

SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE

2026 DNP Poster Presentations

Friday, May 1, 2026

Prophylactic Administration of Tranexamic Acid in Parturients Undergoing Cesarean Section

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PROBLEM INTRODUCTION

Despite medical advances, postpartum hemorrhage (PPH) remains the leading cause of maternal death worldwide.

The World Health Organization and American College of Obstetricians and Gynecologists recommend the use of TXA, but only after the diagnosis of PPH is made.

Lack of standardized recommendation leads to inconsistent, delayed TXA administration. Providers are relying on intuition instead of evidence-based practice.

LITERATURE REVIEW

Delaying TXA administration until uterotonics fail may reduce TXA's efficacy and jeopardize hemodynamic stability.

Large scale meta-analysis have reported reduced blood loss and transfusion rates when TXA is given prophylactically.

Research consistently demonstrates that tranexamic acid (TXA) is a safe and effective intervention for preventing PPH.

PROJECT METHODS

A retrospective review of 393 medium to high-risk cesarean deliveries was conducted from 2023–2025.

Patients were categorized into three groups based on TXA timing: prophylactic, reactive, or no TXA.

Hemorrhage was defined as quantitative blood loss (QBL) >1,000 mL and analyzed using a Chi-Square Test of Independence.

EVALUATION

Prophylactic TXA was administered in 18.6% of cases, reactive TXA in 23.2%, and no TXA in 58.3%. A significant association was found between TXA timing and hemorrhage ($\chi^2 = 11.68$, $p = 0.003$), with **prophylactic use associated with nearly a 20% reduction in severe blood loss compared to no TXA.**

Additionally, 73 patients who hemorrhaged **never received TXA**, highlighting substantial gaps in current practice.

EARLIER
TXA



LESS
BLEEDING

IMPACT ON PRACTICE

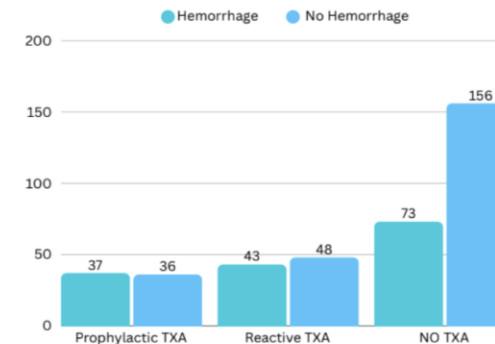
Highlighted need for a standardized, evidence-based protocol for prophylactic TXA administration.

Implementing a consistent guideline could help reduce provider variability, improve documentation, and enhance maternal safety.

Education and collaboration among anesthesia, obstetric, and nursing teams are key to translating these results into daily practice.

CONCLUSIONS

- Prophylactic TXA is safe, well-tolerated, cost-effective, and clinically meaningful in reducing hemorrhage during cesarean delivery.
- Variability in current practice underscores the need for a standardized approach.
- Implementing a pre-incision TXA protocol would promote consistency, reduce transfusions, improve maternal outcomes, and enhance resource utilization.



Development of an Educational Program for Student Registered Nurse Anesthetists: Personal and Professional Consequences of Fatigue

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PROBLEM INTRODUCTION

- SRNAs frequently experience sleep deprivation and fatigue
- CRNAs are not bound to federal work limits like other safety-sensitive professions
- Fatigue leads to decreased vigilance, increased errors, and decreased well-being
- Currently, there is limited formal training for SRNAs about the consequences of fatigue

LITERATURE REVIEW

- 84% of anesthesia providers report fatigue
- Fatigue is underestimated and causes impairment comparable to alcohol intoxication
- Napping, stimulant use, and sleep-aid use may provide relief, but they also carry risks, which can interfere with performance
- Maintaining a regular sleep schedule and regularly exercising are both effective ways to avoid fatigue

Personal Consequences

- Decreased attention and memory
- Increased risk of burnout, depression, and chronic health issues

Professional Consequences

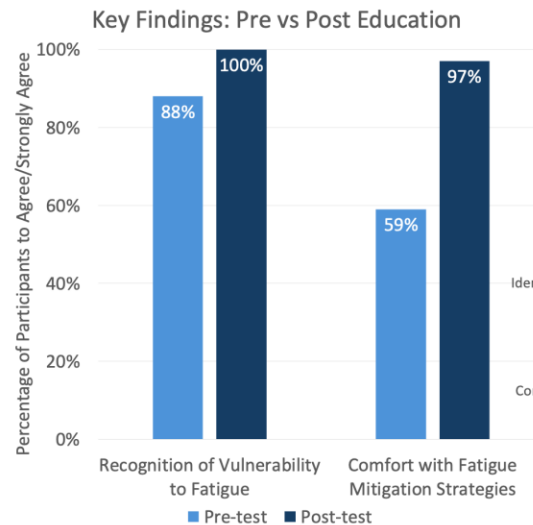
- Increased medication and procedural errors
- Decreased patient safety and vigilance
- Increased risk of adverse events and occupational injury

PROJECT METHODS

- Non-experimental design utilizing a pre-test and post-test comparison of knowledge and attitude regarding fatigue in anesthesia
- Educational presentation delivered to 38 second-year SRNAs at SIUE
- Ten-question Likert Scale survey obtained anonymously via Qualtrics platform

EVALUATION

- Knowledge improved across all domains
- Largest improvements seen in participants recognition of vulnerability to fatigue and comfort with fatigue mitigation strategies

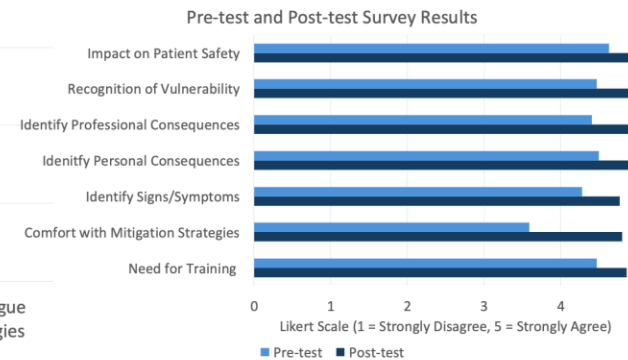


IMPACT ON PRACTICE

- Increased awareness of the prevalence of fatigue in anesthesia providers
- Increased knowledge of fatigue and sleep physiology
- Improved ability to recognize and mitigate fatigue
- Potential to improve patient safety and provider well-being with education
- Supports integration into NAEP curriculum and education for practicing CRNAs

CONCLUSIONS

- In the pre-test survey, the largest gap in knowledge related to employing fatigue mitigation strategies and countermeasures
- Overall, scores increased significantly after the educational program
- Training should be incorporated into the curriculum



Comparison of Single-Use Laryngoscopes Versus Reusable Laryngoscopes and the Environmental Impact

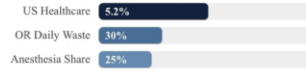
Shannon Doyle, BSN, SRNA & Whitney Stitz, BSN, SRNA
Southern Illinois University Edwardsville

PROBLEM INTRODUCTION

BACKGROUND

Single-use laryngoscope blades (SUBs) replaced reusable blades (RUBs) in the 1990s following the concerns of prion disease, however no iatrogenic CJD transmission from laryngoscopes was ever confirmed by the CDC.

HEALTHCARE CARBON FOOTPRINT



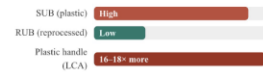
RESEARCH QUESTIONS

- How does anesthesia waste contribute to carbon emissions?
- What is the environmental impact of SUBs vs. RUBs?
- Why did single-use become the standard in relation to cost, infection, and supply?
- What actions can influence stakeholders toward sustainable practice?

LITERATURE REVIEW

ENVIRONMENTAL IMPACT

Switching to RUBs would lead to a **48% decrease in CO2 emissions in the USA**. At one hospital, 17,200 intubations with RUBs saved 26.5 tons of CO2 which is equivalent to 74,564 miles driven.



INFECTION RISK

No iatrogenic CJD is linked to laryngoscopes since 1976 sterilization protocols. The CDC identified **hand hygiene** as the primary source of infection risk not the blade type. Protein traces on RUBs require high level of disinfection per manufacturers guidelines.

