Development of an Online CRNA Preceptor Workshop for the University at Buffalo DNP Nurse Anesthesia Program
by
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This is to certify that

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successfully defended their project entitled:

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Abstract

The purpose of this Doctor of Nursing Practice (DNP) project was to develop an evidence-based online preceptor workshop for Certified Registered Nurse Anesthetist (CRNA) clinical preceptors to improve their communication skills, teaching strategies, and clinical education consistency with Student Registered Nurse Anesthetists (SRNAs). Knowles Theory of Adult Learning served as the theoretical framework. A webpage was created through web press to host the online workshop. A 20-item pre-educational survey, a 20-item post-educational survey, and a 24-item one-month follow up survey were developed and distributed through SurveyMonkey. A Likert scale was used to measure preceptor responses. A RM-ANOVA was used to measure the means for each item. A total of 37 CRNAs participated in the pre-workshop survey, 28 CRNAs completed the workshop and post-workshop survey, and 20 CRNAs completed the one-month follow up survey. Significant results were noted for the question “please rate your comfort level with conflict management and resolution with SRNAs.” Mauchly’s test of sphericity assumption was x2 (2)= (2.594), p=.273. Test within subjects showed [F (1,16) = 6.054, p = 0.026]. Statistically significant results were also noted for the question “I feel I Provide a formal debriefing of SRNAs performance at the end of every clinical day.” Paired T-test showed significant results from pre-workshop (M=1.70, SD=1.08) and post-workshop survey reflections (M=1.15, SD=0.67) conditions t(19) =2.24, p=0.37. The educational intervention showed a positive impact on clinical preceptor’s communication skills and clinical education consistency. Future research should include a needs assessment survey focusing on perceived CRNA preceptor education needs.

Keywords: CRNA, preceptor, preceptorship, nurse anesthesia, clinical education
Development of an Online CRNA Preceptor Workshop

Student registered nurse anesthetists (SRNAs) depend upon certified registered nurse anesthetists (CRNAs) to serve as clinical preceptors to instill the clinical skills, non-technical skills (NTS) and knowledge necessary to administer anesthetic agents and care for patients under anesthesia (Chipas, Cordrey, & Floyd, 2012; Easton, Lutz, Morrison, & O'Donnell, 2017; Boet et al., 2018). A command of these skills not only demonstrates clinical competence, but also reduces intraoperative errors, adverse patient outcomes, as well as patient mortality (Boet et al., 2018). This transfer of clinical knowledge and NTS is an essential part of clinical education for SRNAs. However, according to Easton et al. (2017), most CRNAs never receive formal training prior to assuming the role of clinical preceptor. The consequence of this omission in formal preceptor training could result in diminished transfer of knowledge of both technical and NTS from the CRNA to the SRNA due to ineffective communication and teaching techniques.

**Background and Significance**

The literature proposed that most CRNAs rarely receive formal preceptor training (Easton et al., 2017). Thus, many CRNA preceptors may not have been informed of ideas or information concerning the education of adult learners or how to educate them effectively (Herring & Singh, 2018). As a result, CRNA preceptors may lack the skills necessary to assess an adult learner's needs, may possess ineffective communication strategies, and may have difficulty managing conflict or providing constructive criticism to SRNAs. This deficiency could lead to decreased learning on the part of the SRNA because of a breakdown in communication. Eventually, this breakdown could lead to decreased satisfaction of the clinical experience for both SRNAs and CRNAs.

Evidence suggested that CRNA clinical preceptors who do not receive formal education may have inconsistent teaching approaches and diminished communication with SRNAs (Herring
& Singh, 2017; Easton et al., 2017; Tracy, 2017). Preceptors may neglect to establish daily goals for their student, may fail to communicate their expectations with the student at the beginning of the clinical day, or may neglect to provide ongoing feedback to the student throughout the day. Clinical preceptors may overlook the need to provide students with a debriefing at the end of the clinical day (Easton et al., 2017; Shellenbarger & Robb, 2016). Preceptors may also fail to ascertain their student's needs, skill-set, abilities, clinical knowledge, level within their clinical program, or discuss the students past anesthesia case experiences (Easton et al., 2017; Tracy, 2017).

The lack of formal preceptor education may also lead to frustration, stress, and anxiety for SRNAs during their clinical residency (Tracy, 2017). A study conducted by Chipas et al. (2012) revealed that ninety percent of surveyed SRNAs reported stress related to their educational and clinical experiences. These stressors were related to the adaption to clinical environments, conflict with clinical preceptors, and lack of support from clinical preceptors. Herring and Singh (2017) reported additional areas of dissatisfaction among SRNAs that included inconsistent feedback from CRNA clinical preceptors, lack of interest from the preceptor, poor preceptor teaching skills, inadequate or unprofessional communication, and intimidation by the preceptor. The potential impact of these stressors among SRNAs include social support withdrawal, increased anxiety and depression, alcohol or substance use, decreased program satisfaction, and potential for decreased commitment to the nurse anesthesia profession following graduation. Research identified that one of the most important strategies to improving student self-confidence, satisfaction, and promotion of professional growth is having preceptors participate in a preceptor educational program Shellenbarger & Robb (2016).

According to Herring and Singh (2017), educational programs that targeted CRNA clinical preceptors were shown to have positive effects on both students and preceptors. These
programs were an effective way to improve preceptor communication skills, NTS, and reduced stress levels for both the preceptor and student. As many preceptors have not received formal education in adult learning styles or communication techniques, participation in online training modules and workshops was shown to improve NTS, promote teamwork with the SRNA, and increase confidence and comfort in the preceptor role (Herring & Singh, 2018; Elisha & Rutledge, 2011).

The absence of a graduate level CRNA clinical preceptor workshop for the UB SON Nurse Anesthesia DNP program identified the need for a scholarly project aimed at the development of a preceptor workshop for graduate level clinical preceptors. According to Elisha and Rutledge (2011), the clinical experiences that SRNAs had directly influenced their development of critical thinking skills, professionalism, and proficiency as an anesthesia provider. Given the highly autonomous role of a nurse anesthetist, deficiencies in clinical education can lead to decreased provider performance of both technical and NTS and thus their effectiveness as an anesthesia provider. Hence, the availability of a graduate level preceptor workshop would potentially serve as a guide for CRNA preceptors on how to improve teaching strategies, communication skills, the provision of constructive student feedback, and how improve teamwork with SRNAs.

**Project Purpose, Aim, and Objective**

To answer the question, *Would an online preceptor education workshop at the UB SON Nurse Anesthesia program improve CRNA communication skills and consistency of clinical instruction provided to SRNAs?*, the purpose of this scholarly DNP project was to develop an evidence-based online preceptor workshop for CRNA clinical preceptors for the UB DNP Nurse Anesthesia program. The absence of a graduate level preceptor workshop for the UB SON DNP Nurse Anesthesia program prompted the need for the creation of an online educational workshop
to guide CRNAs in their role as clinical preceptors. The specific aim of this DNP project was to improve CRNA clinical preceptor communication skills, teaching strategies, and clinical education consistency with SRNAs. The project objective was as follows: to develop an online evidence-based preceptor workshop for UB SON CRNA clinical preceptors that covered CRNA preceptor roles and behaviors, and best practice teaching strategies including clinical education consistency, communication skills, providing student feedback, problem solving, and providing a debriefing of student performance. The development of the online clinical preceptor workshop was expected to improve CRNA preceptor communication skills, teaching strategies, and the consistency of clinical education provided to SRNAs. The feasibility of developing the online preceptor workshop was supported and guided by the presence of a UB SON undergraduate online preceptor tutorial as well an online tutorial developed by the University of Pittsburgh's Nurse Anesthesia program.

This project had the potential to improve the clinical education and clinical practice of current and future SRNAs in the UB SON Nurse Anesthesia program. This scholarly project was an important first step in establishing baseline data that could be used for future SON policy creation, Nurse Anesthesia program policy creation, educational interventions at clinical rotation sites, and potential adaption for use by the UB SON graduate program. Current literature demonstrated the advantages of implementing a graduate level CRNA clinical preceptor education workshop with benefits to both SRNAs and CRNAs.

**DNP Essentials**

The role of the advanced practice nurse as part of this scholarly project was to utilize evidenced-based research to develop an online workshop for UB SON CRNA clinical preceptors in an effort to provide improved clinical education for SRNAs and eventually other graduate students within the UB SON as well. This project sought to advance the practice of nursing
through continuing education and application of the DNP essentials as part of this project.

DNP Essentials that were met as part of this scholarly project included Essential I, Scientific Underpinnings for Practice; Essential III, Clinical Scholarship and Analytical Methods for Evidence-based Practice; and Essential VIII, Advanced Nursing Practice. The foundation for the development of this project was based on the translation of current evidence-based literature into best preceptor practices which met the standards for DNP Essential I. DNP essential III was incorporated into the development of this project by means of a critical analysis of current literature and prior research that evaluated the gap in literature for the project. Supporting evidence was sought through a literature review with research demonstrating a need for this educational intervention. The long-term goal of this project was to generate meaningful research for the nursing profession and to further nursing education. Finally, the development of this online workshop sought to improve the relational partnership between CRNA preceptors and SRNAs. The online preceptor workshop also provided continuing education, scholarship, and support to CRNAs who wished to become SRNA clinical preceptors. Both of these ideas contributed to fulfilling DNP Essential VIII, Advancing the Practice of Nursing.

Theoretical Framework

The nursing theory that was used to establish the framework for this scholarly DNP project was Malcolm Shepard Knowles Theory of Adult Learning-Andragogy (Learning Theories, 2019 –missing in reference list…cite author, date). The term Andragogy is defined as “the art and science of helping adult's learn” (Knowles, 1984, p.84). Knowles Theory of Adult Learning stems from the premise that adult learners have different learning needs than children. The theory describes adult learner's ability to be self-directing, and internally motivated in educational settings (Knowles, 1984, p. 53). Knowles theory identifies the following six key postulations that educators should infer about adult learners: 1) The need to know. Adult learners
have a desire to know why they are learning what they are learning. The context behind the lesson provides the learner with self-direction in their own learning, and provides an understanding of the concepts taught and consequences of not grasping the material (Knowles, 1984 p. 56; Halper & Tucker, 2015); 2) The self-concept of the adult learner. The adult student demonstrates a strong sense of independence and is in possession of a strong self-concept (Helpern & Tucker, 2015). Therefore, the adult educator must balance traditional forms of instruction with the adult learner's need for self-direction and self-conceptualization (Knowles, 1984, p. 57); 3) The past learning experience of the adult learner. The adult learner possesses a vast array of knowledge and experience to draw upon as they seek to further their learning (Learning Theories, 2019). The adult educator should draw upon their student's experiences affirming the student's self-concept and value in their role as learners (Helpern & Tucker, 2015; Knowles, 1984, p. 57); 4) Readiness to learn. The developmental maturity of adults changes their mentality toward education. The adult learner grasps the value of their education and reaches a stage where they are focused on learning (Helpern & Tucker, 2015; Learning Theories, 2019); 5) Orientation to learning. The theory suggests that adult learners have the capacity to learn through problem-based or task centered exercises (Helpern & Tucker, 2015); and 6) Increased motivation of the adult learner. In contrast to younger students, adult learners possess an internal drive that motivates them to learn and continue in their education. This would be supported by providing continuing educational credit to clinical preceptors participating in this DNP project.

**Application of Knowles Theory of Adult Learning**

Based on the assumptions established by Knowles theory, the following principles guided the development and establishment of the online educational workshop for UB SON CRNA clinical preceptors. The CRNA clinical preceptors were viewed as adult learners. Adult learners are self-directed and self-motivated in their educational endeavors (Knowles, 1984; Learning
Theories, 2015). In applying this theory to this project, the adult learner's past educational and occupational experiences were taken into consideration. The focus on new learning built upon, and added to, what is already known by the CRNA. Lastly, the online educational workshop content was directed toward practical learning opportunities related to problem solving and practical experiences as opposed to the memorization of facts (Knowles, 1984).

Knowles Theory of Adult Learning was an excellent theoretical framework fit for this scholarly DNP project in that it drew on the assumptions made of adult learners being self-motivated and information seeking. The purpose of this scholarly project was to improve CRNA clinical preceptor communication skills by building on their prior knowledge of communication skills, previous clinical precepting experiences, as well as their experiences as SRNAs. Further, the DNP project student sought to demonstrate to CRNAs that continuing preceptor education could improve their communication and precepting skills. This in turn would improve the clinical experience for themselves and the SRNAs.

Adult learners were described as increasingly choosing distance-learning opportunities for continuing education over traditional models of education due to greater flexibility of online learning and greater ability to be self-directed in their own learning (Darden, 2014; Helpern & Tucker, 2015; Elisha et al., 2018). Adults typically partake in continuing educational courses as a means to seek out immediately useful information that is both applicable and in their best interest (Halpern & Tucker, 2015). In the application of Knowles theory to this DNP project, CRNAs would have the ability to learn the clinical precepting concepts of interprofessional communication skills and teaching techniques through online learning and by drawing on their vast clinical experiences. CRNA preceptors would be motivated to participate to earn continuing education hours by participating in this project.

In summary, applying Knowles theory to this scholarly project drew on the assumptions
of adult learners as described by the theory. Creating an online workshop that considered the past experiences of CRNA addressed the assumption that the CRNA will be successful in the online learning environment because adult learners are self-directed, self-motivated, and goal oriented.

**Literature Review**

To assess trends in CRNA preceptor training programs and nurse preceptorship programs, an extensive review of current literature was conducted. Multiple databases were searched in an effort to maximize compilation of literature. Databases searched included MEDLINE, OVID, PubMed, CINHAL, and Google Scholar. Key words utilized as part of the search included CRNA preceptor, nurse anesthesia, non-technical skills, clinical education, preceptorship, and patient safety in various combinations. The literature search included articles published within the past 12 years due to lack of results within the past 5 years.

The results of the literature search concluded that preceptor-training programs showed positive results for trainees, preceptors, and for clinical site education as well. The implementation of the proposed intervention could improve SRNA clinical education by improving preceptor communication skills, transfer of non-technical skills, improve consistency in SRNA education, as well as CRNA satisfaction with the preceptor experience. The following presents a summary of the literature review.

**Preceptor Best Practice and Education**

A literature review conducted by Mann-Salinas et al (2014) researched the development and implementation of evidenced based preceptorship education programs for nurses transitioning into specialty practices. The results of this review identified a significant gap between best practices in clinical preceptorship and actual preceptor practices. Best practices identified included preceptors understanding their role and imparting their knowledge to students, promoting student success, ensuring skill transfer, evaluation of student performance, working
through challenging situations, and establishment of baseline preceptor behaviors (Easton et al., 2017).

