



***NorthShore University HealthSystem
School of Nurse Anesthesia
&
DePaul University School of Nursing
2017 DNP Projects***



1. **STEPHEN REIMERS, BSN, RN**
Evaluation of Entry-Level Nurse Anesthesia Educational Programs: A National Survey
Committee: Karen Kapanke CRNA, DNP-Chair; Pamela Schwartz CRNA, DNP.....4

2. **ANDREW GAUSE, BSN, RN AND ZAIN REHMAN, BSN, RN**
Evaluation of a Video-Based Left Ventricular Assist Device Education Program for Certified Registered Nurse Anesthetists
Committee: Karen Kapanke CRNA, DNP-Chair; Julia Feczko CRNA, DNP.....5

3. **AMBER MUHLHAN BSN, RN & CLAR SARANGAY BSN, RN**
Current Use of Muscle Relaxants and Laryngeal Mask Airways: A Survey of Anesthesia Providers' Knowledge and Beliefs for Best Practice
Committee: Julia Feczko CRNA, DNP –Chair; Pamela Schwartz CRNA, DNP.....6

4. **LAURA MAJEWSKI BSN, RN & PAULINE TSELONIS BSN, RN**
Task Management Training for Recognition, Prioritization and Decision Making for the SRNA
Committee: Julia Feczko CRNA, DNP –Chair and Susan Krawczyk CRNA, DNP.....7

5. **RACHEL KOZLOWSKI BSN, RN & JENN KUDIRKA BSN, RN**
Video Simulation as an Educational Strategy to Increase Knowledge and Perceived Knowledge in Novice Nurse Anesthesia Trainees
Committee: Pamela Schwartz CRNA, DNP-Chair; Julia Feczko CRNA, DNP;
Karen Kapanke CRNA, DNP.....8

6. **KIM HOMA BSN, RN & JACKIE KUHN BSN, RN**
CRNA's Knowledge and Attitudes Regarding Acupressure as an Adjunct to Postoperative Nausea and Vomiting Prevention
Committee: Pamela Schwartz CRNA, DNP-Chair, Young-Me Lee RN, PhD.....9

CLASS OF 2017 DNP PROJECTS

7. RACHEL FERRAL BSN, RN & ANGELA MEYER BSN, RN
A Needs Assessment for Development of an Interpreter Services Educational Tool for CRNAs
Committee: Young-Me Lee RN, PhD-Chair; Bernadette Roche CRNA, EdD.....10

8. KELLY LANNERT BSN, RN & DULCIE SCHIPPA BSN, RN
Intra-operative Awareness with Recall under General Anesthesia
Committee: Bernadette Roche CRNA, EdD-Chair; Karen Kapanke CRNA, DNP; Joseph Tariman
PhD, ANP, BC.....11

9. AMBER LINDSAY BSN, RN & ELISA RUE BSN, RN
A Standardized Electronic Handover Report for Anesthesia Providers
Committee: Julia Feczko CRNA, DNP –Chair; Mark Deshur M.D.....12

10. ALISON KARMANIAN BSN, RN
Intraoperative Blood Pressure and Effect of Volatile Anesthetic in Brain Dead Organ Donors
Committee: Pamela Schwartz CRNA, DNP-Chair; Michael Harmon BSN, RN, CPTC;
Jeff Matson CRNA, MS.....13

11. ALYSE VORONOV BSN, RN & NICOLE ZEPPA BSN, RN
*Pediatric Emergence Delirium Assessment and Documentation: Current Practice and Perceived
Barriers*
Committee: Susan Krawczyk CRNA, DNP-Chair; Mary Ann Zervakis–Brent CRNA, DNP; Polina
Voronov M.D.....14



STEPHEN REIMERS, BSN, RN

***EVALUATION OF ENTRY-LEVEL
NURSE ANESTHESIA EDUCATIONAL
PROGRAMS: A NATIONAL SURVE***

BACKGROUND

The requirement for all nurse anesthesia educational programs to transition to offering practice doctorates by January 1, 2022 signals a turning point in nurse anesthesia education.

OBJECTIVES

The primary goals of this project were to determine the most significant barriers nurse anesthesia programs faced when transitioning offering a practice doctorate and to assess how the transition affected various program functions and outcomes.

