

## **Importance of Implementing a Customized Anesthesia Checklist**

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### Author Note

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**DNP Scholarly Project Final Approvals**

The DNP student KEEPON KAMAU and the Scholarly Project IMPORTANCE OF IMPLEMENTING A CUSTOMIZED ANESTHESIA CHECKLIST meet all the requirements for the degree of Doctor of Nursing Practice at University of Saint Francis-Fort Wayne, IN.

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## Abstract

**Problem Statement-** Anesthesia providers provide critical care to patients during surgery. This care routinely lacks a standardized anesthesia checklist which leads to variations in practice that can cause preventable errors. A review of the charts at Franciscan Health Crown Point shows greater than 20% incident of missing anesthesia consent and antibiotics. Further discussion with the anesthesia providers confirmed an increase in the number of missed preoperative components. **Purpose-** The project attempted to highlight the importance of implementation of a customized checklist with aims to increase utilization with hopes of eliminating of variances. **Method-** This was a quality improvement project with a pre/post implementation survey. The project also involved a chart review and utilization of a customized anesthesia checklist use for a month. The data was analyzed to find percentage change. Interventions included a slideshow presentation and physical checklist that the anesthesia providers would use during the implementation phase. **Results-** Pre- to post-implementation surveys showed increase in percentage change of all the aims. Anesthesia checklist utilization increased by 12.5%. Additionally, 10% of Anesthesia providers reported that the checklist helped them remember frequently missed items. One month following project intervention 15.6% of the anesthesia providers acknowledged the importance of using the anesthesia checklist. A final chart review showed that no items were missed during the implementation of this project. **Implications-** The use of the anesthesia checklist encouraged a standardized approach to enhance anesthesia providers' communication by ensuring the completion of essential items. The use of anesthesia checklist prevents potential issues that can lead to delays and increase patient anxiety.

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## **Chapter 1: Introduction**

Surgery can be one of the most intimidating events to patients due to various factors that are dependent on communication among the perioperative team. The process of preparing for surgery is facilitated by various healthcare professionals that must carefully coordinate and plan. It has been estimated that 27% of medical malpractice is the result of the communication failures among healthcare providers while better communication can reduce medical errors and patient injury (Tiwary et al., 2019). The sequence of events leading to surgery can incur errors along the way if there is lack of communication between staff. As health care moves from a focus on volume of operations to safety, decision-making around the risks and benefits of surgery for a given individual has taken on increasing importance (Fleisher, 2017). Potentially preventable surgical errors have received increasing attention in recent years, which can be attributed to an increase in the number of surgical procedures ("Committee Opinion NO. 464: Patient Safety in the Surgical Environment " 2010). The increase in number of surgical procedures can lead to avoidable errors.

### **Problem**

#### **Problem Statement**

Franciscan Health Crown Point has an average of thirty patients that undergo general inpatient and outpatient surgery daily. Outpatient Surgery is defined as operative procedures performed on patients who are admitted to and discharged from a hospital on the same day (*Outpatient Surgery*, 2021). Prior to implementation of this Evidence-based project a review of the charts at Franciscan Health Crown Point revealed greater than 20% incident of missing anesthesia consent and antibiotics in the months of January and February 2021. Further

discussion with the anesthesia providers confirmed an increase in the number of missed preoperative components. The anesthesia providers at Franciscan Health Crown Point currently do not use any preoperative checklist which contributes to missed items during surgery. The use of a checklist is perceived as an added task and varies according to perioperative clinical discipline, reflecting differences in perspectives (Norton et al., 2016). Staff can find that the checklist takes long to complete as they already had a heavy workload, and do not perceive the added benefit (Fourcade et al., 2011). Implementation of a customized checklist that highlights the main components of the main checklist can increase the compliance of its use. Additionally, education will be provided to the staff regarding the importance of using a checklist during surgery.

### **Background Information/Literature that Supports the Problem**

Communication among the healthcare providers is crucial in delivering quality care. However, miscommunications among staff can lead to avoidable errors. Despite mounting evidence that use of surgical checklists reduces patient morbidity and mortality, compliance among surgical teams in executing required elements of checklists has been low (Norton et al., 2016). Poor communication is the single most frequent cause of adverse events across all healthcare facets, resulting in problems that range from delays in treatment to medication errors to wrong site surgery (Lingard, 2008). The issues can be avoided with the implementation of a short preoperative checklist. Preventing a surgical error is the responsibility of the entire team that can be implemented through a systems approach ("Committee Opinion NO. 464: Patient Safety in the Surgical Environment," 2010). A study of communication breakdowns reported in malpractice claims found that they occurred preoperatively in 38% of cases, postoperatively in 32% of cases, and intraoperatively in 30% of cases ("Miscommunication in The OR Leads to

Anticoagulation Mishap," 2019). An increase in the number of surgeries might have unforeseen outcomes due to miscommunication. Therefore, the implementation of a checklist is essential.

### **PICOT Question**

In surgical cases at Franciscan Health Crown Point, does using a customized anesthesia checklist improve preoperative checklist utilization among anesthesia providers following an educational intervention compared to use of a standard preoperative checklist?

### **Significance of the Problem**

In a recent United States (US) study, hospital documentation indicated 100% compliance with checklists, but observers found that on average only 4 of 13 checklist items were completed (Clay-Williams & Colligan, 2015). Poor communication may lead to life-threatening complications in patients (Tiwary et al., 2019). As a result of a large aging US population, it is predicted that there will be an increase in the utilization of surgical services (Etzioni et al., 2003). Surgery in older patients often poses risks of death, complications, and functional decline (Oresanya et al., 2014). A preoperative assessment is crucial to understanding risk and selecting proper protocols. In a healthcare environment increasingly focused on efficiency and volume, missing consent forms at the time of surgery can lead to delays in patient care, provider frustration, and patient anxiety (Garonzik-Wang et al., 2013). A checklist will help prevent missing items before surgery hence reduce delays, provider frustration and patient anxiety.

The World Health Organization (WHO) Surgical Safety Checklist has been shown to reduce surgical morbidity and mortality as demonstrated in eight hospitals in eight cities, the rate of death was reduced from 1.5% to 0.8% ( $P=0.003$ ), and inpatient complications fell from 11% to 7% ("Miscommunication in the OR Leads to Anticoagulation Mishap," 2019). Additionally, the use of the checklist has also been associated with improved perceptions of teamwork and

safety (Russ et al., 2013). Despite the availability of the checklist, there still exist variances due to time constraints therefore modification of the checklist was postulated to increase utilization.

### **Practice Knowledge Gap**

Best practice evidence supports the use of a preoperative checklist to enhance communication among the perioperative team (Tierney & Corbally, 2013). A chart review shows that the anesthesia providers at Franciscan Health Crown Point missed vital items such as consents, and antibiotics which led to delays in procedures. When consents or antibiotics were missed, items on the standard checklist were not filled or the checklist was missing. Garonzik-Wang et al. (2013) conducted a study where they found that 66% of patients were missing signed consent forms at the time of surgery and that this caused a delay for 14% of operative cases.

### **Needs Assessment**

Different areas of healthcare should tailor checklists to their needs while maintaining the standards of World Health Organization (WHO) (Fourcade et al., 2011). Strong advocates for checklists admit that full implementation of the WHO checklist is difficult and that improvements require customization of the checklist (Clay-Williams & Colligan, 2015). The organizational culture at Franciscan Health Crown Point was also considered in this project.