The literature demonstrated that the preceptorship model of teaching in nursing was an effective teaching and learning method in both undergraduate and graduate clinical education. A preceptor can be defined as an experienced clinician who serves as a role model, educator, and supervisor as part of a formalized education program for trainees (Scott-Herring & Singh, 2018). Trainee success can be linked back to their clinical training and experiences with qualified clinical preceptors. Current data suggested that most CRNAs have not received formal preceptor training prior to stepping into the role of preceptor (Elisha & Rutledge, 2011; Scott-Herring & Singh, 2018). Research demonstrated that providing preceptor education to CRNAs had the potential to enhance the transfer of essential patient safety and non-technical skills that are needed for SRNAs to become effective anesthesia providers (Easton, O'Donnell, Morrison, & Lutz, 2017; “Effective Mentoring in the Clinical Setting,” 2016; Elisha & Rutledge, 2011; Scott-Herring & Singh, 2018).

The model of preceptor training was described in literature across different disciplines, and has been incorporated as part of nursing undergraduate, graduate programs, and as part of hospital nurse residency programs (Easton et al, 2017; Thomas, Allen, & Edwards, 2018; University at Buffalo, 2015). Current nurse anesthesia research described the development of preceptor education programs aimed at modifying CRNA teaching behaviors (Elisha, 2008; Scott-Herring & Singh, 2018).

In 2008, Elisha developed an 8-hour preceptor education course designed to instruct CRNA preceptors in areas of adult learning, communication strategies, performing student evaluations, and forming relationships with students. Preceptors were followed up with 2-months after completion of this training program. Results demonstrated that CRNA teaching behaviors
and communication skills improved as a result of this training.

Another study conducted at the University of Pittsburgh in 2018 researched the development and implementation of an online training tutorial for CRNA preceptors (Easton et al., 2018). The lack of a formal preceptor education program at the University of Pittsburgh nurse anesthesia program prompted the development of these education modules. Researchers used current evidence based literature and expert educator input to develop four evidence-based online tutorials aimed at educating CRNAs to the preceptor role. The goal of the creation of the modules was to educate CRNAs to precepting best practices, methods supporting knowledge transfer of non-technical skills, and patient care skills to SRNAs. Results of this quality improvement project also demonstrated that 62% of CRNAs that participated in this study felt that further preceptor education would be beneficial to them.

**Developing Effective Communication Strategies**

The results of this literature review also demonstrated that effective communication strategies played an important role in the perceived quality of clinical education, and preceptor trainee relationship. Daugherty et al. (1998) conducted a study that included 1,274 physicians to explore the perceived quality of clinical learning, intern satisfaction, and reported mistreatment as part of their internship. Results indicated that one of the major root causes of perceived mistreatment and dissatisfaction was inadequate communication. Moreover, findings derived from the development and implementation of CRNA preceptor tutorials indicated that communication and debriefing were both important to both CRNA preceptors and SRNAs (Easton et al., 2017; Elisha, 2008).

Effective preceptor education tutorials served as a guide to clinical preceptors in developing effective communication strategies, providing student feedback, engaging students critical thinking skills, ensuring skill transfer, handling challenging situations, and the promotion
of student success (Easton et al, 2017; Elisha, 2008; Effecting mentoring in the clinical setting, 2016; University at Buffalo School of Nursing, 2015). Thus, the results of this literature review demonstrated the potential benefits to the development of a CRNA preceptor workshop for the UB DNP Nurse Anesthesia Program.

Methodology

Project design

The online clinical preceptor workshop was designed as a non-experimental, longitudinal educational intervention of precepting behaviors of CRNAs who serve as clinical preceptors for SRNAs. The online clinical preceptor workshop was based on the UB SON undergraduate preceptor tutorial, the University at Pittsburgh’s CRNA preceptor training tutorial (CPiTT), and evidence-based research that was gathered as part of the literature review for this project. Workshop module content was evaluated and reviewed by two experienced CRNA clinical preceptors who are prepared at the doctorate level prior to their release.

Education that was available as part of the online educational workshop included the purpose of the preceptor workshop, the importance of continuing education of clinical preceptors, learning objectives, as well as information regarding the UB SON mission, and DNP program. The online educational workshop also provided information to preceptors regarding the role of the student, the role of the clinical preceptor, implementation of the preceptor role, promoting student success, enhancing skill transfer, evaluation of the student, and promoting effective communication with the student.

A webpage was created to host this online workshop through the UB’s web press site. CRNA preceptors were able to claim one-hour of continuing education credit from the nurse anesthesia professional organization, the American Association of Nurse Anesthetists (AANA) for taking part in this online educational workshop. This continuing education credit was free for
individuals wishing to partake in this project.

**Data Collection**

This project was designed as a quantitative study with a 20-item pre-workshop survey, a 20-item post-workshop survey, and 24-item one-month follow-up survey. Surveys were developed to measure current CRNA preceptor perceptions of their communication skills and consistency of the education that they provided to SRNAs. The surveys were developed and distributed through SurveyMonkey. Responses were not identifiable and were coded to maintain confidentiality. All survey items were developed through a review of current literature, adapted from the anesthesia non-technical skills survey, which had established validity and reliability, as well as discussions with an educational expert in the field of quantitative data management. This survey collected participant demographic information to include categorical age groups 25-30, 31-40, 41-45, >45, preceptor level of education to include certificate, masters, doctorate, and number of years serving as a clinical preceptor 1-5, 5-10, 15-20. Surveys were designed to measure preceptor perceptions of communication skills and consistency in providing clinical education to SRNAs.

Likert scales were used to measure preceptor responses to survey questions 1=completely disagree, 2=strongly disagree, 3=disagree, 4=agree, 5=strongly agree, 6=completely agree, and 1=very comfortable, 2=somewhat comfortable, 3=comfortable, 4=somewhat uncomfortable, 5=very uncomfortable, 6=N/A. Each of the questions were closed ended and were reflective of CRNA perceived precepting behaviors. This survey was administered in an online electronic format for participants to complete. It was administered prior to participants reviewing the online educational workshop, immediately upon completion of the online workshop, and in a one-month follow up to completion of the workshop. Responses were coded to reflect participant behavior changes over time.
Population

The population of interest for this project were CRNAs that lived in New York State (NYS) who served as clinical preceptors to UB SON SRNAs. This population was made up of CRNAs who were prepared at either prepared at either the certificate, master's, or doctorate level. A total of 50 CRNAs were anticipated to participate in this project with the potential sample size of 200 CRNAs in NYS.

Ethical Considerations and Procedures

To ensure that appropriate steps were taken to protect the rights and wellbeing of potential research participants, this project was submitted to the UB Institutional Review Board (IRB) for review and approval. Individuals who partook in this project were asked to review a consent form prior to proceeding with the pre-workshop survey, and educational workshop. Participants were informed that they could leave the research at any time and that it would not be held against them. They were informed that because all data was unidentifiable, data already collected would not be able to be removed for the study. The consent form stated that the individual’s participation in this research was limited to the completion of the follow up electronic survey which was distributed to them one month following the review of the online CRNA clinical preceptor guide, after which time the research team would require no further participation from them. Completion and presentation of the research and its findings was expected in the 2019-2020 academic year. Data was collected and will be destroyed in accordance with the UB IRB protocol. Following IRB project approval, CRNAs were recruited to participate in this study.

Procedures and Data Collection

CRNA’s that were recruited to participate in this project were NYS CRNA’s who served as clinical preceptors to SRNAs. Non-English speakers and CRNAs who did not serve as clinical
preceptors were excluded from this project. Participation in this project was voluntary. Research participants were recruited through the NYS Association of Nurse Anesthetists (NYSANA) Facebook page, via email through the UB SON adjunct faculty LISTSERV and emailing the recruitment link to clinical site coordinators to share with CRNAs.

A link to the online preceptor workshop was included in the recruitment advertisement. Before participants could view the content of the online workshop, they were instructed to read the DNP project consent form. By reading the consent form and continuing with the pre-educational survey and viewing the workshop material, the individual was agreeing to participate in the project.

Individuals who participated in this project were asked to complete a survey prior to viewing the online educational workshop. A link to the survey was provided on the website. Participants then viewed the online workshop. Following completion of the workshop, participants were asked to complete the online post-educational survey. At this time, participants were able to claim their continuing education certificate. Information was provided for participants on how to claim AANA class B credits. A one-month follow up survey reminder post was placed on the NYSANA Facebook page, along with a follow-up email through LISTSERV and to clinical coordinators to remind participants to complete a one-month follow up survey.

**Data Analysis**

Once survey results were received, the results of the pre-workshop survey, post-workshop survey, and one-month follow up survey were downloaded from SurveyMonkey into Microsoft Excel spreadsheets, combined into one Excel spreadsheet, organized, reviewed, and exported to SPSS for data analysis. In order to determine if preceptor perceptions of their communication skills and their perceptions of the consistency of education that they provide to SRNAs changed following exposure to the online educational tutorial, a repeated measure ANOVA (RM-
ANOVA) was used to analyze survey data. A RM-ANOVA compares the means across one or more variables that are based on repeated observations (Polit, 2015). Pre-educational means were compared with post-educational mean values, and one-month follow-up mean values for each item. SPSS v25 was used to analyze data collected from participant surveys. Survey results were analyzed for statistical significance. Data analysis results were then used to evaluate the need for continuing preceptor education for CRNA clinical preceptors, to evaluate if changes need to be made to current workshop module content and to influence future preceptor education and workshop content.

**Results**

A total of 37 CRNAs participated in the pre-workshop survey, 28 CRNAs completed the workshop and participated in the post-workshop survey, and 20 CRNAs who had participated in workshop completed the one-month follow up survey.

Demographic data collected from the pre-workshop survey showed 67.6% of the participants were female, 27% male, and 5.4% preferred not to answer the question. Ages of participants ranged from 5.4% in the 25-30 age group, 35.1% in the 30-35 age group, 18.9% in the 35-40 age group, 16.2% in the 45-55 age group, 16.2% in the 50-55 age group, and 8.1% in the 56-65 age group. Highest degree level achieved by participants included 2.7% certificate level, 54.1% master's degree, 37.8% Doctorate degree, and 5.4% had received their PhD.

91.9% of CRNAs who participated in the pre-workshop survey reported that they had precepted SRNAs within the past 6 months, with 8.1% reporting that they had not served as a clinical preceptor. Of those individuals who served as clinical preceptors, 81.1% had precepted students from the UB Nurse Anesthesia program. Individuals who served as clinical preceptors reported the percentage of their full time employment spent working as a clinical preceptor as the following: 13.5% spent 50-74% of their time as a clinical educator, 37.8% spent 25-49%
precepting students, 40.5% spent 1-24% of their time precepting students, and 8.1% reported that they had not precepted students.

A repeated measures ANOVA (RM-ANOVA) was conducted to evaluate if a preceptor workshop would improve CRNA perceptions of their communication skills and the consistency of clinical instruction that they provide to SRNAs prior to their participation in the workshop, post-workshop, and one-month following their participation in the workshop. Mauchly's test was used for the sphericity assumption. This assumption signifies that the population variances and conditions across different scores are equal. Sphericity is assumed if p > 0.05. When the probability of Mauchly's test statistic is > .05, we fail to reject the null hypothesis and that the variances are equal and the assumption has not been violated (Polit, 2015). Significant results were noted regarding the following question, “Please rate your comfort level with conflict management and resolution with SRNAs”, from the pre-workshop survey to the one-month follow up survey. Mauchly's test of sphericity assumption was not statistically significant $\chi^2(2) = (2.594), p=.273$. Test within subjects showed $[F(1,16) = 6.054, p = 0.026]$. 

For the question, “Do you feel comfortable providing written feedback to SRNAs”, a RM-ANOVA was run. Results of Mauchly's test of sphericity for this question were significant, indicating that a violation of the assumption occurred. If Mauchly's test of sphericity is statistically significant (p < .05), the null hypothesis is rejected and we accept the alternative hypothesis that the variances of the differences are not equal and sphericity has been violated (Polit, 2015). A Greenhouse-Geisser correction was used to test within subjects. The Greenhouse-Geisser procedure is used to correct the degree of freedom, this correction yielded a statistically insignificant result .115.

This was also true for the question, “I feel that I provide adequate feedback by means of a daily verbal and a daily written evaluation.” A RM-ANOVA was run. Results of Mauchly's test
of sphericity for this question was significant. A Greenhouse-Geisser correction was used and this correction yielded a statistically insignificant result .233. This result also occurred for the question, “When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your interactions with SRNAs. I feel I provide a formal debriefing of SRNAs' performance at the end of every clinical day.” A RM-ANOVA was run and Mauchly's test of sphericity indicated a statistically significant result. A Greenhouse-Geisser correction was used to test within subjects resulting in a statistically insignificant result .115.

Paired t-tests were also run as part of this analysis to compare means of pre-workshop survey questions with the means of the post-workshop survey questions to determine if there was a difference between the two variables for the same question. Assumptions of paired t-test are that the data is continuous, differences for matched pairs follow a normal probability distribution, and sampling within the population is random and has an equal probability of being selected (Polit, 2015). Regarding the survey question, “When reflecting upon your previous precepting experiences, please indicate how much you agree with the following interactions with SRNAs: I feel I provide a formal debriefing of SRNAs performance at the end of every clinical day”, there was a significant difference between pre-workshop survey reflections (M=1.70, SD=1.08) and post-workshop survey reflections (M=1.15, SD=0.67) conditions t (19) =2.24, p=0.37.

The last question of the post-workshop survey asked participants, based off of their experience with the educational workshop, if they believed it should be provided to all CRNAs that may precept SRNAs. Of the 28 respondents to this survey, 4 individuals responded “no” to the question, 22 responded “yes,” and 2 individuals responded “yes, but with changes.”

The results of 11 Likert scale survey questions that measured changes in perceived behaviors and perceived communication of the participants in relation to pre-workshop survey,
post-workshop, and the one-month follow up survey are reported as follows. A RM-ANOVA was run for each question across the three surveys. The results for the following questions were statistically insignificant. Questions that included please rate your comfort level with the following: verbally correcting unsatisfactory SRNA behaviors, providing positive feedback on satisfactory SRNA behavior, providing positive feedback on satisfactory SRNA behavior, addressing areas in which SRNAs skills need improvement, and I feel uncomfortable providing a formal debriefing of SRNAs performance at the end of the clinical day.