METHODS

An electronic survey was sent to the program administrators of all nurse anesthesia educational programs regarding potential barriers about transitioning to a practice doctorate, as well as program demographic, program function, and program outcome questions.

RESULTS

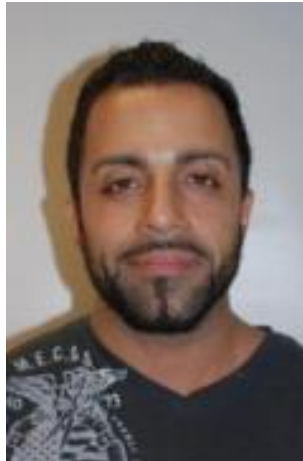
The highest rated barrier to transitioning to a practice doctorate was “managing student DNP projects”. Nearly every program administrator reported an increase in faculty workload after transitioning to a doctorate program. Half of the DNP programs reported a decrease in the first-time National Certification Exam pass rate since transitioning to a practice doctorate.

CONCLUSIONS

Professional groups could greatly assist programs in the transition to offering practice doctorates by providing greater support for managing student DNP projects. Programs that transition to offering practice doctorates should develop strategies to prevent a decline in first-time pass rates of the National Certification Exam



ANDREW GAUSE, BSN, RN



ZAIN REHMAN, BSN, RN

***EVALUATION OF A VIDEO
BASED LEFT VENTRICULAR
ASSIST DEVICE EDUCATION
PROGRAM FOR CERTIFIED
REGISTERED NURSE
ANESTHETIST***

BACKGROUND

Video-based educational programs have been proven as a more effective means of instruction than traditional lecture and paper-based formats. Therefore, a video-based left ventricular assist device (LVAD) program was developed to address an identified knowledge gap for the NorthShore University HealthSystem (NSUHS) certified registered nurse anesthetists (CRNA) and student registered nurse anesthetists (SRNA).

OBJECTIVES

The purpose of this quality improvement project (QIP) was to pilot a newly developed educational video intervention and evaluate the CRNAs' and SRNAs' pre- and post-intervention knowledge difference of the LVAD and the LVAD patient population.

METHODS

The sample consisted of 13 CRNAs and SRNAs from NSUHS and the NSUHS School of Nurse Anesthesia. Pre- and post-tests were used and uploaded to Google Forms to maintain anonymity and SPSS was used for data analysis.

RESULTS

Pre-test scores were found to be less than adequate ($M=5.46$, $SD=1.71$). Post-test scores after the educational video intervention did improve ($M=6.46$, $SD=1.90$), however, the results were statistically not significant ($M=1.00$, $SD=1.87$, -0.13 to 2.13 CI 95%, $p=0.078$). The Kuder-Richardson-20 (KR20) reliability coefficient for post-test scores was 0.518, which demonstrated adequate internal consistency for the post-test.

CONCLUSIONS

The results demonstrated that the LVAD educational video interventions did improve post-test scores, when compared to pre-test scores. Although the results were statistically not significant and further large-sample studies are needed, this educational video intervention can be a useful tool to bridge the NSUHS CRNAs and SRNAs knowledge gap of LVADs and the LVAD patient population.



AMBER MUHLHAN BSN, RN



CLAR SARANGAY BSN, RN

***CURRENT USE OF
MUSCLE RELAXANTS AND
LARYNGEAL MASK
AIRWAYS: A SURVEY OF
ANESTHESIA PROVIDERS'
KNOWLEDGE AND
BELIEFS FOR BEST
PRACTICE***

BACKGROUND

Current clinical studies have shown that muscle relaxant use has beneficial effects with laryngeal mask airways; however, knowledge and beliefs differ regarding this practice amongst anesthesia providers.

OBJECTIVES

The purpose of this study was to evaluate the knowledge and beliefs of anesthesia providers about muscle relaxant use with laryngeal mask airways before and after reviewing an evidence-based educational module.

METHOD

A descriptive online survey research design was utilized to determine Illinois Association of Nurse Anesthetist members' knowledge and beliefs regarding muscle relaxant use with laryngeal mask airways.

