NorthShore University HealthSystem
School of Nurse Anesthesia
&
DePaul University School of Nursing
Class of 2018
DNP Poster Presentations
A Comprehensive Reentry Policy for Student Registered Nurse Anesthetists with Substance Use Disorder

Author: Thomas Nigro Jr., MS, RN  Committee Members: Pamela Schwartz DNP, CRNA; Bernadette Roche EdD, CRNA

Background and Significance:

- There is a growing body of research aimed at identifying, intervening, and treating SUD in professionals while adhering to their clinical practice.
- Little to no research on identifying SUD in students and thus no developed model to assist SRNAs who wish to reinstate their academic programs after they overcome SUD.
- The purpose of this research project is to examine existing professional SUD mentorship policies, and highlight the need for a comprehensive policy for SRNAs with SUD who desire to complete or re-enter their academic program.

Research Question:

- Are comprehensive policies in place for SRNAs in Illinois with SUD to provide a structured reentry into an academic program?

Methodology:

- George L. Engel's Biopsychosocial Theory
- Descriptive, qualitative design
- Qualitative interview method utilizing snowball sampling

Results:

Eleven common themes were identified among those interviewed:

1. Existent and non-existent SUD policies
2. Inconsistent methods on how to access a policy
3. Variability in the components of SUD policies
4. Difficulty in determining SUD among SRNAs
5. Difficulty in confronting an individual
6. Ineffectiveness of components of SUD policies are equivalent

Discussion:

Alignment of the identified themes with suggestions for SUD reentry made by the American Association of Nurse Anesthetists, the American Nurses Association, and the model substance abuse policy for anesthesia developed by Roche were performed.

Alignment of identified themes, recommendations, and policy components was used to create comprehensive reentry policy for SRNAs with SUD.

Policy Template:

The policy is adapted with permission from the Model Substance Abuse Policy for Anaesthesia developed by Roche (2007).

1. The (name of school/institution that SRNA is part of) will provide mandatory education on SUD in SRNAS. Education should include information on how to access the SUD policy for SRNAS.
2. If an SRNA is suspected of or exhibiting signs of SUD, the (name of school/institution that SRNA is part of) will have a procedure for the intervention, referral for assessment and treatment, and monitored reentry of an SRNA with SUD.
3. The (name of school/institution that SRNA is part of) is responsible for identifying SRNAs with deteriorating clinical performance, behavioral changes, and excessive absenteeism but is not responsible for diagnosing the nature of the problem.
4. Upon identification of SUD in an SRNA the (name of school/institution that SRNA is part of) must develop an intervention team to confront the SRNA. The intervention team should include the person who initially identified the SRNA in question, a faculty member of (name of school/institution that SRNA is part of), a close family member or friend of the SRNA, and a professional who can assist the SRNA in beginning treatment.
5. Self-referral will be encouraged and a SRNA position in the (name of school/institution that SRNA is part of) will not be jeopardized by a voluntary request for assistance with SUD. The (name of school/institution that SRNA is part of) must notify the individual and the SRNA in beginning treatment.
6. A leave of absence will be granted for assessment, and/or treatment.
7. The cost of assessment, treatment, and recovery programs is the responsibility of the SRNA. However, if the SRNA is unable to finance their treatment, (name of school/institution that SRNA is part of) will aid with identification of possible sources of financial support.
8. Prior to reentry of an SRNA to (name of school/institution that SRNA is part of), a reentry plan will be developed. The reentry plan will detail when the SRNA will reenter (name of school/institution that SRNA is part of), when the SRNA will start or resume their clinical rotations, who will act as a faculty mentor, what resources are available at (name of school/institution that SRNA is part of), measures that will be taken to bridge the SRNA into professional practice, any additional educational requirement, and expected date of graduation.
9. Monitoring for the SRNA with SUD should be required by (name of school/institution that SRNA is part of) throughout their enrollment as a student and up to graduation.

Conclusion:

All institutions that educate and utilize SRNAs should have a comprehensive reentry policy in place for SRNAs with SUD, that includes SRNA reentry to their educational program.
A Malignant Hyperthermia Competency Training for Nurse Anesthesia Trainees: Development, Implementation, and Evaluation
Andrew Christ, RN, BSN, DNP Candidate, Karen Kapanke DNP, CRNA, Anne Sauri DNP, CRNA
NorthShore University HealthSystem School of Nurse Anesthesia & DePaul University

Introduction
- Video simulation is an alternative method of teaching that can play an important role in nurse anesthesia education.
- MH can be triggered by frequently used anesthetic gases such as sevoflurane, desflurane, and isoflurane and also a frequently used short acting muscle relaxant called succinylcholine
- Symptoms of MH crisis include increased blood carbon dioxide levels, muscle spasms or rigidity, increased respirations, increased heart rate, and increased temperature. It also causes severe electrolyte shifts, causing blood potassium levels to be extremely high and the blood to become acidic.
- This crisis can be difficult to recognize and manage without proper training. It is a time sensitive and critical situation that must be recognized and managed properly to ensure patient survival.