The results for the RM-ANOVA for the following questions were statistically insignificant: “When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your proficiency level; “I feel proficient discussing the anesthetic plan with SRNAs at the start of the day, providing feedback to SRNAs in a way that promotes positive interactions, and delivering constructive written feedback for SRNAs daily evaluations”.

RM-ANOVA results were also statistically insignificant for the following questions: “When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your interactions with SRNAs: I feel I provide a formal debriefing of SRNAs' performance at the end of every clinical day, and I feel I provide SRNAs with constructive criticism.”

**Discussion**

Based on the findings of this study, the following conclusions can be made. An online CRNA clinical preceptor workshop did not dramatically change preceptor perceptions of the consistency of clinical education that they provide to SRNAs. A majority of the results were statistically insignificant and did not demonstrate that perceptions of CRNAs were positively changed following participation in the online educational workshop from the pre-workshop
Regarding questions that asked CRNAs to rate the perception of their proficiency level with verbally correcting unsatisfactory SRNA behaviors, providing positive feedback on satisfactory SRNA behavior, addressing areas in which SRNAs skills need improvement, providing feedback to SRNAs in a way that promotes positive interactions, and in providing constructive criticism resulted, no significant change was noted in perceptions prior to the workshop and one-month following the workshop. CRNA clinical preceptors reported confidence in their abilities to precept SRNAs with the results not demonstrating a statistically significant change from the pre-workshop survey to the one-month follow up workshop survey.

Interestingly, while the results are not statistically significant, the results are consistent with the literature review discussion regarding inadequacies in communication in the clinical environment as exhibited by clinical educators and reported by SRNAs. CRNA clinical preceptors tend to perceive their methods of communication as effective and interactions as appropriate, while SRNAs may view interactions and communication with clinical preceptors as inadequate. On this point, it is recommended that future preceptor workshops focus on addressing effective communication techniques and involve both CRNAs and SRNAs as study participants.

A majority of the participants in this project stated that there would be value in having a CRNA clinical preceptor workshop. One individual who provided a comment suggested a change in the daily evaluation form stating that, “It should have an option for "needs improvement" rather than just unsatisfactory. Preceptors are less likely to check that box because it allows for no gray area, only failure.”

Another participant commented,

“I think it is important for the SRNA 's to also complete this module. It is absolutely up to them to bring up the care plan for the patient and what they expect from
their preceptor and what they hope to achieve and what level they are at in their education. I feel that they need to be the ones to initiate these conversations and take control of their learning experience. Far too often I find the students to be passive. Trying to just get by each day. They are often unengaged in the participation of their education and their preceptor experience as well. Perhaps preceptors should be evaluated or get feedback on how to improve as well as the students...”

Perhaps it would be worthwhile for future research to look further into how SRNAs view their clinical educational experiences by performing a focus group and qualitative analysis of their perceptions of their clinical experiences. Another area that can be included in this review are the SRNAs daily evaluations.

Of note, there was a statistically significant improvement in CRNA preceptor perception of managing and resolving conflict with SRNAs from the pre-workshop survey to the one-month follow up survey. This could mean that some preceptors found the communication module of the workshop informative and that the workshop had a positive impact on the perceptions of clinical preceptor’s communication. A future study could focus on managing and resolving conflict with SRNAs to see if a focused workshop would impact CRNA and SRNA perceptions on this topic.

There was also a statistically significant result for the survey question, “When reflecting upon your previous precepting experiences, please indicate how much you agree with the following interactions with SRNAs: I feel I Provide a formal debriefing of SRNAs performance at the end of every clinical day.” The result could indicate that the workshop positively impacted preceptor’s perceptions regarding providing students with a formal debriefing prior to participating in the workshop and the post-workshop survey. Perhaps the workshop helped preceptor recognize the importance of providing feedback to students at the end of the day. Future research could look at how CRNAs evaluate SRNAs and evaluate communication during student
The purpose of this scholarly DNP project was to develop an evidence-based online preceptor workshop for CRNA clinical preceptors of the UB DNP Nurse Anesthesia program. The absence of a graduate level preceptor workshop for the UB DNP Nurse Anesthesia program prompted the creation of a workshop to guide CRNAs in their role as clinical preceptors. The project was guided by Knowles Theory of Adult Learning. In applying the assumptions made by Knowles, an online workshop was created that built upon Knowles assumption that adult learners build new knowledge based on past experiences. As such, the workshop sought to build upon the CRNAs past experiences as SRNAs, and experiences as clinical preceptors. The DNP project student assumed that as adult learners, CRNAs would be successful in the online learning environment. The specific aim of this project included the development of an online evidence-based preceptor-workshop for CRNA clinical preceptors to improve CRNA preceptor communication skills, teaching strategies, and clinical education consistency provided to SRNAs.

Deliverables to Project Site

This project sought to provide preceptor education to CRNAs who serve as clinical preceptors to SRNAs in the UB DNP Nurse Anesthesia program. The online preceptor workshop was created through the UB web press site so that it would be available to the UB Nurse Anesthesia program, the UB SON, as well as other doctoral students who may wish to use it to provide preceptor education or to use it for future nursing research.

Strengths and Limitations

A strength of this project is that the content of the preceptor workshop can be replicated for use as part of future preceptor education, nursing education, and for use in future studies. Additionally, data collection tools that were administered as part of this project can be replicated.
and used as part of future projects as well. Another strength of this project is that the sample population consisted of CRNAs with similar professional and education backgrounds, as such this group can be considered fairly homogenous. Thus, the results of this study can be generalized to this small group. Additionally, as the pre-survey, post-survey, and one-month follow up surveys were administered in such a short time frame following the educational intervention, a limited effect of extraneous variables can be thought to have influenced survey results.

Limitations of this project includes a narrow scope focusing on improving CRNA perceptions of their communication skills and consistency of communication that they provided to SRNAs. This project could have been improved by including survey data assessing CRNA perceptions of the need for a preceptor workshop, and a needs assessment of topics to include in the workshop. Additionally, this project could have been improved by surveying SRNAs about the need for a preceptor workshop, and topics that could have been addressed as part of the workshop. The researcher could have also conducted a “live” preceptor workshop and included both SRNAs and CRNAs as participants. A qualitative methodology consisting of focus groups could also have been utilized to further assess preceptor perceptions of the workshop.

Additionally, the sample size of this project was small. Results could have been improved by recruiting a larger sample size. The result of this is that statistical findings are limited. As such, the results cannot be generalized to the larger graduate level nurse preceptor population.

The researcher also notes that recruitment strategies could have led to the small sample size of this project. Some CRNAs do not have Facebook, one of the main recruitment strategies utilized by the researcher, and thus did not see the recruitment advertisements posted on the NYSANA Facebook site. Further, the researcher could have travelled in person to each clinical site to recruit CRNAs to participate in this project.

Data analysis demonstrated that most study participants attended the UB SON Nurse
Anesthesia program. It would be ideal to recruit CRNAs from several different nurse anesthesia programs to participate in this project. This would have improved the projects sample size, and allowed for generalization of study results.

**DNP Essentials Met**

The foundation for the development of this scholarly project was based on the translation of current evidence based literature into best preceptor practices thus meeting the standards set forth by DNP Essential I. DNP Essential III was incorporated into the development of this project by means of a critical analysis of current literature and prior research that evaluated the gap in literature for the project. The development of this preceptor workshop sought to improve the relational partnership between CRNAs and SRNAs and to provide continuing education, scholarship and support to CRNAs who wished to become clinical preceptors to SRNAs. These ideas contributed to fulfilling DNP Essential VIII, *Advancing the Practice of Nursing*.

**Further Implications and Recommendations**

The goal of this project was to develop an online preceptor educational workshop for the UB SON Nurse Anesthesia program in order to improve CRNA communication skills, teaching strategies, and clinical instruction consistency provided to SRNAs. The specific aim of this project was met with the successful development of the online clinical preceptor workshop which resulted in two statistically significant changes in perceptions of clinical preceptors. While there were a majority of statistically insignificant results, there is evidence to support the use of an educational workshop for clinical preceptors. Further, a majority of individuals who participated in the workshop indicated that this workshop was beneficial and should offered to clinical preceptors as well as SRNAs.

The educational intervention showed a positive impact on clinical preceptor’s perception of conflict management with SRNAs and their perceptions of performing a formal debriefing
with SRNAs at the end of the clinical day. The results identified that an educational intervention can be used to alter preceptor perceptions and in turn could improve the clinical education of SRNAs. Future implications of research into this topic could include an educational workshop focusing on addressing effective communication techniques that involve both CRNAs and SRNAs as study participants, a live workshop focusing on conflict resolution, as well as research looking into at how CRNAs evaluate SRNAs. Future research could also focus on improving upon current workshop modules through a needs assessment of CRNAs and SRNAs on current practices in clinical education. Modules can then be adapted to fit current or future needs of clinical preceptors and even SRNAs.

The findings of this project, and future expansion of this project, could lead to more robust interventions that could help to further prepare CRNAs and SRNAs to become clinical preceptors. This project has helped to set the ground work that can serve to improve SRNA clinical education by improving preceptor communication skills, transfer of non-technical skills, as well as CRNA satisfaction with the preceptor experience.
References


McQueen, K.A., Poole, K., Raynak, A., & McQueen, A. (2018). Preceptorship in a nurse practitioner program the student perspective. *Nurse Educator, 43*(6), 302-306.


University at Buffalo School of Nursing. (2015). *University at Buffalo School of Nursing manual*
for clinical preceptors-baccalaureate nursing program. Retrieved from

http://mediastream.buffalo.edu/Content/nur/Misc/ManualForPreceptors-2015/
Appendix A

Information Sheet for Participation in Research Study

Development of an Online CRNA Preceptor Workshop for the University at Buffalo DNP Nurse Anesthesia Program

Principal Investigators: Alexis Stachowski, RN, SRNA  Institution: University at Buffalo, School of Nursing  Collaborators University at Buffalo, School of Nursing; Dr. Cheryl Spulecki, CRNA DNAP

We are conducting a research study aiming to learn how an online workshop effects certified registered nurse anesthetists’ (CRNAs) perception of clinical precepting of University at Buffalo (UB) student registered nurse anesthetists (SRNA). Additionally, we seek to explore the online workshop’s effect on their knowledge and use of anesthesia non-technical skills. This research will fill the requirements of our doctorate in nursing practice at UB. We are asking you to participate because of your role as a UB SRNA preceptor.

If you agree to be in this study, you will be asked to take a short survey before beginning the online workshop. All surveys will be online and will take approximately five to ten minutes to complete. Responses will be anonymous, collecting data focused on SRNA precepting experiences and use of anesthesia non-technical skills. We will also collect some personal information such as age, education level and number of years of experience as a CRNA. If there is a question you prefer not to answer, you may skip it. Upon completion of the survey, CRNAs will view an online workshop in the form of a self-guided PowerPoint. This can be accessed online, and can be completed in multiple sittings. The workshop should take about one hour to complete. Immediately after completion of the workshop, a second survey will need to be completed. Like the first survey, all data will be collected online and be anonymous. A third survey will be done one month after viewing the online workshop. All CRNAs that precept UB SRNAs will receive a reminder email one month after completing the workshop. Upon completion of the third survey, you will have to option to enter a raffle for one of eight $10 Amazon gift cards. For the raffle, your contact information will be kept separately from your survey responses in order to maintain anonymity.

Your participation is voluntary, which means you do not have to participate. By submitting the first survey, you are agreeing to participate in the research. There will be no negative consequences if you decide not to participate or change your mind after you begin the study. You may withdraw your participation at any time. Because the surveys are anonymous, we will not be able to identify your data remove to remove it from the study. There are no known risks to participating in this study.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Melanie Schutt at mschutt3@buffalo.edu, Alexis Stachowski at afs22@buffalo.edu, or our project advisor, Cheryl Spulecki at spulecki@buffalo.edu.
Appendix B

Consent

University at Buffalo
The State University of New York

University at Buffalo Institutional Review Board (UBIRB)
Office of Research Compliance | Clinical and Translational Research Center Room 5018
875 Ellicott St. | Buffalo, NY 14203
UB Federalwide Assurance ID#: FWA00008824

“Adult Consent to Participate in a Research Study”

Title of research study:
Development of an Online CRNA Preceptor Workshop for the University at Buffalo DNP Nurse Anesthesia Program

Version Date: 8/16/2019 Version 1

Investigator: Alexis Stachowski

Key Information: The following is a short summary of this study to help you decide whether or not to be a part of this study. More detailed information is listed later on in this form.

Why am I being invited to take part in a research study?
You are being invited to take part in a research study to determine if an online clinical preceptor workshop would improve the perception of your anesthesia non-technical skills, communication skills and the consistency of clinical education that you provide to student registered nurse anesthetists.

What should I know about a research study?
- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

Who can I talk to?
If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at (716) 870-9108. You may also contact the research participant advocate at 716-888-4845 or researchadvocate@buffalo.edu.

This research has been reviewed and approved by an Institutional Review Board (“IRB”). An IRB is a committee that provides ethical and regulatory oversight of research that involves human subjects. You may talk to them at (716) 888-4888 or email ub-irb@buffalo.edu if:
- You have questions about your rights as a participant in this research
Your questions, concerns, or complaints are not being answered by the research team.
You cannot reach the research team.
You want to talk to someone besides the research team.
You want to get information or provide input about this research.

Why is this research being done?
The purpose of this research is to determine if an online clinical preceptor workshop would improve certified registered nurse anesthetist perceptions of their communication skills and the consistency of clinical education that they provide to student registered nurse anesthetists. Most certified registered nurse anesthetists (CRNAs) never receive formal preceptor training. Educational programs that target clinical preceptors have been shown to have positives effects on both students and preceptors. These programs are an effective way to improve preceptor communication skills, non-technical skills, and a reduce stress levels for both the preceptor and student.

How long will the research last and what will I need to do?
As part of this research project you will be asked to sign this consent form to participate in this project. You will then asked to complete a pre-educational online electronic survey, view the online educational preceptor workshop, and then complete a follow up survey. One month after you complete the online preceptor workshop, an electronic link to a survey will be sent to you for your completion.

Your participation in this research is limited to the completion of the follow up electronic survey which will be distributed to you one month following the review of the online CRNA clinical preceptor guide, after which time the research team will require no further participation from you. Completion and presentation of the research and its findings is expected in the 2019-2020 academic year.

More detailed information about the study procedures can be found under “What happens if I say yes, I want to be in this research?”

