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General Poster Abstracts

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Product Invention

A1

Quit Stopping Short: Simulating the Complete Difficult Airway Algorithm

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Introduction: The American Society of Anesthesiologist Difficult Airway Algorithm (ASA DAA) is the evidence-based method and standard of care for safely managing a patient's airway (Apfelbaum et al., 2022). The algorithm should be taught in its entirety, but also simulated in its entirety to increase provider competence. Efficiently and effectively transitioning through each step of the algorithm, ultimately to the surgical intervention of cricothyrotomy (cric), is a necessary life-saving skill that all anesthesia providers must possess. Current manikins, including Hal © by Gaumard, do not have the ability to completely self-modify into a 'cannot intubate, cannot ventilate' (CICV) setting. This means to simulate the final, life-saving step of cric, it must be outside the manikin. A lack of cohesion reduces learner buy-in and negatively impacts the learning and confidence building process. Creation of a 3D printed modification piece for the manikin allows for one immersive crisis simulation experience that encompasses all components of the ASA DAA.

Development/Design: After recognizing the need for a high-fidelity crisis simulation (sim) encompassing the entire difficult airway algorithm, including cric on the manikin, a literature review was conducted. Many task trainers and tissue specimens were used, and sim of the skill showed increased confidence. Requiring the skill in an unanticipated setting and time is beneficial (Petrosoniak et al., 2017). High-fidelity sim also increases provider competence with a CICV situation (Muniandy et al., 2015). Marshall and Mehra (2014) show benefit in having a cognitive aid present in a sim CICV crisis. No study combines the benefits of skill performance on a manikin, an immersive crisis sim setting, and practice of the complete ASA DAA in one cohesive experience due to limitations including the lack of availability of a high-fidelity manikin that can adequately sim a CICV situation. To accomplish this, a 3D printer created an airway blocker for the manikin trachea to prevent tracheal intubation but is not visible during laryngoscopy and is open anteriorly.

Proof of Concept/Results: The 3D printed tracheal piece was initially tested by nurse anesthesiology (NA) faculty. The first piece did not leave enough anterior space for easy placement of the tracheostomy tube. An updated piece was printed and proved successful. A total of 50 senior NA students were brought to the sim operating room in groups of 2-3 students to provide care for an emergency Cesarean section. Embedded sim personnel included a surgeon, circulating nurse, and scrub nurse. Neuraxial block was ineffective, and the fetus was rapidly decompensating, requiring conversion to general anesthesia. The students were expected to progress through the ASA DAA and had availability of all needed equipment including the difficult airway cart which included a cric kit and cognitive aid listing steps for cric completion. The sim and all equipment including the 3D printed tracheal modification were successful in achieving the goal of one cohesive experience to sim the entire ASA DAA in a high-pressure sim setting. Student feedback was overwhelmingly positive.

Discussion/Conclusions: Cricothyrotomy is an essential life-saving skill that all anesthesia providers should maintain competence with. It is the preferred surgical airway for anesthesia providers. Although the CICV situation is rare, when encountered it is deadly for the patient without appropriate intervention. Procedural sim practice is shown to improve perceived and actual competence for the skill,

but it lacks application of the ASA DAA and crucial decision-making steps in a stressful environment. It is evident that the need for a combination of these designs is necessary for the greatest learning benefit. The barrier to implementation was the lack of a high-fidelity manikin that can effectively simulate a CICV scenario, therefore a tracheal modification was created using a 3D printer. Without the 3D printed modification piece for the manikin trachea, the entire algorithm cannot be simulated in its entirety with one cohesive experience. A new membrane and skin piece was replaced for each group, but the modification piece can be used continuously. These students were taught the ASA DAA, including cricothyrotomy placement with a porcine trachea, a year prior to this crisis simulation experience where they did not know what scenario would occur. Although this was intended to teach students, further expansion to other anesthesia providers could ensure continued provider competence and save lives.

Quality Improvement

A3

Effectiveness of an Educational Podcast for CRNA Preceptors

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Background: Preceptorship is an effective teaching and learning model that is the mainstay of graduate clinical education. Despite the importance of clinical education, little is done to support and educate the CRNA in the role of clinical educator. CRNA preceptors aid in the transition of students from novice to professional anesthesia providers in an efficient, safe, and personal manner. However, many CRNAs lack proper training and resources before assuming the preceptor role. Nurse anesthesia students have reported frustration with various preceptors in the following areas: inconsistent feedback, conflicting evaluations, subpar teaching skills, intimidation, and poor communication. The lack of preceptor training can limit CRNAs' role as educators, negatively impacting the preceptorship experience for both experienced providers and students. Creating an educational podcast addressing these issues can equip CRNAs with vital information regarding how to be effective preceptors.