## **DNP Project Overview**

### **Scope of Project**

The purpose of this quality improvement project was to provide a customized preoperative checklist for anesthesia providers at Franciscan Health Crown Point, with the aim of increasing communication and minimizing the number of missed essential pre-operative interventions. This preoperative checklist was brief and aimed at saving time while ensuring that the key components were addressed prior to surgery. This project was not a substitute for any

protocol that was already in place. The goal was to provide a customized checklist that the anesthesia providers could review to prevent missing crucial items during surgery. Ultimately, the goal was to incorporate the anesthesia checklist into the existing electronic system (EPIC) with a hard stop if an item was missing. The project manager aimed to gather feedback from a committee of volunteers at Franciscan Health Crown Point that would assist in the development of the customized checklist.

### **Stakeholders**

The team involved in this QI project consisted of Timothy Dykstra, Assistant-chief CRNA; Dr. Falvy Tunca (anesthesiologist); Dr. Susan Lown, DNP Advisor; Dr. Gregory Louck, DNP CRNA Program Director; Dr. Michael Cotrell CRNA, Nurse Anesthesia Program Assistant Director and the anesthesia providers at Franciscan Health Crown Point.

### **Budget and Resources**

#### **Cost**

The costs associated with this DNP project were categorized according to the types of spending which include in-kind cost, direct cost, and overall cost. In-kind cost consisted of the time spent preparing, implementing, and evaluating the project. Travel back and forth from the facility was also included in the budget. Materials for the project were in-kind costs such as preparing laminated copies of the anesthesia checklist and time spent by staff providing an educational presentation. There was cost for snacks during the educational session with anesthesia providers. There was no cost associated to the tool used in this project. Overall, the cost for this QI project was approximately 200 dollars.

## **Description of Resources**

Resources required for the project included items, location, and individuals. Items included laminated cards, snacks, Microsoft Form and a cardboard for presentation. Location included anesthesia office at Franciscan Health Crown Point to provide a presentation. Individuals included the DNP project team leaders and anesthesia providers as the participants. The anesthesia survey questionnaire was free with requested permission to use from author.

## **Process and Outcomes**

### **General Timeline**

This QI project did not require facility Institutional Review Board (IRB) approval. The facility letter of support is attached in appendix A. The project manager scheduled an educational presentation in the month of January 27, 2022. The implementation and data collection begun in the month January 2022 after a brief educational presentation. The project was implemented through the month of January and data analysis was completed by end of February. Dissemination of the results from the project occurred in summer of 2022. General timeline in appendix D.

### **Setting and Target Population**

The project took place at Franciscan Health Crown Point. This facility is a non-profit institution based on catholic values. NorthStar anesthesia is the group contracted to provide anesthesia services at this facility. There are approximately 30 anesthesia providers at this facility with 16 full-time anesthesia providers. This facility has 12 running operating rooms with a variety of general surgery cases. The educational intervention took place at the anesthesia office located in the main operating room suite. The demographic questions, pre- and post-

intervention questionnaires were administered electronically through Microsoft Form. These surveys and questionnaires were completed on a smartphone or on a computer.

### **Expected Outcomes**

The expected outcome for this project was to increase awareness of the importance anesthesia checklist and increase utilization of the customized checklist. This was demonstrated by the increase in anesthesia providers' awareness and satisfaction with the use checklist as evidenced by the pre- and post-intervention questionnaires. The overall expectation was that the anesthesia providers at Franciscan Health Crown Point would utilize the anesthesia checklist before and during surgery to prevent missing essential items.

### **Measures and Aims**

This project had two aims and accompanying measures to evaluate the effectiveness of this quality improvement project. The measures were calculated using the percentage of change from the data collected.

Aim 1: Increase utilization of the anesthesia checklist

Measure 1: Routine checklist use increase in percentage

Outcome/Indicator 1: One month following project intervention, anesthesia checklist utilization will increase by 20%.

Aim 2: Increase awareness of the importance of using an anesthesia checklist.

Measure 2a: Importance of checklist Percentage

Outcome/Indicator 2a: One month following project intervention, 40% of anesthesia providers will acknowledge the importance of using the anesthesia preoperative checklist.

Outcome/Indicator 2b: One month following project intervention, 30% of Anesthesia providers will report that the checklist helped them remember frequently missed items.

### **Risk Analysis**

#### **Risk Analysis**

There were no anticipated immediate or long-term risks to participants. The DNP project team leader obtained informed consent from participants before implementing the educational intervention. No direct monetary compensation was given for participation, but there might have been knowledge acquired regarding importance of anesthesia checklist. There was no deception in the completion of this project. Informed consent can be found in Appendix B.

## **Chapter 2: Synthesis of Supporting Evidence and Project Framework**

### **Relevant Theory and Concepts**

#### **Frameworks/Models/Concepts/Theories**

This was a Quality Improvement project (QI) focused on increasing utilization of a customized anesthesia checklist. Six Sigma, a quality improvement framework, was used to inform the project. Six Sigma is a quality management methodology used to help improve current processes, products, or services by discovering and eliminating defects (Holly, 2013). This project also used Stetler's Model of Research Utilization (Figure 1). The purpose of the Stetlers' model in this project was to formulate a series of critical-thinking and decision-making steps that were designed to facilitate the effective use of research findings (Stetler, 2001; Stetler & Marram, 1976). The model has four phases.

Phase I includes searching and selecting the project to be evaluated for practice implementation at Franciscan Health Crown Point. Stetler's Model of Research Utilization aided in developing critical-thinking and decision-making steps to incorporate research findings (Holly, 2013). The problem was identified as the lack of anesthesia checklist in the perioperative setting (Stetler, 2001). Phase II involves the appraisal of information findings from interviews and chart reviews (Stetler, 2001). Phase III, the comparative evaluation or decision-making phase involves a decision about whether a practice change could be made using four applicability criteria: (a) the substantiating evidence, (b) the fit for implementing the research findings in the setting, (c) the feasibility of implementation and (d) the evaluation of current practice (Stetler, 2001). Phase IV is translation or application of the research findings into implementation and the

considering of implementation stages (Stetler, 2001). In Phase V of this project, ensures various processes were included at different levels.

### **Literature Review**

The literature review conducted for this project involved the following databases: Cochrane Library, CINAHL, EBSCO Open Dissertations, PubMed, and Google Scholar. The terms searched in the several databases included “checklist,” “Communication,” “preoperative,” “checklist compliance,” “patient safety” and “checklist utilization.”

### **Increase In Outpatient Procedures**

Worldwide life expectancy at birth was 30.9 years in 1900, 46.7 in 1940, 61.13 in 1980, and exponentially higher in the future (Mishra, 2016). The increase in life expectancy in the United States means that more people are living longer. Also, the increased number of surgeries provides a financial incentive to perform outpatient surgeries to reduce inpatient admissions (Richards et al., 2021). Richards et al. (2021) observed a shift of roughly 15% of Medicare total knee arthroscopy (TKA) cases to the outpatient setting. Importantly, there was a simultaneous near doubling of the number of TKAs performed as a hospital outpatient procedure among privately insured patients younger than 60 years. These numbers translate to more outpatient surgical procedures especially in the elderly population (Etzioni et al., 2003; Liu, 2004). Additionally, procedures that used to be performed as inpatient have evolved into outpatient procedures.

Inpatient lumbar surgery rates remained relatively stable from 1994 to 2000 but outpatient lumbar surgery increased over time with an increase in outpatient discectomies from 4% in 1994 to 26% in 2000 (Gray et al., 2006). Several studies advocate for the implementation of a minimally invasive surgical approach in outpatient settings with favorable results (Ragavan

et al., 2021; Singletary, 2016; Vertosick et al., 2019). As more people live longer, more procedures are performed in an outpatient setting resulting in production pressure.