Is there any way being in this study could be bad for me?
There are no known risks associated with reviewing the online educational tutorial and completion of the pre-educational, post-educational, and one month follow up surveys. Additionally, there are no added costs to you by participating in this research project.

Will being in this study help me in any way?
We cannot promise any benefits to you or others from your taking part in this research. However, educational programs that target clinical preceptors have been shown to have positives effects on both students and preceptors. These programs are an effective way to improve preceptor communication skills, non-technical skills, and a reduce stress levels for both the preceptor and student.

What happens if I do not want to be in this research?
Participation in research is completely voluntary. You may choose not to enroll in this study. Your alternative to participating in this research study is to not participate.

How many people will be studied?
We expect about 200 people will be in this research study.
What happens if I say yes, I want to be in this research?

1) You will be provided a link to the online certified registered nurse anesthetist clinical preceptor workshop.
2) You will be asked to review the online consent form, and agree to the consent (the first question of the pre-educational survey)
3) You will be asked to continue to fill out a pre-educational survey prior to viewing the preceptor workshop.
4) You will view the online preceptor workshop.
5) You will than fill out a post-educational survey immediately after the preceptor workshop.
6) You will be contacted by the research team one month following the review of the preceptor workshop and provided a link to complete a one-month follow up survey. Contact will be through UB email (if affiliated with UB) or on the NYSANA Facebook page.
7) You will then complete the follow up survey.

What happens if I say yes, but I change my mind later?
You can leave the research at any time it will not be held against you. Because all data is unidentifiable, data already collected will not be able to be removed for the study.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study and medical or education records, to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of this organization. No identifiable information will be collected.

All potential identifiers are removed from any potential identifiable information.

By checking “I agree” I consent to being part of this study.
Appendix C

Post-Workshop One-Month Follow-up Email

Dear New York Nurse Anesthetists,

Melanie Schutt and Alexis Stachowski are third year student registered nurse anesthetist at the University at Buffalo (UB). They are conducting a research study aiming to learn how an online workshop effects certified registered nurse anesthetists’ (CRNAs) perception of clinical precepting of student registered nurse anesthetists (SRNA). Additionally, they seek to explore the online workshop’s effect on the knowledge and use of anesthesia non-technical skills. This research will fill the requirements of their doctorate in nursing practice degree at UB.

If you have already completed the educational workshop, we ask that you now complete the 1 month post-workshop survey. Upon completion of the third survey, you will have to option to enter a raffle for one of eight $10 Amazon gift cards. For the raffle, your contact information will be kept separately from your survey responses in order to maintain anonymity.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Melanie Schutt at mschutt3@buffalo.edu, Alexis Stachowski at afs22@buffalo.edu, or our project advisor, Cheryl Spulecki at spulecki@buffalo.edu.

Thank you so much for taking the time to participate in this study.
Appendix D

Post-Workshop NYSANA Facebook One-Month follow-up Post

Dear New York Nurse Anesthetists,

Melanie Schutt and Alexis Stachowski are third year student registered nurse anesthetist at the University at Buffalo (UB). They are conducting a research study aiming to learn how an online workshop effects certified registered nurse anesthetists’ (CRNAs) perception of clinical precepting of student registered nurse anesthetists (SRNA). Additionally, they seek to explore the online workshop’s effect on the knowledge and use of anesthesia non-technical skills. This research will fill the requirements of their doctorate in nursing practice degree at UB.

If you have already completed the educational workshop, we ask that you now complete the 1 month post-workshop survey. Upon completion of the third survey, you will have to option to enter a raffle for one of eight $10 Amazon gift cards. For the raffle, your contact information will be kept separately from your survey responses in order to maintain anonymity.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Melanie Schutt at mschutt3@buffalo.edu, Alexis Stachowski at afs22@buffalo.edu, or our project advisor, Cheryl Spulecki at spulecki@buffalo.edu.

Thank you so much for taking the time to participate in this study!
Appendix E

University at Buffalo
The State University of New York

University at Buffalo Institutional Review Board (UBIRB)
Office of Research Compliance | Clinical and Translational Research Center Room 5018
875 Ellicott St. | Buffalo, NY 14203
UB Federalwide Assurance ID#: FWA00008824

August 24, 2019

Dear Alexis Stachowski:

On 8/24/2019, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of Study:</td>
<td>In New York certified registered nurse anesthetists, what is the effect of an online educational workshop on precepting student registered nurse anesthetists?</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Alexis Stachowski</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>STUDY00003663</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or HDE:</td>
<td>None</td>
</tr>
<tr>
<td>Documents Reviewed:</td>
<td>* Post-educational survey, Category: Surveys/Questionnaires;</td>
</tr>
<tr>
<td></td>
<td>* Recruitment email, Category: Recruitment Materials;</td>
</tr>
<tr>
<td></td>
<td>* Recruitment post to NYSANA Facebook page, Category: Recruitment Materials;</td>
</tr>
<tr>
<td></td>
<td>* Post-workshop 1 month follow up email, Category: Recruitment Materials;</td>
</tr>
<tr>
<td></td>
<td>* Consent form, Category: Consent Form;</td>
</tr>
<tr>
<td></td>
<td>* Educational workshop content, Category: Other;</td>
</tr>
<tr>
<td></td>
<td>* 1-month follow up post to NYSANA Facebook page, Category: Recruitment Materials;</td>
</tr>
<tr>
<td></td>
<td>* one-month follow up survey, Category: Surveys/Questionnaires;</td>
</tr>
</tbody>
</table>
The IRB approved the study from 8/24/2019 to 8/25/2020 inclusive. Before 8/25/2020 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 8/25/2020, approval of this study expires on that date. The initial study materials for the project referenced above were reviewed and approved by the SUNY University at Buffalo IRB (UBIRB) by Initial Study Review. The IRB has determined that the study is no greater than minimal risk. Before 8/24/2020 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review application with required explanations. In order to avoid a lapse in IRB approval, it is recommended that you submit your continuing review at least 30 days for an expedited study and at least 45-60 days for a full board study, prior to the approval end date of the study. You can submit a continuing review application by navigating to the active study in Click IRB and selecting ‘Create Modification / CR’. Studies cannot be conducted beyond the expiration date without re-approval by the UBIRB.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

UBIRB approval is given with the understanding that the most recently approved procedures will be followed and the most recently approved consent documents will be used. If modifications are needed, those changes may not be initiated until such modifications have been submitted to the UBIRB for review and have been granted approval.

As principal investigator for this study involving human participants, you have responsibilities to the SUNY University at Buffalo IRB (UBIRB) as follows:

1. Ensuring that no subjects are enrolled prior to the IRB approval date.
2. Ensuring that the study is not conducted beyond the expiration date without re-approval by the UBIRB.
3. Ensuring that the UBIRB is notified of:
   • All reportable information in accordance with the New Information SOP (HRP-024).
   • Project closure/completion by submitting a Continuing Review/Modification submission.
4. Ensuring that the protocol is followed as approved by UBIRB unless a protocol amendment is prospectively approved.

5. Ensuring that changes in research procedures, recruitment or consent processes are not initiated without prior UBIRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.

6. Ensuring that the study is conducted in compliance with all UBIRB decisions, conditions, and requirements.

7. Bearing responsibility for all actions of the staff and sub-investigators with regard to the protocol.

8. Bearing responsibility for securing any other required approvals before research begins.

If you have any questions, please contact the UBIRB at 716-888-4888 or ub-irb@buffalo.edu. Please include the project title and number in all correspondence with the UBIRB.
Appendix F

Pre-Education Survey

1. I have read and reviewed the consent on the Preceptor Guide Project website (https://ubwp.buffalo.edu/ub-crna-preceptor-guide/consent/). I agree to be included in this study.
   a. Yes
2. In the last 6 months, have you precepted student registered nurse anesthetists (SRNAs)?
   a. Yes
   b. No
3. If you have served as a clinical preceptor in the last 6 months, what school do the SRNAs you precept attend?
   a. University at Buffalo
   b. Albany Medical College
   c. Columbia University
   d. Other
   e. I don't know
   f. I have not served as a clinical preceptor in the last 6 months.
4. In the last month, what percentage of your full-time employment was spent working with a SRNA as a clinical preceptor?
   a. >75%
   b. 50-74%
   c. 25-49 %
   d. 1-24%
   e. 0%
5. How many years have you been practicing as a CRNA?
   a. 0-2 years
   b. 3-5 years
   c. 6-10 years
   d. 11-15 years
   e. 16-20 years
   f. >20 years
6. What is the highest degree you have?
   a. Certificate
   b. Master
   c. Doctorate in nursing practice or doctor of nurse anesthesia practice
   d. PhD
7. How old are you?
   a. 25-30 years old
   b. 31-35 years old
   c. 35-40 years old
   d. 41-45 years old
   e. 45-55 years old
   f. 56-65 years old
8. Please select the gender you identify as:
   a. Female
   b. Male
   c. Prefer not to say

9. When precepting SRNAs, the three areas I most often focus on are: (select three)
   a. Providing constructive feedback
   b. Teaching new technical skills (ex: placing double lumen ETT)
   c. Being welcoming and friendly
   d. Teaching physiologic changes
   e. Pointing out SRNAs mistakes
   f. Becoming a mentor
   g. Providing SRNA with areas for improvement
   h. Teaching pharmacology
   i. Reinforcing important skills and behavior

10. Overall, how would rate your effectiveness as a preceptor of SRNAs?
    a. Very effective
    b. Somewhat effective
    c. Effective
    d. Somewhat ineffective
    e. Very ineffective

11. Please rate your comfort level with the following: (this will be in a big table)
    a. Conflict management and resolution with SRNAs
       i. Very comfortable
       ii. Somewhat comfortable
       iii. Comfortable
       iv. Somewhat uncomfortable
       v. Very uncomfortable
       vi. N/A
    b. Verbally correcting unsatisfactory SRNA behaviors:
       i. Very comfortable
       ii. Somewhat comfortable
       iii. Comfortable
       iv. Somewhat uncomfortable
       v. Very uncomfortable
       vi. N/A
    c. Providing positive feedback on satisfactory SRNA behaviors:
       i. Very comfortable
       ii. Somewhat comfortable
       iii. Comfortable
       iv. Somewhat uncomfortable
       v. Very uncomfortable
       vi. N/A
    d. Providing constructive feedback to SRNAs:
       i. Very comfortable
       ii. Somewhat comfortable
iii. Comfortable
iv. Somewhat uncomfortable
v. Very uncomfortable
vi. N/A
e. Addressing areas in which SRNAs skills need improvement
   i. Very comfortable
   ii. Somewhat comfortable
   iii. Comfortable
   iv. Somewhat uncomfortable
   v. Very uncomfortable
   vi. N/A
f. Providing constructive written feedback of SRNA performance on daily evaluations
   i. Very comfortable
   ii. Somewhat comfortable
   iii. Comfortable
   iv. Somewhat uncomfortable
   v. Very uncomfortable
   vi. N/A

12. I feel uncomfortable providing a formal debriefing of a SRNAs performance at the end of the clinical day.
   a. Strongly agree
   b. Somewhat agree
   c. Neither agree nor disagree
   d. Somewhat disagree
   e. Strongly disagree
   f. I have no experience precepting SRNAs

Proficiency table

13. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your proficiency level. I feel proficient...
   a. Discussing the anesthetic plan with SRNAs at the start of the day.
      1. Strongly agree
      2. Somewhat agree
      3. Neither agree nor disagree
      4. Somewhat disagree
      5. Strongly disagree
      6. N/A
   b. Managing and resolving conflict with SRNAs.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A
   c. Providing feedback to SRNAs in a way that promotes positive interactions, and change in behavior.
i. Strongly agree  
ii. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
d. Delivering constructive written feedback for SRNAs daily evaluations.  
i. Strongly agree  
ii. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
vi. I have no experience precepting SRNAs

14. It is important for CRNA clinical instructors to discuss the plan of care for each patient with SRNAs.  
a. Strongly agree  
b. Somewhat agree  
c. Neither agree nor disagree  
d. Somewhat disagree  
e. Strongly disagree  
f N/A

15. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your interactions with SRNAs. I feel I provide...  
a. Adequate feedback by means of a daily verbal and a daily written evaluation.  
i. I have no experience precepting SRNAs  
ii. Strongly agree  
iii. Somewhat agree  
iv. Neither agree nor disagree  
v. Somewhat disagree  
vi. Strongly disagree  
vii. I have no experience precepting SRNAs

b. A formal debriefing of SRNAs' performance at the end of every clinical day.  
i. Strongly agree  
ii. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
vi. N/A

c. I provide SRNAs with constructive criticism.  
i. Strongly agree  
ii. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
vi. N/A

16. How would you rate your level of knowledge about the following topics?  
a. Decision making (Defined as: Skills for reaching a judgement to select a course of
action in both normal conditions and in time-pressured crisis situations)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable
b. Task management (Defined as: Skills for organizing resources and required activities to achieve goals)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable
c. Team work (Defined as: Skills for working in a group context, in any role, to ensure effective joint task completion and team member satisfaction)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable
d. Situation awareness (Defined as: skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the operating room)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable

17. In the last week, how often did you use the following
a. Decision making (Defined as: Skills for reaching a judgement to select a course of action in both normal conditions and in time-pressured crisis situations)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A
b. Task management (Defined as: Skills for organizing resources and required activities to achieve goals)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A
c. Team work ((Defined as: Skills for working in a group context, in any role, to ensure effective joint task completion and team member satisfaction)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A
d. Situation awareness (Defined as: skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the operating room)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A

18. How do you feel about your ability to effectively train student registered nurse anesthetists' non-technical skills?
   a. Very comfortable
   b. Somewhat comfortable
   c. Neither comfortable or uncomfortable
   d. Somewhat uncomfortable
   e. Very uncomfortable

19. What is the biggest challenge you face when trying to use non-technical skills in the perioperative period?
   a. Free answer

20. How important do you think non-technical skills are in the following scenarios:
   a. Anesthesia team response to "can't intubate, can't ventilate"
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   b. Patient satisfaction with their surgical experience
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   c. Timely administration of Dantrolene during MH
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   d. Case management during a total knee on intubated an ASA 1
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
Appendix G