Clinical Question
- Does viewing an instructional video on management of an MH crisis improve knowledge of 2nd and 3rd year nurse anesthesia trainees (NATs)?

Methods
- A single group pretest-posttest design was used to determine the effectiveness of video simulation on improving knowledge of junior and senior NATs at NorthShore University HealthSystem School of Nurse Anesthesia.
- Three phases: (1) development of the simulation video, (2) development of the pre-test and post-test, and (3) evaluation of the video simulation on NAT knowledge via the pretest and posttest.
- Sample – convenience sample of junior and senior NATs at NorthShore University HealthSystem School of Nurse Anesthesia.

MH Learning Session
- Pretest: The first page of the pre-test was a face sheet that identified whether the participant is a junior or senior NAT. This was completed, followed by the pretest to determine baseline knowledge regarding MH recognition and management. The pretest and posttest were the same for consistency in comparing data.
- MH Simulation Video: 10-minute educational simulation video demonstrating the proper management of MH.
- Posttest: After the video was completed, the post-test was given to the NATs to complete.

Results
- Pretest: The first page of the pre-test was a face sheet that identified whether the participant is a junior or senior NAT.
- The pretest and posttest results were compared to determine if there was significant knowledge gained by viewing the educational video simulation.

Conclusion
- The use of technology is useful in enhancing traditional learning methods.
- The findings of this study show that viewing a video simulation on the proper management of malignant hyperthermia increased knowledge in both second and third year nurse anesthesia trainees.
- The results of this anesthesia crisis study were consistent with previous literature that demonstrated the positive effects of video simulation in medical and nursing education.
- The strength of this study lies in the use of video from the simulation video in the curriculum of nurse anesthesia programs.
- Further research is needed to explore this new and exciting educational strategy.

Discussion
- The results show NATs that participated in this study gained knowledge regarding the management and treatment of MH.
- NATs improved their scores after viewing the video simulation. The seniors scored slightly higher on the pretest (11.5), than the juniors (10), suggesting that some advanced clinical experience provided them with a slight advantage going into the study.
- Levine’s Test for Equality of Variances showed statistically significant differences for questions 2, 3, 5, and 11; these questions had at least 40% of participants answering incorrectly on the pretest.

Future Research
- Larger studies involving recognition and treatment of various MH crises using video simulation as a learning tool for NATs.
Examination of Personal Electronic Device Use Policies in the Operating Room  
Author: Matthew T. Lipinski, RN, BSN  
Committee Members: Shannon D. Simonwich, PhD, RN; Joseph D. Tariman, PhD, RN, ANP-BC, FAAN

Background and Significance:  
- Smartphones, computer tablets, and other forms of personal electronic devices (PEDs) have become ubiquitous in medicine.  
- Despite arguments for and against PED use in the operating room there are no concrete statements regarding their use from major medical associations in the face of increased PED use.  
- The purpose of this research project is to examine existing PED use policies by top-rated, as well as local healthcare institutions.

Research Questions:  
- Among hospitals examined, what institutional policies are in place regarding PED use in the OR?  
- What are the common themes in these policies?  
- How do the policies define PEDs?

Methodology:  
- Culture of Safety Concept  
- Originated from Institute of Medicine’s “To Err is Human Report” of 1999  
- Examined US News and World Reports Top 20 Honor Roll Hospitals and Chicago area hospitals

Results:

Review of institutions policies regarding PED use  
- Table showing institution demographics and policies

Discussion:  
1) Definitions of PEDs  
Some defined in generic terms (cell phone, smart phone, tablet) while others used named brand devices (iPhone, iPad) demonstrating major corporate influence in medical policy making. Listing devices as to their function, is an attempt to shield institutions from liability.

2) Acceptable Use of PEDs  
- “Assisting and improving patient care” was the strongest endorsement of PED use. The same policy went on to cite “anesthesia-specific applications and electronic textbooks” as acceptable use.

3) Anesthesia or OR Specific Use of PEDs  
This dovetailed with the Acceptable Use theme. The institutions permitting PED use where also the institutions with most specific criteria on how that use should occur.

4) Data Security, Safety, and Confidentiality  
This sought to specifically mention information, but information that may jeopardize the financial status of the institution. The Department has an interest to ensure the integrity of proprietary information; preserve the privacy of employees and patients, and ensure that unauthorized surveillance does not breach the reasonable expectations of privacy in the workplace.

5) Negative Impact of PED Use  
While “distraction” was the most used term with regards to negative impact of PED use, it was also cited by institutions who permit PED use, signalling the nuisance needed in the language of such policies.

6) Social Media Usage  
Policy regarding social media usage mostly aligned at protecting institutional liability. It should be noted that the policies were crafted prior to concerns of data collection by social media entities.

Discussion (cont.):  
- When recruiting institutions to share their policies, it was discovered that many do not have a formal policy on the topic.  
- The language for such policy formation may be ambiguous and vague presently.

Implications for Nursing:  
- Regardless of the policy an institution may have in place, it is clear that anesthesia providers are utilizing PEDs in their practice.

