



***NorthShore University HealthSystem  
School of Nurse Anesthesia  
&  
DePaul University School of Nursing  
2016 DNP Projects***

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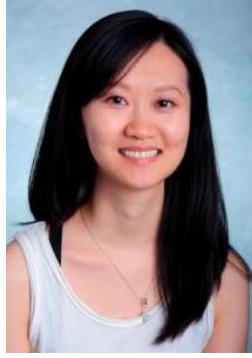
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**BETTY MESTOUSIS MSN, RN**



**MINNIE ZHOU BSN, RN**

### ***ANESTHESIA COST AWARENESS PROJECT: PRICE LIST OF COMMON ANESTHETIC DRUG***

#### **BACKGROUND**

Anesthesia providers have full access to medications to administer anesthesia, yet many providers are not aware of the costs of the medications that are administered.

#### **PURPOSE**

To examine the effects of providing a price list for the common anesthetic drugs in the operating room, to determine if a price list will change cost awareness among anesthesia providers, and to assess provider's attitude toward price list intervention.

#### **METHODS**

Descriptive comparative research study that uses a pre-intervention survey to assess if the anesthesia providers have a knowledge base of the cost for the anesthetic medications. A price list is placed in the operating room. A follow-up survey assesses the anesthesia providers' knowledge of medication cost and the attitude about cost saving in anesthesia practice.

#### **RESULTS**

26 participants were included in this study. Participants who completed the pre-survey included two anesthesiologists (8%), seventeen CRNAs (65%), three SRNAs (12%), one anesthesia resident physician (3%), and three unidentified participants (12%). There were 23 surveys completed in the post-survey group. Two (9.5%) were from anesthesiologists, fifteen (71%) were from CRNAs, three (14%) were from SRNAs, and one (5.5%) was an unidentified participant.

#### **CONCLUSIONS**

Anesthesia providers improved their knowledge for the correct cost of medications from 2.6 to 3.8 after the price list was intervened.



**COURTNEY GIBNEY BSN, RN**

***A NEEDS ASSESSMENT FOR  
THE DEVELOPMENT OF THE  
TIME ANESTHESIA HANDOFF  
TOOL***

**BACKGROUND**

Despite a growing awareness that a standardized handoff tool is critical to providing safe and effective patient care, there are limited studies to assess the need for the development of such tools for anesthesia providers.

**OBJECTIVES**

Purpose of this descriptive survey study was 1) to assess the need for a standardized handoff tool for anesthesia providers and 2) to identify the most essential components to develop an anesthesia handoff tool.

**METHODS**

Descriptive survey research design was utilized.

**RESULTS:**

Of 82 responses, 53 (64%) reported that they did not currently use a systematic process during transfer of care for anesthesia. Most (73%) felt they were given inadequate information however, forty (48.8%) rarely gave inadequate information. Forty (48.8%) sometimes discovered something that wasn't discussed. The most frequently provided components were airway type, airway difficulty, analgesia, anesthetic type, invasive lines, patient medical history, procedure, and vital signs. The most frequently received were airway difficulty, invasive lines, medical history, and procedure. The most essential components were airway type, airway difficulty, allergies, anesthetic type, invasive lines, patient medical history, procedure, and vital signs.

**CONCLUSIONS**

Most participants perceive that anesthesia providers currently provide inadequate handoff. The most essential components to include in anesthesia handoff are airway difficulty, invasive lines, medical history, procedure/case-specific concerns, allergies, medications and plan/goals.



**POOJA MEHTA BSN, RN**

***PREOPERATIVE NON-OPIOID  
MEDICATIONS FOR THE  
MANAGEMENT OF POSTOPERATIVE  
PAIN: CREATION OF AN  
EDUCATIONAL MODULE BASED ON  
KNOWLEDGE AND ATTITUD***

**BACKGROUND**

Current clinical studies have shown that preoperative non-opioid medications are an effective method to reduce moderate to severe pain in the postoperative settings, but are not commonly utilized in laparoscopic cholecystectomy patients.

**OBJECTIVES**

Study evaluated knowledge and attitudes of anesthesia providers about the preoperative use of three different non-opioid medications: clonidine, acetaminophen and gabapentin for the treatment of postoperative pain in laparoscopic cholecystectomy patients.

**DESIGN**

Descriptive survey research design was used to determine anesthesia providers' knowledge and attitudes regarding preoperative non-opioid medications. A modified evidence based knowledge and attitudes questionnaire was administered to anesthesia providers at the NorthShore University HealthSystem, which included physicians and nurse anesthetists.