### **Production Pressure**

The Institute of Medicine (1999) defines production pressure as “the overt or covert pressures and incentives on personnel to place production over safety as the primary priority.” In the context of perioperative patient care, production pressure often threatens the culture of safety due to increasing turnover or expectation to execute a task in an artificially abbreviated timeframe (Kirsner & Biddle, 2012). Production pressure from internal and external sources leads to missing patient information and medical errors (Gaba et al., 1994; Garonzik-Wang et al., 2013). When production pressure increases, there is a corresponding rise in the occurrence of unsafe work practices by healthcare providers (Everson et al., 2020). Healthcare production pressure can lead to avoidable errors.

### **Miscommunication**

Poor communication is the single most frequent cause of adverse events across all aspects of health care (Lingard, 2008; "Miscommunication in The OR Leads to Anticoagulation Mishap," 2019; Tiwary et al., 2019). This miscommunication can be verbal, non-verbal, or electronic. Preoperative errors and faults in obtaining adequate consent are readily avoidable and often originate from deficiencies in communication (Harrison et al., 2015). Unfortunately, communication lapses continue to be one of the main causes of errors in the perioperative setting (Pugel et al., 2015; Russ et al., 2013; Tierney & Corbally, 2013). The miscommunications can be reduced with the utilization of a preoperative checklist to avoid missing important items on the surgical list.

## **Missed Items**

Consents are some of the most frequently missed items in the preoperative checklist which can lead to delays in surgery and increase patient anxiety (Garonzik-Wang et al., 2013; Malley et al., 2015). A study in England and Wales found that nearly 22% of errors in orthopedic operating rooms are related to consents (Harrison et al., 2015). Additionally, even though routine administration of prophylactic antibiotics is standard for most patients, studies find missing antibiotics to be common (Warters et al., 2003; Wenzel, 1992). A change of checklist design, such as shortening it, if followed, should reduce the frequency of many of the most serious complications (Boermeester, 2014; Duff, 2010; Fourcade et al., 2011; Pugel et al., 2015). A safe and effective checklist should be standardized and specific to the patient and site needs (LeBlanc et al., 2014). Anesthesia care involves various intricate processes, so a checklist can provide crucial reminders.

## **Significance of Using Checklist**

The variances in utilization of a preoperative checklist can lead to delays at time of surgery, increased patient anxiety, and increased cost (Garonzik-Wang et al., 2013; Tiwary et al., 2019). Harrison et al. (2015) performed a study in England and Wales noting 550 claims related to consent and non-technical errors (NTEs) in orthopedic operating theatres (OOTs). The study points out that negligence was related to consent (126), wrong-site surgery (104), injuries in the OOT (54), foreign body left in situ (54), diathermy and skin-preparation burns (54), operator error (40), incorrect equipment (25), medication errors (15), and tourniquet injuries (10). The mean cost per claim was £40,322 (\$55,275.41) with a cumulative cost for all cases of £20 million (\$27,417,000). The use of a checklist can facilitate safer patient care and reduce cost by preventing avoidable errors (Chinthapalli, 2013; Pugel et al., 2015). A case study by Norton et al,

(2016) shows that a checklist reduced complications and errors and improved patient safety, communication among team members, teamwork in complex procedures, and efficiency in the operating room. A study by Murphy et al. (2016) categorized 25 items related with this items of checklist as: 1. Patient and procedure verification; 2. Preparation; and 3. Assessments. The findings of this study provide an evidence base for development of preoperative checklists (Murphy et al., 2016).

Zingiryan et al. (2017) conducted a study to determine if the surgical safety checklist decreased complications and to examine the attitudes of the surgical team members. The findings indicated that although there was change in safety outcomes, the checklist improved communication and prevented errors in the operating room (Zingiryan et al., 2017). Furthermore, the use of a checklist has been shown to save money in hospitals with a major complication rate of at least 3%. In those environments the checklist prevented at least five major complications (Semel et al., 2010). An anesthesia checklist will be a great tool to prevent costly complications.

### **Practice Recommendations**

Organizational changes are needed while implementing a surgical checklist: for example, merging with existing adverse-event reporting systems and allocating the time needed to complete the checklist, communicate it, and check that it is complete (Clay-Williams & Colligan, 2015; Fourcade et al., 2011). Best practice evidence supports the use of a preoperative checklist to enhance communication among the perioperative team (Haridarshan et al., 2017; Tierney & Corbally, 2013). In a study at Broward Health Imperial Point Hospital located in Ft Lauderdale, Florida, implementation of a preoperative checklist showed improved staff communication and a significant increase in the surgical team's perception of communication compared with that reported on the pretest (6% improvement resulting in  $t_{79} = -1.72$ ,  $P < .05$ ,  $d = 0.39$ ) (Cabral et

al., 2016). The use of an anesthesia checklist at Franciscan Health Crown Point is anticipated to increase communications and avoid unnecessary delays.

### **Summary of Supportive Evidence**

The anesthesia providers at Franciscan Health Crown Point can benefit from a checklist that is tailored to the perioperative setting. The first step was a review of the system to decipher the elements that are most important to the safety of the patients. After extensive discussion with the preoperative staff, the consent and antibiotics emerged as the main items followed by nil per os (NPO; nothing by mouth) status, allergies, height, and weight.

An increase in surgical procedures requires extra attention to detail to avoid errors in the perioperative area. Liu (2014) found that surgical workloads (for all surgical specialties) will increase between 14% and 47% by 2020, depending on specialty. Additionally, production pressures may lead to verbal miscommunications due to the overwhelming of systems. Vital information can be missed in the preoperative area, necessitating a quick checklist to enhance communication among the perioperative staff (Duff, 2010). It is essential to assess the importance of a preoperative checklist compared to the absence of a checklist.

Various literature reviews support the use of a checklist to facilitate communication (Ely et al., 2011; Haridarshan et al., 2017; Fleisher, 2017). The project manager determined that a quality improvement project was necessary for the elimination of variations and the reduction in the likelihood of errors. The background information on Franciscan Health highlighted the issue needed to be analyzed by the project manager for the execution of this project. One common occurrence was missed items preoperatively. The preoperative checklist was defined, and various checklists were examined to develop a quick and easy checklist for Franciscan Health (Chinthapalli, 2013; Fourcade et al., 2011). Finally, the benefits of using a preoperative checklist

were discussed with anesthesia providers and the project manager recommended its use based on various literature reviews (Christman et al., 2014; Clay-Williams & Colligan, 2015).

## **Chapter 3: Project Design**

### **Methodology**

#### **Project Design**

This was a Quality-improvement (QI) project focused on systems and processes that could be improved using the six sigma. QI provides contextual data that can inform EBP initiatives and project development improvements (Moran et al., 2020). The anesthesia providers at Franciscan Health Crown Point demonstrated a gap in care since they did not use a checklist. This gap was evident in missing patient assessments and items such as consents. Subsequently, there was an increase in delays and patient anxiety from missing consents. This QI project analyzed existing processes. Six sigma was used to eliminate the variances and streamline anesthesia workflow by developing a checklist.

The project manager collaborated with the anesthesia providers to develop a customized anesthesia checklist. The collaboration involved the utilization of information gathered from the anesthesia providers through interviews and chart review. Additionally, the project manager sought feedback from the anesthesia committee regarding essential elements that needed to be included in the anesthesia checklist.

#### **Ethical Considerations**

The benefit of participation in this QI project focused on the utilization of an anesthesia checklist. The QI project did not place the anesthesia provider or patient at increased risk for harm. Additionally, an informed consent form was developed for anesthesia providers to sign prior to participation in this DNP project. The informed consent detailed the minimal to no risk

associated with the project. CITI training was completed by this author prior to development and implementation of this DNP project (Appendix C).