Conclusion:  
Wide variability was found in policies regarding PED use, from how institutions acknowledged their use, the degree in which their use was allowed, as well as how institutions described PEDs. It is evident that further research should focus on how PEDs are actually used day-to-day, and how this use is aligns or conflicts with existing policies. Only by assessing the current state of PED use, as a whole, may institutions and governing bodies be able to craft policy to best inform practice.
A Peer Mentorship Program for Student Registered Nurse Anesthetists: Development, Implementation, and Evaluation
Ashley E. Stewart

Committee Chair: Susan Krawczyk DNP, CRNA Committee Member: Julia Feczk roofs DNP, CRNA

Background
- SRNAs experience multiple forms of stress on a daily basis
- Mentorship programs provide an encouraging environment that can help support a student during a stressful period
- Second-year SRNA’s transition into clinical rotations is a known stressful time

Research Question
- Does participation in a NorthShore peer mentorship program effect a second-year SRNA’s perceived level of stress and anxiety, support, communication, preparation, and satisfaction related to involvement in the anesthesia program?

Methodology
- Quantitative cohort study, piloted peer mentorship program
- Paired 8 second-year SRNA mentees with 10 third-year SRNA mentors
- In person meetings, online discussion, and alternative mutually agreed upon routes of communication for the matched peers to interact over 4 months
- Electronic survey with Likert-scaled statements to measure the program’s effect on stress and anxiety, support, communication, preparation, and satisfaction as well as degree of program participation

Results

<table>
<thead>
<tr>
<th>Subscale Mean Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress and Anxiety</td>
</tr>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Preparation</td>
</tr>
<tr>
<td>Support</td>
</tr>
<tr>
<td>Satisfaction</td>
</tr>
<tr>
<td>Participation</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Support</td>
</tr>
<tr>
<td>Satisfaction</td>
</tr>
<tr>
<td>Preparatoin</td>
</tr>
<tr>
<td>Stress and Anxiety</td>
</tr>
<tr>
<td>Participation</td>
</tr>
</tbody>
</table>

- Overall highest rated valid statement: statement 7
  - the program increased second-year SRNA’s feelings of connectedness to third-year SRNAs
- Overall lowest rated valid statements: statements 4 & 15
  - the only two statements to mention the didactic portion of the program - expected finding as the focus was the transition into clinical rotations

Reliability, Validity, and Internal Consistency

<table>
<thead>
<tr>
<th>Cronbach’s Alpha Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress and Anxiety *</td>
</tr>
<tr>
<td>Support *</td>
</tr>
<tr>
<td>Preparation *</td>
</tr>
<tr>
<td>Satisfaction</td>
</tr>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Participation</td>
</tr>
</tbody>
</table>

* subscales with score ≥ 0.7 considered reliable and valid for internal consistency

Previous Research
- Results supported in literature
- Active support from fellow students reduced feelings of social isolation (Christiansen and Bell, 2010)
- Social support shown to increase self-efficacy & success for anesthesia students in stressful situations (Conner, 2015)

Nursing Implication
- Utilization of a peer mentorship program can help students and nurses through stressful transitions

Program Continuation
- Class of 2019 SRNAs continuing program

Conclusion
- Perceived level of support was most positively impacted by the peer mentorship program
- The peer mentorship program had an overall positive effect on participating second-year SRNAs as they transitioned into clinical rotations
Background:
According to the American Association of Nurse Anesthetists (AANA), patient safety is a concern raised by anesthesia professionals surrounding the use of Smartphones in the operating room. Another concern is the difficulty in ensuring accurate clinical content and validity (AANA, 2015). Anesthesia providers early in their careers as well as students of anesthesia readily depend on Smartphone technology to bridge gaps in knowledge while providing patient care (Lamarche et al., 2016). "The integration of mobile information technology into clinical practice can have meaningful advantages for clinicians and their patients" (AANA, 2015). The current NorthShore University HealthSystem Employee Handbook is strictly restrictive of any Smartphone use in all patient care areas. Due to the restrictive verbiage of the employee handbook, it was important to assess workplace attitudes and beliefs regarding the use of Smartphones in the operating room in order to evaluate the appropriateness of the current policy. If necessary, it is important to establish policies that promote patient safety while allowing accessibility to educational technology.

Research Questions:
- What are the current attitudes and beliefs among anesthesia providers regarding use of Smartphones in the operating room?
- Is the current Employee Handbook policy regarding Smartphone use in the operating room concordant with anesthesia providers’ beliefs and attitudes?

Methodology:
- Descriptive, cross-sectional survey design
- Target Population: Anesthesiologists, CRNAs, SRNAs, and anesthesia residents within the NSUHSHS organization

Results:
- 28 total respondents
- 50% of participants under the age of 40 years and 50% over the age of 41 years
- Anesthesiologists consisted of 29.5% of the participants, 32.1% were CRNAs and 35.3% were SRNAs
- None of the anesthesia residents responded to the survey
- 57.2% of participants have been in practice for less than 10 years while 42.9% have been in practice for over 11 years
- Greatest use of Smartphones in the operating room: "medical apps" and a combination of "medical apps, writing/reading e-mail, and text messages"

Findings:
When asked whether there should be a restriction of Smartphone use in the operating room, 57.1% of participants responded “no.” Our analysis showed that there were no statistically significant correlations between age, provider type, or number of years in practice and attitudes and perceptions of Smartphone use.

