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*DePaul University School of Nursing*

*2019 DNP Projects*

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*Pre-Anesthetic Evaluation: A Needs Assessment of Student Registered Nurse Anesthetists Transitioning to Clinical Practice*

**BACKGROUND**
The pre-anesthetic evaluation (PAE) is a critical part of providing anesthesia, and an important component of patient safety. Student registered nurse anesthetists (SRNAs) are often required to independently perform the PAE upon entering their clinical training.  Stress, anxiety, doubt, a novel environment and time constraints can lead to a lack of confidence and competence at this time. These barriers can result in an inefficient and inadequate assessment.

**OBJECTIVES**
The purpose of this qualitative study was to conduct a needs assessment to determine the overall readiness of SRNAs to independently perform a thorough PAE upon entering clinical residency.

**METHODS**
A focus group was conducted and qualitative data software was used for thematic analysis. Results: Four main themes were identified from the focus group data. These were barriers to performing the PAE, emotions experienced, facilitators for performing the PAE, and the SRNA's experience of their role transition.

**CONCLUSIONS**
These results provide topics to address for educators and students as they prepare to enter the clinical portion of their education. The ability to practice the PAE prior to entering clinical residency as well as using a reference guide are beneficial to SRNAs as they start their clinical residency. These tools can help decrease stress and anxiety allowing for a more consistent, thorough, and efficient PAE.

**BRIANNA CAMPOS BSN, RN**



**DANIELLE BALZANO BSN, RN**

*EVALUATING THE EFFECTIVENESS OF VIDEO-BASED EDUCATION OF VENOUS GAS EMBOLISM FOR NURSE ANESTHESIA TRAINEES*

**BACKGROUND**

Video-based learning is a growing method being utilized to train nurse anesthesia trainees (NAT) in crisis management, such as a venous gas embolism . Use of this educational modality may improve crisis management skills, competence, and confidence in the NAT.

**OBJECTIVES**

The purpose of this project was to evaluate the effectiveness of an educational video in enhancing the appropriate crisis management of VGE among NATs as measured by their knowledge and confidence levels.

**METHODS**

A quasi-experimental pretest-posttest design on a single group of participants was utilized for this project. A total of 14 first year NATs were recruited from NorthShore University HealthSystem School of Nurse Anesthesia and participated in this study. An instructional video that simulates the proper management of VGE, a knowledge assessment tool (KAT) to assess non-technical skills knowledge pertaining to VGE, and a student confidence survey were developed for implementation of this study.

**RESULTS**

A Wilcoxon Signed Matched-Pairs Ranks Test demonstrated that the median post-test scores were statistically higher that the median pre-test scores between pre and post-instructional video [$Z$= -3.301; $p$=0.001 (2-tailed)]. The knowledge questionnaire had an adequate post-test Kuder-Richardson-20 (KR-20) coefficient value =0.678.

**CONCLUSIONS**

NATs that participated in the study gained knowledge and confidence from pre and post video implementation. The mean scores improved in every knowledge category (prevention, recognition, decision-making, and prioritization) and confidence category (identification, management, and learning crisis management).

**LISA BROWN, BSN, RN**

**SAAD IQBAL BSN, RN**

*CULTURAL COMPETENCE IN STUDENT REGISTERED NURSE ANESTHETISTS IN ILLINOIS*

**OBJECTIVES**
To determine the level of perceived cultural competence in student registered nurse anesthetists (SRNAs) in Illinois and make educational recommendations.

**METHODS**
A descriptive, cross-sectional study was completed using The Clinical Cultural Competency Questionnaire (CCCQ) to evaluate the perceived level of cultural competence among SRNAs in Illinois. Four domains of clinical cultural competency [knowledge, skills, attitudes (awareness), and encounters] were evaluated and reported.