Method: This quality improvement project utilized a combined quantitative and qualitative survey design to assess current CRNA preceptorship knowledge and attitudes at a large teaching medical center. A pre-survey utilizing a Lickert-scale questionnaire was developed and modeled after Scott-Herring and Sing's "CRNA Preceptor Needs Assessment Survey." Open-ended questions were also included to gather qualitative data. The responses garnered from this survey were utilized to inform topics to include in an educational podcast. The three topics included in the podcast were supported by themes found in literature and included: expectations for first-year versus senior student registered nurse anesthetists (SRNAs), purpose and effectiveness of evaluations of SRNAs, and barriers to precepting SRNAs including evidence-based strategies to overcome these barriers. The podcast was recorded by project members through a recording platform (Anchor) and made available through an audio streaming provider (Spotify).

Results: This doctoral project aimed to assess baseline knowledge and attitudes of CRNAs regarding preceptor preparedness and evaluate the effectiveness of an educational podcast. A total of 13 CRNAs participated in a pre-survey, listened to the podcast, and completed a post-survey. A Mann-Whitney U test was used for data analysis and a grouped median was reported. While quantitative results were shown to not be statistically significant, qualitative data from the open-ended question responses were impactful. When respondents were asked how the educational podcast changed their practice as a preceptor, 63% answered that knowledge improved regarding teaching techniques and strategies to address students. Additionally, all participants (100%) responded that they did not prefer a different teaching method other than a podcast. This project demonstrates how podcasts may improve knowledge and the effectiveness of the preceptorship role, thus improving the educational experience for CRNAs and SRNAs.

Discussion: Lack of formal preparation for preceptors can limit CRNAs' effectiveness in their educational role for SRNAs. This project aimed to address preceptor preparedness by obtaining quantitative and qualitative data through surveys that assessed the knowledge and attitudes of CRNAs as preceptors. Responses from the pre-survey were used to inform an educational podcast with the intent to increase preceptor preparedness. The literature supports preceptor education, citing increased comfort and

contentment when precepting new-to-practice CRNAs and students, resulting in a satisfied and confident orientee. Quantitative data garnered from the surveys were not statistically significant in demonstrating a change in provider preparedness. However, more impactful were the open-ended responses from the post-survey. Sixty-three percent of participants reported an improvement in their knowledge pertaining to teaching techniques and strategies to meet different learning needs. Furthermore, data showed that all participants preferred learning via an educational podcast over other teaching platforms, supporting its use as an effective teaching method. These findings are pertinent to the nurse anesthesiology profession and educators, as implementation of an educational podcast to address preceptor preparedness has the potential to increase the satisfaction of both learners and educators alike.

Quality Improvement

A4

Thrive: A Collaborative Wellness Initiative to Cultivate Resilience in Student Registered Nurse Anesthetists

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Background: Multiple factors have increased stress and anxiety for student registered nurse anesthetists (SRNAs). These factors include the addition of a practice doctorate with associated scholarly requirements, increased program length, costs, and practicum hours.[1,2] The full impact of the COVID pandemic is unknown. A government advisory report appealed to educational leaders and institutions to foster a learning culture by equipping students with evidence-based tools and training that support mental health and substance use care.[3] This report also petitioned educators to address the needs of diverse students challenged by systemic barriers that hinder their success.[3] A study of SRNAs in 2012 found that 43% reported being depressed during their anesthesia program, with 21.2% reporting suicidal ideation and 29.3% indicating alcohol as a coping strategy.[4] Thrive was developed to provide strategies and tools to support students, create a culture of wellness, and study periods of increased stress and anxiety during students' education and training.

Method: Thrive was created in 2021 as a faculty-facilitated quality improvement program designed in collaboration with Counseling Services and an instructional designer. The Thrive program is a hybrid approach offering face-to-face and online content throughout the 9-semesters of anesthesia school. Topics are introduced in online modules based on specific expected stressors and challenges associated with the didactic and clinical phases of training. Through a contracted partnership, diverse students are provided virtual opportunities for support and coaching to address unique barriers and disparities. Thrive participation is voluntary; however, students are awarded digital credentials for completing modules and providing artifacts illustrating participation. Data are collected through an annual Qualtrics survey combining the PSS and PHQ-9 anxiety and stress screening surveys to assess student well-being at various phases of their education. With current data, several themes have emerged to provide a focus for future interactions and content.