Significance and Future Implications:
The data demonstrates Smartphones are commonly utilized for productive work functions rather than unrelated tasks. Encouraging the proper use of Smartphone technology and embedding proper use in the department culture will facilitate realistic standards of use in the operating room. Data highlights the use of non-traditional educational tools used by students today as alternatives to bulky textbooks. It is beneficial for faculty and clinical instructors to evaluate the preparation of students before an anesthetic as well as their diligence to look up correct information intraoperatively. Learning about useful apps and their limitations are valuable ways to improve students’ educational experience. Smartphone technology could lead to improved accessibility to information, especially in times that textbook references may not be available, as in the operating room.

Conclusion:
It is recommended that the current Smartphone policy be revised in order to reflect realistic practice standards regarding Smartphone technology in providing safe, high quality care. As the reliance on technology in operating rooms continues to progress, institutional policies and procedures must be made less restrictive in order to allow access to educational technology that promotes a culture of safety and also promotes providers in legal terms.
**Background or Introduction:**
- There is evidence of music existing in medicine as far back as prehistoric humans' usage of drums in healing rituals but was not a recognized specialty until the late 20th Century (Horden, 2000).
- Studies examining the use and effects of music in medicine were not widely conducted until the 1980s, but those studies have shown consistently positive results for patient outcomes.
- In modern medicine, music can be used in various ways such as creating music, dancing to music, or listening to music across many disciplines including physical therapy, occupational therapy, pain therapy, and stress and anxiety management.
- For most people, music is processed in the temporal lobe and auditory cortex with the modulation, or experience, processed in the right brain (Trangeberg & Stomberg, 2013).
- The right brain is also responsible for the modulation of production of endorphins, which may explain the reduction in pain experienced during music therapy (Trangeberg & Stomberg, 2013).

**Research Question:**
- Is music routinely included into nurse anesthesia programs as CAM for pain and anxiety, and if music is not included what barriers exist to implementation?

**Methodology:**
- Promoting Action on Research Implementation in Health Services (PARIHS) framework.
- Quantitative anonymous survey sent via email.

**Descriptive Statistics**
- SPSS software utilized
- Independent t-test
- Analysis of variance
- Pearson’s point biserial correlation
- P values of < 0.05 considered statistically significant

**Results:**
- 20 respondents - one survey left blank leaving 27 surveys
- Program degree:
  - 9 MSN
  - 7 DNP
  - 2 DNP
  - 2 unidentified
- Program length:
  - 23 were 25-36 months
  - 2 were less than 25 months
  - 2 were more than 35 months
- Annual number of students admitted:
  - 8 with 25-25
  - 9 with 25-35
  - 2 with more than 35
- Simplification of categories for data analysis:
  - Degree analysis of Masters and Doctor level
  - Annual number of students less than 25 and more than 25
- Eleven of the twenty-seven program respondents included some kind of CAM education.
- When asked directly about music in the curriculum as a CAM, 4 of the 9 respondents currently included CAM.
- Response to adding music as a CAM: 9 would consider adding music to their curriculum; 2 already included it, and 6 were unprompted.
- The only statistically significant finding: doctoral level programs were more likely to know about the benefits of music use as CAM compared to masters level programs.
- Knowing benefits did not translate into a significant difference in more doctoral programs inclusion of music as a CAM into curriculum.
- Reasons given for opposition were lack of wide acceptance in the medical community, time constraints, lack of NURSING content, and a feeling of impracticality of implementation in the clinical setting. Time constraints, was the most often noted barrier for addition of music as CAM to curriculum.
- Programs currently including music as CAM, showed no statistically significant difference in program length, degree level, or annual number of students admitted.

**How it related to previous research**
- No previous research regarding the gap between music education and implementation of music use in the perioperative setting.

**Implications for Nursing**
- Needs assessment survey show an inconsistency between CRNA programs within the United States regarding music as a CAM education.
- Current drug shortages, and a national focus on reduction in opiate usage, it is important that all practitioners are knowledgeable regarding alternative modalities of pain and anxiety reduction.
- Key elements of the proposed curriculum addition include, but are not limited to, benefits of music as a CAM, appropriate patient selection, and appropriate music selection.

**Conclusion**
- Literature has clearly and consistently shown use of music as a CAM can supplement traditional anxiolyis and analgesic treatments as well as improve patient outcomes.
- The findings of this project demonstrate that music as a CAM education lacks consistency.
- There are CRNA programs that know the benefits of and have found ways to integrate music as a CAM into their curriculum.
- Results showed there is a need to expand music as a CAM education for both students, and current practitioners to increase awareness of benefits as well as appropriate utilization.
Does a Teamwork Seminar Improve Nurse Anesthesia Student Awareness of High Performance Teamwork Behaviors?