Post-Education Survey

1. I have read and reviewed the consent on the Preceptor Guide Project website (https://ubwp.buffalo.edu/ub-crna-preceptor-guide/consent/). I agree to be included in this study.
   a. Yes
2. Did you do the educational workshop?
   a. Yes
   b. No
3. In the last 6 months, have you precepted student registered nurse anesthetists (SRNAs)?
   a. Yes
   b. No
4. How many years have you been practicing as a CRNA?
   a. 0-2 years
   b. 3-5 years
   c. 6-10 years
   d. 11-15 years
   e. 16-20 years
   f. >20 years
5. What is the highest degree you have?
   a. Certificate
   b. Master
   c. Doctorate in nursing practice or doctor of nurse anesthesia practice
   d. PhD
6. How old are you:
   a. 25-30 years old
   b. 31-35 years old
   c. 35-40 years old
   d. 41-45 years old
   e. 45-55 years old
   f. 56-65 years old
   g. >65 years old
7. Please select the gender you identify as:
   a. Female
   b. Male
   c. Prefer not to say
8. When precepting SRNAs, the three areas I most often focus on are: (select three)
   a. Providing constructive feedback
   b. Teaching new technical skills (ex: placing double lumen ETT)
   c. Being welcoming and friendly
   d. Teaching physiologic changes
   e. Pointing out SRNAs mistakes
   f. Becoming a mentor
g. Providing SRNA with areas for improvement  
h. Teaching pharmacology  
i. Reinforcing important skills and behavior

9. Overall, how would rate your effectiveness as a preceptor of SRNAs?
   a. Very effective  
   b. Somewhat effective  
   c. Effective  
   d. Somewhat ineffective  
   e. Very ineffective  

10. Please rate your comfort level with the following: (this will be in a big table)
   a. Conflict management and resolution with SRNAs  
      i. Very comfortable  
      ii. Somewhat comfortable  
      iii. Comfortable  
      iv. Somewhat uncomfortable  
      v. Very uncomfortable N/A  
      vi.  
   b. Verbally correcting unsatisfactory SRNA behaviors:  
      i. Very comfortable  
      ii. Somewhat comfortable  
      iii. Comfortable  
      iv. Somewhat uncomfortable  
      v. Very uncomfortable N/A  
      vi.  
   c. Providing positive feedback on satisfactory SRNA behaviors:  
      i. Very comfortable  
      ii. Somewhat comfortable  
      iii. Comfortable  
      iv. Somewhat uncomfortable  
      v. Very uncomfortable N/A  
      vi.  
   d. Providing constructive feedback to SRNAs:  
      i. Very comfortable  
      ii. Somewhat comfortable  
      iii. Comfortable  
      iv. Somewhat uncomfortable  
      v. Very uncomfortable N/A  
      vi.  
   e. Addressing areas in which SRNAs skills need improvement  
      i. Very comfortable  
      ii. Somewhat comfortable  
      iii. Comfortable  
      iv. Somewhat uncomfortable  
      v. Very uncomfortable N/A  
      vi.  
   f
Providing constructive written feedback of SRNA performance on daily evaluations

   i. Very comfortable
   ii. Somewhat comfortable
   iii. Comfortable
   iv. Somewhat uncomfortable
   v. Very uncomfortable
   vi. N/A

11. I feel uncomfortable providing a formal debriefing of a SRNAs performance at the end of the clinical day.
   a. Strongly agree
   b. Somewhat agree
   c. Neither agree nor disagree
   d. Somewhat disagree
   e. Strongly disagree
   f I have no experience precepting SRNAs

12. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your proficiency level. I feel proficient...
   a. Discussing the anesthetic plan with SRNAs at the start of the day.
      1. Strongly agree
      2. Somewhat agree
      3. Neither agree nor disagree
      4. Somewhat disagree
      5. Strongly disagree
      6. N/A
   b. Managing and resolving conflict with SRNAs.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A
   c. Providing feedback to SRNAs in a way that promotes positive interactions, and change in behavior.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   d. Delivering constructive written feedback for SRNAs daily evaluations.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. I have no experience precepting SRNAs
13. It is important for CRNA clinical instructors to discuss the plan of care for each patient with SRNAs.
   a. Strongly agree
   b. Somewhat agree
   c. Neither agree nor disagree
   d. Somewhat disagree
   e. Strongly disagree
   f. N/A

14. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your interactions with SRNAs. I feel I provide...
   a. Adequate feedback by means of a daily verbal and a daily written evaluation.
      i. I have no experience precepting SRNAs
      ii. Strongly agree
      iii. Somewhat agree
      iv. Neither agree nor disagree
      v. Somewhat disagree
      vi. Strongly disagree
      vii. I have no experience precepting SRNAs
   b. A formal debriefing of SRNAs' performance at the end of every clinical day.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A
   c. I provide SRNAs with constructive criticism.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A

15. How would you rate your level of knowledge about the following topics?
   a. Decision making (Defined as: Skills for reaching a judgement to select a course of action in both normal conditions and in time-pressured crisis situations)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable
   b. Task management (Defined as: Skills for organizing resources and required activities to achieve goals)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable
   c. Team work (Defined as: Skills for working in a group context, in any role, to
ensure effective joint task completion and team member satisfaction)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable

d. Situation awareness (Defined as: skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the operating room)
   i. Very knowledgeable
   ii. Somewhat knowledgeable
   iii. Somewhat unknowledgeable
   iv. Very unknowledgeable

16. In the last week, how often did you use the following
   b. Decision making (Defined as: Skills for reaching a judgement to select a course of action in both normal conditions and in time-pressured crisis situations)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
   b. Task management (Defined as: Skills for organizing resources and required activities to achieve goals)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
   c. Team work ((Defined as: Skills for working in a group context, in any role, to ensure effective joint task completion and team member satisfaction)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
   d. Situation awareness (Defined as: skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the operating room)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
17. How do you feel about your ability to effectively train student registered nurse anesthetists' non-technical skills?
   a. Very comfortable
   b. Somewhat comfortable
   c. Neither comfortable or uncomfortable
   d. Somewhat uncomfortable
   e. Very uncomfortable

18. How important do you think non-technical skills are in the following scenarios:
   a. Anesthesia team response to "can't intubate, can't ventilate"
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   b. Patient satisfaction with their surgical experience
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   c. Timely administration of Dantrolene during MH
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   d. Case management during a total knee on intubated an ASA 1
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important

19. After participating in this educational workshop, please indicate how much you agree with the following statements:
   a. I better understand the role of non-technical skills in my practice
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   b. I am going to change my practice based off of what I learned about non-technical skills.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   c. I plan to provide feedback to my students to foster the development of their non-technical skills
      i. Strongly agree
ii. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
d. I feel better prepared to communicate expectations to SRNAs at the beginning of the clinical day  
i. Strongly agree  
i. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
e. I feel that I will provide clear written feedback on SRNA's daily evaluation sheet.  
i. Strongly agree  
i. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
f. I feel prepared to successfully manage interpersonal conflict with SRNAs.  
i. Strongly agree  
i. Somewhat agree  
iii. Neither agree nor disagree  
iv. Somewhat disagree  
v. Strongly disagree  
20. Based off of your experience with this educational workshop, do you believe it should be provided to all CRNAs that may precept SRNAs?  
g. Yes  
h. No  
i. Maybe with some adjustments: (text box for comments)
Appendix H

One Month Follow-Up Survey

1. I have read and reviewed the consent on the Preceptor Guide Project website (https://ubwp.buffalo.edu/ub-crna-preceptor-guide/consent/). I agree to be included in this study.
   a. Yes
2. Did you do the educational workshop?
   a. Yes
   b. No
3. In the last 6 months, have you precepted student registered nurse anesthetists (SRNAs)?
   a. Yes
   b. No
4. If you have served as a clinical preceptor in the last 6 months, what school do the SRNAs you precept attend?
   a. University at Buffalo
   b. Albany Medical College
   c. Columbia University
   d. Other
   e. I don't know
   f. I have not served as a clinical preceptor in the last 6 months.
5. In the last month, what percentage of your full-time employment was spent working with a SRNA as a clinical preceptor?
   a. >75%
   b. 50-74%
   c. 25-49%
   d. 1-24%
   e. 0%
6. How many years have you been practicing as a CRNA?
   a. 0-2 years
   b. 3-5 years
   c. 6-10 years
   d. 11-15 years
   e. 16-20 years
   f. >20 years
7. What is the highest degree you have?
   a. Certificate
   b. Master
   c. Doctorate in nursing practice or doctor of nurse anesthesia practice
   d. PhD
8. How old are you:
   a. 25-30 years old
   b. 31-35 years old
   c. 35-40 years old
d.  41-45 years old  
e.  45-55 years old  
f.  56-65 years old >65 years old  
g.  Please select the gender you identify as:  
   a.  Female  
   b.  Male  
   c.  Prefer not to say  

10. When precepting SRNAs, the three areas I most often focus on are: (select three)  
   a.  Providing constructive feedback  
   b.  Teaching new technical skills (ex: placing double lumen ETT)  
   c.  Being welcoming and friendly  
   d.  Teaching physiologic changes  
   e.  Pointing out SRNAs mistakes  
   f.  Becoming a mentor  
   g.  Providing SRNA with areas for improvement  
   h.  Teaching pharmacology  
   i.  Reinforcing important skills and behavior  

11. Overall, how would rate your effectiveness as a preceptor of SRNAs?  
   a.  Very effective  
   b.  Somewhat effective  
   c.  Effective  
   d.  Somewhat ineffective  
   e.  Very ineffective  

12. Please rate your comfort level with the following: (this will be in a big table) Conflict management and resolution with SRNAs  
   a.  Very comfortable  
   i.  Somewhat comfortable  
   ii.  Comfortable  
   iv.  Somewhat uncomfortable  
   v.  Very uncomfortable  
   N/A  
   vi.  
   b.  Verbally correcting unsatisfactory SRNA behaviors:  
   i.  Very comfortable  
   ii.  Somewhat comfortable  
   iii.  Comfortable  
   iv.  Somewhat uncomfortable  
   v.  Very uncomfortable  
   N/A  
   vi.  
   c.  Providing positive feedback on satisfactory SRNA behaviors:  
   i.  Very comfortable  
   ii.  Somewhat comfortable  
   iii.  Comfortable  
   iv.  Somewhat uncomfortable  
   v.  Very uncomfortable  
   N/A  
   vi.  
   d.  Providing
constructive feedback to SRNAs:

i. Very comfortable
ii. Somewhat comfortable
iii. Comfortable
iv. Somewhat uncomfortable
v. Very uncomfortable
vi. N/A

e. Addressing areas in which SRNAs' skills need improvement
   i. Very comfortable
   ii. Somewhat comfortable
   iii. Comfortable
   iv. Somewhat uncomfortable
   v. Very uncomfortable
   vi. N/A

f. Providing constructive written feedback of SRNA performance on daily evaluations
   i. Very comfortable
   ii. Somewhat comfortable
   iii. Comfortable
   iv. Somewhat uncomfortable
   v. Very uncomfortable
   vi. N/A

13. I feel uncomfortable providing a formal debriefing of a SRNAs' performance at the end of the clinical day.
   a. Strongly agree
   b. Somewhat agree
   c. Neither agree nor disagree
   d. Somewhat disagree
   e. Strongly disagree
   f. I have no experience precepting SRNAs Proficiency table

14. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your proficiency level. I feel proficient...

   a. Discussing the anesthetic plan with SRNAs at the start of the day.
      1. Strongly agree
      2. Somewhat agree
      3. Neither agree nor disagree
      4. Somewhat disagree
      5. Strongly disagree
      6. N/A

   b. Managing and resolving conflict with SRNAs.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A
c. Providing feedback to SRNAs in a way that promotes positive interactions, and change in behavior.
   i. Strongly agree
   ii. Somewhat agree
   iii. Neither agree nor disagree
   iv. Somewhat disagree
   v. Strongly disagree

d. Delivering constructive written feedback for SRNAs daily evaluations.
   i. Strongly agree
   ii. Somewhat agree
   iii. Neither agree nor disagree
   iv. Somewhat disagree
   v. Strongly disagree
   vi. I have no experience precepting SRNAs

15. It is important for CRNA clinical instructors to discuss the plan of care for each patient with SRNAs.
   a. Strongly agree
   b. Somewhat agree
   c. Neither agree nor disagree
   d. Somewhat disagree
   e. Strongly disagree
   f. N/A

16. When reflecting upon your previous precepting experiences, please indicate how much you agree with the following statements regarding your interactions with SRNAs. I feel I provide...
   a. Adequate feedback by means of a daily verbal and a daily written evaluation.
      i. I have no experience precepting SRNAs
      ii. Strongly agree
      iii. Somewhat agree
      iv. Neither agree nor disagree
      v. Somewhat disagree
      vi. Strongly disagree
      vii. I have no experience precepting SRNAs
   b. A formal debriefing of SRNAs' performance at the end of every clinical day.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
      vi. N/A
   c. I provide SRNAs with constructive criticism.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
vi. N/A

17. How would you rate your level of knowledge about the following topics?
   a. Decision making (Skills for reaching a judgement to select a course of action or make a diagnosis about a situation, in both normal conditions and in time-pressured crisis situations)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable
   b. Task management (Skills for organizing resources and required activities to achieve goals)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable
   c. Team work (Skills for working in a group context, in any role, to ensure effective joint task completion and team member satisfaction; the focus is particularly on the team rather than the task)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable
   d. Situation awareness (Skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the theater environment (patient, team, time, displays, equipment)
      i. Very knowledgeable
      ii. Somewhat knowledgeable
      iii. Somewhat unknowledgeable
      iv. Very unknowledgeable

18. In the last week, how often did you use the following
   a. Decision making (Skills for reaching a judgement to select a course of action or make a diagnosis about a situation, in both normal conditions and in time-pressured crisis situations)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
   b. Task management (Skills for organizing resources and required activities to achieve goals)
      i. >75% of cases
      ii. 50-74% of cases
      iii. 25-49% of cases
      iv. <25% of cases
      v. N/A
   c. Team work (Skills for working in a group context, in any role, to ensure effective
joint task completion and team member satisfaction; the focus is particularly on
the team rather than the task)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A
d. Situation awareness (Skills for developing and maintaining an overall awareness
   of the work setting based on observing all relevant aspects of the theater
   environment (patient, team, time, displays, equipment)
   i. >75% of cases
   ii. 50-74% of cases
   iii. 25-49% of cases
   iv. <25% of cases
   v. N/A

19. How do you feel about your ability to effectively train student registered nurse
   anesthetists' non-technical skills?
   a. Very comfortable
   b. Somewhat comfortable
   c. Neither comfortable or uncomfortable
   d. Somewhat uncomfortable
   e. Very uncomfortable

20. What is the biggest challenge you face when trying to use non-technical skills in the
   perioperative period?
   a. Free answer

21. How important do you think non-technical skills are in the following scenarios:
   a. Anesthesia team response to "can't intubate, can't ventilate"
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   b. Patient satisfaction with their surgical experience
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   c. Timely administration of Dantrolene during MH
      i. Very important
      ii. Somewhat important
      iii. Somewhat unimportant
      iv. Not important
   d. Case management during a total knee on intubated an ASA 1
      i. Very important
      ii. Somewhat important
iii. Somewhat unimportant
iv. Not important

22. After participating in this educational workshop, please indicate how much you agree with the following statements:
   a. I better understand the role of non-technical skills in my practice
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   b. I am going to change my practice based off of what I learned about non-technical skills.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   c. I plan to provide feedback to my students to foster the development of their non-technical skills
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   d. I feel better prepared to communicate expectations to SRNAs at the beginning of the clinical day
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   e. I feel that I will provide clear written feedback on SRNA's daily evaluation sheet.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree
   f. I feel prepared to successfully manage interpersonal conflict with SRNAs.
      i. Strongly agree
      ii. Somewhat agree
      iii. Neither agree nor disagree
      iv. Somewhat disagree
      v. Strongly disagree

23. Based off of your experience with this educational workshop, do you believe it should be provided to all CRNAs that may precept SRNAs?
a. Yes
b. No
c. Maybe with some adjustments: (text box for comments)

24. If you wish to be entered into the raffle for one of eight $10 gift cards, please enter your email below (note- your email will be removed from survey response in order to maintain anonymity).
   a. Free text box
Appendix I

Preceptor Workshop Modules

Introduction:

The purpose of this guide is to provide certified registered nurse anesthetists (CRNAs) information to facilitate their role as clinical preceptor to student registered nurse anesthetists (SRNAs) in the doctorate of nursing program earning a doctorate of nursing practice (DNP) degree from the University at Buffalo School of Nursing (UBSON).