**RESULTS**

Study found that physicians and more experienced anesthesia providers had a more positive attitude towards the use of preoperative non-opioid medications. The findings also suggested that the many anesthesia providers had a lack of knowledge regarding gabapentin and clonidine. Based on the survey results, an educational module was developed focusing on the gap in knowledge and attitude of anesthesia providers towards gabapentin and clonidine as a choice of preoperative medication for postoperative pain control in laparoscopic cholecystectomy patients.

**CONCLUSION**

Findings helped identify gaps in knowledge and pervasive attitudes towards preoperative non-opioid medications among anesthesia providers to guide the development of an educational module to address these deficiencies.



***ANESTHESIA PROVIDERS'  
KNOWLEDGE AND ATTITUDES ON  
FIRE RISK ASSESSMENT DURING  
TIME-OUT IN THE OPERATING ROOM***

**KATHRYN COLETTO BSN, RN**

**BACKGROUND**

Operating room fire is included in a category of “never-events” which are preventable and often result in poor patient outcomes. However, there is currently no standard policy amongst industry organizations regarding the inclusion of fire risk in the operative time out, though all organizations recognize that the risk exists.

**OBJECTIVES**

The purpose of this descriptive study was to examine the knowledge and attitudes of anesthesia providers on fire risk assessment during time-out in current clinical practice.

**DESIGN**

A descriptive, cross-sectional design was used.

**METHODS**

Active members of the Illinois Association of Nurse Anesthetists were asked to participate in an online survey. A modified online survey on demographics, knowledge and attitudes on fire risk assessment during operating room time out was sent to the potential participants.

**RESULTS**

A total of 140 participants completed the survey in this study. The participants reported that they had positive attitudes and higher rates of knowledges on fire risk assessment during time-out. In the knowledge subscale, the dissemination of information related to fire risk assessment during time out has the lowest mean score among all other variables.

**CONCLUSION**

The overall knowledge and attitudes reported by CRNAs and SRNAs related to fire risk assessment during time out was found to be largely positive amongst the participants. However, they still need more education on how to disseminate key information related fire risk assessment during operating room time out to improve fire safety practices for health care professionals in the operating room.



***REVERSAL OF NEUROMUSCULAR  
BLOCKADE USING NEOSTIGMINE:  
DEVELOPMENT OF AN EVIDENCE-  
BASED PRACTICE PROTOCOL***

**KYLE MAYER BSN, RN**

**BACKGROUND**

A large population of patients entering the post-operative anesthesia care unit (PACU) with residual neuromuscular blockade (NMB). Patients with residual NMB have a higher likelihood of respiratory failure. Neostigmine is a commonly used agent to reverse NMB. Little is known about the factors that affect its use and dosing.

**OBJECTIVES**

The purpose of this study is to identify the factors considered by anesthesia providers when using neostigmine to reverse NMB. The findings from this study and current evidence were used to formulate evidence-based guidelines for NMB reversal.

**METHODS**

This study utilized a descriptive, online survey design. A validated, investigator-developed online survey that examined the factors considered by anesthesia providers when using neostigmine.

**RESULTS**

Descriptive statistics were used to describe the sociodemographics of respondents and the online responses to the survey. Chi square statistics was used to examine differences in factors utilized by anesthesia providers using neostigmine.

**CONCLUSIONS**

This study revealed various factors that anesthesia providers consider when using neostigmine including: quantity and quality of muscle twitches present during train-of-four monitoring, twitches with and without fade, and time elapsed since the last dose of neuromuscular blocking agent. No statistically significant differences were found between factors considered for neostigmine use between CRNAs and years of experience, practice type, institutional settings, and educational level.



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**ALAINA BECKER MSN, RN**



**BRITTANY SCHULER BSN, RN**

### ***EFFECT OF CONVENIENCE ON PARTICIPATION IN RECYCLING BY ANESTHESIA PROVIDERS IN THE OPERATING ROOM: A PILOT STUDY***

#### **BACKGROUND**

Anesthesia providers are in a position to contribute to the financial and environmental health of their institution through recycling.

#### **OBJECTIVES**

A barrier to participation in recycling by anesthesia staff as identified by the researchers of this study is a lack of convenience.

#### **METHODS**

Researchers sought to measure the effect of convenience on participation in recycling by anesthesia providers working in the seventeen operating room suites at NorthShore University HealthSystem Evanston Hospital.

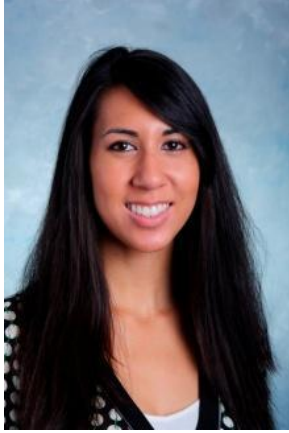
The researchers conducted a pilot study implementing a program to enhance the convenience of recycling. Participation, measured by weight in kilograms (kg) of recycled material, was compared pre- and post-intervention.