Michael J. Sit BSN, RN, Julia Fezcko DNP, CRNA; Pamela Schwartz DNP, CRNA  
NorthShore University HealthSystem School of Nurse Anesthesia & DePaul University

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Methods</th>
</tr>
</thead>
</table>
| Teamwork is receiving increased attention as an essential component of high quality healthcare and patient safety. The concept of teamwork is familiar to anesthesia providers, the explicit identification and training of high performance teamwork behaviors is often absent from formal anesthesia training. The goal of this study was to improve nurse anesthesia student awareness of high performance teamwork behaviors through an interactive, video-assisted teamwork seminar. This study also aimed to facilitate debriefing on teamwork with the use of the Mayo High Performance Teamwork Scale (MHPTS). The research questions for this project were:  
• Does participation in a teamwork seminar improve awareness of high performance teamwork behaviors?  
• Does use of the Mayo High Performance Teamwork Scale facilitate debriefing on a video-based simulation scenario? | A teamwork seminar was generated based on the recommendations of current evidence, including a slideshow presentation and two video scripts. All elements underwent content validity approval by an expert panel. A non-experimental, post-test only design was employed with a convenience sample of second and third year nurse anesthesia students via usefulness survey. The validated and reliable MHPTS was used as a guide to facilitate debriefing on video-recorded simulations. |

| Graphical Representation of the ‘Big Five’ High Performance Teamwork Behaviors | |

<table>
<thead>
<tr>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
</table>
| N = 30 nurse anesthesia trainees  
Demographics  
Majority: white (76.7%), females (63.3%), age 20-26 (50%), ICU experience: 3-4 years (30%), 5-6 years (36.7%)  
NAT 2: 17 participants, 56.7%  
NAT 3: 13 participants, 43.3%  
Usefulness survey:  
Overall mean: 3.71/4.0  
Standard deviation: 0.407  
Cronbach's alpha: 0.926  
Inference statistics:  
No significant relationships between demographic responses and usefulness responses | Second and third year nurse anesthesia students perceived the teamwork seminar as useful in a variety of fields, suggesting this is an ideal population for future teamwork training initiatives. The lack of relationships between demographic variables and student responses suggest that no sub-group of students require special attention for future training initiatives, as they all perceived the seminar similarly. |

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Future Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most students found the seminar useful in improving awareness and the MHPTS useful in facilitating debriefing. A lack of relationships between demographics and usefulness responses suggests students perceived the seminar similarly despite previous experience.</td>
<td>Effect of on-going teamwork training on student perception of clinical residency, frequencies of sentinel events, institutional morbidity/mortality. MHPTS may be easily incorporated into nurse anesthesia simulation education and utilized as a metric for student progress. References for this project are available upon request.</td>
</tr>
</tbody>
</table>
Efficacy and Usefulness of an Educational Video on Safe Medication Handling
Suzanne Anderson BSN, RN, Molly Wenzel BSN, RN, Julia Feczko DNP, CRNA and Anne Sauri DNP, CRNA

Background:
- Medication errors are a significant and detrimental issue in anesthesia practice.
- Potential to have drastic effects on patients, providers, and hospitals. 
- 580,000 to 450,000 adverse drug events occur in hospitals each year with an annual cost of $3.5 billion.

Research Question:
- Does an educational video improve Nurse Anesthesia Trainees’ (NATS) actual knowledge on safe medication handling?
- Do NATS perceive the educational video to be useful?

Methodology:
- Single group pretest-posttest design
- Convenience sample of 19 voluntary second year nurse anesthesia trainees
- 4 Phases:
  - Development of educational video
  - Development of Knowledge assessment tool (KAT)
  - Evaluation of effectiveness of educational video using KAT
  - Evaluation of perceived usefulness of video using adapted survey

Results:
- Knowledge Assessment Tool: Statistically significant difference in pretest and posttest means (p < 0.01)
- Perceived Usefulness Survey: Moderately high perceived usefulness of safe medication handling video

| Table 1. Knowledge Assessment Tool Pre-Test and Post-Test (T scores) |
|--------------------------|---------------------|----------------------|
| Pre-test T-score         | 5.42±1              | 9.7±1                |
| Post-test T-score        | 9.42±1              | 9.8±1                |
| t-test                   | 1.99               | 0.05                 |

| Table 2. Demographic Characteristics of Study Participants (N=19) |
|--------------------------|---------------------|----------------------|
| Gender                   | Frequency           |
| Male                     | 9                   |
| Female                   | 10                  |
| Age                      | Frequency           |
| 20-29                    | 11                  |
| 30-39                    | 7                   |
| Ethnicity                | Frequency           |
| Caucasian                | 14                  |
| African American         | 4                   |
| Asian                    | 1                   |
| Hispanic                 | 1                   |
| Speed                    | Frequency           |
| 20-30                    | 10                  |
| 30-39                    | 9                   |

Conclusion:
- Educational video was found to be effective in education NAT-2’s on safe medication handling.
- Perceived as useful by participants.
- Video can be used for future NAT-2’s to improve knowledge and potentially decrease medication errors in the operating room.