**RESULTS**
The survey response rate was 16.7% (N=57). A statistically significant positive correlation was observed between cultural knowledge and age (*p=0.03)*. The Kruskal-Wallis H Test revealed a statistically significant difference in cultural knowledge between students attending a nurse anesthesia program in suburban Northeastern Illinois and students attending a large, urban university in the city of Chicago, with CCCQ knowledge *Mean Rank* scores of *38.44 and 13.77,* respectively. The overall level of perceived clinical cultural competence of SRNAs was low (*M*=3.13; *SD*=.54*; Range*=2.17 to 4.89) in this study.

**CONCLUSIONS**
SRNAs need additional cultural education and training in their program of study to enhance their perceived level of cultural competence and to deliver culturally competent anesthesia care. The desire to become culturally competent coupled with deficient levels of cultural knowledge among SRNAs merits further work.

**CATHERINE CARMAN BSN, RN**



**VICTORIA ROSINSKI BSN, RN**

*CRNAS' AWARENESS AND KNOWLEDGE OF HERBAL SUPPLEMENTS AND THEIR PERIOPERATIVE INTERACTIONS*

**BACKGROUND**
The everyday use of herbal supplements has increased in popularity over the past three decades; however, the majority of patients fail to report taking supplements and many anesthesia providers do not realize the potential risks associated with consuming herbal supplements during the perioperative period.

**OBJECTIVES**
1. Identify CRNAs' current attitudes towards and knowledge of herbal supplements. 2. Assess if CRNAs' current practice includes the preoperative assessment of herbal supplements. 3. Examine the impact of an online learning module on CRNAs' knowledge of herbal supplements and their perioperative interactions.

**METHODS**
A descriptive survey design in the form of a pre and posttest was used to assess the effect of an investigator-developed online educational handout. Survey participants were recruited through the Illinois Association of Nurse Anesthetists.

**RESULTS**
Of the 140 survey responses, 111 were valid for data analysis. CRNAs attitudes regarding herbal supplements improved greatly; on the posttest, more CRNAs reported that they would now assess for herbal supplements preoperatively. The Cohen's d test comparing the pre and posttest means was -0.89, which showed a large effect. The pre and posttest mean scores had a p value of 0.000, which is statistically significant. The learning module was not as effective at improving CRNA knowledge of particular supplements. The pretest and posttest Cronbach α coefficients were 0.798 and 0.915 respectively; this increase supports the validity of the teaching tool. However, The Cohen's d test when comparing the pre and posttest means was -0.11, which infers a very small effect.

**CONCLUSIONS**
While this project was proficient in altering CRNAs' beliefs and attitudes regarding the importance of herbal supplement assessment, it remained deficient in improving knowledge of particular supplements. Future studies should be aimed at improving knowledge of specific herbal supplement

**STEFANIE GLASGOW BSN, RN**          **LINDSEY HARRIS BSN, RN**

*WHAT WE SAY MATTERS: A SURVEY OF ANESTHESIA PROVIDERS' KNOWLEDGE AND BELIEFS*

**BACKGROUND**
Pain is a serious concern and fear of patients. Due to the Joint Commission's introduction of standards to address undertreatment of pain, it is now a focus of healthcare providers. Emerging research is focused on language in assessing pain.

**METHODS**
This study investigated the knowledge gap among anesthesia providers on positive language and pain assessment. The study objectives were to conduct a survey of Illinois Association of Nurse Anesthetists (IANA) members' current knowledge and beliefs on Positive Language and the Nocebo Effect related to patient outcomes, and to educate anesthesia providers with an evidence-based fact sheet. The fact sheet and Qualtrics survey were created by the authors and distributed via email. Anonymity was maintained and consent was implied by completion of the survey.

**RESULTS**
Data was analyzed with IBM SPSS Statistics. Key findings included presence of a knowledge gap, increased scores after reading the fact sheet, and a difference in baseline knowledge between practice settings as evidenced by an H statistic of 10.457, df=2 and a p value of 0.005.

**CONCLUSIONS**
This study is the first to report anesthesia providers' knowledge toward Positive Language and the Nocebo Effect and lead the way to the creation of a comfort scale.

