

Nontechnical Teaching Skills Education for Certified Registered Nurse Anesthetist Clinical Instructors and the Impact on the Clinical Education of Student Registered Nurse Anesthetists

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June 28, 2017

Presented to the Faculty at the University of Michigan-Flint
In partial fulfillment of the requirements for the
Doctor of Anesthesia Practice Program
Spring/Summer 2017

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Abstract

Purpose: The purpose of this Scholarly project was to improve Student Registered Nurse Anesthetist (SRNA) clinical education consistency and quality by enhancing communication between Certified Registered Nurse Anesthetists (CRNAs) clinical instructors and SRNAs. This was accomplished by educating CRNA clinical instructors on non-technical skills, communication tools, and a common language, based on Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS®), for use when providing clinical instruction to SRNAs.

Methods: CRNA clinical instructor reactions, learning, and behavior were assessed with online Qualtrics surveys pre- and post-intervention. Participants completed a pre-intervention survey, four Microsoft PowerPoint TeamSTEPPS® nontechnical skills (NTS) modules, an immediate post-intervention survey, and a 1-month post-intervention survey. The TeamSTEPPS® Coaching Module, Leading Teams, Situation Monitoring, and Mutual Support Modules were adapted and transformed into the pilot study modules for this scholarly project.

Results: Team structure, situational monitoring, mutual support, communication, and satisfaction with SRNA communication attitudes and perceptions mean scores increased while leadership attitudes and perceptions mean score decreased between pre- and immediate post-intervention data. The majority of CRNA clinical instructor participants (87.5%) scored an 80% or higher on the 10 post-intervention educational module knowledge assessment questions. Communication, situational monitoring, mutual support, and communication tools behavior mean scores increased between the pre- and 1-month post-intervention data.

Conclusion: The results of this scholarly project demonstrate the potential for a simple, cost effective educational intervention to alter the attitudes, perceptions, and behaviors of CRNA clinical instructors related to NTS utilization when working with SRNAs. It illustrates the ability of TeamSTEPPS® to function as a framework for NTS education for CRNAs. While the pilot nature of the project precluded analysis to demonstrate statistical significance, it may inspire future research that focuses on SRNA educational objectives and performance as a primary outcome. Future studies may also include direct measures of CRNA clinical instructor NTS behaviors while teaching SRNAs.

Data Sources: Cochrane Library, Google Search, Cumulative Index of Nursing and Allied Health (CINAHL), and Pub Med databases.

Keywords: Nontechnical skills, TeamSTEPPS®, nurse anesthesia education, clinical education.

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Introduction

Certified Registered Nurse Anesthetists (CRNAs) are technical experts in the clinical areas of nursing and anesthesia. They are also responsible for providing Student Registered Nurse Anesthetists (SRNAs) with the majority of their clinical anesthesia education.¹ The quality of SRNA clinical education is contingent upon the teaching ability of the CRNA clinical instructor.²⁻⁴ CRNAs are tasked with providing safe, effective anesthesia care in a variety of hospital and clinical settings under stressful and time-sensitive conditions.⁵ In a teaching institution, this care must be provided while instructing and evaluating SRNA clinical skills and theoretical knowledge.^{4,5}

The dynamic perioperative environment requires CRNA clinical instructors to utilize a variety of teaching techniques to convey anesthetic principles and clinical skills to SRNAs. These clinical instructors need to create a supportive learning environment, provide clear and nonthreatening communication, and offer constructive feedback and objective evaluation; this must be done while remaining calm and focused during crisis situations.¹ Personal interactions with patients, students, and team members are as important as knowledge and skills for achieving CRNA clinical excellence.⁶ The role of nontechnical skills (NTS) in patient safety and successful team collaboration is being increasingly recognized.

CRNAs often lack formal nontechnical teaching skills education.^{3,4} Nontechnical skills (NTS) are those used by CRNAs while interacting with patients, students, and members of the healthcare team.⁷ They include cognitive and interpersonal abilities that supplement clinical and technical expertise; NTS are essential for communication and ensuring safe patient care.⁸ Because CRNAs lack formal education in clinical instruction, specifically on the nontechnical aspects of teaching, there is inconsistency in SRNA clinical education.¹ Certified Registered

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Nurse Anesthetists need education on the nontechnical aspects of teaching to provide improved and consistent SRNA clinical instruction.^{2,3} NTS education will provide CRNA clinical instructors with a common language and the communication tools needed to improve educational experiences for SRNAs to ensure learning needs and competency levels at each stage of their clinical education are met.¹

The evidence-based Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS®) program has been successfully implemented in a variety of practice settings and specialty areas, including anesthesia, to improve communication and teamwork.⁸ The TeamSTEPPS® program is composed of didactic and simulation components designed to teach NTS.⁹ The use of experiential environments, such as clinical and simulation settings, to reinforce didactic learning is consistent with adult learning theories.⁸ Applicable didactic and simulation components of TeamSTEPPS® could be used to educate CRNA clinical instructors in needed nontechnical teaching skills. The Leading Teams, Situation Monitoring, Mutual Support, and Coaching TeamSTEPPS® Modules are of particular interest in providing NTS education to CRNA clinical instructors and were the basis for the Microsoft PowerPoint-based training utilized in this scholarly project.