Why Preceptor Education Matters...

* “Research suggests that educational programs that target the needs of clinical preceptors can have positive effects on teachers and improve the learning environment for students.” (Elisha, 2008)
* “Teaching programs that were designed for physician’s clinical educators increased participants knowledge of educational techniques and in time improved student satisfaction with their clinical educators.” (Skell, Strauss, Bergen, Sampson, & Dutnich, 1999)
* Preceptor education introduces new clinical educators to the role of preceptor and enhances the skills of experienced providers, promotes the transfer of high-quality patient care skills, and anesthesia non-technical skills to students (Elisha, 2008).
The WHY continued...

- “The quality of clinical education has a significant impact on the development of adult learners. Behavioral characteristics of clinical educators strongly influence the quality of the learning environment.” (Elisha, 2008)
- Clinical educators have the important role of transferring anesthesia technical skills, and non-technical skills (communication, leadership, teamwork) to SRNAs.
- Most CRNAs never receive formal education in how to precept SRNAs. This potentially can limit the effectiveness of CRNAs in the transfer of the technical and non-technical skills that are critically important in the delivery of anesthesia care.

“Preceptors feel more confident and comfortable and report enhanced satisfaction and professional development after participating in formal preceptor preparation.” (Scott-Herring & Singh, 2018)

Learning Objectives:

- Describe the roles and responsibilities of a clinical preceptor and preceptee.
- Application of strategies to facilitate socialization of the SRNA into the working environment.
- Identify strategies for providing feedback to SRNAs.
- Approaching and managing difficult conversations with SRNAs.
- Critiquing unsatisfactory student performance.
- Understand non-technical skills and integrate these skills into practice.
- Recognize the importance of training SRNAs anesthesia non-technical skills.

Mission and Vision of the UB School of Nursing (SON)

Our Mission

- “To foster an environment of academic and scholarly excellence that develops nurse leaders who will improve the health and wellness of local, national, and global communities.”

Our Vision

- “We will advance the reputation of UB’s School of Nursing by achieving a collaborative academic culture that impacts local and global needs for research, scholarship and educational excellence.”
UB SON Nursing Values: I-CARE Model

Integrity: Honesty in all we do.

Collaboration: We value intra-professional, interprofessional and community collaboration to advance learning, discovery and practice.

Accountability: We hold ourselves responsible for behaviors, actions and results.

Respect: For diverse backgrounds and opinions in an inclusive and compassionate manner.

Excellence: In innovative approaches to teaching, scholarship and service.

Doctorate of Nursing Program

“The Doctor of Nursing Practice (DNP) Program at the University at Buffalo educates students for an expanded comprehensive nurse practitioner role that includes critical thinking and independent decision making in clinical practice, leadership, education, policy and consultation. The CCNE accredited program prepares nurse practitioners to apply the latest evidence-based science to improve clinical practice outcomes.”

UB DNP Nurse Anesthesia Program

“Nurse Anesthesia program courses are taught exclusively by CRNAs, and are immediately applicable to nursing practice. The school’s recently constructed health assessment lab, the Center for Nursing Research and the newly remodeled Patient Simulation Center further support student research and practice needs. “Our nurse anesthesia students receive an education that equips them to assume clinical, educational, research and leadership positions within this advanced nursing specialty. Our Patient Simulation Center, which includes an operating room with advanced monitoring and gas-delivery systems, employs advanced technology to support the surgical and anesthetic care of a full-body, computerized mannequin.”

University at Buffalo: The State University of New York

Strategic Goals of the SON

- To position the University at Buffalo School of Nursing to attain global recognition in research and scholarship from discovery to translation that results in impact for healthcare delivery, outcomes and equity.
- To create a culture of inclusion, respect and collaboration for all faculty, staff and students to thrive and actualize their talents.
- To deliver nationally recognized nursing education programs that provide access to diverse populations, global opportunity, and prepare our graduates to lead in research, education, practice and service.
- To enhance and expand partnerships and collaborative initiatives within the SON, throughout UB, with our alumni and with community partners.
- To improve financial stability and sustainability.
The Novice
- The summer of their second year will be many of the students’ first experiences in the operating room (OR).
- Most of them will have had minimal exposure to the flow of the OR. This includes limited intraoperative patient management, administration of anesthetic agents and reversal of anesthetic agents. Furthermore, this will be the SRNA’s first time planning and implementing anesthetic care plans.
- Students are typically overwhelmed with “routine cases,” procedures and flow of the operating room.
- SRNAs may possess feelings of inadequacy, incompetence.
- Novices benefit from reassurance, mentoring, preceptor leading by example, and taking breaks to refocus mentally.

Nurse Anesthesia Graduate Students
- Students are registered nurses with 1-10 years of critical care experience.
- They are “adult learners” ages (25 - 40 years old).
- Multiple certifications (CCRN, BLS, ACLS, PALS).
- Prior experiences in a variety of care settings across the country.

Senior SRNA
- One year to graduation, beginning the summer of the senior year (third year).
- The transition begins for the student from moderate preceptor assistance to minimal assistance.
- Communication with the student during this time is imperative to help the student transition to an independent provider.
- Transition begins with the student’s clinical site (supervision environment), comfort of the clinical preceptor, comfort and competency level of the student, cases the student is involved with.
- The student will still need constructive feedback, evaluation, and reassurance from their clinical preceptor.
- Minimal supervision allows the student to make their own decisions, and to evaluate their decisions with guidance from their preceptor.
Responsibilities of the UB student

The SRNA should identify and communicate to the preceptor his/her own learning needs.

Be an active participant in the learning process.

Identify with the preceptor daily goals and objectives.

Conduct an ongoing self-evaluation and discuss progression with preceptor.

Identify with the preceptor daily goals and objectives.

Conduct an ongoing self-evaluation and discuss progression with preceptor.

Take responsibility for their own learning, and arrive to the clinical site prepared to learn.

Readily asks questions regarding the care and management of patients.

Review the clinical site orientation handbook and complete site specific requirements prior to the start of the clinical rotation.

Be respectful and courteous to preceptors and hospital staff.

Role of a Preceptor

• A preceptor is defined as an experienced clinician who supervises, educates, and acts as a role model for students as part of a formalized educational program (Scott-Herring & Singh, 2017).

• The role of a graduate level preceptor focuses on acclimatizing the student to the advanced practice role, with emphasis on the development of critical thinking skills, decision making, time management, and skill acquisition over a specified period of time (Thomas, Allen, & Edwards, 2018).

Qualifications of University at Buffalo Clinical Preceptors

“Preceptors work with agencies that hold an affiliation agreement with the SUNY University at Buffalo School of Nursing.” (University at Buffalo, 2015)

Preceptors shall be:

• Experienced in the area in which they educate students, have 1 year minimum clinical experience, and have the requisite experience to supervise students.

• A desire to be a preceptor for SRNAs.

• Prepared at the Master’s and Doctoral level.
Characteristics of a Successful Preceptor

- Defines clear expectations for the student at the beginning of the day.
- Allows the student autonomy appropriate to their level/competence.
- Offers regular and ongoing feedback during the clinical day.
- Explains important clinical information clearly and assesses for understanding.
- Explains the rationale for decisions that are made during the clinical experience.
- Teaches diagnostic skills.
- Adjusts teaching style to meet the needs of the student.
- Demonstrates interest in the preceptor role.
- Ability to provide constructive feedback.
- Offers regular and ongoing feedback during the clinical day.
- Explains important clinical information clearly and assesses for understanding.
- Explains the rationale for decisions that are made during the clinical experience.

(McQueen, Poole, Raynak, & McQueen, 2018)

Implementing the Preceptor Role

- Think back to when you were an SRNA. Think about how you felt, and how you were treated. Remembering this will help you understand your student.
- Take time to explain skills, tasks, and procedures to the student. This will decrease the student’s anxiety, and facilitate further learning by the student.
- Be open to learning from the student.
- Let the student develop independence.
- Be open and honest in your expectations, in your feedback.

Implementing the Role of Preceptor

Key Preceptor Skills:
Observation

(University at Buffalo, 2015)
Definition of Teaching Technique Terms...

- Coaching
  - Directing the student to accomplish a goal, teaching a specific skill.
  - Prompting
    - "What is the next step?" "Are you missing a step?"
  - Cuing
    - Giving a hint to trigger an action.
    - Example: Tapping the Blue Hugger to remind the student to turn it on.
- Modeling
  - Performing a task that you want the student to emulate.
  - Example: Performing a pre-operative assessment.

Terms Continued.

- Open ended questioning
  - How would you...
- Pimping
  - Asking a series of increasingly in-depth questions to gauge academic knowledge.
  - The literature says that the use of "pimping can increase stress for SRNAs in an already stressful environment, and places them in a defensive posture." (Easton, O’Donnell, Morrison, & Lutz, 2017)

Stages of Clinical Competence
**Facilitate a Learning Environment**

- Create an environment that facilitates learning:
  - Taking the student aside when offering correction or constructive criticism.
  - You can’t control the OR staff, the surgeon, the cases for the day, the student’s attitude etc... you CAN control your actions and reactions.

- Recognize that the student is learning:
  - Acknowledge student questions, encourage the student to ask questions.
  - Promote critical thinking:
    - “Why do you think the patient’s blood pressure dropped?”
    - “Why did the end tidal CO2 just drop?”

**Educational “Time-Out”**

Perform a “pre-briefing” with the student at the beginning of the clinical day prior to starting the first case or a few minutes before starting the case:
- Allows you to assess the SRNA’s level within the program, and level of experience managing similar cases.
- Review the plan of care for the patient with the SRNA, when there is time, off an explanation of the plan of care.
- Establish goals and objectives with the student. These will be different based on the students level of comfort and experience.

**Establishing Goals and Objectives**

According to O’Donnell objectives and goals for students should be .......... S.M.A.R.T
- Specific
- Measurable
- Achievable
- Realistic
- Timely

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(Thomas, Allen & Edwards, 2018)
Principles of Good Feedback:

- Clarifies what good performance is through identification of goals and objectives.
- Facilitates the student in developing self-assessment skills, allows them to reflect upon their learning.
- Provides the student with high quality information about their learning.
- Opens up a dialogue between the student and preceptor around learning.
- Encourages positive motivation of the student to improve performance.
- Closes the gap between the student's current performance and desired performance.

Evaluation of the Student

"Tell me and I forget. Teach me and I remember. Involve me and I learn."

Benjamin Franklin

"Criticism, like rain, should be gentle enough to nourish a man's growth without destroying his roots."

Frank A. Clark (Thomas, Allen & Edwards, 2018)
Principles of Effective Evaluation

- **Timely:**
  - Should occur at regular intervals throughout the clinical day.
  - If focusing on specific behaviors should be immediate.
  - If time does not permit due to production pressure, case load, patient complications etc... the SRNA should be provided at the end of the clinical day.

- **Non-judgmental:**
  - Feedback should be undertaken using a neutral tone.
  - Preceptor should remain rational, not emotional.

- **Private:**

- **Objective**

  - G.A.S Tool
    - Gather
    - Allow the student to assess their performance.
    - Were established goals and objectives achieved?
    - Facilitate identification of lessons learned during the day.
    - Help the SRNA identify areas of their performance where they did well.
    - Identify areas of improvement.
    - Facilitate the SRNA in reflecting on their performance during the clinical day.
    - Sample questions: “Tell me more about”, “What were you thinking when you…”
    - Report your observations of the SRNA’s clinical performance, and reflect on your observations.

  - **Sandwich Feedback Technique**

  - **Giving Feedback**

  - “There is no use whatever trying to help people who do not help themselves. You cannot push anyone up a ladder unless he is willing to climb himself.” - Andrew Carnegie

 교육 자료를 제공하지 않음.
Sandwich Feedback

- The purpose of feedback is to provide the SRNA with recommendations and advice for performance improvement.
  - Remember feedback is specific, objective, and timely.
- First, provide the student with examples of things that they have done well.
  - "You conducted a very thorough pre-operative assessment of this patient..."
- Second, tell the student about skills they need to improve on.
  - "I noticed that you didn’t perform a high pressure or low pressure test on the circuit."
- Third, motivate the student with a positive comment.
  - "I can see that you are really trying; you come in everyday prepared and ready to learn."

(University at Buffalo, 2015)

The two words information and communication are often used.

Communication

Behavior was least conducive to learning in a clinical environment.

- The poll demonstrated that degrading and demeaning behavior communicated verbally or nonverbally was the least conducive to student learning.
- The poll results demonstrated a discrepancy.

Potential explanation CRNAs believe that their current communication methods used with SRNAs are appropriate and did not warrant a change.

SRNAs did not feel that current methods of communication with clinical preceptors was always effective in the clinical environment.

Recommendations for future research: continuing education in communication techniques.