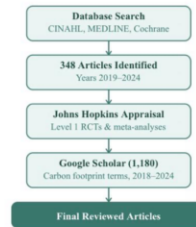
INTUBATION PERFORMANCE

Metallic RUBs perform equivalent to metallic SUBs. Plastic SUBs showed higher first attempt failure (8% vs 3.2%) versus metallic RUBs (Bulón, et al., 2013). Chang et al. (2023) found marginally better DL views with SUBs (n=72,672).

PROJECT METHODS

CONCEPTUAL FRAMEWORK

System Research Organizing Model
Client: environment/impact
Environment: OR setting
Action: change to RUBs
Outcome: reduced emissions and cost



EVALUATION

Survey of 14 anesthesia providers (CRNAs & SRNAs) at a large tertiary hospital in O'Fallon, IL, following an educational presentation on literature findings.

PATIENT DEMOGRAPHICS



SURVEY RESULTS – “Strongly agree/agree”



KEY FINDING

No providers disagreed about questions that were focused on ecological and environmental impact. Opinions of clinical performance were mixed. 50% agreed RUBs perform well, while 50% remained neutral or slightly disagreed.

IMPACT ON PRACTICE

Reintroducing RUBs into anesthesia practice is recommended to lower costs and reduce environmental impact.

COST PER INTUBATION

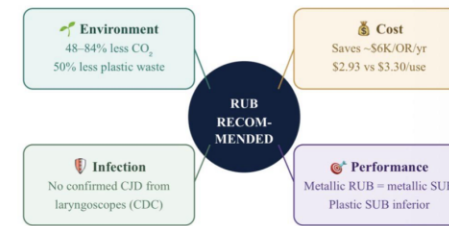


Factor	SUB	RUB
Cost/use	~\$5.10	~\$0.69-2.10
CO ₂ emissions	Higher	40-50% less
Plastic waste	~1.1 tons/yr	58.5 kg/yr
Infection risk	Low	Low (w/ protocol)
Intubation success	Similar (metallic)	Equivalent/better
Provider prep time	None	1.5-2 min reprocess

CONCLUSIONS

PRIMARY RECOMMENDATION

Reintroduce reusable laryngoscope blades into anesthesia practice to reduce environmental impact and lower costs.



LIMITATIONS & FUTURE RESEARCH

- Low volume institutions may face cost/supply challenges
- Conflicting guidance on required sterilization level
- Limited manufacturer comparisons in current literature
- Visualization outcomes show mixed evidence



REFERENCES

Prevention of Acute Kidney Injury in Patients Requiring Cardiopulmonary Bypass

Justin Reavley, BSN, SRNA & Kevin O'Hara, BSN, SRNA
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PROBLEM INTRODUCTION

- Acute kidney injury (AKI) is a prevalent complication in patients undergoing cardiac surgery with cardiopulmonary bypass (CPB) that impacts patient outcomes and hospital resources.
- A tertiary care center in Illinois found that AKI rates after surgery were above the national average in their facility, with AKI being a common reason for prolonged hospitalization after surgery.
- The facility requested the creation of a protocol focused on AKI prevention strategies for patients requiring cardiac surgery.
- This project aimed to equip the cardiac anesthesia team at the facility with updated education and a streamlined protocol on evidence-based strategies to reduce AKI in patients undergoing CPB.

LITERATURE REVIEW



PROJECT METHODS

- Meeting with stakeholder to identify problem/needs
- Review of literature and current evidence-based practices
- Development of formal presentation and Cardiopulmonary Bypass Renal Protection Protocol
- Presentation with the cardiac anesthesia team including literature review findings and proposed protocol
- Evaluation of staff buy-in and confidence for implementing proposed strategies

EVALUATION

Demographic data included

5 CRNAs 1 Perfusionist

Experience:

0-2 yrs. (17%) 3-5 yrs. (33%) 6-10 yrs. (17%)
20+ yrs. (33%)

- Confidence in recognizing and implementing specific strategies for renal protection improved from 50% to 92%.
- 100% found the presentation organized and easy to understand
- 98% found the protocol user-friendly and appropriate for implementation.
- 90% reported confidence in implementing the proposed protocol into current practice.

IMPACT ON PRACTICE

Immediate implementation of renal-protective anesthetic strategies for cardiac surgical patients at this facility.

Staff plan to advocate for advanced hemodynamic monitoring equipment.

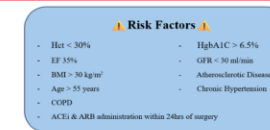
Historical practices with no current favorable evidence will be avoided.

Small sample size and non-experimental design make the results of the survey less generalizable to larger populations.

CONCLUSIONS

- Active area of research with new studies and treatments being released.
- Anesthesia team plans to discuss protocol with the cardiothoracic surgeons to formalize protocol interventions and organize implementation.

Cardiopulmonary Bypass Renal Protection Protocol



Preoperative Optimization

Parameter	Recommendation
Iron Infusion	Patients with identified iron deficiency
Extracorporeal-Stimulating Agents	1-3 days before surgery if appropriate
ACE Inhibitors & ARBs	Discontinue the day of surgery
Endocrinology Consult	If HgbA1C > 6.5%

Goal-Directed Fluid Therapy

Parameter	Recommendation
Hemodynamic Monitoring	Use minimally invasive post-bypass
Fluid Responsiveness	Delta SV > 10% and/or SVV > 13%

Intraoperative Care

Parameter	Recommendation
Transfusion Threshold	High 7.5 g/dL
Medications	Avoid Vancomycin, Aminoglycosides, β-Lactams, NSAIDs, Diuretics
Hypotension	Avoid MAP < 65 mmHg
Blood glucose	< 180 mg/dL intraoperatively

Perfusion-Based Interventions

Parameter	Recommendation
DO ₂ i	> 272 ml/min/m ²
Bleedwarming Temperature	Avoid arterial outlet > 37°C
Temperature gradient	< 10°C between venous inlet & arterial outlet

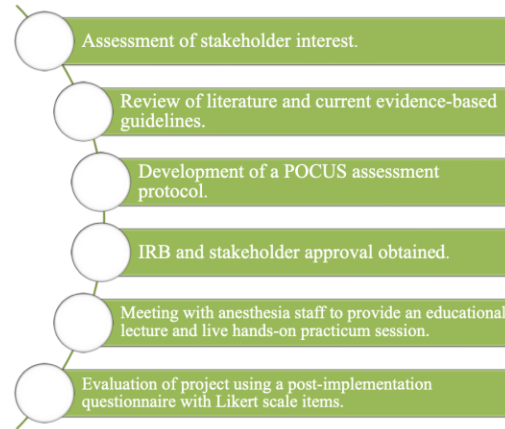
Developing a Protocol for Gastric Volume Assessment using Point-of-Care Ultrasound in Patients with Questionable NPO Status

Jessica Vignone, BSN, RN, SRNA & Dzenita Schultz, BSN, RN, SRNA
Southern Illinois University Edwardsville

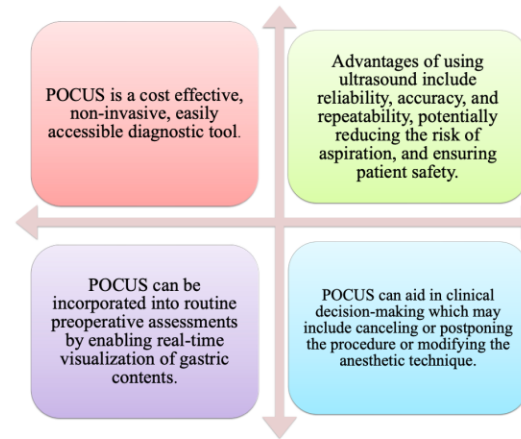
PROBLEM INTRODUCTION



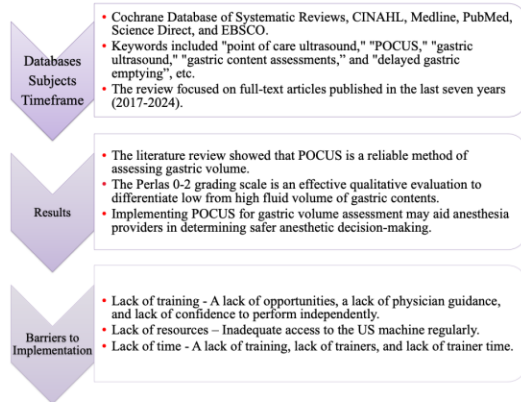
PROJECT METHODS



IMPACT ON PRACTICE



LITERATURE REVIEW



EVALUATION

- 11 anesthesia staff members were in attendance; all participants completed both the training and survey.
- 64% of participants strongly agreed that the project increased knowledge of gastric POCUS.
- 73% of participants strongly agreed they had gained more confidence in using POCUS to assess gastric content after the hands-on training session.
- 55% of participants were willing to apply gastric POCUS in future practice.
- Providers were encouraged to continue practicing this skill to become more confident in identifying gastric content, thereby improving clinical decision-making.