The primary goal of this scholarly project was to provide CRNA clinical instructors with NTS and tools to improve the quality and consistency of SRNA clinical instruction, which has the potential to enhance patient safety through the reduction of errors in the clinical environment. It was hypothesized that CRNA and SRNA communication in the clinical environment would be improved after CRNA clinical instructors completed narrated NTS Microsoft PowerPoint training modules adapted from TeamSTEPPS® 2.0 training modules. The research question for the project was: are CRNA clinical instructor perceptions, attitudes, and use of NTS in clinical

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interactions with SRNAs improved after completion of narrated Microsoft PowerPoint NTS education modules based on TeamSTEPPS® 2.0 training modules?

Literature Review

A literature search was conducted to obtain scholarly articles concerning nurse anesthesia clinical education, SRNA clinical evaluation and perceptions, CRNA nontechnical teaching skills education, patient safety, NTS, and TeamSTEPPS®. The search utilized the Cochrane Library, Google Search, Cumulative Index of Nursing and Allied Health (CINAHL), and Pub Med databases. Keywords used in the database searches included non-technical skills, nontechnical skills, anesthes*, nurs*, TeamSTEPPS®, education, CRNA, nurse anesthesia, clinical education, and patient safety in various combinations.

Inclusion criteria consisted of articles written in English that were published in the last 15 years. A 15-year time period was selected due to the small number of articles written concerning CRNA clinical instructor education as well as those specific to anesthesia and NTS. The majority of the resulting articles located were published in the last five years. Two main themes emerged: the importance of CRNA nontechnical teaching skills in the clinical education of SRNAs and the role of NTS in patient safety.

Clinical education of SRNAs increases CRNA workload and can place a burden on CRNA clinical instructors.¹ Teaching may cause stress due to lack of CRNA clinical instructor academic preparation, managerial support, and personal confidence in teaching abilities.¹ Additional time, emotional effort, and resources are also required of the CRNA clinical instructor when dealing with SRNAs who demonstrate serious clinical performance issues.⁵ CRNA clinical instructors may have difficulty recognizing SRNA performance deficits due to inadequate knowledge of the Nurse Anesthesia Educational Program's performance expectations of SRNAs at various levels of training.¹ Lack of standardization in clinical evaluation

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instruments among Nurse Anesthesia Educational Programs (NAEPs) also contributes by creating documentation and evaluation difficulties for clinical instructors.¹⁰ Clinical educators need to feel confident in their nontechnical teaching skills to allow them to maintain patient safety while providing a dynamic learning experience for SRNAs.² Opportunities for formal nontechnical teaching skills training could address these challenges and decrease the burden that teaching places on CRNA clinical instructors while simultaneously improving clinical education quality and consistency for students.¹

SRNAs also experience significant stress while being instructed in the clinical environment.² Sources of stress for students include the CRNA clinical instructor's teaching style and attitude toward students.² Excessive SRNA stress negatively influences patient safety, clinical performance, and learning ability.² High levels of student anxiety result in diminished concentration and poor clinical skill execution.² A CRNA clinical instructor education course could potentially increase teaching effectiveness, lessen student anxiety, and create a more consistent clinical learning environment.² Clinical instructors and students agree that CRNAs who stimulate student involvement, encourage independence, and remain calm during times of stress assist adult learners with clinical anesthesia skill development.²

CRNA clinical instructor teaching effectiveness is pivotal to quality SRNA clinical education.² SRNAs have reported dissatisfaction based on "inconsistent feedback and evaluation, lack of interest from the [CRNA clinical instructor], poor teaching skills, limited access to preceptors, inadequate or unprofessional communication, and instances of intimidation or harassment".¹ All of the areas expressed as causes for SRNA dissatisfaction are NTS. SRNAs and CRNAs are both dissatisfied with clinical education and teaching.^{1,2} This clearly demonstrates a need for CRNA clinical instructor education in nontechnical teaching skills.