Results: The first two cohorts, graduating in 2024 and 2025, have actively participated in online content and face-to-face events. The 2024 cohort preliminary data did not show a statistical difference from the first survey (beginning of 1st year) to the second survey (beginning 2nd year, mid-didactic phase) except for increased stress and nervousness, sleep-related disturbance, and lack of energy. A significant finding from questions in the initial demographic survey for the 2024 and 2025 cohorts is that 51% and 46% report that earning a digital credential motivates them to complete the modules. Data were also gathered to determine student preference for content delivery within the online modules. The results indicate that students preferred podcasts (75%), enabling them to listen while performing other physical tasks. Open-ended questions also revealed the desire to hear strategies and advice from prior students and the counseling staff. Diverse students overwhelmingly participated in the virtual coaching program.

Discussion: The impetus for developing Thrive was the observation of nurse anesthesia faculty that students in the doctorate cohorts exhibited anxiety and lack of motivation sooner and more profoundly than their counterparts in the master's program. Additionally, current students were practicing critical care nurses during the pandemic, which is assumed to have impacted their well-being before entering school. A culture that destigmatizes mental health challenges and encourages wellness has been

cultivated through a combination of asynchronous learning modules and planned face-to-face forums and events for students and their support systems. While it is too soon to report significant findings, several themes have emerged that can guide the Thrive team to focus efforts on specific content and strategies. Students report large and small breakout group meetings with the counselor and faculty as beneficial, but most appreciate hearing from prior students. Digital credentials demonstrating participation to future employers are a significant motivator for participation. Challenges encountered are funding for events and resources, creating meaningful discussions, and time for students to engage in the program. This faculty and other researchers indicate that further resilience strategies and self-efficacy studies of SRNAs are warranted.

Funding Sources: The Thrive team was awarded a university grant to provide funding to develop and maintain the program.

Quality Improvement

A5

Impact of a Nurse Anesthesia Program on the Emotional Intelligence of Student Registered Nurse Anesthetists

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Background: Certified registered nurse anesthetists (CRNAs) work in high stress environments that require unwavering attentiveness, effective communication, and interdisciplinary teamwork. Stress-related burnout has been reported and linked to poor job performance, declining health, and emotional burdens. Research has shown that CRNAs who possess high emotional intelligence (EI) demonstrate increased job satisfaction and improved quality of life. EI is defined as the ability to perceive, understand, and regulate personal emotions, as well as decipher others' emotions to foster intellectual growth. The educational training for this career is rigorous, and research has explored the importance of EI being implemented into nurse anesthesia program (NAP) curriculums to prepare future CRNAs for emotional demands in the clinical setting. The purpose of this project was to longitudinally assess the impact of a southeast academic medical center's current three-year NAP curriculum on the EI of student registered nurse anesthetists (SRNAs).

Method: The sample included 26 SRNAs enrolled in the same cohort of a NAP. The EI of each student was assessed via the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) at 3 points throughout the program: program-start (May 2019), post-didactic (September 2020), and program-end just prior to graduation (April 2022). The MSCEIT, a 141-item test, determined EI by collecting 9 different score-sets for each SRNA. The data was evaluated by comparing scores at the program-start vs. post-didactic, program-start vs. program-end, and post-didactic vs. program-end. Descriptive statistics were reported using mean (standard deviation) and frequency (percent) for continuous and categorical variables. Differences in means were assessed using a paired t-test or Wilcoxon test, where appropriate. All analyses were conducted using SAS 9.4, with an alpha level of 0.05.