What we found:
- Educational video increased knowledge and was perceived to be useful by NATS.
- Tool and survey were found to be reliable.

Relevance to Current Research:
- Literature clearly shows issues with medication safety in anesthesia, specifically novice providers.
- Research shows video as an effective education tool.

Implications for Nursing:
- Educational video may be used for future NATs to increase knowledge on safe medication handling.

Future Recommendations:
- Conduct similar research with larger sample size.
- Utilize wider sample population that involves all anesthesia providers.
- Evaluation of perceived usefulness after beginning clinical experience.
Background:
When anesthesia providers use GDT protocols, intraoperative fluid therapy is “patient specific” via the use of dynamic patient-specific physiologic parameters.

Research Questions:
1. Does use of a GDT protocol result in less fluid administration?
2. Does use of a GDT protocol reduce variability in net fluid administration (i.e. improve precision)?
3. What is the percentage of time that providers are compliant with the GDT protocol when the EV-1000™ monitor is used?

Methodology:
- Quantitative
- Retrospective Chart Review

Results:
1. The mean net fluid administration for the non-EV1000 group was more than the EV-100 group but not at a significant level.
2. Overall, the GDT group had improved fluid administration precision.
3. Over half the cases were compliant with the protocol and goal SVV for over 70% of the total surgical time.

Conclusion:
GDT protocols show promise in the THA population for improved patient-specific fluid administration.

How this related to previous research:
This has been shown in other patient populations and proves validity among adult hip arthroplasties.

Implications for Nursing:
- Trends towards Improved precision with GDT protocol
- Use of non-Invasive hemodynamic monitors has benefits in total hip arthroplasties

What’s Next:
- GDT Protocols should be explored among different patient populations.
- Strict adherence to protocol for subsequent studies.
INFECTION CONTROL OF THE ANESTHESIA WORKSPACE – DOUBLE GLOVE TECHNIQUE

Authors: Megan Callow RN, BSN & Debra Farida RN, MSN
Faculty Sponsor: Pamela Schwartz DNP, CRNA
DePaul University

BACKGROUND

- Common infection control practices have proven to be insufficient and policies transferring from one setting to another are well established in literature, especially for situations during direct laryngoscopy (DL), which requires both anesthetist and patient to dress, remove, and replace (Shelley et al., 2016; Maclean, Hong, Mitchell, & Sikes, 2018).
- Double gloving techniques are a “best practice of 10-day postsurgical infection rate is less than 0.1% of patients undergoing surgery” (Callan, K. et al, 2015).
- Lack of evidence, education, and training of the DLAT on infection control may lead to ineffective implementation affecting institutional neonatal care environment.
- Hand antisepsis is used to clean hands prior, uninterrupted, and uninterrupted during as a vaccine in preventing disease during transmission.

RESEARCH PROBLEM & PURPOSE

RESEARCH PROBLEM:
- Anesthesia providers frequently wear gloves with admission flourish and brand, and as medical necessity, the anesthesia experiment is used for education regarding management of the neonate workforce.
- Oral transmission as a result of DL can be found on multiple sites of the neonatal anesthesiologist, patient reviewed across center, the understanding drug use, and the patient’s loneliness (Baker et al., 2015).
- In seeking best practices that effectively decrease the spread of communicable diseases, especially with regard to oral and nasal, double gloving techniques are recommended during laryngoscopy and anesthesia, with additional emphasis of clean or post-birth, the trend to recommended double gloving techniques of the neonatal workforce (Bennett et al., 2015).

PURPOSE:
- Evaluate DLAT knowledge level and knowledge of proper handling of personal environments including clean and DL-vehicle times and survey methodology
- Using best practices, the double gloving hygiene technique and other variables, such as environmental transmission, were re-assessed exposure of conditions and personal need further to infection control of the neonatal workforce environment.

RESULTS

- A single intervention group comprised of 16 second-year Mount Sinai Medical School (MSMS) anesthesia residents (MSAR) (N = 16) participated in this study.
- The exposure of the participants varied from 24 to 42 years of age (40.15), followed by 25 to 29 years of age (21.13%), 20 to 25 years of age (11.16%), and 26 and over (4.13%).
- None of the participants had Bachelor’s degree education (33.33%) compared to Master’s degree education (55.55%).
- Two of the residents were not society throughout high school (27.7%), those in the year (58.33%), in 1979 and graduating (91.67%), and gaining the right education (58.33%)
- A sound sample it was concluded to measure poor and promote attitude for increased and promoted knowledge scores.
- The data demonstrated in access to increase measures during post-test.
- There was a statistically significant difference between pre-experience (76.7%, SD = 0.57) and post-experience (64.17, SD = 0.48) scores shown on two statistics showing t-test (0.05, p = 0.001).
- Additionally, there was a statistically significant difference in the post-experience knowledge (76.7%, 0.05, SD = 0.00) and post-experience knowledge (64.17, 0.00) scores shown on two statistics showing t-test (0.05, p = 0.001).
- Double gloving technique had an increased effect on the scores of conditions or promoted knowledge scores.