RESULTS

At pre-test, the study participants had deficient knowledge and negative beliefs regarding the use of muscle relaxants with laryngeal mask airways. After reviewing an evidence-based educational module, the paired t test showed that the study participants demonstrated a statistically significant increase in knowledge and a positive belief towards incorporating muscle relaxants with laryngeal mask airways into their practice ($n=72$; $t=-3.856$; $df=71$; $p < 0.001$). The evidence-based educational module had a medium size effect towards the change in the mean scores for knowledge and beliefs (Cohen's $d=0.45$).

CONCLUSIONS

This study found that study participants have a lack of knowledge and negative beliefs towards muscle relaxant use with laryngeal mask airways prior to an educational intervention. An evidence-based educational module proved to be an effective way to educate providers and alter their negative beliefs related to best practice. There is a need for additional studies that would support a position statement for a standard of practice and policy making for muscle relaxant use with laryngeal mask airways in contemporary anesthesia practice.

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LAURA MAJEWSKI BSN, RN



PAULINE TSELONIS BSN, RN

TASK MANAGEMENT TRAINING FOR RECOGNITION, PRIORITIZATION AND DECISION MAKING FOR THE SRNA

BACKGROUND

Non-technical skills have been identified to be the key determinant of successful anesthesia particularly during crisis management. Task-related non-technical skills, such as recognition, prioritization, and decision-making are essential for safe anesthesia.

Objectives: The purpose is to improve three non-technical skills (recognition, prioritization, and decision-making) in SRNAs new to the clinical setting with the use of an instructional video demonstrating the appropriate management of an airway obstruction during monitored anesthesia care (MAC).

METHOD

A quasi-experimental pre-test and post-test and critical action survey design were used to investigate the effect of a pre-recorded instructional video. A convenience sample of student volunteers in their second or third year of graduate school as SRNAs at NorthShore University HealthSystem School of Nurse Anesthesia.

RESULTS

Wilcoxon Signed Ranks Test demonstrated statistically significant differences in the participants' level of comfort in recognition and prioritization, pre and post-instructional video [$Z = -3.507$; $p = .000$ (2-tailed).] A positive correlation was demonstrated between comfort, with use of the post-video survey, and confidence, with use of the Critical Action Survey, by using Spearman's r . Results demonstrated a significant positive relationship, where increases in comfort with non-technical tasks was associated with increased critical action mean scores for confidence both in the pre-test mean score of comfort ($r = 0.843$; $p < 0.001$) and post-test mean score for comfort ($r = 0.931$; $p < 0.001$) characterized by very strong positive correlations (correlation being significant at the 0.01 level).

CONCLUSIONS

We demonstrated improved comfort and confidence of SRNAs in recognition, prioritization and decision making with improved mean scores in all variables. This provides preliminary evidence on the benefits of instructional video on task-management education to SRNAs. Further studies can expand on this research by utilizing videos to enhance other non-technical skills.



RACHEL KOZLOWSKI BSN, RN



JENN KUDIRKA BSN, RN

***VIDEO SIMULATION AS
AN EDUCATIONAL
STRATEGY TO INCREASE
KNOWLEDGE AND
PERCEIVED KNOWLEDGE
IN NOVICE NURSE
ANESTHESIA TRAINEES***

BACKGROUND

Video simulation is gaining popularity as an alternative method of teaching and can play an important role in nurse anesthesia education.

Objectives: The purpose of this study is to analyze the effects of an educational video simulation on acquisition of knowledge and perceived knowledge of anesthesia induction in novice nurse anesthesia trainees (NATs).

METHODS

A single group pre-test post-test design was used to compare knowledge and perceived knowledge on standard and rapid sequencing induction of anesthesia. Pre test scores on knowledge and perceived knowledge were obtained and followed by a viewing of pre-recorded video simulation on standard and rapid sequence of anesthesia induction. Post test scores were obtained immediately after viewing the complete pre-recorded video simulation. The convenience sample included volunteers who were second year NATs at NorthShore University HealthSystem School of Nurse Anesthesia.