Elisha (2008) conducted a study of CRNA clinical preceptors and SRNAs to determine which preceptor...
Communication

- Communication is the most important, fundamental non-technical skill in anesthesia.
- Effective communication helps to build SRNA confidence in the clinical environment.
- Open communication facilitates:
  - Asking and answering of pertinent clinical questions.
  - Sharing of ideas.
  - Venting of frustrations.
  - Reflection on performance.

“The single biggest problem in communication is the illusion that it has taken place.”
- George Bernard Shaw

Managing conversations related to unsatisfactory student performance:

These are difficult conversations. Difficult conversations can be defined as:
- Conversations where we have to deliver unpleasant news.
- Discussions regarding delicate subjects.
- Talking about something that needs to change.
- Discussions about something that has gone wrong.

Facilitating Open Communication

- Talking about your experiences, and having students talk about their experiences.
- This dialogue helps students accept their performance and move on from it.
- Helps students discover alternatives to their thought process.
- Provides the opportunity for questions and sharing ideas.
- Allows both you and the student to discuss concerns and frustrations.
  - Problems with performance cannot be addressed unless they discussed.

How difficult conversations become complicated?

- In situations of hierarchical structure.
  - Ex. Anesthesiologists/CRNAs, CRNAs/Students
- Social power positions.
  - Ex. Preceptor to student
- When we are angry, frustrated.
- Miscommunications, misunderstandings, disagreements.
How are difficult conversations handled?

We AVOID having the difficult conversation

The discussion is poorly handled

Or....

They are handled well.

What is the first step of handling a difficult conversation?

• Identify the purpose of the conversation:
  o What is the goal of the conversation?
  o What do you want to accomplish?
  o What is the ideal outcome from having this conversation?
  o What do you want to change?

• Prepare for the conversation:
  o What assumptions are you making about the student’s intentions or behaviors?
  o You should be cautious in assuming this is what the student’s intent was.
  o IMPACT DOES NOT NECESSARILY EQUAL INTENT

Handling the Difficult Conversation Continued:

• What buttons are being pushed?
  o Are you being more emotional than the situation warrants
  o Is the student aware of the problem?
  o How do think the student perceives it?
  o What solutions do you think they would suggest?

Ground rules for having a difficult conversation:

• Stay at the same eye level and speak as calmly and matter of fact as possible.
• Describe your concerns, and how you would like to happen differently. Be clear, be specific.
• Let the student respond. Make sure you understand what the student has said before you respond.
• Approach the conversation with openness and an interest in problem solving.

• Keep to the topic.
• Allow for the possibility for a time-out.
• Take responsibility for feeling the way you do rather than blaming the other person.
• “I feel mad.” not “you made me feel.”

University at Buffalo — the State University of New York
Steps for a Successful Conversation:

Step 1: Approach the conversation with an open mind, and try to see the situation from the other person’s point of view.
- Try to see how events affect the other person, and where their values and priorities are.
- Let them talk until they are finished, don’t interrupt unless to acknowledge.
  - Watch their body language
  - What are they saying?
  - What aren’t they saying?

Steps for a Successful Conversation Continued:

Step 2: Acknowledgement of the other individual.
- Shows that you have heard and understood.
- Try to understand the other person so you can make the argument for them, and explain it back to them.

  * “Acknowledge whatever you can, including your own defensiveness if it comes up.”
  * For example, in an argument with a friend, I said: “I notice I’m becoming defensive, and I think it’s because your voice just got louder and sounded angry. I just want to talk about this topic. I’m not trying to persuade you in either direction.” The acknowledgment may help to re-center.

(Mager, 2017)

Steps for a Successful Conversation Continued:

Step 4: Problem Solving
- Ask the other person what he thinks might work to bring about change
- Whatever he says, “find something you like and build on it.” (Mager, 2017)
- If the conflict becomes adversarial, go back to inquiry stage to re-center; or take a break, get someone to mediate.

(Mager, 2017)

“Ultimately, you cannot control how the other person(s) will react to your efforts to engage them in challenging but necessary conversations. However, by being well prepared and following these guidelines, you can improve the skillfulness of your participation and maximize the chances that the conversation will serve its intended purpose.”

(Mager, 2017)
Handling Unsatisfactory Student Performance

- It is important to discuss concerns regarding unsafe/un satisfactory student performance in spite of guidance, feedback, and intervention of the preceptor.
- Early intervention makes it possible for program faculty members to help the student make corrections, provide remediation for unsatisfactory skills.
- Gives the student the opportunity to change, to improve their performance and be successful.
- Provides faculty members the opportunity to evaluate student performance.

Communicate with Faculty

- Please WRITE evaluations.
- If you are not comfortable providing feedback directly to the student, email the clinical site coordinator to report problematic behaviors.
- If the student’s performance is unsafe, if they have a bad attitude, or they are not listening despite clinical preceptor providing feedback, the behavior needs to be reported to the clinical site coordinator and reported to UB faculty in order to address these concerns.

Problems with students cannot be addressed unless they are documented.

Handling Unsatisfactory Student Performance

Use of "Unsatisfactory" marks on evaluations can serve to motivate students to change behavior.

- One "Unsatisfactory" mark on their daily performance evaluations will NOT get them thrown out of the program. If their performance improves, tell them.

If you are uncomfortable discussing an unsatisfactory performance or are uncertain, seek a colleague, the clinical coordinator, or course faculty for their opinion.

Providing negative feedback to a student is challenging, however, problematic behavior that is not addressed will continue.

Remember the MSNA will be anesthetizing patients one day, maybe even you!

(Spulecki, n.d., Thomas, Allen, & Edwards, 2018)
What are Anesthesia Non-Technical Skills?

- Sometimes referred to as "soft skills"
  - Task management
  - Team working
  - Situation awareness
  - Decision making
- Often taught through the didactic portion of CRNA programs.
  - Shaped through clinical rotations and interactions with other anesthesia providers (Flin, Patey, Glavin & Maran, 2010)

Why are Non-Technical Skills Important?

- Medical errors are the third leading cause of death in the United States (Makary & Daniel, 2016).
  - In anesthesia, errors include:
    - Medication errors
    - Machine malfunctions
    - Inadequate patient positioning (Schulz et al., 2017)
- More than 70% of critical errors that directly contribute to brain damage and death stem from underdeveloped non-technical skills. Specifically lack of situational awareness (Schulz et al., 2015).

Task Management Implementation:

- Examples of appropriate task management:
  1. Planning and preparing:
     - Ex: Reviewing patient's medication list to see if they took their ACEI in the morning before surgery to be prepared for refractory hypotension
  2. Prioritizing:
     - Ex: Treating severe hypotension before documenting the most recent train-of-four, being vigilant at high risk moment of the surgery
  3. Providing and maintaining standards:
     - Ex: Machine check at the beginning of each case, double check drug labels
  4. Identifying and utilizing resources:
     - Ex: Bringing another anesthesia provider into the room for induction of a known difficult airway

Implications for SRNAs:

- Task management is a learned skill. Exposing SRNAs to this in clinical role assist with their transition into practice. Model vigilance for SRNAs (Flin et al., 2010, Valecha & Ruchi, 2014)
Teamwork in Anesthesia Non-Technical Skills:

- Skills for working in a group context, in any role, to ensure effective joint task completion and team member satisfaction; the focus is particularly on the team rather than the task.

  - Includes:
    - Coordinating activities with team members
    - Exchanging information
    - Using authority and assertiveness
    - Supporting others

  (Flinet et al., 2010)

Teamwork Implication:

- Due to the dynamic, ever-changing environment in the OR, even experienced CRNAs must make an active effort to be a team player.

  - Implications for SRNAs:
    - Modeling effective teamwork in the OR sets an example for SRNAs.
    - SRNAs are familiar with teamwork in the ICU setting, modeling teamwork in the OR will assist with learning their new role.

  (Wunder, 2016)

Teamwork Implementation:

Examples of appropriate teamwork:

1. Confirming roles and responsibilities of team members:
   - Ex: Assigning roles appropriately during cardiac arrest

2. Discussing the case with surgeons or colleagues:
   - Ex: Management of high peak pressures during laparoscopic case with decreasing insufflation pressure

3. Exchanging relevant hemodynamic changes with the surgical team:

4. Using authority and assertiveness:
   - Ex: Taking over airway management during a code on the floor

(Flinet et al., 2010, Valecha & Ruchi, 2014)

Situation Awareness in Anesthesia Non-Technical Skills:

- Skills for developing and maintaining an overall awareness of the work setting based on observing all relevant aspects of the theater environment (patient, time, displays, equipment); understanding what they mean, and thinking ahead about what could happen

  - Includes:
    - Gathering information
    - Recognizing and understanding
    - Anticipating

(Flinet et al., 2010)
Situation Awareness Implementation

- Examples of appropriate situation awareness:
  1. Gathering information
     - Ex: Watching surgical procedure, especially during critical times
  2. Recognizing and understanding:
     - Ex: Understanding the cause of changes in vital signs (hypotension after tourniquet was deflated in a total knee), utilizing the difficult airway algorithm in a “can’t intubate, can’t ventilate” situation
  3. Anticipating:
     - Ex: Asking yourself “what if” questions: “What would I do if the patient’s peak pressures dramatically increased?”

(Flin et al., 2010, Valecha & Ruchi, 2014)

Decision Making in Anesthesia Non-Technical Skills:

- Skills for reaching a judgment to select a course of action or make a diagnosis about a situation, in both normal conditions and in time-pressured crisis situations.
- Includes:
  - Identifying options
  - Balancing risks and selecting options
  - Re-evaluating

Decision Making Implementation:

- Examples of appropriate decision making
  - Identifying options
    - Ex: Using a bougie during intubation when direct laryngoscopy results in a poor view.
  - Balancing risk and selecting options
    - Ex: Deciding how to optimize a patient with an active GI bleed coming to the OR for a necessary procedure
  - Re-evaluating
    - Ex: Re-assessing patient’s hemodynamics after administering an albumin bolus for hypotension

(Flin et al., 2010, Valecha & Ruchi, 2014)
Thank you for your time!

Thank you all for taking the time to participate in our DNP project! We appreciate all the time you take to teach us in the clinical setting and are looking forward to being your colleagues in the near future.

Thank you again for your continual support,

Alexis and Melanie

References


Decision Making Implications

Implications for SRNAs:

- Decision making, including balancing risks, is crucial in anesthesia.
- Every anesthesia provider has a different style and technique. Therefore, it is valuable for SRNAs to be exposed to a wide variety of techniques for managing any issues that may arise in the perioperative period.

Encourage SRNAs to discuss their thought process with intraoperative management, comparing it to your own.
References

1 Journal of Medicine. 106(1), 76-8
Purpose Statement

- The purpose of this DNP project was to develop an evidence-based online preceptor workshop for CRNAs' clinical preceptors of the University at Buffalo School of Nursing (UBSON) Doctorate of Nurse Practice (DNP) Nurse Anesthesia program.
- The online workshop sought to serve as a guide to CRNA clinical preceptors and focused on:
  - The role of the clinical preceptor
  - Preceptor role implementation
  - Skills for clinical teaching
  - Providing student feedback
  - Problem solving
  - Providing a debriefing of student performance
- The feasibility of developing the online preceptor workshop was supported by the presence of the UB School of Nursing's undergraduate online preceptor tutorial, as well as the presence of an online CRNA clinical preceptor tutorial developed by the University of Pittsburgh's Nurse Anesthesia program.

Specific aims

- The development of the online clinical preceptor workshop was expected to improve how CRNAs perceived their communication and teaching strategies as clinical preceptors, as well as their perception of the consistency of clinical education that they provided to SRNAs.
- Aim 1 was the development of an online evidence-based preceptor-workshop for CRNA clinical preceptors. The workshop defined the preceptor role, defined precepting behaviors, provided evidence-based communication techniques and teaching strategies for clinical preceptors that educated them in best practices. This online education sought to improve the quality of SRNA clinical education through improvements in the perception of communication and teaching strategies.
- Aim 2 of this project looked to improve CRNA perception of the consistency of clinical education that they provided to SRNAs. The online preceptor educational workshop established baseline precepting behaviors. The establishment of baseline preceptor behaviors sought to ensure that CRNA clinical preceptors were providing SRNAs with consistent feedback and education while attending varied clinical sites, and while working with different clinical preceptors.

Development of an Online CRNA Preceptor Workshop for the DNP Nurse Anesthesia Program at the University at Buffalo

- Student registered nurse anesthetists (SRNAs) depend upon certified registered nurse anesthetists (CRNAs) to serve as clinical preceptors to teach the clinical skills, non-technical skills (NTS) and knowledge necessary to administer anesthetic agents and care for patients under anesthesia. A command of these skills not only demonstrates clinical competence, but also reduces intraoperative errors, reduces patient outcomes, as well as patient mortality. This transfer of clinical knowledge and NTS is an essential part of clinical education for SRNAs.
- According to Easton et al. (2017), most CRNAs never receive formal training prior to assuming the role of clinical preceptor. A lack of formal preceptor training could lead to diminished knowledge and skill transfer to SRNAs. The consequence of this omission in formal preceptor training could result in diminished transfer of knowledge of both technical and NTS from the CRNA to SRNA due to ineffective communication and teaching techniques.
- The absence of a graduate level clinical preceptor workshop at the University at Buffalo School of Nursing (UBSON) DNP Nurse Anesthesia program in Buffalo, NY therefore, identified the need for a scholarly project aimed at the development of a preceptor workshop for graduate level clinical preceptors.

Chaplin, Courtney, & Floyd, 2012; Easton, Lutz, Morrison, & O’Connell, 2017; Boet, Larrigan, Marti., Liu, Sollison & Ibbington, 2018.)
Background and significance

- Most SRNAs have never received formal preceptor training. Thus, many preceptors may not have been informed of their role or instructed on how to function as a preceptor. As a result, preceptors may lack the skills necessary to assess an adult learner's needs, possess effective communication strategies, and provide continuous feedback. Both of these behaviors are essential to the efficacy of the preceptor role. Inadequate communication and feedback can lead to decreased satisfaction of the clinical experience for both SRNAs and CRNAs.

- The evidence suggested that clinical preceptors who did not receive formal education into the preceptor role may have inconsistent teaching approaches and diminished communication with SRNAs. Preceptors may neglect to establish daily goals for the student, fail to communicate their expectations with the student at the beginning of the clinical day or neglect to provide ongoing feedback throughout the day. Clinical preceptors may overwhelm the student with too many tasks, thus precluding the student from developing a critical clinical judgment. Preceptors may also fail to facilitate their students' needs, skill-set, abilities, clinical knowledge, level within their clinical program, or discuss the students past anesthesia care.