CONCLUSIONS


- This project can positively impact the host facility's anesthesia department now and in the future.
- Immediate effect; providers now have the training and visual aids to continue developing proficiency with gastric POCUS.
- Anesthesia providers at this small rural hospital displayed an eagerness and willingness to learn how to use POCUS and incorporate this skill into their day-to-day practice.
- This skillset can continue to benefit their department by potentially preventing pulmonary aspirations, leading to decreased costs associated with delayed or canceled procedures.


Development of a Treatment Protocol for Post-Dural Puncture Headache


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PROBLEM INTRODUCTION

 Post-Dural Puncture Headache (PDPH) is the most common complication of intentional or unintentional dural puncture.

 PDPH is the result of cerebral fluid loss, leading to intracranial traction and characteristic symptoms of PDPH. Symptoms can be debilitating and are associated with increased length of hospital stay, higher healthcare costs, delayed maternal-infant bonding, and decreased patient satisfaction.

 HSHS St. John's Hospital (a level III perinatal center) estimates over 2000 deliveries per year with neuraxial anesthesia as the primary anesthetic. No standardized protocol exists for PDPH, resulting in variability in treatment among providers.

 Aim: develop an evidence-based treatment protocol for PDPH management to standardize care, improve consistency in management, and enhance patient outcomes.

LITERATURE REVIEW



PDPH symptoms

- Postural headache (worse upright)
- Nausea, neck stiffness, tinnitus, visual changes
- Onset: typically, 24-48 hours postpartum



Link to Reference List



Key Evidence

- Conservative therapies:
- Hydration, bedrest → limited effectiveness
- Pharmacological Treatments
- NSAIDs + acetaminophen → first-line
 - Caffeine → effective short-term relief
- Regional Techniques
- Sphenopalatine ganglion block (SPGB)
 - Greater occipital nerve block (GONB)
 - Gold Standard
 - Epidural Blood Patch (EBP)
 - ~93% success when performed at 24-48 hrs
- Gap identified: no standardized, stepwise treatment algorithm

PROJECT METHODS

- **Design:** Quality Improvement (QI) Project
- **Setting:** HSHS St. John's Hospital (Level III Perinatal Center in Central Illinois)
- **Population:** Anesthesia Providers

Interventions:

- Developed evidence-based PDPH treatment algorithm
- Delivered educational session including: pathophysiology, treatment options, algorithm implementation.

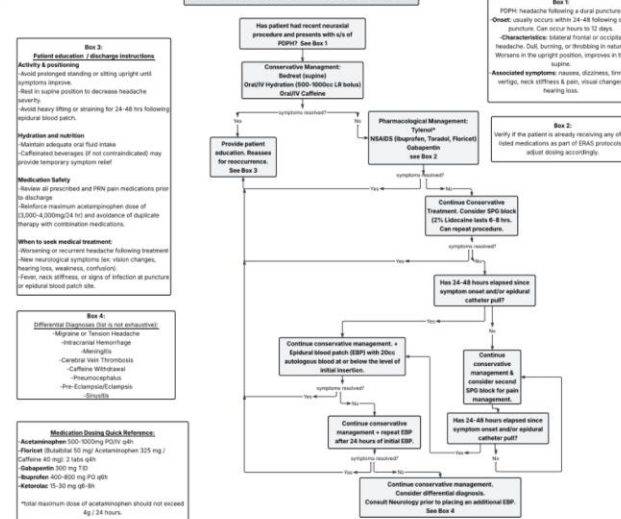
Evaluation Tool:

- 10-item post-presentation survey
- Measured: knowledge, confidence, preparedness, algorithm acceptance

Ethics:

- IRB Exempt (QI project)

Post Dural Puncture Headache Protocol



IMPACT ON PRACTICE

Eliminated provider variability

Establishes standardized, stepwise management

Improves:

- Clinical decision making
- Provider confidence
- Patient care consistency

Supports:

- Faster symptom recognition
- Appropriate escalation of care

Long-Term impacts:

- Improved outcomes
- Streamlined care delivery
- Enhanced patient experience

EVALUATION

Participants: N=8

- 5 CRNAs, 3 SRNAs

Key Outcomes:

- 100% reported:
- Increased understanding of PDPH
- Improved confidence in management
- Greater preparedness
- Strong agreement:
- Algorithm is appropriate for practice
- Likely to adopt into clinical care

Limitations

- Small sample size
- Convenience sampling
- Self-reported outcomes

CONCLUSIONS

- PDPH is a **significant but manageable complication** in obstetric anesthesia
- Evidence supports a **multimodal, stepwise-treatment approach**
- Implementation of a standardized algorithm:
 - Improves provider knowledge and confidence
 - Reduces variability in care
 - Promotes evidence-based practice
- Future Efforts:
 - Integrate into departmental policy, expand provider education, track patient outcomes for long-term effectiveness.

Anesthesia Department Cybersecurity: Creation of a Downtime Protocol

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PROBLEM INTRODUCTION

- ❖ Increased frequency and sophistication of cyberattacks on healthcare systems, leading to extended and unpredictable downtimes that jeopardize patient safety and business continuity.
- ❖ Downtime leads to inaccessibility of EHRs.
 - ❖ Delays critical decision-making and treatment plans.
 - ❖ High-acuity departments (surgery and anesthesia) are particularly vulnerable to the disruptions caused by EHR outages.

LITERATURE REVIEW

Altered patient data

- Vital signs: Display different values
- Anesthesia machine: Alter ventilator and vaporizer settings

Patients experienced:

- 1.04 increase in postoperative length of stay
- Higher hospital and patient care costs
- 1.1 increase in operating room time

Paper charting without EHR access negatively impacts patient safety

- EHR provides multiple patient safety guards
- Alerts for medication allergies, drug-drug interactions, dose calculations, and algorithms that compute patient risks for adverse events
- Medication errors are more likely to occur during system downtime

Preparation for downtime

- Planning committees
- “Go-Bags”, “Downtime Code carts”
- Reallocation of staff, with possible reevaluation of providing nonessential services
- Identify backup equipment that does not connect to the network and locate downtime procedures
- Lack of communication can create workarounds and delays in patient care
- Employee education via simulations
- Visual aids increase efficiency in a multi-step, rare situation.

During the attack

- Initiate emergency contingency plan once cyberattack is identified.
- Appointed colleague will access BCA device.
- Directions for completion of all aspects of care.

After the attack

- Clear instructions for retroactive data entry and chart review.
- Who will enter the data? What will be entered? Is it manually entered or scanned? When is it due?