Results: A total of 26 SRNAs were examined throughout this longitudinal study; the participants were an average age of 27.7 years old at the start of the analysis, with 16 females and 10 males. When examining program-start vs. post-didactic MSCEIT results, there was a statistically significant difference found for Managing Emotions (98.3 vs. 105.0, $P = .0001$) and Strategic EI scores (99.5 vs. 106.5, $P = .0007$), with results being higher post-didactic for both. When comparing post-didactic scores vs. program-end scores, there were statistically significant differences for Perceiving Emotions (99.3 vs. 93.2, $P = .0303$), Strategic EI (106.5 vs. 101.2, $P = .0268$), and Overall EI Score (102.6 vs. 97.0, $P = .0112$), with scores being lower at program-end for all. Lastly, when assessing program-start vs program-end scores, there were statistically significant differences for Perceiving Emotions (101.4 vs. 93.2, $P = .0023$) and Experiential EI (100.4 5 vs. 94.4, $P = .0286$), with results being lower at program-end for both.

Discussion: Overall EI Scores decreased throughout the NAP's entirety. The average program-end score was 97.0, which was decreased from the average post-didactic score of 102.6. The results agree with the literature, as there was a lack of an emphasis on EI throughout the NAP's curriculum, and the SRNAs' EI decreased. Prior studies have found that EI scores will decrease or remain unchanged when no specific EI training is administered throughout a program. The results from this study reveal that modifications are needed to the current EI education at the NAP, or a more efficacious EI intervention alternative

should be implemented. There are limitations to this study. The SRNAs were tested at the conclusion of the NAP which consists of many stressors including studying for the national certification exam, applying for job positions, and completing 18 clinical rotations. Additionally, approximately one-third of the didactic portion of the program was conducted in isolation due to the Covid-19 pandemic. The MSCEIT does not account for the aforementioned variables which could have impacted the results. In conclusion, the EI intervention within the NAP needs to be amended in alignment with best practice for EI education. This longitudinal analysis reveals the necessity of having an adequate EI intervention in the curriculum to foster and improve the EI of SRNAs.

Quantitative Research

A9

Length of Stay and Readmission Outcomes among Patients Undergoing Total Knee Arthroplasty

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Introduction: Total knee arthroplasty (TKA) is now being performed as an outpatient procedure for select patients. A review of the research evidence supported that same-day discharge following TKA is safe and highlighted common reasons (nausea, hypotension, pain, urinary retention, and hypoxia) for same-day discharge failure. General anesthesia (GA) and neuraxial anesthesia (NA) are both safely used for TKA and the anesthesia type influences outcomes following TKA. This project's purpose was to examine TKA outcomes, stratified by anesthesia type, prior to implementation of a same day TKA protocol at two medical centers to establish trends over time prior to the new protocol implementation. This project aimed to answer the question: Among patients undergoing TKA, what factors influence length of stay and readmissions after surgery?

Methods: This retrospective project examined adult patients undergoing primary, elective TKA at two medical centers. One facility is a large level-two trauma center and the other is a community hospital. The total sample size was 6,740 patients, with 2,609 patients receiving GA and 4,131 receiving NA. Measured project outcomes included PACU and postoperative length of stay (LOS) and 90-day readmission rates to the hospital and emergency room. The sample of patients undergoing TKA was characterized utilizing appropriate univariate analysis. LOS and readmission outcomes over time were also evaluated, stratified by anesthesia type (GA or NA). This was assessed utilizing unadjusted linear and logistic regression modeling. Independent risk factors for prolonged length of stay (in PACU or in facility) and for increased readmissions at 90 days (to ER or to facility) were also identified. These factors were identified using adjusted linear regression (for length of stay outcomes) and logistic regression (for readmission outcomes) models.

Results: Findings align with literature-identified trends that LOS following TKA is decreasing. Hospital LOS following TKA at these facilities has decreased significantly over time by an average of 8.16 hours/year (95% CI 7.49-8.82, $P < 0.001$) for GA cases and 6.76 hours/year (95% CI 6.36-7.16, $P < 0.001$) for NA cases. Receiving a PNB (peripheral nerve block) preoperatively was associated with a hospital stay that was an average of 3.87 hours shorter. The sum of postoperative oral MME (total doses of oral opioids) was also an independent predictor of hospital LOS. Changes in PACU LOS over time were clinically insignificant. Independent predictors of prolonged PACU LOS were identified and include emesis in PACU, receiving a PNB postoperatively, hypotension in PACU, receiving GA, or a history of chronic kidney disease (CKD). 90-day readmissions have decreased over time for both GA (OR 0.90, 95% CI 0.82-0.97, $P < 0.05$) and NA cases (OR 0.85, 95% CI 0.78-0.93, $P < 0.001$). ER visits within 90 days of TKA have remained unchanged over time.