### **Project Schedule**

IRB review at the University of Saint Francis began August 26, 2021. Letter of support from project facility was received on September 13, 2021. Permission to implement was granted by the USF IRB on October 27, 2021. The project was implemented in January of 2022 and continued through February of 2022. The total duration of project implementation and data collection was scheduled to take one month. In February of 2022 data was collected to compare preintervention data to postintervention data. Dissemination of project results was scheduled for the Summer of 2022. Project timeline can be found in appendix D.

### **Implementation Methods**

The educational session took place in the anesthesia office January 27, 2022 during a scheduled morning meeting. Prior to the intervention, the participants were asked to sign an electronic informed consent. The participants were then asked to complete a demographic questionnaire and a pre-intervention questionnaire. An educational session on the significance of using a customized checklist took place afterwards. This presentation took approximately 20 minutes. Each provider was given a laminated copy of the anesthesia checklist following the presentation. Additionally, extra copies of the anesthesia checklists were placed in the anesthesia office for easy access to other providers.

The participants independently elected to use the anesthesia checklist. There was no incentive to utilize the anesthesia checklist for the purpose of this project, therefore utilization was voluntary. The providers voluntarily used the checklist, and the project manager was available to address any concerns. Additionally, the project manager assessed the data from the

demographic and pre-intervention questionnaires to ensure that the information was securely stored online. The providers were provided with a second QR code at the end of one month that would direct them to the post-intervention questionnaire. The project manager evaluated data to ensure security and storage online. Additionally, a member of the anesthesia team that was not part of the project team performed a retrospective chart audit. This chart audit helped determine if there was a reduction in the number of missed items.

### **Measures/Tools/Instruments**

The project manager utilized an anesthesia checklist at Franciscan Healthcare Crown Point (Appendix E). The project manager also used a ten-question pre- intervention and post-intervention questionnaire to measure outcomes (Appendix F). The participants filled out an online demographic questionnaire before implementation (Appendix G). The results from the questionnaires were compared between the pre-intervention and post-intervention to determine a percent change. A Likert scale was used to analyze the pre-intervention and post-intervention questionnaires. The questions were designed to assess quantitative change.

### **Evaluation Plan**

Following one month of implementation, the participants were asked to fill out a post-intervention questionnaire. Evaluation for this project involved calculation of a percentage change derived from the pre- and post-intervention questionnaires. The aim was to increase utilization of the anesthesia checklist by at least 20% in the one-month period. Also, the project manager hoped to increase providers' awareness of the anesthesia checklist importance by 40% within one month. A chart audit was performed by a provider at the facility that is not part of the project team for comparison of pre- and post-intervention to assess percentage change in missed items.

### ***Methods for Collection of Data***

The project manager transcribed the questions on to Microsoft Form and developed a QR codes for easy scanning. Upon scanning, the participants were able to respond to questions, and the information was captured and stored on the Microsoft Form platform. The data was later obtained and stored for statistical analysis.

The project manager was responsible for collecting data. The project manager also checked data for completeness at the beginning and end of the project. Missing data was referred to project mentor to encourage completion of questionnaire. The project manager had access to the Microsoft Form application for retrieval and storage of data. The data was gathered from Microsoft Form, checked for completion, and stored in a password protected file online.

### ***Data Analysis Plan***

The likelihood of providers using the anesthesia checklist was compared to the baseline data collected from the pre-intervention questionnaire. A chart review was performed after one month to provide objective data for aim 2 of this project. The chart review was performed by a member of the facility that is not part of the team to ensure it is bias free.

The IBM SPSS Statistics (SPSS) computer program was used to compute descriptive statistics. This project measured the tendencies such as mean, median and mode. These tendencies can be located on the SPSS software.

## **Dissemination Plan**

### ***Plan for USF Presentation***

The DNP project was disseminated in the Summer of 2022 to individuals at the University of Saint Francis via a PowerPoint presentation. Additionally, the presentation was on Microsoft teams for individuals who were unable to attend. The presentation gave an overview of the problem, background, PICO question, literature review, implementation phase of the project, data collection, and data analysis of this DNP project. The presentation took approximately 20 minutes followed by an open forum for questions.

### ***Verbal or Written Executive Summary to DNP Project Site/Stakeholders***

A written Executive Summary was provided to stakeholders at Franciscan Health Crown Point. The presentation at USF was recorded and provided to Stakeholders at Franciscan Health Crown Point via teams share online. Additionally, the project manager presented via Microsoft Teams upon request.

## **Implementation Process Analysis**

The implementation process was evaluated at the end of this project. The challenges encountered in this project include a limited number of participants and a busy schedule. Covid 19 was still prevalent, but the project manager was able to safely meet with the participants in the anesthesia lounge for a presentation. The participants that could not attend the presentation in person, received the PowerPoint slides and a voiceover of the presentation. The Microsoft Form was very effective for data collection and storage. Individuals wishing to replicate this project will find this information helpful.

## **Chapter 4: Results and Outcomes Analysis**

### **Data Collection Techniques**

Data collection was completed at Franciscan Crown Point by the project manager at two different intervals. The first data collection started after the consent was obtained and the educational intervention was presented on January 27, 2022. The second set of data was collected after the implementation of the anesthesia checklist beginning February 27, 2022. The data collected comprised of the demographic survey and the pre/post-intervention survey. Data was collected using Microsoft Forms which was emailed to the anesthesia providers during the PowerPoint presentation. Additionally, the project manager provided a QR scanning tool for anesthesia providers that did not have access to email. A total of 15 participants completed the demographic survey and pre-intervention survey after the educational intervention. Checklists were provided to the anesthesia providers and placed strategically on the anesthesia machine for easy access. The post-intervention surveys were collected one month after the implementation of the project. A total of nine post-intervention results were obtained from the anesthesia providers.

The intervention also included a chart audit following the implementation of the project. The chart audit was carried out between January 30, 2022 through March 3, 2022. The chart audit was completed by Steven Burnet CRNA and included a detailed review of the items on the checklist on 150 charts. Steven Burnet was excluded from serving in the role of participant in this quality improvement project. There were no missed items from the audited charts.

## Measures/Indicators

The data was stored on the Microsoft Forms database using the USF cloud storage for security. Then the data was placed into SPSS where it was analyzed into demographic information and individual survey questions. The data from each survey question was then grouped by its correlating project aim and outcome measure. Three demographic questions were utilized on the pre-intervention survey. The providers' years of anesthesia experience ranged from 6 to 10 years (Figure 1). The data showed that most providers were in the range of 30-39 years of age (figure 2). Most of the providers were CRNAs.

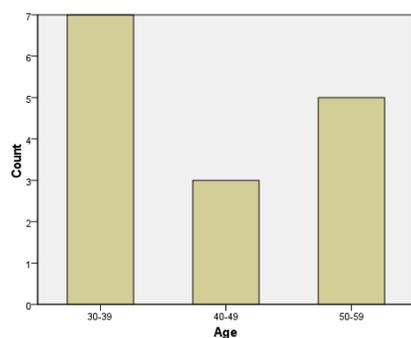


Figure 1. Years of Anesthesia experience

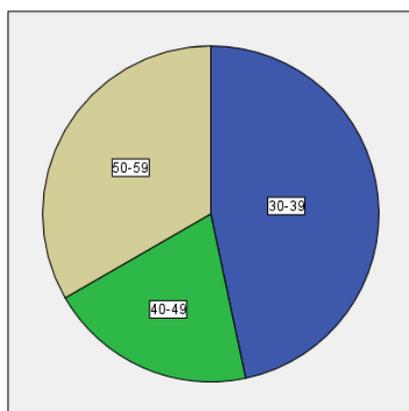


Figure 2. Age Groups

## **Data Analysis Inferences**

Due to the small sample size of this quality improvement project, there was no power analysis performed. The questionnaires were used to calculate the percent of change.