HSHS SJS Downtime Checklist

Form Respondent:		
OR#:	Date:	Downtime initiation time: (time identified, not case start time)
<input type="checkbox"/> Purpose of form utilization (Circle one): <input type="checkbox"/> Downtime <input type="checkbox"/> Desktop Issue		
Pyxus use during downtime:		
In an emergency: Drug trays are available in the anesthesia work room.		
Prolonged downtime: Pyxus access may vary. Close communication with Pharmacy about drug counts may be necessary to ensure adequate supplies within the rooms. Check pyxus before initiation of case as needed.		
Ensure completion of the following forms:		
<input type="checkbox"/> Anesthesia Charge Form		
<input type="checkbox"/> iPro Form		
Additionally forms (available in the anesthesia lounge as needed):		
•		
•		
• Ordersets must be printed from BCA computer located in PACU		
<input type="checkbox"/> End of case: Make a copy of the anesthesia record that will remain in the patient's chart		
<input type="checkbox"/> CRNA is responsible for the safe keeping of the paper record until downtime has been resolved and the appropriate details have been charted into Epic.		
Epic Merge is dependent on the duration of downtime. Once Epic is back online and the case has been created in Epic (if it wasn't created before downtime) the following is entered into Epic by the aforementioned anesthesia provider:		
Temporary Downtime (<= 24 hours):		Prolonged Downtime (> 24 hours):
<input type="checkbox"/> Backchart the anesthesia record, in its entirety, into Epic within 48 hours of return of service.		<input type="checkbox"/> Backchart the following elements of the anesthesia record into Epic within 48 hours of return of service: <input type="checkbox"/> Date of service <input type="checkbox"/> Start & Stop times <input type="checkbox"/> Type of anesthesia delivered <input type="checkbox"/> Anesthesia providers present with in & out of room times
<input type="checkbox"/> After the information has been added into Epic from the carbon copy paperwork, the original paperwork will remain with anesthesia in a designated location in the anesthesia lounge		

PROJECT METHODS

- ❖ 4 CRNAs, 1 SRNA
- ❖ In-person educational session presenting the literature review and proposed anesthesia-specific downtime protocol
- ❖ Post-education questionnaire assessed perceived preparedness, clarity of the protocol, and usability during intraoperative cyber incidences.

References



EVALUATION

- ❖ **Presentation positively impacted those in attendance.**
- ❖ Increased awareness of circumstances that take place during a cybersecurity attack.
- ❖ 100% stated that the presentation strongly prepared them to initiate, maintain, and recover from a cyberattack
- ❖ 80% replied that there were no barriers to implementation
- ❖ 20% of participants stated that there could be a decreased drive for colleagues to participate and an increased financial burden for the facility.
- ❖ Limitations: Small sampling size and sampling bias

IMPACT ON PRACTICE

- ❖ Implementation of the checklist enhances anesthesia provider readiness during cyber incidents by offering a clear, stepwise approach to maintaining patient safety when technology becomes unreliable.

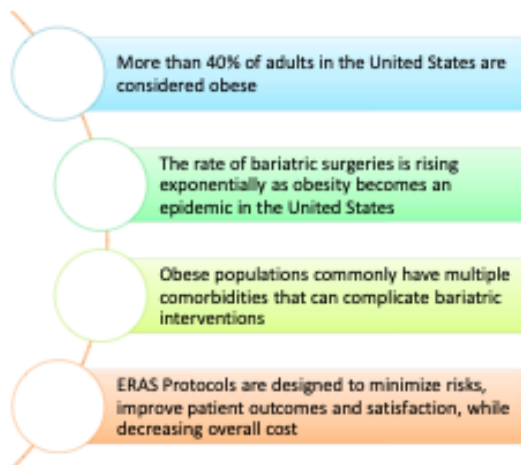
CONCLUSIONS

- ❖ Cyberattacks are an increasing threat, underscoring the need for coordinated preparedness across healthcare organizations and individual departments.
- ❖ Most anesthesia providers receive little training regarding downtime procedures and rely on minimal, nonspecific guidance during EHR outages.
- ❖ Inadequate preparation contributes to workflow disruption and potential patient safety risks.
- ❖ The development of a downtime anesthesia protocol is essential to provide safe care, reduce provider stress and strengthen departmental readiness during prolonged unplanned downtimes.
- ❖ This project addressed a critical gap in anesthesia disaster readiness.

Promoting Utilization of Enhanced Recovery into Bariatric Surgery

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PROBLEM INTRODUCTION



PROJECT METHODS

- A comprehensive literary review was conducted.
- A pre/post-survey was created and used to assess knowledge and understanding of ERAS.
- Two informational presentations were delivered to available staff.
- Attendees included the Pre-Op, OR and Post-Op recovery nurses as well as available Nurse Anesthetists.
- Surveys were analyzed for improvement in knowledge, and protocol.

CONCLUSIONS

- Overall patient satisfaction rates improved
- Early PO intake and rates of an anastomotic leak were unchanged
- Readmission rates decreased
- 15-20% decrease in cost of care overall
- 50% decrease in length of stay
- Moderate to severe PONV rates decreased 30-60%

LITERATURE REVIEW

Enhanced Recovery After Surgery (ERAS): First developed in 2009 for rectal surgeries. ERAS protocols are incorporated for all types of surgeries.

Guidelines and Best Practice: high-carbohydrate drink (50g) two hours before surgery. Goal directed fluid therapy (GDFT), multimodal pain management, early post op PO intake and mobility. Management of hyper/hypoglycemia.

ERAS Protocols: Intended to provide guidance while decreasing overall cost, length of stay (LOS), and reducing unintended morbidity and mortality, and increasing patient satisfaction.

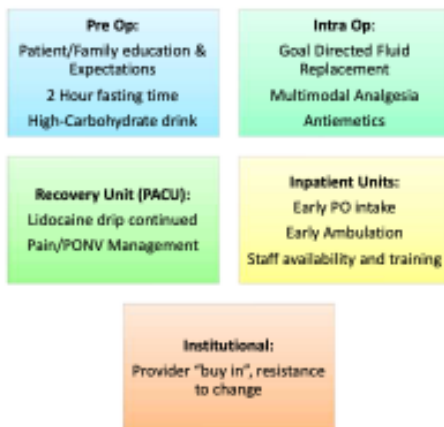
Bariatric Surgery: Rates of surgical intervention are on the rise exponentially as the cost of healthcare is 6x that of a healthy weight individual

PONV: Trio therapy of Dexamethasone 8mg, Cyclizine 50mg, Prochlorperazine 12.5mg given intraop. Likewise, a dual therapy of metoclopramide and Ondansetron was also effective.

Multimodal Analgesia: NSAIDs, acetaminophen, low-dose narcotics, 1.5-3mg/kg/hr (IBW) IV lidocaine, TAP block, gabapentin x 4 doses

Outcomes: Significant reductions in LOS, PONV, post-op pain, cost of care, while increasing patient satisfaction and outcomes.

Key Findings



Pre/Post Survey

- 17 Participants: 59% Nursing, 12% CRNA, 29% Other
- 70% were not aware or not familiar with ERAS
- 16% felt somewhat satisfied with ERAS protocols
- 36% where not sure what protocols were currently being used
- 50% felt existing or potential barriers prevented the use ERAS
- 87.5% felt ERAS had positive effects on outcomes
- 75% felt they would implement ERAS into their practice.

General Anesthesia vs. Spinal Anesthesia for Total Knee Arthroplasty

Asia Stennis, BSN, SRNA & Camille Ward, BSN, SRNA
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PROBLEM INTRODUCTION

- Spinal anesthesia (SAB) and general anesthesia (GA) are two techniques utilized for TKA.
- Both methods show a significant role in postoperative management and the outcomes of TKA patients (Kendall et al., 2021).
- Currently, GA is the primary choice of anesthesia for TKA (Heckmann et al., 2023).
- GA is the primary choice due to perceived operating room delays related to the time needed to perform SAB (Chandler et al., 2021).
- A significant barrier to the decision-making process is the misinformation surrounding regional anesthesia.
- Some facilities may not have guidelines in place to facilitate this decision-making process.
- This is due to the lack of consensus among experts in establishing policies, resource availability for guideline development, and practice variability among anesthesia providers.