Discussion/Conclusions: These findings, particularly the downward trend in LOS following TKA, are encouraging when considering the recent implementation of a same day TKA protocol. It is also reassuring that as reductions in length of stay were observed, there was not a concurrent rise in readmissions, which could suggest that patients were being discharged too soon. The identification of independent predictors for a prolonged or shortened hospital and PACU LOS can be utilized to inform future same day total joint protocol revisions to promote optimal utilization of limited healthcare resources. This project has established baseline trends in LOS and readmission outcomes following TKA

in the period prior to same day TKA protocol implementation. Continued evaluation of LOS and readmission outcomes should be completed as the new protocol is implemented to assess the impact of these new care protocols on patient care outcomes. The main limitation of this study is that as a retrospective study, it is subject to confounding biases.

Quantitative Research

A10

Intraoperative Intravenous Ketamine in Elective Spinal Fusion Surgery: An Evidence-Based Practice Project

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Introduction: Anesthesia providers play an integral role in managing patients' pain when undergoing spinal fusion surgery. In an effort to fight against the opioid epidemic, anesthesia providers are moving toward delivering multi-modal analgesia, which avoids opioid-based pain management. A review of the research evidence demonstrated that ketamine is efficacious as an opioid sparing anesthesia adjuvant and results in reduced perioperative opioid requirements and postoperative complications. The primary purpose of this project was to identify practice trends and prevalence of intraoperative intravenous ketamine administration among adult patients undergoing spinal fusion surgery at Providence Sacred Heart Medical Center (PSHMC). The project aimed to answer the question: What are the utilization trends for ketamine administration among patients undergoing spinal fusion surgery?

Methods: This retrospective project examined adult patients undergoing general anesthesia for elective spinal fusion surgery at PSHMC between 2014 and 2020. PSHMC is a non-profit, 644-bed, Level II academic trauma center that serves the greater Spokane area, Idaho, and Montana. The total sample size was 2,865 patients. Univariate analysis was conducted to identify and characterize the project sample. Bivariate analysis was conducted to compare demographics and case characteristics of patients who did and did not receive intraoperative ketamine. The proportion of intraoperative intravenous ketamine administration over time was calculated to assess practice trends and the prevalence of cases receiving ketamine was reported. Binary logistic regression, both unadjusted and adjusted, was used to examine odds of ketamine administration over time and identify confounding variables. The purpose of the adjusted logistic regression was to account for other variables that may influence the outcome.

Results: Among 2,865 cases, ketamine administration was observed in 29% of patients undergoing elective spinal fusion surgery. Patients with an American Society of Anesthesiologists (ASA) score of 2-4 were 1.76 to 1.97 times more likely to receive ketamine than those with a score of 1. Ketamine administration was associated with longer case duration (median 222, IQR 166-295, $P < 0.001$) and PACU time (median 86, IQR 67-110, $P < <0.001$), with a median difference of 12 minutes. An increase of ketamine administration of 3% to 45% was noted between 2014 and 2020. In a multivariable model in which patient characteristics were controlled, increased odds of ketamine administration persisted over time. Case duration in minutes (OR = 1.554, 95% CI = 1.475-1.639, $P < 0.001$) was the only significant independent effect identified in the adjusted model. A 58.4% unadjusted increase was noted in the odds of receiving ketamine (the outcome variable) in relation to surgical year (the exposure variable). When controlling for independent risk factors, a 55.5% adjusted increase in the odds was observed.

Discussion/Conclusions: Research evidence has demonstrated improved pain management and reduced opioid requirements in cases utilizing intraoperative intravenous ketamine. By identifying implementation rates over time at PSHMC, findings can be utilized by anesthesia providers to further improve patient care. Additionally, by categorizing the patient demographics of those who receive intraoperative intravenous ketamine, anesthesia providers can more easily identify patients who are an appropriate candidate for ketamine. The main limitation of this project is that because it is retrospective, it is subject to confounding biases. Recommendations for future research include

stimulating further hypotheses for well-designed RCTs that can evaluate appropriate dosing and timing of administration for ketamine in elective spinal fusion surgeries.