Background and significance continued

- A study from the AANA journal showed that ninety percent of surveyed SRNAs reported stress related to their educational and professional environments. These stresses are related to the adoption to clinical environments, conflict with clinical preceptors and lack of support from clinical preceptors. Areas of dissatisfaction that were also evident amongst SRNAs included inconsistent feedback from clinical preceptors, lack of interest from the preceptor, poor preceptored teaching skills, inadequate or unprofessional communication and intimidation by the preceptor.

- According to Herrring and Singh (2017), educational programs that target clinical preceptors have been shown to have positive effects on both students and preceptors. These programs are an effective way to improve preceptor communication skills, NTS, and a reduce stress levels for both the preceptor and student.

- As many preceptors have not received formal education in adult learning styles or communication techniques, their participation in online training modules and workshops has been shown to improve NTS, promote teamwork with the SRNA, and increase their confidence and comfort in the preceptor role.

(Cipres et al., 2012; Hieda & Rutledge, 2011; Herrring & Singh, 2017; Tracy, 2017)

Background and significance continued

- According to Elshua and Rutledge (2011), the clinical experiences that SRNAs have directly influence their development of critical thinking skills, professionalism, and proficiency as an anesthesia provider. Given the highly autonomous role of a nurse-anesthetist, deficiencies in clinical education can lead to decreased provider performance of both technical and NTS and thus their effectiveness as an anesthesia provider. Hence, the availability of a graduate level preceptor workshop would potentially serve as a guide for SRNAs on how to improve communication skills, provide feedback, and improve teamwork with SRNAs.

- UBSON offered an online preceptor tutorial aimed at clinical preceptors of the undergraduate baccalaureate-nursing program, but did not have in place a workshop or in-service for graduate level clinical preceptors (University at Buffalo, 2015).

- The absence of a graduate level clinical preceptor workshop at the University at Buffalo School of Nursing (UBSON) DNP Nurse-Anesthesia programs in Buffalo, NY identified the need for a scholarly project aimed at the development of a preceptor workshop for graduate level clinical preceptors.

- Our intention was to use current evidence based research to adapt the current undergraduate preceptor tutorial to the graduate level DNP Nurse Anesthesia program for use by CRNA clinical preceptors. Data analysis would then determine if there are any potential benefits to the implementation of a preceptor tutorial of clinical preceptors who work with SRNAs.
Research Question

By providing CRNA clinical preceptors with an online educational workshop, we hoped to evaluate the benefits and impacts of structured preceptor education in order to answer the question: Would an online preceptor educational workshop at the University at Buffalo School of Nursing Nurse Anesthesia program improve CRNAs' perception of their communication skills and the consistency of clinical instruction that they provide to SNRAs?
Theoretical Framework

- The nursing theory that established the framework for this DNP project is Malcolm Shepard Knowles Theory of Adult Learning—Andragogy (Knowles, 1984).
- Knowles theory of adult learning stems from the premise that adult learners have different learning needs than children. The theory describes adult learner’s ability to be self-directing, and internally motivated in educational settings (Knowles, 1984, p. 53).
- Knowles theory identifies six key postulations that educators should infer about adult learners:
  - The need to know
  - Self-concept of the adult learner
  - Past learning experiences of the adult learner
  - Readiness to learn
  - Orientation to learning
  - Increased motivation of the adult learner

Application of Knowles Theory

- Based on the assumptions established by Knowles theory, we considered the following principles when developing the online educational workshop for CRNA clinical preceptors:
  - CRNA clinical preceptors as adult learners, are thought to be self-directed and self-motivated in their educational endeavors. (Knowles, 1984; Learning Theories, 2015).
  - Adult learners tend to choose distance-learning opportunities for continuing education over traditional models of education due to the greater flexibility of online learning, and the greater ability to be self-directed in their own learning (Darden, 2014; Helpern & Tucker, 2015, Elisha, 2018). We developed an online educational workshop in order to offer our participants greater flexibility in completing the workshop at their own pace, and to allow them to be self-directed in their learning.
  - Adult learners are able to draw on and add to past educational and occupational experiences. The focus of new learning was built upon and added to what was already known by the CRNA.
  - Online educational workshop content was directed toward practical learning opportunities related to problem solving and practical experiences as opposed to the memorization of facts (Knowles, 1984).

Workshop modules

- Education that was made available as part of the online educational workshop included the purpose of the preceptor tutorial, the importance of continuing education of clinical preceptors, learning objectives, and information regarding the UBSON mission, and DNP program.
- A webpage was created to host this online workshop through the University at Buffalo web press site.
- CRNA preceptors were able to claim one-hour of continuing education credit from the same anesthesia professional organization, the American Association of Nurse Anesthetists (AANA) for taking part in this online educational workshop. This continuing education credit is free for individuals wishing to participate in this project.
Procedures

Recruitment
- CRNAs that were recruited to participate in this project are those served as clinical preceptors at University at Buffalo School of Nursing (UBSON). Research participants were recruited through the New York State Association of Nurse Anesthetists (NYSANA) Facebook page, via email through the University at Buffalo adjunct faculty LISTSERV, and by emailing a recruitment link to clinical site coordinators to share with CRNAs who work at their clinical sites. A link to the online preceptor workshop was included in the recruitment advertisement posted on the NYSANA page, and in emails that will be sent through the LISTSERV, and to email coordinators.
- Individuals who were interested in participating in the project were instructed to click on the link that was provided in the recruitment advertisements which would direct them to the project website.
- Individuals who were excluded from this project included Non-English speakers and CRNAs who did not serve as clinical preceptors.

Data collection
- This project was designed as a quantitative study with a 20-item pre-workshop, 20-item post-workshop, and 24-item one-month follow up survey.
- Surveys questions were developed to measure current CRNA preceptor perceptions of their communication skills and consistency of the education that they provided to SRNAs.
- The surveys were developed and distributed through survey monkey. Responses were not identifiable and were coded to maintain confidentiality. All survey items were developed through a review of current literature, adapted from the anesthesia non-technical skills survey, which had established validity and reliability, as well as discussions with Dr. Barrie, an educational expert in the field of quantitative data management. Participant demographic information was also collected to include categorical age groups, preceptor level of education to include certificate, masters, doctorate, and number of years serving as a clinical preceptor.

Methodology
Data analysis

- Once survey results were received, the results of the pre-workshop survey, post-workshop survey, and one-month follow-up survey were downloaded from survey monkey into Microsoft Excel spreadsheets, combined into one Excel spreadsheet, organized, reviewed, and exported to SPSS for data analysis.
- In order to determine if preceptor perceptions of their communication skills and their perceptions of the consistency of education that they provide to SRNAs changed following exposure to the online educational tutorial, a repeated measure ANOVA (RM-ANOVA) was used to analyze survey data.
- Pre-educational means were compared with post-educational means values, and one-month follow-up means values for each item.
Results

Results

Significant results were noted regarding the following question: “Please rate your comfort level with conflict management and resolution with SRNAs.” Significant results were noted regarding the following question “Please rate your comfort level with conflict management and resolution with SRNAs.” From the pre-workshop survey to the one-month follow-up survey, a significant difference was noted in the proportion of respondents who felt comfortable with conflict management and resolution with SRNAs. Mauchly’s test of sphericity assumption was not statistically significant, $\chi^2(2) = 2.594, p = 0.273$. Test within subjects showed $F(1,16) = 6.054, p = 0.026$.

Regarding the survey question “I feel I provide a formal debriefing of SRNAs’ performance at the end of every clinical day.” A paired t-test demonstrated that there was a significant difference between pre-workshop survey reflections $(M=1.70, SD=1.08)$ and post-workshop survey reflections $(M=1.15, SD=0.67)$ conditions $t(19) = 2.24$, $p = 0.037$.

The last question of the post-workshop survey asked participants based off of their experience with the educational workshop if they believed it should be provided to all CRNAs that may precept SRNAs. Of the 28 respondents to this survey, 4 individuals responded “no” to the question, 22 responded “yes,” and 2 individuals responded “yes, but with changes.”
Strengths of this project

• An online clinical preceptor workshop did not dramatically change preceptor perceptions of the consistency of clinical education that they provide to SRNAs. CRNAs clinical preceptors reported confidence in their abilities to precept SRNAs.

• Results are not statistically significant they are consistent with the literature review; discussion regarding inconsistency in communication in the clinical environment as exhibited by clinical educators and reported by SRNAs. Clinical preceptors tend to perceive their methods of communication as effective and interactions as appropriate, while SRNAs may view interaction and communication with clinical preceptors as inadequate. On this point, the researcher recommends that future preceptor workshops focus on addressing effective communication techniques and involve both CRNAs and SRNAs as study participants.

• A majority of the participants in this project stated that there would be value in having a clinical preceptor workshop.

• The sample population consisted of CRNAs with similar professional and education backgrounds, as such this group can be considered fairly homogenous.

• The pre-survey, post-survey, and one-month follow up surveys were administered in such a short time frame following the educational intervention, a limited effect of extraneous variables can be thought to have influenced survey results.

Weaknesses of this project

• Recruitment strategies could have led to the small sample size of this project.

Discussion

• Of note, there was a statistically significant improvement in preceptor perception of managing and resolving conflict with SRNAs from the pre-workshop survey to the one-month follow up survey. This could mean that some preceptors found the communication modules of the workshop informative and that the workshop had a positive impact on the perceptions of clinical preceptor’s communication.

• There was also a non-significant trend for the survey question “I feel I provided a formal debriefing of SRNAs performance at the end of every clinical day” The result could indicate that the workshop positively impacted preceptor’s perceptions regarding providing students with a formal debriefing prior to participating in the workshop and the post-workshop survey. Perhaps the workshop helped preceptors recognize the importance of providing feedback to students at the end of the day.

• Data collection tools that were administered as part of this project can be replicated and used as part of future projects as well.

• The sample population consisted of CRNAs with similar professional and education backgrounds, as such this group can be considered fairly homogenous.

• The pre-survey, post-survey, and one-month follow up surveys were administered in such a short time frame following the educational intervention, a limited effect of extraneous variables can be thought to have influenced survey results.

• The content of the preceptor workshop can be replicated for use as part of future preceptor education, nursing education, and for use in future studies.

• Limitations of this project include a narrow scope focusing on improving CRNA perceptions of their communication skills and consistency of communication that they provided to SRNAs.

• The researcher could have also conducted a “live” preceptor workshop and included both SRNAs and CRNAs as participants.

• A qualitative methodology consisting of focus groups could also have been utilized to further assess preceptor perceptions of the workshop.

• This project could have been improved by survey data accessing CRNA perceptions of the need for a preceptor workshop, topics to include in the workshop, and a focus group to discuss the need for preceptor education.
Implications for future research

- Future implications of research into this topic could include an educational workshop focusing on addressing communication techniques that involve both CRNAs and SRNAs as study participants.
- A live in person workshop focusing on conflict resolution between CRNAs and SRNAs.
- Future research could also focus on improving upon current workshop modules through a needs assessment of CRNAs and SRNAs on current practices in clinical education. Modules can then be adapted to fit current or future needs of clinical preceptors and even SRNAs.

DNP Essentials

- DNP Essentials that were met as part of this project include DNP Essential I scientific underpinnings for practice, DNP Essential III clinical scholarship and analytical methods for evidence-based practice, and DNP Essential VIII advanced nursing practice.
- The foundation for the development of this project was based on the translation of current evidence based literature into best preceptor practices thus meeting the standards for DNP Essential I.
- DNP Essential III was incorporated into this project by means of a critical analysis of current literature and prior research that was used to evaluate the gap in literature that supported the development of this project. Supporting evidence that was sought through the literature review revealed a need for this educational intervention.
- The long term goal of this project was to generate meaningful research for the nursing profession and to support further nursing education and supports DNP essential VIII.

APN contributions to scholarship and practice

- The role of the advanced practice nurse (APN) as part of this scholarly project was to use evidence-based research to develop an online workshop for clinical preceptors in an effort of provide improved clinical education for SRNAs, and potentially other graduate students within the UBSON as well.
- This project aimed to advance the practice of nursing through continuing education, and application of the DNP essentials.
- The long-term goal of this project was to generate meaningful research for the nursing profession and to further nursing education.

Knowledge gap and proposed site deliverables

Knowledge gap

- The proposed development of an evidence-based preceptor workshop for the UB SON DNP Nurse Anesthesia program sought to fill the void for graduate level preceptor preparation within the nurse anesthesia program as well as for CRNA clinical preceptors who have never received formal preceptor training.
- This project was thought to have the potential to improve the clinical education and clinical practice of current and future SRNAs in the nurse anesthesia program, and could be adapted to the other graduate level clinical preceptors of the UBSON graduate program, and therefore could positively impact future graduate student nurses within the UB SON graduate program.

Proposed site deliverables

- We saw this project as an important first step in establishing baseline data that can be used for future SON policy creation. Nurse Anesthesia program policy creation, educational interventions at clinical rotation sites, educational interventions for clinical educators, and potential adoption for use by the UB SON graduate program.

• Future implications of research into this topic could include an educational workshop focusing on addressing communication techniques that involve both CRNAs and SRNAs as study participants.
• A live in person workshop focusing on conflict resolution between CRNAs and SRNAs.
• Future research could also focus on improving upon current workshop modules through a needs assessment of CRNAs and SRNAs on current practices in clinical education. Modules can then be adapted to fit current or future needs of clinical preceptors and even SRNAs.
Conclusion

- Effective preceptor education tutorials serve as a guide to clinical preceptors in developing effective communication strategies, providing student feedback, engaging students critical thinking skills, ensuring skill transfer, handling challenging situations, and the promotion of student success.

- The proposed DNP project demonstrates the potential benefits of the development of a CRNA clinical preceptor workshop to the UBSON DNP Nurse Anesthesia program, to CRNAS clinical preceptors and to SRNAS attending the same anesthesiology program.

- The findings of this project, and future expansion of this project could lead to more robust interventions that could help to further prepare CRNAS and SRNAS to become clinical preceptors. This project has helped to set the ground work that can serve to improve SRNA clinical education by improving preceptor communication skills, transfer of non-technical skills, as well as CRNA satisfaction with the preceptor experience.

(Elías et al, 2017; Elisha, 2008; Effecting mentoring in the clinical setting, 2016; University at Buffalo School of Nursing, 2015)

References


http://mediastream.buffalo.edu/Content/nur/Misc/ManualForPreceptors-2015/