LITERATURE REVIEW

- Pre-operative period was **prolonged** in SAB. PACU transfer was prolonged in GA. No significant difference between the overall perioperative duration times in both cases (Chandler et al., 2021)
- Total opioid administration was **reduced in the SAB** without peripheral nerve blocks (PNB) compared to the GA without PNB (Koupt et al., 2023)
- **No significant differences in costs**, which included anesthesia-controlled time, personnel, recovery, operating room time, arthroplasty components, and hospital stay times (Bailey et al., 2022).
- Serious adverse events at 72 hours **were not greater** in patients who received GA versus SAB, minor adverse events were greater in the GA group compared to the SAB group (Kendall et al., 2021).
- Anesthetic choice not associated with 30-day mortality; GA groups were at an increased risk for any major and minor complications (Warren et al., 2020).
- SAB was statistically at a **lower risk of revisions** within 90 days (Heckmann et al., 2023).
- **Significant association** between neuraxial anesthesia and decreased risk of 30-day readmission (Duque et al., 2021).
- Failed SAB compared to successful SAB had an **increased rate of IV opioid administration**; successful GA had the overall highest rate of IV opioid administration (Chandrashekar et al., 2024).
- Return of ambulation in the PACU **increased** in the failed SAB group compared to the successful SAB group and was similar to the successful GA group (Chandrashekar et al., 2024).
- **Increased incidence** of postoperative pain in ER/clinic visits in the failed SAB group compared to the successful SAB group (Chandrashekar et al., 2024).
- **Increased incidence of (DVT) episodes** in the failed SAB group compared to the successful SAB group (Chandrashekar et al., 2024).

PROJECT METHODS

Algorithm was developed to serve as a guideline in appropriate anesthetic choice by integrating the latest evidence-based research.

Comparative analysis between anesthesia techniques will be presented to anesthesia staff through a brief PowerPoint presentation

The algorithm guidelines will be distributed for the staff's review convenience

Pre- and post-survey distributed and assessed the anesthesia providers' self-assessment of their current knowledge of the two anesthetic choices, decision making comfort level, and inclination to use algorithm.

EVALUATION

• The wide variability across the questions on average was high, making it difficult to detect significant group-level improvement. When conducting a paired t-test, the p-value of 0.571623 indicates statistical insignificance.

• Assessment of scoring on individual questions determined that most question results were not statistically significant. As a result, scoring these questions could not be associated with the project implementation. Two questions were found to be statistically significant. The scoring of these questions (questions 7 and 9) could be associated with the project implementation.

• Increase in average scores from pre-test to post-test indicates that knowledge increased due to the presentation. However, the wide variability across the questions on average was too high to detect significant group-level improvement.

• Higher comfort levels with performing spinal anesthesia tended to align with higher test performance, indicating a positive relationship between confidence and competency.

IMPACT ON PRACTICE

- Based on study results, we recommend continuing education on evidence-based practice, suggesting that structured educational interventions can lead to improvements.
- Reflective learning and self-assessments could enhance knowledge retention. Encouraging CRNAs and surgeons to conduct post-case debriefs helps assess what went well and what could be improved.
- Clinical decision-making may be strengthened through these practice opportunities and by utilizing the decision-making algorithm, thereby increasing patient safety and satisfaction.
- The authors would encourage future Student Nurse Anesthetists to conduct research on the effectiveness of the decision-making algorithm at the facility studied.

CONCLUSIONS

- The individual analyses of two questions were found to be statistically significant.
- Overall, the findings of this study determined that there was no statistically significant difference between pre-test and post-test scores.
- As a result, it can be concluded that the presentation implementation was not beneficial for this group of 8 providers. Education on the benefits of SAB needs to be directed towards surgeons to reduce barriers to SAB.

DISCUSSION

- Participants expressed interest in sharing the algorithm with their surgical colleagues; however, surgeon preference was very influential in anesthetic choice.
- It was concluded that although five of the eight participants were highly likely to use the algorithm, buy-in may be difficult when changing current practice. Surgeons often create barriers to the transition.

Review and Update of a Pediatric Anesthesia Clinical Resource Guide

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PROBLEM INTRODUCTION

- St. John's Children Hospital in Springfield, Illinois utilizes a Pediatric Anesthesia Resource Guide to aid in pediatric anesthesia practice
- SRNAs rotate through for pediatric anesthesia training and are provided a resource guide to support their clinical decisions
- Current pediatric resource guide has not been updated in recent years.

LITERATURE REVIEW

- Several themes were identified, such as standardization of care, which was shown to reduce postoperative hospital length of stay, pain scores, opioid administration, and overall complications.
- Provider variation in drug dosing under anesthesia are associated with slower emergence, increased PONV, and carry a greater significance on the postoperative liver and kidney function.
- Using clinical resource tools reduce provider anxiety in pediatric anesthesia and mitigate risk.
- Reducing variation in clinical practice helps reduce preventable and costly adverse events and errors.
- Standardized care promotes cost reduction.
- Credibility is a concern regarding how guidelines are updated and may be untrustworthy and unreliable.

EVALUATION

- Congenital anomalies and neonates were additional specific pediatric populations frequently selected in expanding content in these categories.
- Two participants out of the ten reported navigational challenges when using the clinical resource guide.

PROJECT METHODS

Purpose

- Develop and implement an evidence-based pediatric resource guide targeted for anesthesia providers
- The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) used as framework to provide clarity and structure to the evidence of the synthesis development process.

Project Design

- The resource guide was developed using multiple evidence-based practice guidelines and recommendations.
- Reference guide contains pertinent anesthesia topics for case preparation or a quick reference.

Process

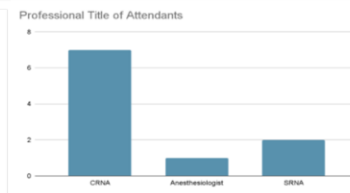
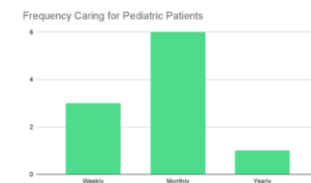
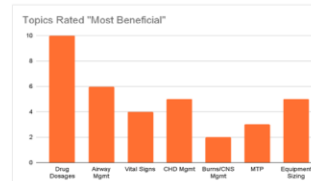
- A PowerPoint presentation, pamphlets, flyers, and newly updated resource guide was presented and disseminated among the anesthesia team at HSHS St. John's Children Hospital.
- A questionnaire was passed among the anesthesia providers who voluntarily participated.

IMPACT ON PRACTICE

- The project addressed the need for an updated, evidence-based pediatric anesthesia resource guide at St. John's Children's Hospital to support standardized care among providers and students.
- Patient outcomes were not directly measured, but the literature supports that standardized anesthesia practices reduce variability, unnecessary testing, admission rates, and length of stay, as well as adverse effects associated with inconsistent drug dosing.
- Our questionnaire reinforced the correlations, with all participants identifying weight-based dosing as the most valuable component of the guide.
- Our findings further emphasize the importance of ongoing education and accessible guideline formats.

CONCLUSIONS

- Conducting periodic evaluations and updates to the Pediatric Anesthesia Clinical Resource Guide will ensure its recommendations remain current and aligned with standards.
- Recommend further studies and evaluation of the benefits and limitations of current clinical resource guide and other referenced material to be conducted with a larger, more diverse samples of anesthesia providers.
- A future project to develop a pocket-sized guide was expressed from multiple participants.



Social Determinants of Health and Anesthesia Outcomes

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PROBLEM INTRODUCTION

- In the U.S., certain demographics of the population have worse health outcomes when compared to the general population
- The social determinants of health (SDoH) have been proposed as one of the causes of these disparities
- SDoH are the “conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life.”

LITERATURE REVIEW

- Literature review defined the specific effects of SDoH on anesthesia outcomes and discovered effective interventions to eliminate healthcare disparities in anesthesia.
- Disparities in anesthesia due to SDoH can be grouped into following categories: Obstetric, cardiac, regional anesthesia, pediatrics, and anti-emesis prophylaxis.
- Anesthesia providers can implement increasing education on SDoH; addressing implicit bias; implementing standardized, patient-driven protocols; participating in interdisciplinary collaboration; and advocating for patients.
- There is a paucity of quality anesthesia studies focusing on effective interventions to address disparities caused by SDoH.
- Many researchers denounce the current state of SDoH data gathering.
- There is a lack of consensus on the definition of SDoH. SDoH has become a term encompassing individual social needs and SDoH, despite these being two distinct concepts

PROJECT METHODS

- Quasi-experimental pre-/post-test design to evaluate the effectiveness of an educational intervention at increasing healthcare practitioners' awareness and knowledge of SDoH.
- Educational intervention consisted of a PowerPoint presentation summarizing the findings of the project's literature review.
- Participants were the operating room (OR) team of SIH Herrin (21 participants total).
- 8-question pre-survey completed before the presentation.
- 9-question post-survey completed after the presentation.
- The survey was designed as a three-point Likert-type scale.