**NEAL JOHNSON BSN, RN**

**AMANDA LIPA BSN, RN**

*IMPROVING KNOWLEDGE AND SELF-EFFICACY IN STUDENT REGISTERED NURSE ANESTHETISTS THROUGH SIMULATION BASED LEARNING ON PULMONARY ARTERY CATHETER INSERTION*

**BACKGROUND**

Simulation is increasingly being used within the educational setting for teaching invasive procedures but there is a lack of research evaluating the us for teaching pulmonary artery (PA) catheter insertion.

**OBJECTIVES**

The purpose of this study was to assess how student registered nurse anesthetists (SRNAs) knowledge and confidence is effected by viewing an educational video and participating in a low-fidelity simulation.

**METHODS**

A single group pre-test and post-test study was developed. Second year SRNAs completed a knowledge assessment tool and a confidence survey. After viewing a video and completing a hands on low-fidelity simulation, each participant completed another knowledge assessment tool and confidence survey.

**RESULTS**

On the pre-study questionnaire 95.5% were not confident in their ability to place a PA catheter and on the post-study questionnaire this decreased to 18.2%. The mean score of the knowledge assessment tool improved from 7.73 ($SD$ = 3.01) to 10.77 ($SD$ = 3.29) ($P$ = 0.001) following viewing the video and performing the low-fidelity simulation.

**CONCLUSIONS**

The findings of this study suggest watching an educational video and participating in a hands-on simulation can significantly increase both knowledge and confidence of those learning the skill of PA catheter insertion. Due to the positive results demonstrated in this study, the methodology used could be applied for teaching other anesthesia procedures.

**THOMAS BOYCE BSN, RN**

*EXAMINATION OF REFLECTIONS FROM NURSE ANESTHESIA TRAINEE VOLUNTEERS IN HONDURAS*

**BACKGROUND**
There is a lack of surgical and anesthesia services in low-income and middle-income countries (LMICs) which creates an increased burden of disease from otherwise surgically treatable conditions. Nurse anesthesia trainees (NATs) can serve to fill this lack of anesthesia services while also gaining real life experience that can enhance their training.

**OBJECTIVES**
To identify common experiences and barriers among NATs that have volunteered on a surgical brigade.

**METHODS**
A retrospective thematic analysis of 23 written reflections of NATs who participated in a one-week volunteer surgical brigade to Honduras, from 2012-2017, was done to identify common barriers and experiences of NATs volunteering in Honduras.

**RESULTS**
Utilizing content analysis, eight different themes were identified among NAT experiences with volunteering in Honduras. These themes include preparation, prior strengths and experiences, perspective of healthcare access, challenges, changed personal view, increased competence in anesthesia practice, positive experience, and advice to others.

**CONCLUSIONS**
The results provide information that can serve as a guide for NAT participation in volunteer surgical brigades and development of NAT volunteer surgical brigades by nurse anesthesia programs.

**CHAMPAGNA CONNER BSN, RN**



**AJA RIVERA BSN, RN**

*PEER MENTORSHIP: STUDENT-REPORTED OUTCOMES AMONG STUDENT REGISTERED NURSE ANESTHETISTS ENROLLED IN THE DNP PROGRAM*

**BACKGROUND**
Student Registered Nurse Anesthetist (SRNAs) experience high levels of stress and anxiety while enrolled in this highly competitive program; a peer mentorship program can assist SRNAs to manage stress, anxiety and preserve well -being.

**PURPOSE**
The purpose of this project is to evaluate if a peer mentorship program can be effective at diminishing stress & anxiety, social isolation, and enhancing preparedness amongst the first and second-year SRNAs enrolled in the NorthShore University HealthSystem School of Nurse Anesthesia (NSUHS SONA).