#### **RESULTS**

Study demonstrated a 409% increase in recycling participation following distribution of an informational email, posting of recyclable materials in each room, and placement of convenient recycling receptacle on each anesthesia cart. Paired *t*-test for total material collected as well as for average waste per case collected in the pre- and post-intervention periods revealed statistically significant results.

#### **CONCLUSIONS**

Convenient placement of a receptacle for recycling is positively correlated with an increase in recycling participation among anesthesia providers at this institution.



***EVALUATION OF PERIOPERATIVE  
INTRAVENOUS FLUID  
ADMINISTRATION DURING ADULT  
TOTAL HIP ARTHROPLASTY  
PROCEDURES AND DEVELOPMENT  
OF A GOAL-DIRECTED THERAPY  
PROTOCOL***

**AMANNDA CASPER BSN, RN**

**BACKGROUND**

Variations in intravenous fluid (IVF) administration can result in unwarranted intraoperative volume replacement and suboptimal patient outcomes. This is especially important in patients undergoing moderate risk surgery, such as total hip arthroplasty (THA).

**OBJECTIVES**

Evaluate current IVF administration practices during adult THA procedures, and to develop a goal-directed therapy (GDT) protocol in order to better standardize and optimize future fluid administration practices at the University of Illinois Chicago Hospital and Health Sciences System (UIC).

**METHODS**

Retrospective chart review was conducted. Intraoperative clinical data was extracted from electronic medical records of patients undergoing THA procedures at UIC over a one year period. Variables extracted from each case included age, ASA class, gender, height, weight, body mass index, duration of surgery, urine output, estimated blood loss, starting hemoglobin, total IVF given, total colloid given, total packed red blood cells given, use of an arterial line, and type of anesthesia.

**RESULTS**

Ninety-two adult THA cases were obtained for analysis. Total amount of IV fluid administered during a THA procedure ranged from 1,100 to 11,600ml, with most between 1,100 and 5,000 ml. The widest range of IV fluid administration occurred during cases with 1,500ml of estimated blood loss. The total IV fluid in ranged from 2,250 and 8,800ml. No significant differences were found between net IVF administration and urine output, gender, ASA status, and anesthesia type.

**CONCLUSIONS**

There is a wide range of intraoperative IV fluid administration during THA procedures that does not appear to be significantly related to patient or surgical factors. Therefore, a goal directed therapy (GDT) protocol was developed to be utilized within the UIC department of anesthesia. The protocol, modeled after the Ramsingh protocol, serves as a starting point to standardize intraoperative IV fluid administration and optimize patient fluid response in future THA procedures at UIC.

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**GRANT BALBARIN BSN, RN**



**CHERYL BOTSFORD BSN, RN**

### ***KNOWLEDGE AND ATTITUDES REGARDING CURRENT TECHNOLOGY TO PREVENT DRUG DIVERSION***

#### **BACKGROUND**

Drug diversion is a problem in healthcare, but particularly among anesthesia providers. An impaired provider endangers their patient's safety.

#### **OBJECTIVES**

The purpose of this project was to assess Student Registered Nurse Anesthetists (SRNA) and Certified Registered Nurse Anesthetists (CRNA) knowledge and attitudes about current interventions using technology to prevent drug diversion.

#### **METHODS**

A descriptive survey was sent to current Illinois Association of Nurse Anesthetists members that included SRNAs and CRNAs. The survey was a modified version of the Evidence-based nursing tool originally developed by Upton and Upton (2006) and was coded utilizing a Likert scale. Data were collected from a sample of 145 SRNAs and CRNAs. Knowledge regarding drug diversion was in the neutral. Responses to attitudes regarding drug diversion neutral. Attitudes were more positive among females. In addition, attitudes were more positive among those with Doctoral degrees than those with Master's degrees.

#### **RESULTS**

Analysis of the survey results found that overall, there were neutral opinions of knowledge and attitudes on drug diversion.

#### **CONCLUSIONS**

Recommendations for future research include surveying a larger sample size as well as shortening the survey. Developing an educational tool in the future may help to improve knowledge and increase positive attitudes on the topic of drug diversion.



***DEVELOPMENT OF AN EDUCATIONAL SEMINAR ON COPING WITH STRESS FOR NURSE ANESTHESIA TRAINEES***

**BECKY BELK BSN, RN**

**BACKGROUND**

Stress is the body's way of responding to something out of the norm, or a stressor. Stressors affect nurse anesthesia trainees (NATs) to unpredictable levels of stress.