EVALUATION

- Overall mean score increased by 0.17 points, a statistically significant change.
- 90% of the participants stated that their awareness of SDoH had increased after the presentation.
- These findings suggest that the educational intervention met its objective of increasing both knowledge and awareness of SDoH among OR staff.
- The observed improvement highlights the value of targeted educational interventions in promoting understanding of how social factors can affect patient outcomes.
- While the presentation was successful in increasing general awareness of SDoH, it did not clarify the more complex aspects of SDoH

IMPACT ON PRACTICE

- The presentation increased SDoH awareness, which is an essential first step in improving education on this topic.
- Deeper educational engagement is necessary to clarify the nuances of SDoH concepts and their application to clinical practice.
- An important benefit of educating anesthesia providers on SDoH is the fostering of a more comprehensive approach to patient care, ensuring that social and environmental factors are accounted for during preoperative planning and postoperative care.

CONCLUSIONS

- Surgical and anesthesia outcomes are not exempt from the effects of SDoH.
- This field of research is still in its beginning phases; thus, there is a lack of conclusive evidence on the best interventions to address this problem.
- The anesthesia provider's role is still undefined, but that should not hinder their efforts to address SDoH to reduce health disparities and promote societal health equity.

Recommendations

- SDoH education through longitudinal educational programs that are integrated into the formal training of anesthesia and healthcare providers.
- Education should include case studies, clinical rotation in facilities that assess and address SDoH factors, and simulations.
- For healthcare providers who have already completed formal training, SDoH education can be strengthened with continuing education modules.

Amniotic Fluid Embolism: Implementation of A-OK Protocol

Jodi Brown, BSN, SRNA & Rachel Sargent, BSN, SRNA
Southern Illinois University Edwardsville

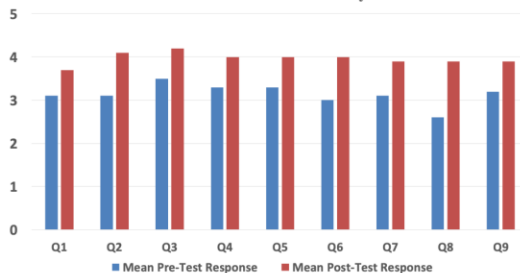
PROBLEM INTRODUCTION

- Recognition of amniotic fluid embolism (AFE) is not easily identified, along with the lack of knowledge to manage this complication more effectively with an A-OK protocol.
- AFE is a rare but life-threatening obstetric emergency with an incidence of 1-8 cases per 100,000 pregnancies.
- AFE is the second leading cause of maternal mortality in the United States.
- Characterized by sudden cardiovascular collapse, respiratory failure, and disseminated intravascular coagulation (DIC).
- Diagnosis is challenging due to non-specific symptoms and a lack of definitive diagnostic tests.
- No standardized guidelines exist for the early recognition and treatment of AFE.

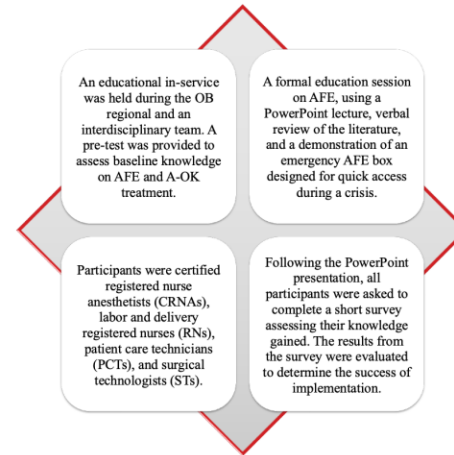
LITERATURE REVIEW

- Current treatment is primarily supportive management of cardiovascular collapse.
- A-OK protocol (Atropine, Ondansetron, and Ketorolac) targets key physiologic mechanisms of AFE:
 - Bradycardia and cardiovascular instability
 - Pulmonary hypertension
 - Thromboxane-mediated coagulopathy
- Retrospective case reports and small observational studies suggest potential improvements in maternal hemodynamics and survival with A-OK use.
- Due to the extreme rarity of AFE, most evidence is derived from case studies and retrospective analyses rather than large prospective trials
- Current research emphasizes the need for standardized protocols, provider education and further research to validate emerging treatment strategies.

Pre- and Post-Test Survey



PROJECT METHODS



EVALUATION

- Evaluation through an anonymous Qualtrics survey, which was administered to participants at the beginning and after its completion.
- A 5-point Likert-scale survey was used to assess participants' understanding of AFE and the A-OK protocol.
- The responses were evaluated to determine whether there was an increase in confidence and competence after completion of the educational in-service.
- Measured outcomes for the survey included the knowledge level of:
 - Epidemiology of AFE
 - Pathophysiology of AFE
 - Hallmark clinical signs and symptoms of AFE
 - A-OK protocols in AFE management
 - Atropine mechanism of action (MOA) and rationale in AFE treatment
 - Ondansetron MOA and rationale in AFE treatment
 - Ketorolac MOA and rationale in AFE treatment
 - confidence level in initiating the A-OK protocol in suspected AFE
 - confidence to respond and recognize an AFE emergency

IMPACT ON PRACTICE

- Improving outcomes for obstetric patients by increasing provider knowledge of AFE, leading to early recognition, better teamwork, faster treatment response times using an A-OK protocol, and encourage ongoing staff education to lower patient morbidity and mortality related to AFE.
- The study found that staff knowledge improved after a verbal presentation implementing an A-OK protocol for AFE.
- The strength of this DNP project is the educational benefits for obstetrical staff.

CONCLUSIONS

- Nine pre- and post-educational in-service questions assessed participants knowledge level and confidence regarding AFE and A-OK protocol.
- 82 percent of respondents reported feeling confident in their ability to recognize and respond appropriately to an AFE emergency after the presentation.
- Standardized AFE recognition and treatment protocols are needed.
- Implementation of A-OK protocol education may improve rapid response.
- Increased provider awareness may improve maternal and neonatal outcomes in AFE emergencies.

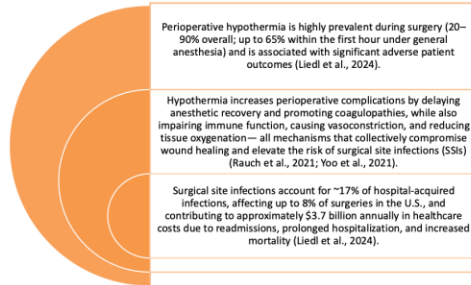
REFERENCES



Perioperative Warming and Surgical Site Infection Prevention: Development and Implementation of a Perioperative Warming Protocol

Stephen Brennan, BSN, SRNA
 Nicholas Weber, BSN, SRNA
 Southern Illinois University Edwardsville

PROBLEM INTRODUCTION



LITERATURE REVIEW

Search Strategy/Results:

-Search across CINAHL, Cochrane, MEDLINE, PubMed, and Google Scholar focusing on hypothermia, surgical site infections, and warming interventions
 -Included 26 studies from the past decade after applying headline criteria and critical appraisal.