### **Aim 1**

The first aim was to increase utilization of the anesthesia checklist among the anesthesia providers at Franciscan Health Crown Point. There was only one measure and outcome for this aim.

### **Measure 1**

The percentage of routine checklist use would increase by 20%.

### **Outcome/Indicator 1**

One month following project intervention, anesthesia checklist utilization increased by 12.5%.

## **Results**

The projected increase in utilization of the checklist was 20% before implementation of the project. According to the data collected, the percentage increase in utilization was 12.5% which did not meet the goal of the 20%. The data was positive since 100% of the post-implementation surveys indicated that providers will be using the checklist in the future.

### **Aim 2**

The second aim was to increase awareness of the importance of using the anesthesia checklist among the anesthesia providers at Franciscan Health Crown Point. There was only one measure and outcome for this aim.

**Measure 2a**

The percentage of providers recognizing the importance of using the anesthesia checklist will increase by 40%.

**Outcome/Indicator 2a**

One month following project intervention 15.6 % of the anesthesia providers acknowledged the importance of using the anesthesia checklist. This was a significant increase since the percentage of anesthesia providers that recognized the importance of the anesthesia checklist rose to 100%.

**Results**

The projected increase in the importance of checklist was 40% but, according to the survey results this number was 15.6 %. This number did not meet the goal for this project. The outcome was positive since there was an increase in anesthesia providers that found value in using the anesthesia checklist.

**Measure 2b**

The percentage of providers acknowledging using the anesthesia checklist as a reminder will increase by 30%.

**Outcome/Indicator 2b**

One month following project intervention, 10% of anesthesia providers reported that the checklist helped them remember frequently missed items.

**Results**

The projected increase in for this outcome was 30%. This outcome was not met since the result was 10%. Although the projected outcome was not met, there was an increase in the

number of anesthesia providers that acknowledged the usefulness of the anesthesia check a memory tool.

### **Gaps**

The project was widely successful with 15 out of the 16 anesthesia providers participating in the survey. The small number of anesthesia providers resulted in a small sample size, which inhibited the generalization of the project results. This project highlighted the fact that most anesthesia providers appreciated the use of a checklist. It is unclear however why they fail to use it.

### **Unanticipated Consequences**

No negative consequences were discovered during the project. Some anesthesia providers were locums and worked at various facilities leading to a lower post-intervention participation rate. Additionally, the project mentor confirmed that the number of providers in the anesthesia group had declined since the implementation of the project, and that the group was in the process of hiring additional anesthesia providers.

### **Expenditures**

The project manager spent \$18 on materials to create and print the pre/post-intervention surveys. The project manager decided against using Survey Monkey and opted for Microsoft Forms with approval from the project advisor. Microsoft Forms was free since the USF provided Microsoft Office. Data analysis IBM's SPSS Version 26 was also provided by the school at no cost to the project manager. The cost of travel to Crown Point was negligible since the project manager was attending anesthesia residence at the facility during the implementation period. Fortunately, the chief anesthesia providers had coffee and snacks on the same day of the

implementation; therefore, the project manager did not have to finance refreshments for the participants.

## **Chapter 5: Leadership and Management**

### **Organizational Culture**

Nursing is an ever-evolving field that requires change from an evidence-based standpoint. However, there are issues with implementing new evidence-based practice recommendations based on various factors such as time and specific organizational cultures. According to Lusthaus et al. (2002), an organization is a formalized entity that involves a cluster of people brought together for a common purpose, such as the employees at Franciscan Health Crown Point. Organizational culture can be defined as a social unit that, over time, has developed a stable set of shared assumptions that dictate how to operate both internally and externally (Joseph, 2015; Lusthaus et al., 2002; Tsai, 2011). Furthermore, these assumptions can be very influential within subgroups in the organization since they manifest themselves as the rituals, work environment, values, and behaviors making up the social unit's culture. Organizational culture can dictate behaviors in various settings since they are looked upon and regarded as the unofficial guideline of conducting business (Daft, 2008). The organizational culture of Franciscan Health Crown point was assessed to determine the feasibility and successful implementation of this Doctoral Nursing Project.

The Institutional and Organizational Assessment (IOA) model was used to analyze the organizational culture at Franciscan Health Crown Point. The IOA model served as an evaluation tool based on four variables; organizational motivation, organizational environment, organizational capacity, and organizational performance, to determine the overall strengths and

weaknesses (Lusthaus et al., 2002). The model is based on the tenets of organizational culture that are critical to implementing evidence-based practices (EBP) (Lyon et al., 2018). These tenets of the organizational culture include shared values, beliefs, and implicit norms that guide behavior. Additionally, the leadership was assessed to determine support for the implementation of the project. A review of the organization's history was essential to understand the current structure of Franciscan Health Crown Point.

### **Change Strategy**

As change becomes an increasingly common occurrence in the healthcare environment, change theory offers one way of understanding the dynamic interaction between individuals and social systems (Bozak, 2003). Change theory requires a new way of thinking and openness to making changes. There are driving forces that facilitate change such as willingness to adapt. On the other hand, the existing culture can hinder change. Franciscan Health Crown Point had an existing preoperative checklist and policy. Implementing a refined preoperative checklist might have met some initial resistance to change due to the existing organizational culture. Additionally, the project's sustainability relied on integrating the new checklist into EPIC (electronic health record system). The staff in the perioperative area were accustomed to paper-charting, and the move to EPIC and incorporation of the new checklist required the project manager to provide education. Previous involvement in similar situations that were unsuccessful may cause the staff to react negatively to the proposed change (Bozak, 2003). This project had not been attempted before at this facility therefore, education alleviated any anxiety-related to implementation of the project. Individual life skills, knowledge, and abilities impact how nurses view change and whether they feel capable of handling the change (Bozak, 2003). Franciscan Health Crown Point is a teaching hospital; therefore, staff in the perioperative arena were

accustomed to changes and evidence-based practice. The implementation of a more practical and briefer preoperative checklist improved communication and helped to avoid delays in the departmental operations. A chart review after the implementation of the project demonstrated a 30% reduction in missed items.

Nurses have experienced the process of change, either planned initiatives or a spontaneous one in the work setting, with gained knowledge that change cannot be a step-by-step linear process (Grossman & Valiga, 2013). The organization was an excellent fit for project implementation since the organizational culture supports evidence-based strategies. It is also vital to note that levels of involvement in the organization and relationships with other individuals affect change (Bozak, 2003). This project involved the anesthesia providers that work for North Star Anesthesia. The project manager coordinated with the project mentor, Timothy Dykstra, to educate the anesthesia providers about the importance of an anesthesia checklist. The project manager's contact information was provided to the anesthesia providers should questions or concerns arise.

Upon completing the project with favorable outcomes, the integration of the reformed preoperative checklist occurred in three steps using Lewin's theoretical framework. The problem was identified as a lack of a complete preoperative checklist which could potentially lead to gross errors or delay procedures. The change would affect the perioperative team, including the anesthesia providers, nurses, and operating room staff. This project was centered around outpatient procedures therefore, the inpatient population was excluded. This project was viewed favorably by management since the staff already used a familiar electronic system, and there was an excellent organizational culture. Conversely, the staff may have perceived this project as time-consuming, increasing preoperative time and disrupting the existing culture. The project

manager was aware of these potential threats and was dedicated to providing information and teaching the team to avert misinformation and misunderstanding.