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Anesthesia providers often use self-reflection and review as a method of improving clinical and teaching practice.^{6,11} This is not a reliable way to improve CRNA clinical instructor performance.¹ SRNA perceptions of CRNA clinical instructor behavior are frequently contrary to the self-perception of the CRNA.¹ SRNA perceptions fail to support CRNA beliefs that they are effective communicators, foster a positive learning environment, and provide feedback that is constructive.¹ Traditionally relied upon methods of self-reflection are ineffective at improving CRNA clinical instructor teaching performance, which provides further evidence to support the need for formal education on educational principles, theory, and nontechnical teaching skills.^{1,3}

Understanding student needs is essential for CRNA clinical instructors to efficiently mentor, teach, and guide SRNAs through their clinical education.² Elisha³ conducted an eight-hour educational intervention for CRNA clinical instructors utilizing active, adult learning principles aimed at modifying behavioral perceptions and knowledge. Participants applied course material to practical teaching scenarios, discussed personal teaching experiences, created solutions to real-life teaching dilemmas, and analyzed trigger films.³ The curriculum focused on adult learning principles, promoting effective communication, providing constructive feedback, conducting student evaluations, and creating positive teacher-learner relationships.³

The CRNA clinical instructor course was successful in positively modifying perceptions, behaviors, and knowledge in the curriculum focus areas.³ However, CRNA clinical instructors demonstrated an unwillingness to individualize teaching based on student needs in spite of an emphasis on the importance of tailoring education to student expertise, rate of learning, and ability.³ Clinical instructors were also not receptive to changing teaching practices based on student clinical instructor evaluations.³

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Effective communication and teamwork are necessary components of anesthesia practice.¹ Anesthesia providers are expected to perform at an extremely high level under stress and fatigue.¹² The high level of performance is required to provide quality care, ensure patient safety, and must be maintained when providing clinical instruction to SRNAs. Communication breakdowns between CRNA clinical instructors and SRNAs have the potential to increase errors and compromise patient safety.¹ Communication and teamwork failures have been demonstrated to be the cause of errors, sentinel events, and negative patient outcomes.^{7,8,13} NTS have been identified as the key to successful anesthesia crisis management in clinical and simulation settings.⁷

Medical errors, including anesthesia errors, cause injury or death to approximately 1.5 million patients annually costing the healthcare system more than \$3.5 billion in the United States.¹⁴ Human error resulting in medical mistakes contributes to anesthesia risk.¹⁵ Eighty-two percent of preventable anesthesia incidents involve human error.¹⁵

The three most frequently occurring human factors that lead to preventable anesthesia incidents are inadequate training, inexperience of the responsible anesthesia provider, and poor communication.¹⁵ Additionally, many anesthesia incidents occur under circumstances of insufficient supervision of a novice provider.¹⁵ The most common type of anesthesia incident related to these human factors is anesthetic overdose.¹⁵ Of the 8.2 deaths per million hospital surgical discharges per year in the United States attributed to anesthesia, 46.6% were due to overdose of an anesthetic agent.¹⁶ NTS education addresses communication problems as well as issues related to monitoring, supporting, and coaching novice providers.

Nontechnical skills are critical to excellence in anesthesia practice.^{11,12} Breakdowns in NTS contribute to an estimated 70-80% of medical and anesthesia errors.^{12,17} In healthcare,

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communication breakdowns have been determined to be one of the main causes of human error.^{17,18} Effective teamwork is essential in high-risk, safety-critical environments, because care delivery often involves healthcare practitioners of varying expertise levels.¹⁷ Certified Registered Nurse Anesthetist clinical instructors working with SRNAs is an excellent example of practitioners of varying levels of anesthesia expertise working together to deliver safe patient care in the operating room.

Poor execution of NTS (specifically breakdowns in teamwork, poor communication, and lack of situational awareness) can cause clinical practice to fall below acceptable levels resulting in errors and patient harm.¹⁷⁻¹⁹ Open communication between all team members is vital to patient safety.^{17,18} Student Registered Nurse Anesthetists must feel free to ask questions and clarify CRNA clinical instructor directions in the operating room to prevent errors and maintain patient safety. Anesthesia providers agree that NTS are as important as technical skills to patient safety in the operating room.¹²

TeamSTEPPS® was developed by the Agency for Healthcare Research and Quality to improve healthcare quality and safety through improved teamwork and communication.¹⁸ It is an evidence-based, validated, researched, open resource training program that has been utilized by numerous organizations and various specialty areas, including anesthesia, to improve perioperative patient safety through improved clinical teamwork and communication.^{8,18} TeamSTEPPS® employs common language and communication tools to increase patient safety and is customizable to any healthcare setting or specialty.¹⁸ The program focuses on four areas to improve teamwork: situational monitoring, communication, mutual support, and leadership (*Figure 1*).¹⁸