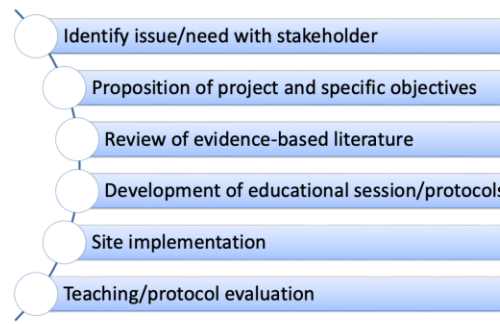
Conclusions:

-Effective hypothermia prevention requires a multimodal approach integrating active warming (e.g., forced-air warmers, resistive heating, warmed IV fluids), passive warming (e.g., blankets, insulation, environmental control), and continuous temperature monitoring (Simegn et al., 2021; Zheng et al., 2020)
 -Preoperative warming—particularly with forced-air devices—establishes baseline normothermia, while intraoperative management must mitigate anesthesia-induced heat redistribution and environmental exposure (Bindu et al., 2017; Zheng et al., 2020)
 -Postoperative care necessitates continued warming and vigilant monitoring, with combined active and passive strategies demonstrating the greatest effectiveness for recovery (Bindu et al., 2017; Torossian et al., 2015)
 -Evidence indicates no single intervention is sufficient; sustained, coordinated, protocol-driven care across all perioperative phases is essential to reduce hypothermia and surgical site infection risk

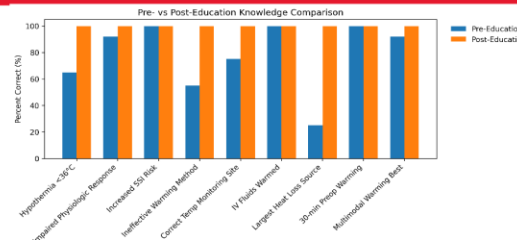
Reference List:



PROJECT METHODS



EVALUATION



Sample size:

12 nurse anesthetists

Evaluation Method:

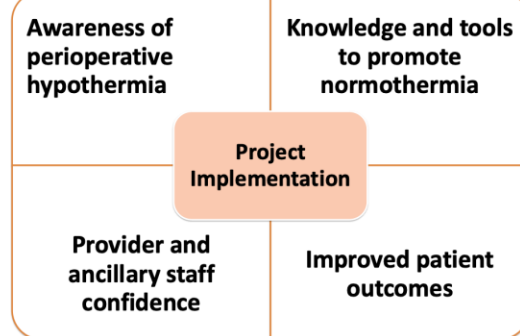
Pre- and post-Qualtics surveys assessed participants knowledge on hypothermia and SSI prevention

Results:

Qualtics survey: significant improvement across all areas, including perioperative warming techniques, temperature monitoring types, and SSI prevention (see graph above)

Likert-scale responses: increased confidence in maintaining normothermia, appreciation of evidence-based practices, and a firm intention to incorporate the protocols into daily anesthesia delivery

IMPACT ON PRACTICE



CONCLUSIONS

- Education improves provider knowledge
- Multimodal warming reduces SSI risk
- Standardized protocols improve patient outcomes
- Supports evidence-based practice
- Recommend sustained education

Perioperative Warming Protocols

PREOPERATIVE	INTRAOPERATIVE	POSTOPERATIVE
<p>Goal: Maintain or achieve the patient's core body temperature at or above 36°C</p> <p>Active Interventions</p> <ol style="list-style-type: none"> Monitor and warm IV fluids with a dedicated warmer or blanket box and stop when patient temperature is stable. Use a forced-air warmer (e.g., Bair Hugger) to maintain normothermia. Use a resistive warmer (e.g., Space Blanket) to maintain normothermia. Use a fluid warmer (e.g., Fluid Warmer) to maintain normothermia. <p>Passive Interventions</p> <ol style="list-style-type: none"> Use a reflective blanket (e.g., Space Blanket) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. <p>Monitoring Interventions</p> <ol style="list-style-type: none"> Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. 	<p>Active Interventions</p> <ol style="list-style-type: none"> Use a forced-air warmer (e.g., Bair Hugger) to maintain normothermia. Use a resistive warmer (e.g., Space Blanket) to maintain normothermia. Use a fluid warmer (e.g., Fluid Warmer) to maintain normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. <p>Passive Interventions</p> <ol style="list-style-type: none"> Use a reflective blanket (e.g., Space Blanket) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. <p>Monitoring Interventions</p> <ol style="list-style-type: none"> Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. 	<p>Active Interventions</p> <ol style="list-style-type: none"> Use a forced-air warmer (e.g., Bair Hugger) to maintain normothermia. Use a resistive warmer (e.g., Space Blanket) to maintain normothermia. Use a fluid warmer (e.g., Fluid Warmer) to maintain normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. <p>Passive Interventions</p> <ol style="list-style-type: none"> Use a reflective blanket (e.g., Space Blanket) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. Use a warm blanket (e.g., Bair Hugger) to maintain normothermia. <p>Monitoring Interventions</p> <ol style="list-style-type: none"> Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia. Use a temperature monitoring device (e.g., Temp-Track) to monitor normothermia.

Self-Paced Interactive Respiratory Modules on The Anatomage Table for Nurse Anesthesia Students

Haily Ho, BSN, SRNA & Nicole Ryan, BSN, SRNA
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PROBLEM INTRODUCTION

A strong foundation in respiratory anatomy and physiology is essential for SRNAs to

1. Perform comprehensive airway assessments
2. Safely manage airways in clinical practice
3. Execute critical respiratory interventions

Anatomy Education Methods

- Textbooks and cadaver dissection have limitations (Said-Ahmed, 2023).
- The Anatomage Table offers life-sized virtual dissection to allow learners to manipulate structures in real time to improve spatial awareness and knowledge retention (Kavvadia et al., 2023; Said-Ahmed, 2023).

Self-Learning Modules (SLMs)

- SRNA programs require high-level knowledge acquisition in a limited time
- SLMs provide organized, step-by-step instruction, visual reinforcement, and knowledge checks to reinforce understanding (KarimiMoonaghi et al., 2019; Goode et al., 2022)

PROJECT METHODS

Design

- Non-experimental educational quality improvement project
- IRB reviewed and deemed exempt

Setting and Participants

- 1st-year SIUE SRNAs enrolled in NURS 529 (Spring 2026)

Intervention

- Development of self-paced, interactive respiratory modules
- Anatomage Table demonstration

Evaluation

- Anonymous pre- and post- implementation Likert-scale surveys via Qualtrics
- Data analyzed using Excel (non-parametric two-tailed Mann-Whitney U tests)

IMPACT ON PRACTICE

Bridging Didactic to Clinical Practice

Strengthening foundational knowledge earlier in nurse anesthesia curricula may support safer airway management practices and improve clinical readiness among SRNAs

Patient Safety Implications

Patients will benefit from care provided by well-trained anesthesia providers who have strong anatomical knowledge, clinical reasoning skills, and practical experience

Clinical Readiness

Improved preparation and confidence in airway assessment and management may reduce airway-related complications, enhance perioperative patient safety, and improve clinical outcomes

CONCLUSIONS

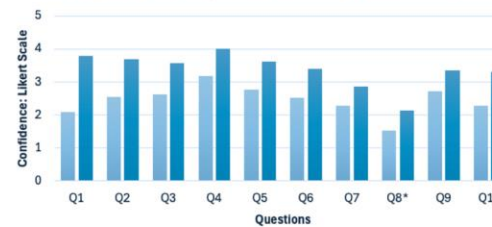
- Implementation of self-paced, interactive respiratory modules combined with the Anatomage Table instruction significantly improved first-year SRNA confidence in airway-related knowledge and skills
- The project successfully addressed a curricular gap between foundational anatomy and physiology education and early clinical training
- While independent intubation confidence did not significantly change, improvements in supervised clinical readiness and airway complication recognition were meaningful and statistically significant
- Integrating the structured technology early in the nurse anesthesia curricula may strengthen clinical preparedness and support patient safety
- Continued implementation across future cohorts is recommended to reinforce sustainability and long-term project impact

LITERATURE REVIEW



EVALUATION

Pre- vs Post-Implementation Confidence



*not statistically significant

↑ Confidence in use of the Anatomage Table

↑ Airway-Related Knowledge

↑ Airway Complication Recognition

↑ Intubation-Related Confidence

Self-Paced Interactive Learning Modules



SCAN ME

References



SCAN ME

Emotional Intelligence and SRNA Success Utilizing a Virtual SIM Experience

Alberto Mendoza, BSN, SRNA & Merrie Albright, BSN, SRNA
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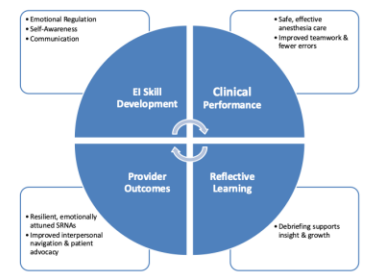
PROBLEM INTRODUCTION