Quantitative Research

A11

The Impact of High-Fidelity Simulation on Student Registered Nurse Anesthetists' Pharmacology Knowledge Acquisition and Retention

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Introduction: Acquiring and retaining extensive knowledge of pharmacological principles is essential for student registered nurse anesthetists (SRNAs) to provide safe anesthesia as well as to pass the certifying board exam. An educational model that promotes long-term retention of pharmacology could optimize anesthesia training outcomes. Many nurse anesthesia programs incorporate high-fidelity simulation (HFS) into their curriculum to teach students clinical skills in an environment that does not compromise patient safety. However, there is limited research exploring HFS use to specifically teach pharmacology concepts. This study investigated the impact of HFS on pharmacology knowledge acquisition and long-term knowledge retention in SRNAs.

Methods: This study utilized a quasi-experimental design in which 26 first-year SRNAs participated in a pharmacology-focused simulation and debriefing session after attending traditional pharmacology lectures in a Doctor of Nurse Anesthesia Practice Program curriculum. Short-term knowledge acquisition and long-term knowledge retention following this educational intervention were measured through comparison of pre- and post-simulation examinations. The exam was administered to SRNAs immediately before the simulation, immediately after the simulation, and 60 days post-simulation. The exam consisted of 10 questions related to autonomic nervous system (ANS) pharmacology, which was taught through traditional lectures and reinforced with the simulation intervention and 10 control questions related to local anesthetic (LA) pharmacology, which was also taught in a traditional lecture but not reinforced with HFS. Data was analyzed by performing paired two-tailed t-tests.

Results: There was no significant difference in scores between LA and ANS content on the pre-simulation test ($P = .47$): the average was 48.1% (standard deviation [SD] = 20.4%) for LA questions and 50.8% (SD = 13.2%) for ANS questions. The average score of the LA questions on the initial post-simulation exam was 49.2% (SD = 23.7%), which was not significantly different from the pre-simulation exam ($P = 0.71$). The average score of the ANS questions on the initial post-simulation exam was 87.3% (SD = 8.3%), which was a statistically significant improvement from the pre-simulation exam ($P < 0.001$). On the 60-day post-simulation exam, the average score was 46.5% (SD = 17.4%) for LA questions and 80.4% (SD = 16.6%) for ANS questions. There was no significant difference in scores from the initial post-simulation exam to the 60-day post-simulation exam ($P = 0.08$). Years of nursing experience did not have a significant effect on exam scores ($P = 0.26$).

Discussion/Conclusions: Supplementing didactic nurse anesthesia pharmacology lectures with a pharmacology focused simulation intervention improved knowledge acquisition and prevented knowledge decay in SRNAs. After a pre-simulation test demonstrated equivalent baseline knowledge between simulation-related (ANS) and control (LA) content, SRNAs participated in a simulation. Immediately following the simulation, scores on LA questions remained equal to the pre-simulation test. However, there was significant improvement on ANS questions, revealing that the simulation increased pharmacology knowledge acquisition. These findings are consistent with previous research suggesting that a simulation teaching modality is more effective for acquiring knowledge than non-simulation

instruction. Sixty days later, exam scores did not change, indicating there was no decay of the knowledge initially acquired. This suggests simulation may serve to enhance pharmacology knowledge retention, which can be a challenge with traditional educational approaches. Several limitations exist. The study utilized a set of control questions and a pre-test, post-test design. In the future, a randomized controlled design should be considered. Furthermore, since all participants were enrolled in the same nurse anesthesia program, multisite studies should be replicated to validate or refute these findings.

Quantitative Research

A12

Video Learning as an Adjunct for Nurse Anesthesia Students' Clinical Education

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Introduction: Skills-based training videos developed by "reputable" parties (institutions, societies, etc.) were often lacking in anesthesia. By providing evidence for a learning technique that has not been extensively researched and lacks anesthesia representation, the clinical impact of this study would be the potential to create better prepared, more confident student registered nurse anesthetists and smooth the transition to clinical practice.

Methods: Data was collected using validated fluency checklists and Qualtrics. Data was analyzed with Microsoft Excel and SPSS. Dependent variables: Student competence using a standardized checklist, time to complete the fluencies, and educational satisfaction were measured with direct observation and survey data. An independent-groups t-test was used to compare student performance and recorded times needed to complete each skills checklist, with a confidence interval constructed around the difference between the two means. In order to account for the probability of any error having occurred, statistical significance was set at alpha = 0.05 (confidence interval of 95%).