The perioperative team was involved in the process of implementation. The project manager, alongside the project mentor, encouraged open communication and open dialogue on tentative changes. The team had an email and phone number for prompt communication about any suggestions or issues with the project. Anyone in the perioperative setting could participate in developing contingency procedures to empower staff and get active involvement and personal commitment to the project (Bozak, 2003). The project manager assessed ongoing resistance to the project by keeping track of the feedback and communicating with the project mentor on site.

The final step in Lewin's model is the refreezing stage; once the project manager planned and implemented the preoperative checklist, what followed was a period of stability and evaluation (Bozak, 2003). The project manager provided continued support remotely and addressed any issues presented by the anesthesia providers. An open line of communication was maintained with a constant feedback loop, ensuring satisfaction with the project through a short survey.

### **Leadership Style**

Leadership at Franciscan Health Crown Point is a shared governance model, but conversations with anesthesia providers reveal that they did not have all the decision-making. The goal for this project manager was to implement a solid line of communication that addressed all variables suggested by the anesthesia providers. Although the interviews with management emphasize an "open door" policy, the subordinate staff felt that leaders were not always forthcoming with information. The goal of this ongoing assessment was to understand if any

miscommunications resulted in apathy. The leadership style used in this project is shared governance which merges into the existing leadership style. There was continuous communication with the stakeholders in the perioperative setting.

The project manager disseminated information and feedback was received through the project mentor, Timothy Dykstra. The project manager oversaw the entire project while providing logistical support to ensure a smooth implementation. Effective leadership requires a continuous commitment to skill development and core leadership values (Franciscan Alliance, 2012). The organization initiated the journey to a successful program that emphasized mentorship, understanding the values and beliefs of the organization, process management, motivation, business ethics, change direction, and project management. Since the culture of this organization thrived on shared governance, the project manager was able to communicate and receive feedback with ease.

### **Interprofessional Collaboration**

Interprofessional collaboration in healthcare is fundamental to achieving good patient outcomes. Interprofessional collaboration occurs when two or more professions work together to achieve common goals and is often used as a means for solving a variety of problems and complex issues (D'Amour et al., 2005; Green & Johnson, 2015). Identifying the relevant healthcare for collaborative practice was fundamental in achieving a favorable result in this project. This project was accomplished by communicating with the various managers involved in the perioperative unit and Information and Technology Department (IT) to seek their expertise. The communication revolved around the feasibility of integrating the changes into electronic charting system. The managers shared information about what they did in the past to implement changes.

Collective leadership ensures that responsibility is not placed only on one individual but shared among the team members (Bosch & Mansell, 2015). This project required the expertise of the IT department as well as the record-keeping department. These stakeholders analyzed the existing system and the merger of the new preoperative checklist into the electronic health records. For successful inter-professional collaboration, team members needed to learn how to work together, how to communicate with one another meaningfully, and how to make good health care decisions together (Kreps, 2016). Communication had been initiated and coordinated by the project manager. Questions and concerns were directed to the relevant professionals promptly.

### **Conflict Management**

Conflicts as a natural and inevitable aspect of human interaction may cause functional or dysfunctional consequences of the management style. In a survey of 5,000 full-time employees in nine different countries, 85% of employees dealt with conflict at work to some degree and 29% dealt with conflict frequently or always (Overton & Lowry, 2013). Therefore, conflict management was essential for organizational effectiveness and efficiency (Yirik et al., 2015). Implementing a DNP project at Franciscan Health Crown Point required a change of routine or demanded time. Naturally, the change had potential for conflict if parties disagree on the implementation of the project.

Two dimensions of conflict help manage conflict -one consisting of disagreements relating to task issues and the other composed of emotional or interpersonal problems that lead to conflict (Overton & Lowry, 2013; Rahim, 2001). Conflicts were addressed by providing clear communication, understanding the source of the conflict, and discussion with affected parties while integrating problem-solving skills. The management of conflict partly involved identifying

and altering these sources to minimize affective strife and/or to attain and maintain a moderate amount of substantive conflict (Rahim, 2001). Therefore, the project manager identified the conflicts in a timely fashion and resolve issues. Issues that were beyond the scope of the project manager were promptly differed to Timothy Dykstra (project mentor).

Frequent causes of conflict included lack of clarity with expectations or guidelines, poor communication, lack of clear jurisdiction, personality differences, conflicts of interest, and changes within the organization (Overton & Lowry, 2013). To avoid conflicts, the project manager was responsible for clear communication and coordinating activities. Additionally, the project manager set expectations and defined clear roles. Functional or effective management of conflict involved matching styles with situations (Rahim, 2001). The conflicts were assessed by the project manager and dealt with appropriately to satisfy the grieving parties. The style of solving the problem included processes of defining the conflicting parties, reviewing the reasons for the dispute, presenting different options, and bringing them together to choose an appropriate course of action on which both parties can agree (Yirik et al., 2015). This project did not require many resources; therefore, the project manager encountered one conflicts in the implementation phase. The date for implementation had to be changed due to a busy schedule in the OR. The project mentor communicated this information one week in advance with the project manager. The date was changed to allow for a maximal participation.

## **Chapter 6: Discussion**

### **Impact of Project**

This project was implemented with the aim of increasing utilization of the anesthesia checklist at Franciscan Health Crown Point. Prior to project implementation, a chart audit revealed missing items pertaining to anesthesia during surgery. Although the project did not meet the anticipated statistical goals, there was a notable increase in the utilization of the checklist and a chart audit performed during the implementation of this project supported the data.

The project had an impact on the anesthesia providers since all the providers in the survey were willing to use the checklist and recommended its use to other providers. The educational session presented to the anesthesia providers was a reminder to them which increased the utilization of the checklist at the facility.

### **Decisions and Recommendations**

This project did not meet its aims but showed a significant increase in utilization of the anesthesia checklist. Regardless, anesthesia providers at Franciscan Health Crown Point are encouraged to continue using the anesthesia checklist since there was improvement in missing items. The anesthesia checklist is brief and easy to use with strategic placement on the anesthesia machine. Additionally, the anesthesia checklist can be incorporated into the electronic health records. The anesthesia checklist can also be introduced to other affiliate facilities where NorthStar Anesthesia group provides their services.

### **Limitations of the Project**

The project was implemented for one month with more participation in the initial phase of the implementation than the post implementation survey. The facility was going through a transition of staff and had a lot of locum providers. The post-implementation period did not have as many participants compared to the pre-implementation as evidenced by a lower response rate of the survey. The small sample size can affect the generalization of results from this project.

### **Application to Other Settings**

This project can be applied in other settings of similar workflow. The information gathered from this project can be used in the outpatient surgery centers which have a very high rate of turn-over. The checklist would have to be modified for settings such as endoscopic suites since the nature of anesthesia provided in these settings is different. A modified checklist can also be instrumental for rapid response teams in the hospital to help with organization and smooth workflow.

### **Strategies for Maintaining and Sustaining**

The project manager carried out various meetings with the key stakeholders involved in this project. The overwhelming theme that surfaced was the incorporation of the anesthesia checklist into the electronic system for ease of use. Furthermore, Timothy Dykstra (project mentor) organized to meet with the anesthesia team on a different occasion to discuss the result of the project. This was very promising since the entire team was able to agree on a way to continue using the anesthesia tool. All anesthesia providers were given the checklist with additional copies placed on the anesthesia machines.