RESULTS

Twelve NATs participated in the single group pretest-posttest design. The Wilcoxon signed ranks test revealed all statistically significant score differences in all five ordinal outcomes for perceived knowledge standard induction (all p values = or < 0.05) and perceived knowledge rapid sequence induction (all p values = or < 0.05). The Wilcoxon signed ranks test and paired samples t test revealed statistically significantly difference mean scores on NATs' knowledge for both standard induction ($Z = -2.944$; $p = 0.003$) and rapid sequence induction of anesthesia ($t = 4.711$; $p = 0.001$), respectively.

CONCLUSIONS

Viewing a video simulation on the sequence of standard and rapid sequence anesthesia induction increased both knowledge and perceived knowledge among novice NATs. This pilot study provides preliminary evidence that there is a role for video simulation education in the curriculum of nurse anesthesia programs.



KIM HOMA BSN, RN



JACQUELINE KUHN BSN, RN

CRNA'S KNOWLEDGE AND ATTITUDES REGARDING ACUPRESSURE AS AN ADJUNCT TO POSTOPERATIVE NAUSEA AND VOMITING PREVENTION

BACKGROUND

Postoperative nausea and vomiting (PONV) continues to be a problem for patients despite multimodal pharmacologic treatments available. Although acupressure has demonstrated clinical usefulness, it is still not widely used in Western anesthesia practice.

OBJECTIVES

To assess current knowledge and attitudes among CRNAs and SRNAs regarding acupressure use for PONV treatment.

METHODS

A survey was distributed via email to members of the Illinois Association of Nurse Anesthetists (IANA) to assess their knowledge and attitudes regarding acupressure for PONV treatment.

Results: A total of 109 out of 1200 members of the IANA completed the survey (9% survey response rate). Overall, participants had adequate knowledge and positive attitudes regarding acupressure for PONV management. Of the 14 knowledge and attitude questions on the survey, the items with lowest mean scores indicated deficits in the knowledge on effectiveness of acupressure for PONV treatment ($M = 2.81$; $SD = .518$), its impact on surgical outcomes ($M = 2.71$; $SD = .628$), and the enhancement of comfort for patients postoperatively ($M = 2.87$; $SD = .511$). Among sociodemographic variables examined, females scored higher in overall knowledge and attitudes for use of acupressure for PONV ($p = 0.12$).

CONCLUSIONS

Overall, CRNAs have adequate knowledge and positive attitudes regarding use of acupressure for PONV management, but lack knowledge on acupressure effects on patient comfort, efficacy of PONV relief and post-surgical outcomes. Areas of identified deficits were used to create an educational handout for CRNAs to further increase their knowledge and positive attitudes towards use of acupressure for PONV. Increased education can potentially lead to standardized implementation of acupressure in anesthesia practice and decreased incidence of PONV in surgical patients.

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RACHEL FERRAL BSN, RN



ANGELA MEYER BSN, RN

A NEEDS ASSESSMENT FOR DEVELOPMENT OF AN INTERPRETER SERVICES EDUCATIONAL TOOL FOR CRNAS

BACKGROUND

Despite evidence of provider misuse of interpreter services and the resultant adverse outcomes that can and have occurred, few studies have assessed or addressed the gaps in knowledge and attitudes of certified registered nurse anesthetists (CRNAs) towards interpreter service usage when providing care for and consenting limited English proficient (LEP) patients.

OBJECTIVES

The purpose of this descriptive survey study was to identify CRNA knowledge and attitudes toward interpreter service usage for LEP patients to guide the development of a competency educational tool for CRNAs.

METHODS

A descriptive, online survey research design was used. The Qualtrics online survey platform was used to administer the survey to CRNAs who are members of the Illinois Association of Nurse Anesthetists (IANA) to assess their knowledge and attitudes toward interpreter service use.

RESULTS

A total of 92 CRNAs participated in this study. This study found a statistically significant positive linear relationship between female gender and a higher mean score of knowledge using point bi-serial correlation analysis ($p = 0.001$). Females tended to have greater knowledge regarding interpreter service use than males. All five questions in the knowledge questionnaire had mean scores indicative of knowledge deficit regarding appropriate interpreter service use. The attitudes questionnaire had a mean of 15.28 (SD=3.31), indicating a positive trend in attitudes towards interpreter service use. Many study participants (62%; $n=57$) have not received continuing education on interpreter services at their primary place of practice and most participants (65%; $n=60$) reported either not receiving or not knowing how often continuing education on interpreter services is offered. These responses support a need for the development of a competency educational tool to be used as a continuing education resource on interpreter service use among CRNAs for improved safety and quality of care of LEP patients.