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There are myriad gaps in the literature regarding CRNA nontechnical teaching skills education. Only one research study has been published to date detailing the effects of nontechnical teaching skills education for CRNAs and the resulting effects on their practice as clinical instructors. Elisha³ designed and implemented an educational intervention to enhance CRNA clinical instructor nontechnical teaching skills. While this study examined the perceived behaviors and knowledge of the CRNA clinical instructors pre- and post- intervention, it failed to evaluate and measure CRNA clinical instructor NTS during interactions with SRNAs.³

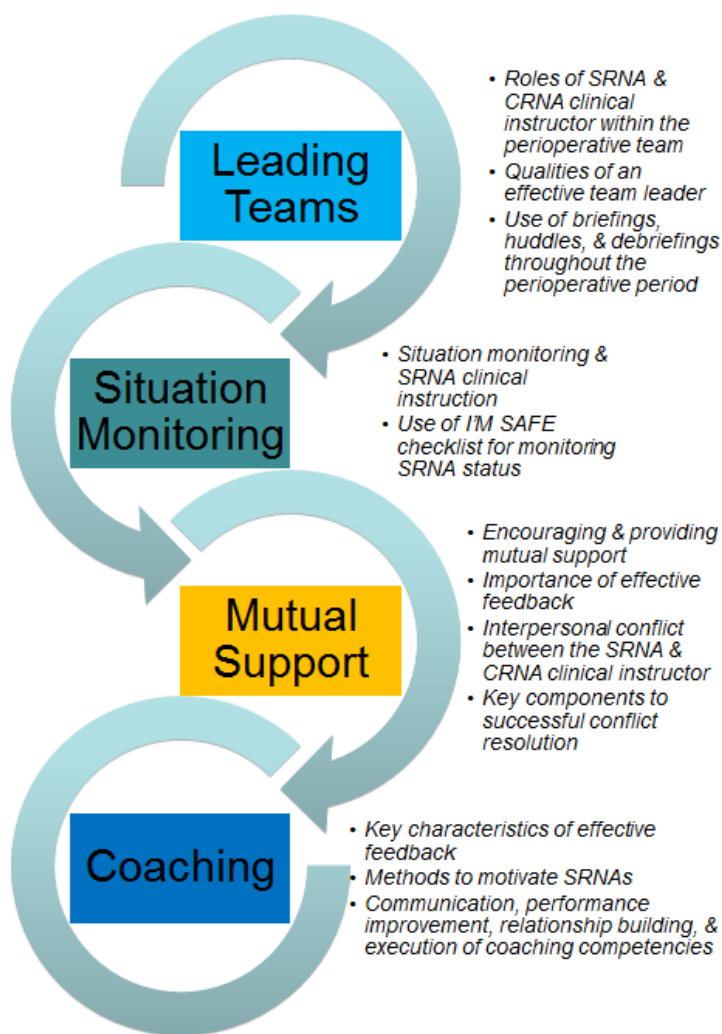


Figure 1. Conceptual model of Microsoft PowerPoint TeamSTEPPS® NTS modules²⁰

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Theoretical Model

Items from the TeamSTEPPS® Change Management and Measurement Modules were used to guide development of the CRNA nontechnical teaching skills education modules. Change was directed by the TeamSTEPPS® Change Model, which contains three phases: assessment; planning, training, and implementation; and sustainment (*Figure 2*).²⁰ The TeamSTEPPS® Measurement Module utilizes the Kirkpatrick Evaluation Model (*Figure 3*) for evaluation. The Kirkpatrick Evaluation Model outlines four levels of training evaluation including reactions, learning, behavior, and results.²⁰ Because the modules were part of a pilot program, measurements were limited to affective and instrumental reactions and attitudes, learning, and the transfer of learning into practice.