## Lessons Learned

The project manager was inspired to start this project after having some incidents of missing vital pre-operative items. Furthermore, the leadership expressed a desire to find a solution to issues with missing items during anesthesia care. The project manager learned that implementing a project goes through various phases of research and organization. The key stages involved identifying the problem, securing buy-in from leadership, developing PICO question and reviewing literature. The main part of this project involved collaborating with stakeholders at Franciscan Health Crown Point and faculty at USF to ensure successful implementation of this project.

Collaboration within a team takes building healthy relationships and maintaining constant communication. The project manager learned how to collaborate with leaders at Franciscan Health Crown Point to establish buy-in and encourage feedback from other anesthesia providers. Teamwork greatly reduced stress during the implementation of the project. The project manager felt supported by the facility leadership in implementation of the project. Lessons such as time management and flexibility resonated with the project manager. Information was shared among the team members using email and text messages. The project manager was able to adapt to changes and rescheduled meetings around the anesthesia providers' availability. Additionally, the project manager was able to communicate and secure meetings with leadership to discuss the details of the project.

DNP essentials also provided vital lessons learned throughout the project. The project was initiated during clinical rotations at Franciscan Health Crown Point. There was a lot of collaboration with the project mentor Timothy Dykstra, CRNA (DNP Essential IV). Initially, a PICO question was developed, and evidence-based material was reviewed (DNP Essential I).

The project manager learned how to evaluate and appraise literature for the project. Management at the facility was also involved through electronic communication, and the culture of the facility was assessed (DNP Essential II). IRB approval was obtained before project implementation (DNP Essential III). Countless hours went into the development of the project manuscript and dissemination of the project findings. The project manager developed educational slideshow presentations that were used prior to the implementation and dissemination of the project (DNP Essential IV). The project manager also learned how to develop a plan, budget, and use available resources to implement the project.

Overall, there were many lessons learned through the process of developing and implementing this project. Through the various stages of the project the project manager was able to learn what components help make a project successful. Additionally, the project manager learned how to critique research to ascertain the credibility and the strength of the literature.

## **Chapter 7: Conclusion**

### **Potential Project Impact on Health Outcomes Beyond Implementation Site**

This project can be used in other facilities that have anesthesia services. The project can impact anesthesia care with similar issues of missing information. NorthStar Anesthesia group can use this quality improvement project in other facilities that they offer anesthesia coverage. Of note, NorthStar is a large group that spans multiple states. Therefore, this quality improvement project can be used as a guide in other facilities.

This project can also be expanded to outpatient surgery centers with modification to fit specific locations. Outpatient surgery centers deal with similar production pressures and a potential for missing items. The anesthesia checklist for outpatient surgery centers might be shorter given the nature of procedures.

### **Health Policy Implications of Project**

There is no health policy that currently recommends the use of anesthesia checklist. This would be a very helpful tool in anesthesia given the involving nature of the practice. Patient safety is paramount and dependent on evidence-based improvements such as this project. Using the anesthesia checklist has resulted in improvements in patient care and increase confidence in providers. The adoption of this anesthesia checklist would be extremely beneficial to other facilities that have anesthesia services.

### **Proposed Future Direction for Practice**

The project manager encouraged the continued use of this anesthesia checklist at Franciscan Health Crown point and affiliate hospitals. This has been made possible by providing

the anesthesia providers with checklists and providing online access to education material used for the presentation.

This quality improvement project has demonstrated that anesthesia providers value the checklist and continued use of this checklist will be beneficial. There was a percentage increase in anesthesia providers' acknowledgement of the importance of using a checklist in the perioperative area. Additionally, Anesthesia providers found the checklist helpful as a reminder.

In the future, this project can be revisited and reapplied to other areas that require a checklist. Areas that can benefit from this project include rapid response teams and airway management response teams in the hospital. More research can be done to decipher more benefits of the checklist and how it can be used as a template. Implications of this checklist can offer future reassessment for improvements. Ultimately, continued evidence-based research surrounding this project will offer benefits in the future to ensure continuity and sustainability. The checklist should be revisited based on emerging evidence-based information and updated to ensure it does not become obsolete.

The project manager would like to encourage development of an online repository with checklist templates that are accessible to all facilities. The facilities would be able to share their checklist modifications for others to see and adopt accordingly. This DNP project revolved around the use of a modified anesthesia checklist. The sharing of this checklist would promote new ideas and encourage scholarly enhancements to the checklist.

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## Appendices

### Appendix A

Facilities IRB



7/18/2021

To the University of Saint Francis Institutional Review Board:

This letter is being written in support of University of Saint Francis DNP Keepon Kamau. This student is the DNP project team leader of the Doctor of Nursing Practice Project Scholarly Project entitled Importance of Implementing a Preoperative Checklist. This project is a quality improvement project, not a research project.

The perioperative team at Franciscan Health Crownpoint understands that the aims of the DNP Scholarly Project are to Improve utilization of the preoperative checklist.

Franciscan Health Crownpoint is supportive of the aims of the project. The Perioperative team will meet with the project manager and revise the current preoperative checklist. Additionally, Franciscan Health will allow distribution of surveys to staff, provide time for educational presentation, allowing access to electronic medical records if needed and allow implementation of the project as discussed with the project team leader.

IRB exempt

Needs IRB

This letter is written as an agreement between Franciscan Health Crownpoint leadership and the DNP project leader Keepon Kamau. There will be continued support and commitment to the Student's DNP project (Importance of Implementing a Preoperative Checklist).

Sincerely,

Keepon Kamau, BSN, SRNA

*KKamau*

Leadership at Franciscan Health Crownpoint: *Timothy Dykstra*

Signature: *[Handwritten Signature]*

Contact information: [Timothy.Dykstra@northstaranesthesia.com](mailto:Timothy.Dykstra@northstaranesthesia.com)

## Appendix B

### Informed consent

#### Importance of Implementing a Preoperative Checklist

##### **Introduction:**

You are being invited to participate in a Quality improvement project conducted by Keepon Kamau, a graduate nurse anesthesia student at the University of Saint Francis. This project will be overseen by Dr. Susan Lown, DNP, RN, CNE, a professor at the University of Saint Francis. Outpatient surgeries are becoming more common compared to in-patient procedures. A checklist for outpatient surgery is important to enhance communication among the preoperative staff. A customized preoperative checklist can increase utilization thereby increasing patient safety.

##### **Purpose of the DNP Project:**

To implement a customized preoperative checklist that can be incorporated into electronic health records ease of use.

##### **Procedure:**

The preoperative staff will be required to use a customized/simplified preoperative checklist. A short anonymous survey will be administered before and after implementation of the checklist. The survey should take less than 5 minutes to complete. After the first survey, educational material will be provided on the significance of using the new preoperative checklist. This quality improvement project is scheduled to run for one month after which a 5-minute post-survey will be administered. The preoperative checklist is short and should take approximately 5 minutes in the preoperative setting. Once complete, this checklist will be placed in front of the patients' chart and later deposited in a designated box in PACU.

##### **Risk and Benefits of the DNP Scholarly Project:**

There are no anticipated risks to participant in this project.  
No monies will be exchanged between project team members, mentors, or participants.

##### **Confidentiality:**

No personally identifiable information will be collected by project team members. Information collected will be code to random letter that cannot identify the subjects in the study. The information will be entered into an online database with a secured password accessible by the project team only. Paper surveys will be encoded into electronic files and shredded.

##### **Freedom to Withdraw:**

Any participation in this project is completely voluntary. Participants may withdraw from the project at any time. You may refuse to answer any questions at any time. You also may cease participation or withdraw your consent at any time with no penalty.