CONCLUSION

- Video simulations on the exposure of infection and DL using direct laryngoscope techniques by both conditions and promoted knowledge among nurses and doctors.
- The pilot study would provide evidence to suggest that video simulation assessment and education demonstrating the proper handling of circumstances may reduce patient harm, and improve a proper compliance of infection control standards as presented during neonatal anesthesia curriculum to meet local NBS.
- Further research should be conducted to a larger scale to support evidence that video simulation assessment and education demonstrating the proper handling of circumstances may reduce patient harm, and improve a proper compliance of infection control standards as presented during neonatal anesthesia curriculum to meet local NBS.

FUTURE RECOMMENDATIONS

- Additional studies should be conducted to determine the cause of the double gloving technique can provide the proper barrier to contain and prevent the transmission of neoplasms red and yellow, reduce patient harm.

REFERENCES


METHODOLOGY

- Multicategorical design composed of an intervention group only.
- Participants that will be measured and promoted knowledge outcomes and information after video simulation education in the DLAT.
**Methods of Endotracheal Tube Cuff Inflation**

**Background & Introduction**
- Most anesthesia providers use a 10 mg saline to inflate the distal cuff of flexible endotracheal tubes (ETTs), an airway device used for positive pressure ventilation.
- No evidence proving that using a 10 mg saline to inflate the ETT cuff is necessary.
- Sultan, Carolina, Ross, and Greggs (as cited in Hafner & Antino, 2010) state, “this cuff should be inflated to the maximum volume at which no air leak is present with positive pressure inspiration, this cuff pressure produces the least mucosal damage.”
- Excessive cuff pressure may result in tracheal mucosal injury, vocal cord dysfunction from recurrent laryngeal nerve palsy, and sore throat. (p. 1940)
- Although tightness is placed on performance of a minimal occlusion leak test (MOLT), routine cuff pressure monitoring may be overlooked.
- Leading to an incidence of ETT cuff overinflation.

**Research Questions**
- Using the current methods, is there an incidence of cuff overinflation among anesthesia providers?
- When inflating ETT cuffs, would replacing a 10 mg saline for cuff inflation with a 5 ml saline reduce the incidence of cuff overinflation?
- Does educational intervention promoting proper cuff pressures lead to inflation of ETT cuff of < 25 cmH2O?

**Methodology**
- Quantitative, quasi-experimental study evaluating anesthesia providers’ choice of saline type when inflating the ETT and subsequent real-time cuff pressures.
- DE ETT cuff pressures measured at Indiana University Health Solon Hematology and Oncology Hospital.
- Anesthesia providers included:
  - Certified registered nurse anesthetists (CRNAs)
  - Anesthesiologists
  - Student registered nurse anesthetists (SRNAs)
  - Anesthesiology residents
- **Study Design**
  - **Phase I:** Pre-Educational Intervention
    - Data Collection via AG Cuff Digital manometers
  - **Phase II:** Educational Intervention
    - Creating and posting flyers on use of 1st inflation saline and proper minimal occlusion leak testing
  - **Phase III:** Post-Educational Intervention
    - Data Collection via AG Cuff Digital manometers

**Pilot Study**
- General anesthesia cases involving the use of an ETT.
- **Exclusions**:
  - Patients receiving nitrous oxide
  - The use of laser or intense light energy modalities (NLM) tubes due to their inherent effect on ETT cuff pressures
  - Anesthesia provider refusal
- Any operating room that had first ETT cuff pressure reading > 20 cmH2O

**Descriptive Statistics**
- SPSS software utilized
- Independent t-test
- Analysis of variance
- Pearson’s point biserial correlation
- p-values of < 0.05 considered statistically significant

**Evidence Based Table**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Methods</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Matrawi et al. (2013)</td>
<td>13</td>
<td>Used saline compared methods of ETT cuff inflation and their effect on cuff pressures.</td>
<td>These results demonstrated minimal absolute and relative mean ETT cuff pressures.</td>
</tr>
<tr>
<td>Breg. et al. (2010)</td>
<td>14</td>
<td>Compared the effect of ETT cuff pressure on postoperative pain in patients undergoing surgical procedures.</td>
<td>Higher ETT cuff pressure was associated with higher 24-hour postoperative pain scores and duration of analgesic use.</td>
</tr>
</tbody>
</table>
| Cheng et al. (2010) | 15 | Assessed the effect of cuff pressure in reducing postoperative pain in patients undergoing surgical procedures. | ETT cuff pressure reduction to < 25 cmH2O significantly reduced pain.

**Previous Research**
- Confirmed that pilot balloon inflation is an inaccurate inflation method.
- Demonstrated that type of anesthesia provider and level of experience had no correlation to ETT cuff pressure.
- No previous studies looked at the use of a saline infusion.