CONCLUSIONS

Improving the knowledge of appropriate interpreter service use among CRNAs can lead to improved quality and safety of patient care and improved health outcomes of those served by these anesthesia providers. Identifying and addressing informational and attitudinal barriers are key to a consistent use of interpreter services.

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KELLY LANNERT BSN, RN



DULCIE SCHIPPA BSN, RN

INTRA-OPERATIVE AWARENESS WITH RECALL UNDER GENERAL ANESTHESIA

BACKGROUND

Anesthesia practitioners are familiar with awareness with recall (AWR) as a phenomenon, however, research has shown it is inadequately assessed, evaluated, and treated in patients receiving general anesthesia leading to significant undesired sequela.

OBJECTIVES

The purpose of this quality improvement project (QIP) was to attempt to improve the perceived knowledge and comfort of anesthesia practitioners relative to the assessment, evaluation, and treatment of patients with AWR, thus, closing the gap between knowledge and practice.

METHODS

The sample consisted of 150 anesthesia practitioners from the Northshore University HealthSystem. Pre-and post-test Likert-type surveys were used and uploaded into Qualtrics to maintain anonymity and SPSS for analysis.

RESULTS

At pre-test, the overall perceived knowledge, comfort and attitudes on AWR ($M = 2.59$; $SD = 0.45$) was suboptimal for current practice. At post-test, the overall perceived knowledge, comfort and attitudes on AWR ($M = 3.41$; $SD = .29$) was optimal. A perceived knowledge subset analysis resulted ($M = 13.71$; $SD = 2.61$, respectively) and Cohen d statistics ($d = 1.466$), Cronbach's alpha coefficient was 0.72. A perceived comfort subset analysis resulted ($M = 3.71$; $SD = 1.86$, respectively) and Cohen d statistics ($d = 1.17$), Cronbach's alpha coefficient for this subscale was 0.85. Attitudes towards AWR had an inadequate Cronbach's alpha coefficient value of less than 0.7. No subset analysis was performed.

CONCLUSIONS

The results showed improved perceived knowledge and comfort of assessment, evaluation and treatment of AWR. This is a useful indicator for communication and training needs in the initiation of our educational program as a standard protocol in a local practice setting.

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AMBER LINDSAY BSN, RN



ELISA RUE BSN, RN

A STANDARDIZED ELECTRONIC HANDOVER REPORT FOR ANESTHESIA PROVIDERS

BACKGROUND

Intraoperative anesthesia handovers have remained unstandardized at many institutions.

OBJECTIVES

The purpose of this study was to 1) develop an Anesthesia Handover Report (AHR) using an Expert Sampling Group; 2) evaluate the impact of the AHR on the perceived quality of handover among anesthesia providers; and 3) assess the uptake of the AHR.

METHODS

In Phase 1, an Expert Sampling Group of ten experienced anesthesia providers evaluated the preliminary AHR for its accessibility, layout and content. In Phase 2, expert feedback was used to create the finalized AHR and all 140 anesthesia providers at three study locations were invited to utilize and evaluate the AHR during intraoperative anesthesia handover, during Phase 3 the use of the AHR was queried.

RESULTS

Five anesthesia providers completed the Expert Sampling Group Questionnaire in Phase 1. Feedback was used to create the finalized AHR. During Phase 2, 21 anesthesia providers completed the 14-question Anesthesia Handover Survey. The overall mean Likert score for handover conduct was 3.72 (SD .475, minimum 2, maximum 4), for teamwork was 3.76 (SD .432, minimum 3, maximum 4), and handover quality was 3.64 (SD .611, minimum 1, maximum 4). Results of Phase 3 indicated the uptake did not increase as expected over the six-week monitoring window, but rather peaked during week four.