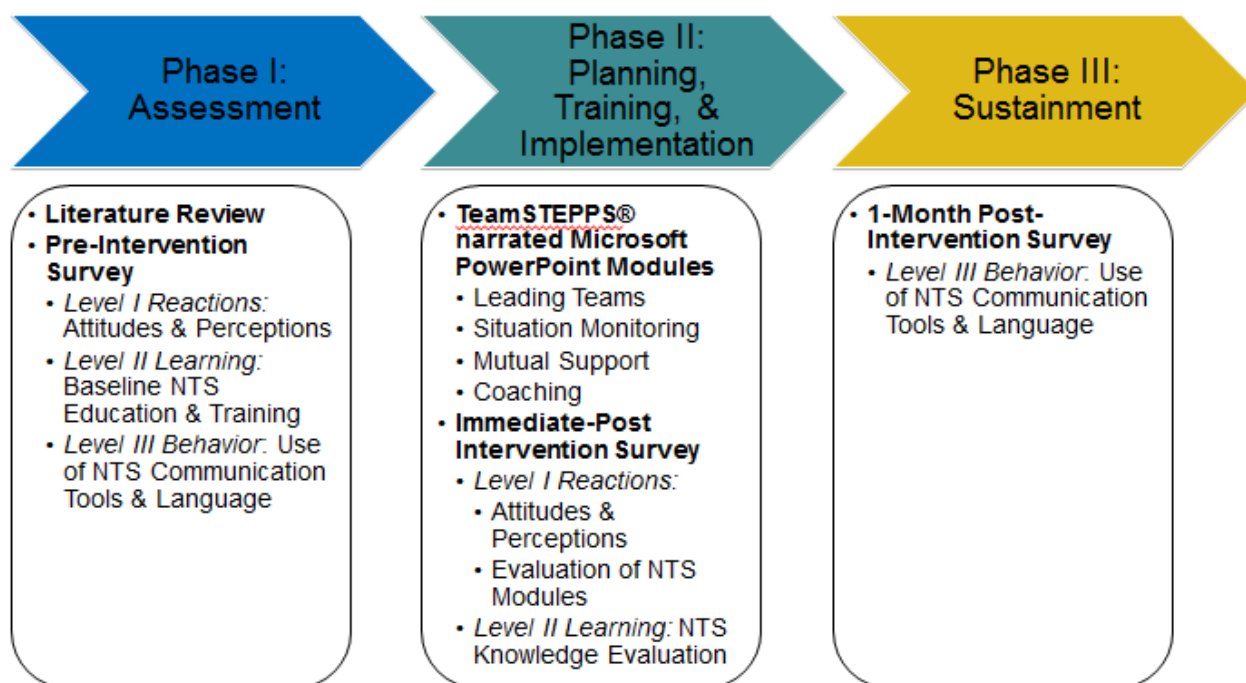


Figure 2. Scholarly project outline based on the TeamSTEPPS® Change Model²⁰

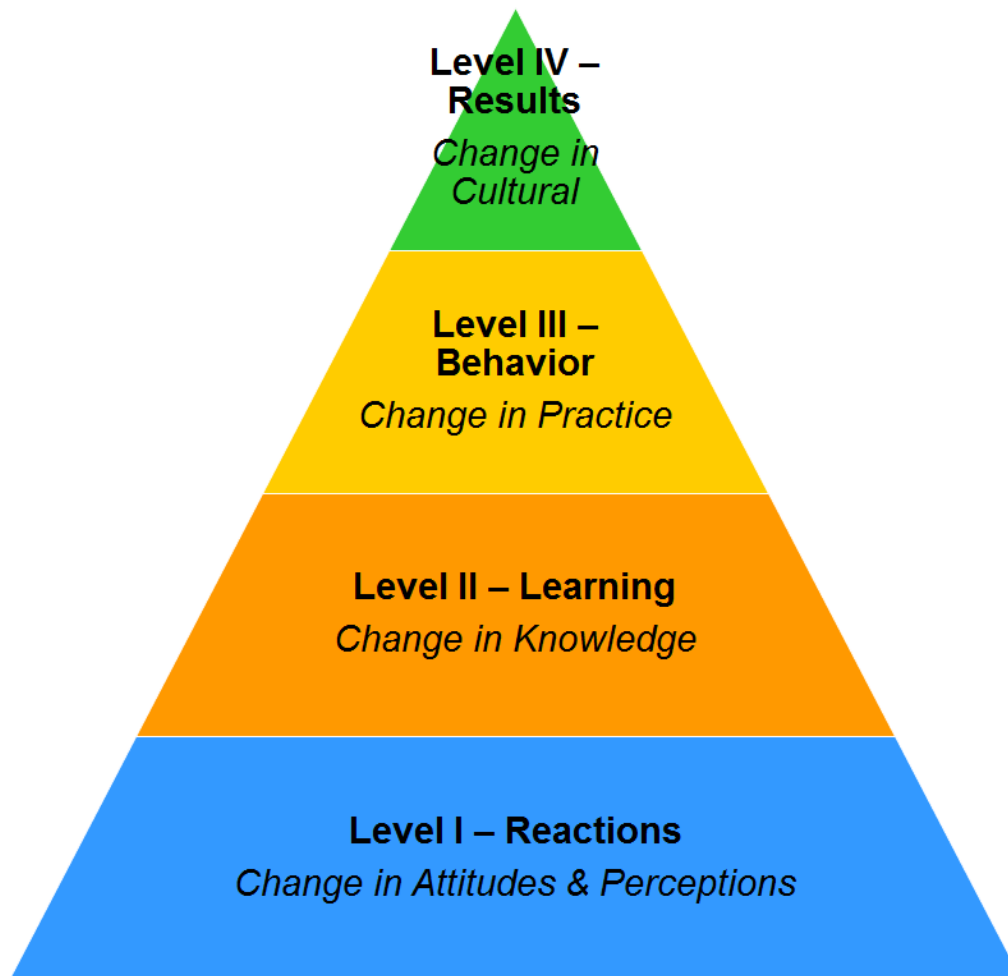


Figure 3. Kirkpatrick Evaluation Model²⁰

Methodology

After obtaining University of Michigan – Flint IRB approval (*Appendix A*), clinical instructors were recruited for participation in the pilot study via email sent to CRNAs in Michigan through the Michigan Association of Nurse Anesthetists (MANA) database. All practicing CRNA clinical instructors working with students at least 2 days per month were eligible for inclusion; CRNAs who were not clinical instructors were excluded. Informed consent was obtained from participants. There were no consequences for declining and no anticipated

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risks to participation, but CRNA clinical instructors could benefit from improved clinical communication through the development of improved NTS. Scholarly project data, surveys, and completed evaluation tools were stored in a locked file cabinet or on a secure server, password protected, and shredded or purged at project completion. CRNA clinical instructor participants completed a pre-intervention Qualtrics survey, four narrated Microsoft PowerPoint TeamSTEPPS® NTS modules, an immediate post-intervention Qualtrics survey, and a 1-month post-intervention Qualtrics survey.

Michigan CRNAs were sent an email invitation to participate in the pilot project (*Appendix B*) mid-January 2017 utilizing email addresses from the MANA database. Additional invitations to participate were sent over the next 2 weeks with the goal of having 25 CRNA clinical instructors participate in the pilot study. The invitation directed eligible CRNA clinical instructors to contact the researcher by email; the researcher responded by providing CRNA clinical instructors with an email containing detailed instructions for pilot program participation (*Appendix C*), a link for the pre-intervention survey, and four narrated Microsoft PowerPoint TeamSTEPPS®-based NTS modules.

This email contact by participants allowed the researcher to know the identity of participants, but all survey results were obtained through anonymous Qualtrics survey links. Utilization of these links provided the researcher with unidentified data that could not be connected to individual participants. The researcher checked the email account associated with the research project daily and responded to scholarly project participant requests within 24 hours. Instructions for participation were sent from mid-January to mid-February 2017; reminder emails were sent from mid-February to late-March 2017.