Results: Quantitative results: All skill fluencies showed no significant difference in groups comparing correct performance of the skill. The direct laryngoscopy, rapid sequence induction, and supraglottic airway insertion video group took longer to complete the skills checklist than the faculty-guided group. The spinal, epidural, and arterial line insertion skills demonstrated no significance in time taken to complete (all $P > 0.05$). CVC insertion was the only fluency where the traditional group took longer than the video group to complete ($P < 0.014$). Qualitative results: There was an 81% survey response rate for both groups. Most students preferred "hands on practice" when learning new anesthesia skills. Students in the traditional group claimed to spend more of their free time in the lab compared to the video group. Self-efficacy in performing all skills tested was similar in both groups. The faculty-guided group rated their self-efficacy as 8.15 on a scale of 10. The video instruction group rated their self-efficacy as 8.13 on a scale of 10.

Discussion/Conclusions: Without significant differences in test scores between the two groups, video-learning could be seen as a viable option for SRNAs learning clinical skills. Video-learning is sustainable, cost-effective, and allows students to have unlimited access to the videos for further viewing after in-person sessions have concluded. Students would prefer to have simulation videos as an adjunct to traditional learning methods.

Quantitative Research

A13

Nurse Anesthesia Students' Self-Perception of Skills in Alternative Approaches for Difficult Intubations: A Mixed-Methods Study

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Introduction: Using alternative intubation techniques is crucial to difficult airway management and nurse anesthesia training. The gum elastic bougie, fiberoptic bronchoscope (FOB), and intubating laryngeal mask airway (ILMA) are alternative tools that have been a part of the difficult airway algorithm for decades. Since its introduction in 2001, the video laryngoscope (VL) has become the preferred tool for managing a difficult intubation. Video laryngoscopy has limitations; therefore, nurse anesthesia students must learn to use classic alternative intubation techniques during clinical training. We hypothesized that high success rates with the VL have reduced nurse anesthesia students' opportunities to use and, therefore, become confident in alternative approaches to intubation.

Methods: A mixed-methods research study compared student self-confidence using classic alternative approaches to intubation (bougie, FOB & ILMA) to VL for difficult intubations. We distributed a Likert scale quantitative survey to measure confidence levels and perception of preceptors' willingness to teach each device to third-year doctoral nurse anesthesia students nationwide; 127 students completed this survey. In addition, unmatched qualitative interviews were conducted with 21 volunteer participants to provide further insight and rationale for the survey results. In our poster presentation, we will discuss the research findings, which have the potential to improve nurse anesthesia training regarding difficult airway management.

Results: There is a positive correlation between participants' confidence levels using a specific tool and the number of opportunities using that tool. Participants reported 66 median uses of the VL compared to the bougie, ILMA, and FOB (median 3, 0, 5, respectively). A median of 48 participants reported feeling moderately confident using the VL, compared to the bougie, ILMA, and FOB at 4, 2, and 10, respectively. There is a positive correlation between participants' perceived preceptor prioritization and opportunity, with estimates of gamma correlations of 0.549, 0.8, 0.774, and 0.853 for VL, FOB, bougie, and ILMA, respectively. However, estimates of 0.135, 0.519, 0.527, and 0.664 for VL, FOB, bougie, and ILMA show a weak correlation between preceptor prioritization and students' perceptions of relevance to practice. Themes identified in the interviews included students' perceptions of accessibility, time constraints, clinical faculty comfort level, preference for the VL, tools not offered, denied opportunities, cost, and availability.

Discussion/Conclusions: When preceptors prioritize a specific tool, the students have more opportunities to become proficient with a skill and report feeling confident using the tool to manage challenging airways. The difficult airway algorithm identifies other tools, including the FOB, bougie, and ILMA, yet according to the results of our research, these tools are not utilized in clinical teaching as much as the VL. Students feel very confident using the VL, some with as few as seven uses, but preceptors continued to prioritize VL training. The weak correlation between preceptor prioritization and relevance to future practice indicates a discrepancy between what clinical preceptors prioritize and what students perceive as essential to future practice. The themes identified from the interviews provided further insight into the participants' perception of the clinical preceptors' choice of tools when managing difficult airways. In addition, the study showed an opportunity to more effectively use clinical training time to increase students' confidence in managing difficult airway situations using a variety of tools. Limitations include small sample size, possible inaccuracies in student reporting of non-required experiences, and differing interpretations of Likert-style answer options.

Funding Sources: A University Faculty-Student Research Grant of $1,000 was used for a random drawing to incentivize student registered nurse anesthetist participation in the survey and interviews.