**Inquires:**

Upon completion of this study, if you would like to obtain a copy of the study's results please send written correspondence to University of Saint Francis

Nurse Anesthesia Department  
2701 Spring Street  
Fort Wayne, IN 46808

Or you may email [kamauk@cougars.sf.edu](mailto:kamauk@cougars.sf.edu) if you have any questions.

If at any time during this study, you have any complaints or feel you are not being treated accordingly, please call or write:

IRB Chairperson  
University of Saint Francis  
2701 Spring Street  
Fort Wayne, IN, 46808  
(260) 399-7700  
Administration email: [irb@sf.edu](mailto:irb@sf.edu)

**I have received an explanation of this study and agree to participate. I understand that my participation in this study is strictly voluntarily.**

**Name** \_\_\_\_\_ **Date** \_\_\_\_\_

## Appendix C

### CITI Training



Completion Date 05-Feb-2021  
Expiration Date 05-Feb-2024  
Record ID 40820212

This is to certify that:

**Keepon Kamau**

Has completed the following CITI Program course:

**GCP - Social and Behavioral Research Best Practices for Clinical Research**  
(Curriculum Group)  
**GCP - Social and Behavioral Research Best Practices for Clinical Research**  
(Course Learner Group)  
**1 - Basic Course**  
(Stage)

Under requirements set by:

**University of Saint Francis**

Not valid for renewal of certification through CME.




Completion Date 06-Feb-2021  
Expiration Date N/A  
Record ID 40820210

This is to certify that:

**Keepon Kamau**

Has completed the following CITI Program course:

**Information Privacy Security (IPS)**  
(Curriculum Group)  
**Researchers**  
(Course Learner Group)  
**1 - Basic Course**  
(Stage)

Under requirements set by:

**University of Saint Francis**

Not valid for renewal of certification through CME.




Completion Date 05-Feb-2021  
Expiration Date 05-Feb-2024  
Record ID 40820213

This is to certify that:

**Keepon Kamau**

Has completed the following CITI Program course:

**Public Health Research**  
(Curriculum Group)  
**Public Health Research**  
(Course Learner Group)  
**1 - Basic**  
(Stage)

Under requirements set by:

**University of Saint Francis**

Not valid for renewal of certification through CME.




Completion Date 06-Feb-2021  
Expiration Date 06-Feb-2024  
Record ID 40820209

This is to certify that:

**Keepon Kamau**

Has completed the following CITI Program course:

**Social & Behavioral Research - Basic/Refresher**  
(Curriculum Group)  
**Social & Behavioral Research**  
(Course Learner Group)  
**1 - Basic Course**  
(Stage)

Under requirements set by:

**University of Saint Francis**

Not valid for renewal of certification through CME.




Completion Date 06-Feb-2021  
Expiration Date 06-Feb-2024  
Record ID 40820211

This is to certify that:

**Keepon Kamau**

Has completed the following CITI Program course:

**Social and Behavioral Responsible Conduct of Research**  
(Curriculum Group)  
**Social and Behavioral Responsible Conduct of Research**  
(Course Learner Group)  
**1 - RCR**  
(Stage)

Under requirements set by:

**University of Saint Francis**

Not valid for renewal of certification through CME.



## Appendix D

### General Timeline

| <b>Task</b>                                     | <b>Start Date</b> | <b>End Date</b> |
|---|-------------------|-----------------|
| Meeting Academic Advisor for approval           | 1/4/2021          | 1/6/2021        |
| Stakeholder Identification                      | 1/15/2021         | 1/20/2021       |
| DNP Project topic                               | 1/15/2021         | 1/18/2021       |
| Literature Review for DNP Project               | 2/2/2021          | 3/20/2022       |
| CITI Training                                   | 2/10/2021         | 4/18/2021       |
| Organizational Assessment                       | 5/15/2021         | 5/30/2021       |
| Force Field Analysis                            | 5/20/2021         | 6/6/2021        |
| Refine existing checklist                       | 4/5/2021          | 9/1/2021        |
| Meet Statistician                               | 1/20/2021         | 1/30/2022       |
| consent form                                    | 5/21/2021         | 7/20/2021       |
| Anesthesia provider survey                      | 5/23/2021         | 11/20/2021      |
| Initial IRB approval                            | 8/10/2021         | 9/30/2021       |
| Meeting with IT expert                          | 8/5/2021          | 8/15/2021       |
| DNP faculty approval                            | 8/10/2021         | 9/30/2021       |
| Meeting with Mr Dykstra                         | 8/1/2021          | 9/30/2021       |
| Meeting with anesthesia committee               | 8/8/2021          | 9/30/2021       |
| Review customized anesthesia checklist          | 7/30/2021         | 8/10/2021       |
| Meet with Facilitator/Leads                     | 8/8/2021          | 9/30/2021       |
| Executive Summary                               | 8/18/2021         | 8/26/2021       |
| University of Saint Francis IRB approval        | 8/10/2021         | 8/25/2021       |
| DNP Scholarly Project Proposal Initial Approval | 10/18/2021        |                 |

**Appendix E**

## Anesthesia Checklist

| <b>ANESTHESIA PREOPERATIVE CHECKLIST</b>            |  |
|---|--|
| <b>ANESTHESIA CONSENT</b>                           |  |
| <b>PREOPERATIVE CONDITIONS AND STATUS</b>           |  |
| <b>POSITIONING DURING PROCEDURE</b>                 |  |
| <b>ANESTHETIC TECHNIQUE AND MANAGEMENT PLAN</b>     |  |
| <b>AIRWAY- DIFFICULTIES</b>                         |  |
| <b>ANTIBIOTICS AND ALLERGIES</b>                    |  |
| <b>TEMPERATURE MANAGEMENT</b>                       |  |
| <b>IV FLUIDS-INPUTS AND OUTPUT</b>                  |  |
| <b>NARCOTICS AND PAIN MANAGEMENT</b>                |  |
| <b>TWITCHES-NEUROMUSCULAR BLOCKADE AND REVERSAL</b> |  |

## Appendix F

### Questionnaire

#### Pre and post implementation questionnaire

##### Information to be used only for the purpose of this study

(Please check the option that applies for each of the following questions)

1. The anesthesia preoperative checklist will improve efficiency of anesthesia care.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

2. I understand the importance using the anesthesia checklist.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

3. I am comfortable with the use of anesthesia checklist.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

4. I find that using the anesthesia checklist is helpful in managing cases.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

5. The checklist might significantly delay patient care.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

6. I am satisfied with using the anesthesia checklist.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

7. The anesthesia checklist might be a distraction.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

8. The anesthesia checklist will help me remember items.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

9. I would recommend this anesthesia checklist to my colleagues.

- Definitely yes (1)
- Probably yes (2)
- Maybe (3)
- Probably not (4)
- Definitely not (5)

10. I will continue using the anesthesia checklist in my practice.

- Definitely yes (1)
- Probably yes (2)

- Maybe (3)
- Probably not (4)
- Definitely not (5)

## Appendix G

Demographic survey

### DEMOGRAPHIC SURVEY

**Demographic information to be used only for the purpose of this study**

**(Please check the option that applies for each of the following questions)**

**Date:**

**Role:** CRNA

MDA/Anesthesiologist

Age years: 21-29    30-39    40-49    50-59    60 or older

Gender:  Male             Female

**Employee status**

Fulltime   

Part time   

Locums   

PRN   

**Years with NorthStar anesthesia**

0-5   

6-10   

11-15   

>16   

**Years of experience:**

Less than 1 year

1-5   

6-10   

11-20   

21-30

31-40

>40 yrs.

**Hours/Week providing anesthesia.**

Less than 36 hrs.

More than 36 hrs.

# Tables

# Figures

3.