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CRNA clinical instructors completed four Microsoft PowerPoint TeamSTEPPS®-based NTS modules sent via email; each module was approximately 10-15 minutes in duration. The TeamSTEPPS® Coaching Module, Leading Teams, Situation Monitoring, and Mutual Support Modules were adapted and transformed into the pilot study modules for this Scholarly Project. The Coaching Module defined coaching, discussed coaching competencies, and incorporated a coaching skills self-assessment and coaching exercise.²⁰ The module also focused on performance observation, giving constructive feedback, facilitating goal setting, providing opportunities for improvement, role modeling positive teamwork and communication behaviors, and motivating team members.²⁰

Key components of Leading Teams, Situation Monitoring, and Mutual Support Modules included briefs, huddles, debriefing, cross-monitoring, and conflict resolution.²⁰ Research has identified briefing and debriefing as critical TeamSTEPPS® communication tools.¹⁸ Briefings focus on key performance goals preoperatively including completeness of preoperative preparation, critical steps for potential complications, and promotion of communication and teamwork throughout the procedure.¹⁸ Debriefing goals consist of reviewing team performance, identification of problems and miscues, and recognition of positive contributions of team members postoperatively.¹⁸

Successful TeamSTEPPS® implementation is measured through three outcomes: knowledge, attitude, and performance.¹⁸ Project success was evaluated utilizing the Kilpatrick Evaluation Model (*Figure 3*). The Kilpatrick Evaluation Model has been used successfully to evaluate TeamSTEPPS® training and implementation in myriad settings.²⁰ The model includes four levels of evaluation²⁰; the project was evaluated using Level I-III (*Table 1*). Level I, reactions, contains affective, instrument, and attitude measures.²⁰ Level I assesses how well

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participants liked the training, if participants found the training useful, and attitudes of participants before and after the training via pre- and post-testing.²⁰ Level II, learning, determines the effectiveness of the educational intervention through pre- and post-testing.²⁰ Level III, behavior, attempts to examine whether or not what is learned is integrated into practice and can be observed or is self-reported.²⁰ The most practical method to measure this level for this project was self-reporting using a survey. Level IV, results, would be an ideal project evaluation measurement and would include SRNA evaluation of CRNA clinical instructor performance and SRNA clinical outcomes.²⁰ The pilot nature of this project made this level of evaluation impractical due to time constraints.

