: none"> ▪ Uses concepts or themes related to problem ▪ Appraisal and summary are focused, logical and organized ▪ Includes supporting & opposing evidence ● Synthesis of Evidence: Overall Strength and Quality of Evidence ● Recommendations for Quality Improvement Intervention or Process Improvement <ul style="list-style-type: none"> ○ Recommendations are derived from and supported by Evidence Synthesis ● Fit, Feasibility, and Appropriateness of Recommendation(s) for Translation and Improvement <ul style="list-style-type: none"> ○ Consider the main questions outlined by Dang and Dearholt (2017): <ul style="list-style-type: none"> ▪ "Can this practice change be implemented given the current organizational infrastructure?" ▪ "What additional actions and resources are needed?" ▪ Would this change improve clinical outcomes, patient or staff satisfaction, the cost of care, or unit operations? ▪ Are the findings in the evidence consistent? ○ How applicable are the findings to your practice setting? 	
<p>4. Rationale – Conceptual and Improvement Science</p>	<ul style="list-style-type: none"> ● Conceptual Framework <ul style="list-style-type: none"> ○ Describe a conceptual framework that provides theoretically relevant context to the project problem and interventions. ○ Discuss how the framework explains the problem, informs the development of the recommended interventions, and supports why the selected 	

	<p>interventions are expected to work.</p> <ul style="list-style-type: none"> ○ Describe how the framework informs future plans for implementation and selection of outcome measures ○ Present a map of the framework, including concepts & constructs as applicable to project (include as appendix) 	
	<ul style="list-style-type: none"> ● Quality Improvement (QI) Model <ul style="list-style-type: none"> ○ Provide a brief overview of the chosen quality improvement model for the DNP Scholarly project ○ Describe how the selected QI Model will be used to guide the improvement or practice change in the DNP Scholarly Project ○ Rationale for selection (e.g. whether this is the model used by the healthcare site and if not, why you chose a different model) 	
<p>5. Specific Aims <i>(Purpose of Project)</i></p>	<ul style="list-style-type: none"> ● Purpose of DNP Scholarly Project <ul style="list-style-type: none"> ○ Articulate high-level goal statement(s) that provide the specific aim of what the project is trying to achieve ○ Articulate lower level objective(s) that are specific, measurable, achievable, realistic, and time-bound (SMART) 	
<p>6. Context <i>(Setting, population, support)</i></p>	<ul style="list-style-type: none"> ● Specifics of healthcare setting and population <ul style="list-style-type: none"> ○ location healthcare setting ○ patient population and size ○ staffing ○ type of practice ○ teaching status of the institution ○ system affiliation ○ care processes relevant to the initiative ○ organization’s mission, vision, and strategic plan ● Analysis of strengths and opportunities that may influence success of the change in the healthcare setting ● Impact on electronic health record (EHR), workflow, and policies/procedures ● Support for project (e.g. physical, financial, or informational materials) <ul style="list-style-type: none"> ○ Cost/Benefit Analysis <ul style="list-style-type: none"> ▪ Personnel ▪ Supplies/equipment ▪ Technology ▪ Printing/publication ▪ Education/training ▪ Content or external experts 	

	<ul style="list-style-type: none"> ▪ Dissemination (e.g. travel to conferences) <ul style="list-style-type: none"> ○ Grants or internal funding 	
7. Intervention Description	<ul style="list-style-type: none"> • Detailed description of QI intervention(s), strategies, or best practices using the Tidier (Template for Intervention Description and Replication) Checklist to include the why, what, who provided, how, where, when, how much, tailoring, modifications, and how well elements • Timeline of project phases 	
8. Study of Intervention	<ul style="list-style-type: none"> • Approach for assessing impact of intervention(s) • Approach for establishing whether observed outcomes were due to the QI initiative interventions 	
9. Measures	<ul style="list-style-type: none"> • Process measures used to determine if the QI interventions/strategies are followed • Outcome measures used to determine if the QI intervention/strategies had the desired impact on the problem (e.g. clinical measure, scale, instrument(s) used to operationalize the problem) • For the chosen process and outcome measures include the following as applicable: <ul style="list-style-type: none"> ○ Rationale for measure(s) ○ Conceptual definition(s) ○ Operational definition(s) ○ Psychometric properties ○ Validity (construct) ○ Reliability (e.g. internal consistency, test-retest, interrater) • Data collection <ul style="list-style-type: none"> ○ Strategy ○ Training ○ Timing ○ Source(s) of data 	
	<ul style="list-style-type: none"> • Valuation measure(s) using CHEERS (Consolidated Health Economic Evaluation Reporting Standards) Checklist as applicable • Estimates of resources, costs, and economic impact 	
10. Analysis	<ul style="list-style-type: none"> • Evaluation and analysis plan should be consistent with the QI initiative aims and measures <ul style="list-style-type: none"> ○ Describe the qualitative and quantitative methods used to draw inferences <ul style="list-style-type: none"> ▪ Qualitative examples include focus groups, interviews, leadership rounding feedback, root cause analyses • Descriptive and inferential quantitative analyses 	

11. Ethical Considerations	<ul style="list-style-type: none"> • Describe ethical aspects of the QI Initiative and how they were addressed or mitigated <ul style="list-style-type: none"> ○ Intervention ○ Implementation ○ Informed Consent ○ Formal ethics review (e.g. IRB oversight and approval as applicable) ○ Conflict of interest ○ Data management, security, privacy, confidentiality of both paper and electronic sources 	
Results	<ul style="list-style-type: none"> • Intervention steps, evolution, and modifications • Details of process measures and outcomes • Contextual elements and influence on intervention • Observed associations among intervention, contextual factors, and outcomes • Unintended consequences (e.g. benefits, problems, failures, costs, serendipitous findings) • Details about missing data 	
Summary	<ul style="list-style-type: none"> • Key findings including relevance to rationale, aims, and local problem(s) • Strengths of project 	
Interpretation	<ul style="list-style-type: none"> • Nature of association between QI interventions and outcomes • Comparison with existing literature (e.g. sample characteristics, intervention, outcomes) • Project impact (e.g. systems, people, policy) • Discussion of anticipated outcomes and observed outcomes, including influence of contextual factors • Costs and strategic trade-offs as applicable 	
Limitations	<ul style="list-style-type: none"> • Factors that may have limited internal validity, such as imprecision in project design, interventions, implementation, measurement, or analysis • Efforts made to minimize, mitigate, or adjust for limitations 	
Conclusions	<ul style="list-style-type: none"> • Significance and usefulness of project • Sustainability • Spread of project to other contexts • Implications for practice • Lessons learned and suggested next steps • Dissemination plan 	
Project Funding	<ul style="list-style-type: none"> • Note funding sources including direct and indirect, grants, etc. 	