- Importance of Emotional Intelligence (EI) in Anesthesia**
 - EI is essential for safe and effective anesthesia practice
 - Strong EI supports communication, emotional regulation, and clinical decision-making (Collins, 2013; Christianson, 2020; Daus et al., 2025)
- Current Gaps in SRNA Preparation**
 - Many SRNAs enter training with limited EI preparation
 - EI deficits contribute to communication challenges, increased stress, & error risk (Bittinger et al., 2020; Chapin, 2015; Collins & Andrejko, 2014; Daus et al., 2025)
- Virtual Reality (VR) as a Training Strategy**
 - VR offers a promising, immersive approach to developing EI skills
 - Allows practice of difficult interactions in a controlled environment
 - VR-based EI training remains relatively new and not well-studied (Hsieh et al., 2025; Oliveira et al., 2021; Zahran et al., 2024)
- Limitations of Prior EI Simulations**
 - Previous EI simulations at SIUE identified significant challenges, including:
 - Inconsistent immersion &
 - High staffing and resource requirements (Gassaway & Peters, 2025; Kiegalde & Shaw, 2023)

PROJECT METHODS

- EI Training: Year 1**
 - Five structured EI sessions
 - Based on Mayer & Salovey four-branch EI model
- Virtual Simulation: Year 2**
 - High-fidelity virtual simulation
 - Challenging preceptor interaction
 - Required real-time emotional regulation and communication
- Program Implementation**
 - Integrated into SIUE nurse anesthesia program
 - Collaboration with Nurse Anesthesia and I-O Psychology faculty
- Evaluation Approach**
 - Post-simulation surveys and qualitative reflections
 - Planned pre/post EI assessment (MSCEIT)
 - Post-assessment data lost

IMPACT ON PRACTICE



LITERATURE REVIEW

Evidence Supporting Emotional Intelligence

- EI is linked to improved communication, teamwork, stress management, and clinical decision-making. (Christianson, 2020; Collins & Andrejko, 2014; Bittinger et al., 2020; Collins, 2013)

Insights from Prior EI Simulations

- Prior EI simulations at SIUE demonstrated educational value.
- Barriers included limited participation, staffing demands, and scheduling challenges. (Gassaway & Peters, 2024).

Managing Emotion

Understanding Emotion

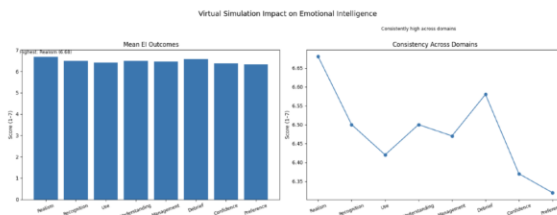
Rationale for Virtual Reality

- VR is effective across high-stakes fields for immersive skill development.
- Enhances communication, decision-making, and emotional regulation abilities. (Akersok, 2016; Oliveira et al., 2021; Lienski et al., 2023; del Carmen Carillo Alonso et al., 2024)

Opportunity for Innovation

- VR-based EI training for SRNAs remains underexplored.
- Evidence suggests strong potential to improve readiness for difficult clinical interactions. (Hsieh et al., 2025; Zahran et al., 2024)

EVALUATION



Evaluation Methods

- 8-item Likert scale survey
- 4 open-ended qualitative questions
- Planned pre/post MSCEIT comparison

Participants

- All second-year SRNAs participated
- All completed education sessions, simulation, survey, and MSCEIT

Key Outcomes

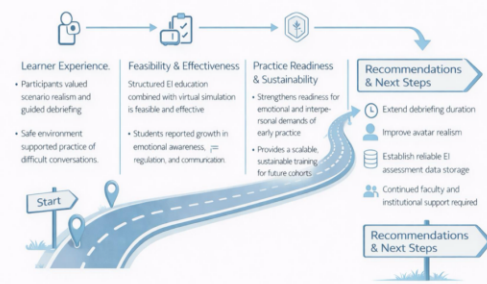
- High ratings for realism and EI skill development
- Increased emotional awareness, regulation, and confidence
- Qualitative feedback highlighted realism and accessibility

Limitations

- Loss of MSCEIT postintervention data
- Objective score comparison not possible
- Participants suggested longer debriefing and increased realism

CONCLUSIONS

Conclusion of EI Roadmap



Acknowledgements & References

We gratefully acknowledge Dr. Stein and Dr. Daus for their support and participation in the simulation debrief, with special thanks to Dr. Daus for her exceptional EI expertise that elevated the student experience. We also thank Dr. Zerlan for her leadership and guidance throughout this project.



Reference list APA

Improving Malignant Hyperthermia Crisis Readiness: Effectiveness of Interdisciplinary Emergency Drills

Caleb Miller, BSN, SRNA & Collin Sheehan, BSN, SRNA
Southern Illinois University Edwardsville

PROBLEM INTRODUCTION



PROJECT METHODS

- Meeting with stakeholder to identify problem/need
- Proposal of project and objectives to stakeholder
- Review of literature and current evidence-based guideline
- Created and distributed Powerpoint
- Created and ran a mock scenario
- Aimed to educate, improve preparedness in staff, and encourage better patient outcomes
- Evaluation of project via anonymous surveys
- Review of literature and current evidence-based guideline

IMPACT ON PRACTICE

Project Outcomes & Impact

Simulation Works

- High-fidelity training for rare, high-risk events (MH)

Improves Performance

- ↑ Clinical competence & confidence
- ↑ Team communication & cohesion

Why It Matters

- Reinforces knowledge retention
- Strengthens crisis response skills

Sustained Impact

- Ongoing MH preparedness
- Safer, effective patient care

CONCLUSIONS

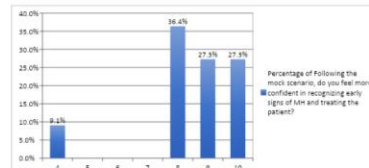
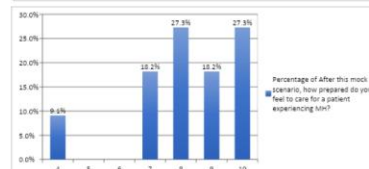
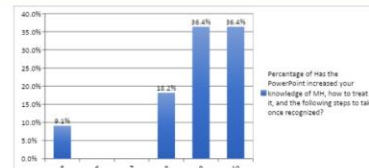
Key Insights & Future Directions

LITERATURE REVIEW

Malignant Hyperthermia (MH)

Pathophysiology	Diagnosis	Treatment
<ul style="list-style-type: none"> Genetic mutation (RYR1 / CACNA1S) → uncontrolled Ca²⁺ release Sustained muscle contraction → hypermetabolic state ↑ CO₂ production, ↓ O₂ consumption, heat generation Leads to acidosis, hyperkalemia, rhabdomyolysis 	<ul style="list-style-type: none"> Primarily clinical during/after anesthesia Early signs: ↑ End-tidal CO₂, ↑ Tachycardia, ↑ Muscle rigidity Late signs: Hyperthermia, ↑ Acidosis, ↑ Arrhythmias Confirmatory tests: <ul style="list-style-type: none"> Caffeine-Halothane Contracture Test Genetic testing (RYR1 / CACNA1S) 	<ul style="list-style-type: none"> Discontinue triggering agents Dantrolene 2.5 mg/kg IV (repeat as needed) Hyperventilate with 100% O₂ Active cooling (ice packs, IV fluids) Treat complications (Hyperkalemia, Acidosis) ICU monitoring ≥ 24 hours

EVALUATION



Limitations & Barriers	Impact on Practice	Significance & Sustainability
<ul style="list-style-type: none"> Small sample size limits generalizability of findings Absence of anesthesia providers during drills 	<ul style="list-style-type: none"> Enhanced provider readiness Improved team cohesion and confidence Reinforced knowledge retention on critical MH response 	<ul style="list-style-type: none"> Expand participation beyond Cath Lab Integrate MH training hospital-wide Promote ongoing education & competency



References