Project Phase	Level of Evaluation	Measures
<i>Pre-Intervention</i>	Level I Reactions	<ul style="list-style-type: none"> • NTS Attitudes & Perceptions Questionnaire
	Level II Learning	<ul style="list-style-type: none"> • Previous/Baseline NTS Education & Training
	Level III Behavior	<ul style="list-style-type: none"> • Use of NTS Communication Tools & Language Survey
<i>Immediate Post-Intervention</i>	Level I Reactions	<ul style="list-style-type: none"> • NTS Attitudes & Perceptions Questionnaire • Evaluation of Pilot NTS Modules
	Level II Learning	<ul style="list-style-type: none"> • NTS Knowledge Evaluation
<i>1-Month Post-Intervention</i>	Level III Behavior	<ul style="list-style-type: none"> • Use of NTS Communication Tools & Language Survey

Table 1. Evaluation levels and measures by project phase

CRNA clinical instructor reactions, learning, and behavior was assessed with online Qualtrics surveys pre-intervention, immediately-post intervention, and 1-month post-

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intervention. Participants received anonymous Qualtrics links to these surveys from the researcher. The surveys were based on the TeamSTEPPS® Teamwork Perceptions Questionnaire (*Appendix D*), TeamSTEPPS® Attitudes Questionnaire (*Appendix D*), TeamSTEPPS® Course Evaluation (*Appendix F*), and TeamSTEPPS®-based module learning objectives (*Table 2*).

Module	Objectives
Coaching	<ul style="list-style-type: none"> • Define coaching • Describe the key characteristics of effective feedback • Identify the components of the SMART feedback model • Illustrate methods to motivate SRNAs • Discuss the communication, performance improvement, relationship building, and execution of coaching competencies
Leading Teams	<ul style="list-style-type: none"> • Define roles of the SRNA and CRNA clinical instructor within the team • Identify the qualities of an effective team leader • Describe the use of briefings, huddles, and debriefings to communicate the anesthetic plan throughout the perioperative period
Situational Monitoring	<ul style="list-style-type: none"> • Define situational awareness with regards to the SRNA • Describe the areas in which SRNAs should be monitored • Discuss the use of the I'M SAFE (illness, medication, stress, alcohol and drugs, fatigue, eating and elimination) checklist for monitoring SRNA status
Mutual Support	<ul style="list-style-type: none"> • Define mutual support for the SRNA • Describe mechanisms for encouraging and providing mutual support • Discuss the importance of effective feedback • Explain interpersonal conflict between the SRNA and CRNA clinical instructor • Characterize the components and keys to successful use of the DESC (describe, express, suggestion, consequences) script to resolve interpersonal conflicts

Table 2. TeamSTEPPS®-based online module objectives

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Participating CRNAs completed reactions, learning, and behavior pre-testing using an online Qualtrics survey prior to TeamSTEPPS® module completion to determine baseline NTS attitudes and perceptions; previous NTS education and training; and use of NTS and communication tools and common language in current practice (*Appendix G*). The link for this survey was included in the detailed instructions provided to participants at the beginning of the study (*Appendix C*).

Upon completion of the fourth Microsoft PowerPoint TeamSTEPPS® NTS module, participants were asked to click on a link to the immediate post-intervention survey on the final slide. CRNA clinical instructors completed a reactions and learning post-test to determine immediate post-intervention NTS attitudes and perceptions, evaluate the TeamSTEPPS® modules, and assess NTS knowledge (*Appendix H*).

Approximately 90 days after the email with participation instructions and the pre-intervention survey link was sent to participants in early April 2017, the researcher sent an email with the link for the 1-month post-intervention survey (*Appendix I*). Behavior post-testing was conducted to determine if participants integrated NTS tools and skills into clinical practice (*Appendix J*). A reminder email was sent to participants requesting their participation in the 1-month post-intervention survey, and all surveys were closed April 21, 2017.

Results

Twenty-two CRNA clinical instructors volunteered to participate in this pilot study. Sixteen CRNAs completed the pre-intervention survey, eight participants completed the immediate post-intervention survey, and nine participants completed the 1-month post-intervention survey (*Figure 4*). Pre-intervention surveys were completed between January 20, 2017, and March 28, 2017; immediate post-intervention surveys were completed between

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January 30, 2017, and April 3, 2017; and 1-month post-intervention surveys were completed between April 8, 2017, and April 18, 2017 (*Figure 5*).