CONCLUSIONS

Use of the AHR improved the perceived conduct, teamwork, and quality of intraoperative anesthesia handovers. The use of the AHR did not improve over time.



ALISON KARMANIAN BSN, RN

***INTRAOPERATIVE BLOOD PRESSURE
AND EFFECT OF VOLATILE
ANESTHETIC IN BRAIN DEAD ORGAN
DONORS***

BACKGROUND

There is a large disparity between the number of people waiting for organ transplants and the number of organs available. Optimal hemodynamic management can influence transplant outcomes, therefore evidence-based hemodynamic management should be practiced to maximize scarce donor organs.

OBJECTIVES

The purpose of this study was to examine intraoperative blood pressures and administration of volatile anesthetics during brain dead organ donor procurements. Use of volatile anesthetics was examined to determine how use and dose affected the ability to maintain mean arterial pressure (MAP) between 60 to 90 mmHg.

METHODS

This study was a retrospective chart review.

RESULTS

Twenty-eight cases were analyzed using the mean MAP calculated for each donor. Mean scores ranged from 61.04 to 99.34 mmHg with a mean of $M= 84.51$ mmHg. Twenty-two donors (78.6%) received volatile anesthetic gas, and six donors (21.4%) received no volatile anesthetic gas. Mean end-tidal concentrations of volatile anesthetic gas in the 22 donors who received volatile anesthetic gas ranged from 0 to 1.25% with a mean end-tidal concentration of $M= 0.39\%$. Mean MAP in donors that did not receive volatile anesthetic gas was $M= 78.49$ mmHg ($SD= 9.78$ mmHg). Mean MAP in donors that received volatile anesthetic gas was $M= 86.16$ mmHg ($SD= 7.02$ mmHg). An independent samples t test performed between these two groups demonstrated that the difference between mean MAPs of the two groups was statistically significant ($t= 2.182$, $p= 0.038$), but no statistically significant correlation was found between mean MAP and mean end-tidal volatile anesthetic gas ($r_s= -0.184$, $p=0.414$).

CONCLUSIONS

This study demonstrated that intraoperative hypertension is more prevalent than intraoperative hypotension, and volatile anesthetic gas is often used at this medical center during organ procurements at relatively low concentrations.



ALYSE VORONOV BSN, RN



NICOLE ZEPPPO BSN, RN

***PEDIATRIC EMERGENCY
DELIRIUM ASSESSMENT
AND DOCUMENTATION:
CURRENT PRACTICE AND
PERCEIVED BARRIERS***

BACKGROUND

Current literature addresses the complexity of identifying pediatric emergence delirium (PED), but does not address barriers to PED assessment and documentation. By identifying these barriers, further research can be conducted regarding prevention and treatment of PED.

OBJECTIVES

This study aimed to: 1) describe the current PED assessment and documentation practices among post anesthesia care unit (PACU) registered nurses and anesthesia providers at UIHHSS; 2) describe the perceived barriers to PED assessment and documentation; and 2) develop an evidence based educational program to aid in the implementation of a validated PED assessment tool.

METHODS

A descriptive, cross-sectional online survey design was used to survey a convenience sample of 133 perioperative care providers consisting of anesthesia provides (anesthesiology attendings, anesthesiology residents, and certified registered nurse anesthetists) and PACU registered nurses at UIHHSS. Questions associated with perceived barriers to PED assessment and documentation practice were answered using a 5-point Likert-type response scale with 1= strongly disagree, 2=disagree, 3= neutral, 4=agree, 5=strongly agree.

RESULTS

The study received 40 responses during the data collection period for a response rate of 30%. Study results revealed current PED assessment and documentation practices at UIHHSS to be inconsistent and varied. Of statistical significance ($p=0.036$) was the perceive barrier of "limited time" in the distribution of mean scores based on "how often do you care for pediatric patients." Preferred learning methods varied, however a majority of participants ($n=1$) preferred a multimodal approach.

CONCLUSIONS

The results of this study revealed the barriers to PED assessment and documentation at UIHHSS, as well as the preferred learning methods of the participants. These results will help facilitate the creation of an evidence based, three-phase educational approach to change practice at UIHHSS.