**METHODS**
This quantitative, descriptive, cross-sectional study design involved three cohorts of SRNAs. Participants communicated through personal interaction and Facebook discussion posts, then completed a post participation survey with Likert-scale responses to evaluate the program's outcome on stress and anxiety, social isolation, preparedness for didactic and clinical rotations, and the perceived effectiveness of mentorship

**RESULTS**
Twenty-one SRNAs participated in this study. Third-year SRNAs had (n=11), second-year SRNAs had (n=7), and first-year SRNAs had (n=3). The participants in this mentorship program reported positive effects and also stated that the peer mentorship program should be continued at NSUHS SONA.  The most positive results were found in the areas of emotional support and preparedness.

**CONCLUSIONS**
This research study corroborates the current body of evidence in the literature that mentorship is beneficial to doctoral SRNAs. A well-structured and well-planned mentorship program should be integrated into the nurse anesthesia curriculum.

**KELSEY LEVEILLE BSN, RN**



**KELSEY SIMOENS BSN, RN**

*ANESTHESIA ALARM FATIGUE POLICY RECOMMENDATIONS: THE PATH OF DEVELOPMENT*

**BACKGROUND**

Healthcare workers are inundated with alarms every minute, yet 80-95% of these alarms do not result in provider intervention. False alarms cause a "cry-wolf" phenomenon among providers resulting in cognitive stress and workflow interruptions.

**OBJECTIVES**

A cross-sectional design was used to examine the perceptions of alarm fatigue and alarm management of Certified Registered Nurse Anesthetists (CRNAs), Student Registered Nurse Anesthetists (SRNAs) and Anesthesiologists. Survey responses were used in conjunction with a policy development table based on evidence and current endorsements in the literature to guide proposed policy recommendations for the anesthesia department at NorthShore University HealthSystem (NSUHS).

**METHODS**

A Likert-scale questionnaire was sent to approximately 150 anesthesia providers at NSUHS through an online survey.

**RESULTS**

Data analysis revealed anesthesia trainees and providers with less total years in practice and less clinical experience exhibit statistically significant ($p$=0.011), higher levels (10.60%) of alarm fatigue and associated provider distress. A $p$ value of 0.007 indicated students appreciate significantly higher levels (11.76%) of alarm fatigue than their CRNA colleagues.

**CONCLUSIONS**

Future work involves adoption and implementation of the policy and evaluation to determine if it improved provider workflow, their alarm fatigue experience or patient safety.

**LINDSEY KILSDONK BSN, RN**



**MINDY RUAN MSN, RN**

*COST DIFFERENCES BETWEEN SUGAMMADEX AND NEOSTIGMINE USE IN NON-OPERATING ROOM ANESTHESIA CARE*

**BACKGROUND**

Medication costs of sugammadex and neostigmine with glycopyrrolate have been studied in the operating room setting but there is a lack of information regarding the usage and medication costs of sugammadex and neostigmine with glycopyrrolate for non-operating room anesthesia care (NORA).

**OBJECTIVES**

Cost-savings studies comparing neostigmine and sugammadex are limited. Data on the usage of sugammadex and neostigmine with glycopyrrolate from NorthShore University HealthSystem was examined

**METHODS**

A retrospective chart review was conducted over a 12-month period aimed at examining the cost associated with the administration of neostigmine with glycopyrrolate versus sugammadex for anesthesia in NORA locations. This study consisted of 526 patient charts that fulfilled the inclusion criteria.

**RESULTS**

Correlational data analysis revealed that there was a weak positive correlation between ASA physical status and use of sugammadex (Spearman's *rho = 0.0117; p* = 0.007). There was also a statistically significant difference in the administration between NORA departments, notably in the electrophysiology laboratory ($p$ = 0.000). Due to fluctuating costs of sugammadex, neostigmine, and glycopyrrolate, cost analysis did not reveal sugammadex as a cost-effective option for neuromuscular blockade reversal in NORA locations.

**CONCLUSIONS**

With higher risks associated with performing surgical procedures in NORA locations, there was a slight correlation between the use of sugammadex and ASA physical status classification. Electrophysiology laboratory lab was the only department where sugammadex was administered more frequently than neostigmine