**OBJECTIVES**

The purpose of this study was to explore stressors experienced; ways to cope with stressors as perceived by NATs, if there was any association between socio-demographic variables to the various ways of coping with stress, and development of a one-hour seminar on different ways to cope with stress during a nurse anesthesia program.

**METHODS**

A survey was distributed to members of the Illinois Association of Nurse Anesthetists (IANA), which identified demographic information, stressors, and coping mechanisms experienced by anesthesia providers while enrolled in anesthesia school.

**RESULTS**

Results from 165 respondents indicated no statistically significant relationship between demographics and coping mechanisms. Most commonly reported stressors included a change in financial income, a decrease in work hours, recreational activities, sleeping, and eating habits.

**CONCLUSIONS**

background information on the importance of identifying stressors, stress, and coping mechanisms was translated into an educational seminar for future NATs.

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**JAMIE NATALE BSN, RN**



**CAITLIN PIERCHALA BSN, RN**

### ***EVALUATING SITUATION AWARENESS IN THE NURSE ANESTHESIA TRAINEE DURING HIGH FIDELITY SIMULATION***

#### **BACKGROUND**

Nurse anesthetists provide anesthesia care for patients within a complex and dynamic environment. Errors and adverse events during anesthesia have declined greatly over the decades, yet when errors occur they are devastating.

#### **OBJECTIVES**

The purpose of this project was to develop anesthesia provider situation awareness skills training for adverse events and develop skills to provide excellent care to patients.

#### **METHODS**

A situation awareness seminar was developed from a review of relevant literature. A mixed methods research design was utilized for this pilot study. Nurse anesthesia trainees (NATs) were recruited and divided into two groups. Group A received the situation awareness seminar and then participated in a high fidelity simulation where their situation awareness skills were scored. Group B participated in a high fidelity simulation where their situation awareness skills were scored and then attended the situation awareness seminar.

#### **RESULTS**

Results of the Situation Awareness Global Assessment Technique survey were not statistically significant. Questions relating to perception were most frequently missed, indicating an area for future situation awareness training. Additionally, post assessment acceptability survey questions scored high means, with narrow standard deviations indicating favorability of the seminar and simulation by NATs.

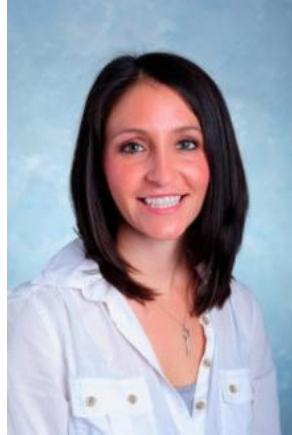
#### **CONCLUSIONS**

The favorable responses on the Acceptability survey and the correlation of findings with other research on situation awareness in nursing demonstrate that this study design is sustainable and feasible on a larger scale.

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**MISHAWNA BOHNER BSN, RN**



**ERICA KUBIS BSN, RN**

### ***EFFECTIVENESS OF VIDEO SIMULATION TRAINING TO INCREASE KNOWLEDGE AND CONFIDENCE IN THE STUDENT REGISTERED NURSE ANESTHETIST***

#### **BACKGROUND**

Despite the many studies showing the effectiveness of video based learning into traditional based learning methods, there are few web-based anesthesia specific platforms with reviewable audio-visual outlets for student registered nurse anesthetists (SRNA).

#### **OBJECTIVES**

The purpose of this study was to assess the effectiveness of a newly developed web-based clinical simulation education for SRNA's, with specific emphasis in the areas of perceived confidence and knowledge enhancement in bag-valve-mask (BVM) ventilation video education.

#### **METHODS**

A single group pre-test post-test design was used to compare the perceived effectiveness of video simulation education. A convenience sampling approach was used obtain student volunteers in their second year of graduate school as SRNA's at NorthShore University HealthSystem School of Nurse Anesthesia in Evanston, Illinois.

#### **RESULTS**

Eighteen SRNA's participated in the single group pre-test post-test design to compare the perceived effectiveness of video simulation education. Paired t test results suggest web based simulation video intervention significantly increased the SRNA's perceived knowledge and confidence, as well as their opinion on video learning. The SRNAs demonstrated improved test scores after watching the web based simulation

#### **CONCLUSIONS**

Implementation of the BVM ventilation video increased SRNAs knowledge and confidence on the BVM ventilation skill, and improved their opinion on video learning in the educational setting. Web-based anesthesia specific platforms with reviewable audio-visual outlets for student registered nurse anesthetists increase clinical skill competency and confidence