**Conclusions**
- **Goal:** To prevent patient complications and ensure the best possible clinical experience.
- **Educational component:** The minimal occlusion leak test can help to decrease overall ETT cuff pressures.
- Hypothesized that anesthesia providers may start to operate at lower cuff pressures.
- Strong correlation found between cuff pressure size and ETT cuff pressure.
- It is recommended that all anesthesia providers start to use a 5 ml saline when inflating the ETT cuff.
Opioid Alternative Medications: CRNA Beliefs, Opinions, and Practices

David Velasco, DNP, CCRN, RN, Shannon D. Simonovich, PhD, RN, Bernadette Roche, CRNA, EdD, Susan Krawczyk, CRNA, DNP

Background:
Opioids are powerful pain medications that have significant side effects. The U.S. now consumes approximately 80% of the world’s supply of opioids. The AANA is urging healthcare professionals to “use opioid-sparing pain management techniques to better prevent opioid addiction and abuse.” Opioid alternative administration can treat analgesia and limit opioid administration.

Study Objective:
To examine and describe CRNAs’ beliefs, opinions, and practices on administering opioid medications versus opioid alternative strategies to treat intraoperative pain.

Study Methodology:
Qualitative, survey study design using semi-structured interviews. Twelve CRNAs were interviewed and audio recorded discussing their perspectives and opinions on administering opioid alternatives.

Illustrative Quotes:
Barriers to Opioid Alternatives

“I don’t know, opioids just work way better and their effect is fast and predictable.”

“I don’t care what the research shows, I anecdotally see a very poor outcome [with opioid alternatives].”

“The barrier to me is more what’s available to me and what I can give (based) on the institution.”

“The barriers for me is what’s available to me based [on the] institution.”

Promoting Factors for Opioid Alternatives

“I have found that if I attack pain receptors at every avenue, the patients are more comfortable and [require] less narcotic.”

“If your goal is to get somebody up quicker, regional blocks, peripheral blocks, TAP blocks, are a great additive to the anesthetic.”

“Options being encouraged are opioid sparing techniques such as ERAS.”

 “[Opioid alternatives] save the [patient] nausea, any complications after, and they extubate faster.”

Results:
Prevalent barriers included: opioid superiority (83%), inconsistent analgesia effects of opioid alternatives (83%), and patient comorbidities (100%). Prevalent promoting factors included: avoiding adverse effects of opioids (92%), positive experiences with alternative administration (100%), regional superiority (100%).

Implications for Nursing:
Opioid administration can be reduced after realizing the factors that hinder or encourage opioid administration by CRNAs.

What’s Next:
Future studies should aim to recruit a larger sample size with weighted assessments.

Conclusion:
Understanding the barriers and promoting factors to opioid alternative administration can be useful to enhance its usage.

Funded in part by the Zeta Sigma Chapter of Sigma Theta Tau International
Use of Non-Technical Skills Training & Video Simulation to Improve Knowledge Among Nurse Anesthesia Trainees

By: Laurie McLaughlin RN, DNP and Kathryn Walus RN, DNP
Committee: Karen Kapanke DNP, CRNA and Julia Feenstra DNP, CRNA

BACKGROUND

The transition from didactic component to clinical practice is challenging for nurse anesthesia trainees. When faced with an anemic crisis, successful management involves non-technical skills, which include recognition, decision-making, and prioritization. Limited data is available on the efficacy of instructional video on enhancing non-technical skills during anemic crisis management among nurse anesthesia trainees.

PURPOSE

The purpose of this study was to examine the efficacy of instructional video simulation on enhancing the nurse anesthesia trainee’s knowledge of recognition, decision-making, and prioritization during bronchoscopy and laryngoscopy anemia crises.

METHODS AND MATERIALS

1. Non-Technical Skills Video: A non-technical skills instructional video was developed and stored.
2. Distribution of Demographic Information Questionnaire and Pre-Test: Non-Technical Skills Knowledge of Bronchoscopy and Laryngoscopy Management
3. Implementation of Non-Technical Skills Instructional Video Simulation
4. Distribution of Post-Test: Non-Technical Skills Knowledge (KT)

RESULTS

A Wilcoxon Signed Rank Test demonstrated that the median post-test scores were statistically higher than the median pre-test scores for pre and post-instructional video (25 = 4.47; p<0.001; 2-tailed) with adequate pre and post-test reliability (0.533; 0.595). Specifically, post-test median knowledge scores for bronchoscopy and laryngoscopy were statistically higher than median pre-test scores (65; 5.956; p<0.001; 2-tailed)

DISCUSSION

These findings demonstrate:
1. The effectiveness of using instructional video simulators to improve non-technical skills knowledge during anemic crises such as bronchoscopy and laryngoscopy for nurse anesthesia trainees.
2. NAT 3 students may have had an advantage over NAT 2 students due to more clinical experience
3. Prioritization was significantly enhanced.
4. There was a larger increase in prioritization knowledge for bronchoscopy vs. laryngoscopy possibly due to less clinical experience with bronchoscopy.

Limitations - Insufficient number of questions in the simulation recognition and decision-making led to small p-values for KT scores. Therefore, these results were considered unreliable.

Future Recommendations - Larger sample size, control group, more questions, and standard patient setups at a later date.