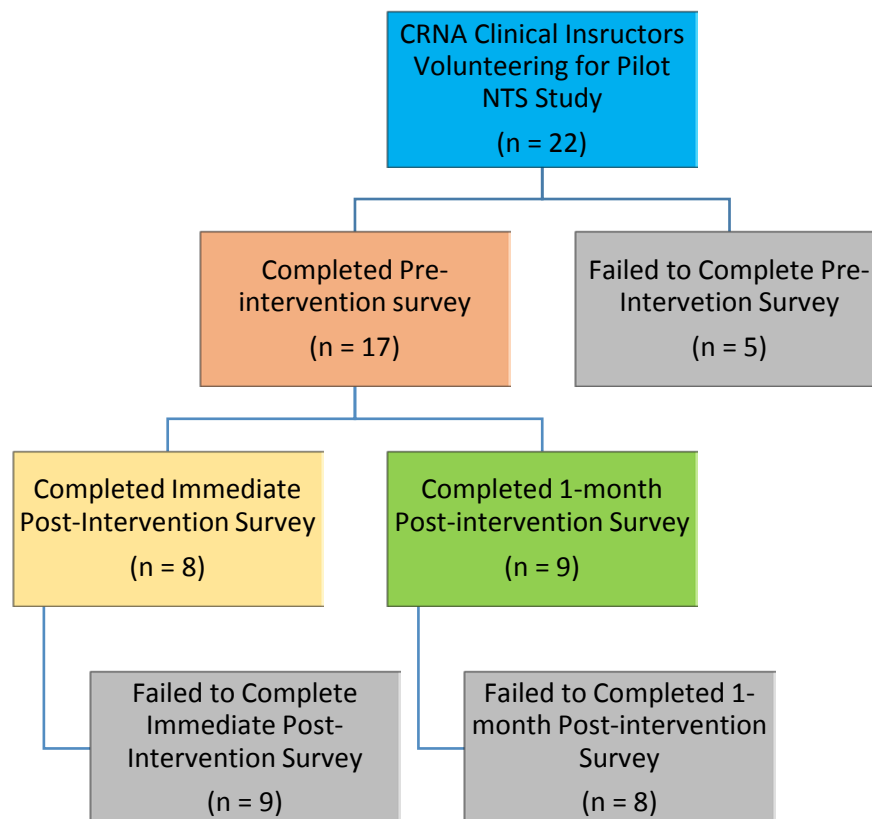


Figure 4. Pilot study participation flow diagram

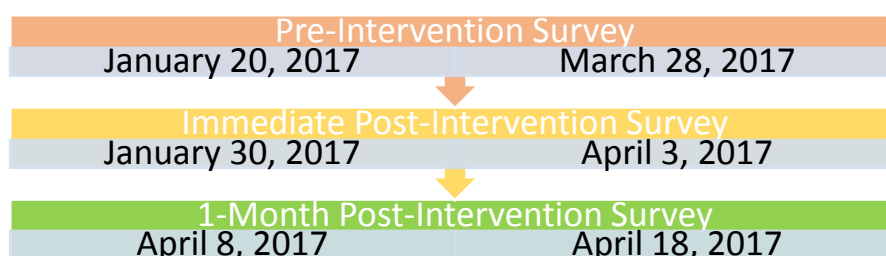


Figure 5. Survey completion timeline

Descriptive statistics were used to summarize study results. The small sample size and lack of ability to match pre-, immediate post-, and 1-month post-intervention survey results by participant (because each response was anonymous) precluded the use of standard statistical tests to detect differences in means or medians as well as tests that account for correlation.

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Demographics

Demographic data demonstrates discontinuity in research participation (*Table 3*). Different subsets of the study volunteers completed the pre-, immediate post-, and 1-month post-intervention surveys. Each CRNA clinical instructor population had differing demographic characteristics with regards to all variables including gender, age, full-time equivalent (FTE), percentage of FTE working with SRNAs, shifts worked per week, and years practicing as a CRNA.

Demographic Variables		Pre-Intervention	Immediate Post-Intervention	1-Month Post-Intervention
Gender	Female	52.9%	50%	33.3%
	Male	47.1%	50%	66.7%
Age (in years)	0 to 24	0%	0%	0%
	25 to 34	41.2%	37.5%	44.4%
	35 to 44	35.3%	50%	44.4%
	45 to 54	17.6%	0%	0%
	55 to 64	5.9%	12.5%	11.1%
	65 or over	0%	0%	0%
FTE	0.7 to 1.0	100%	100%	100%
	0.1 to 0.6	0%	0%	0%
	Locum tenens	0%	0%	0%
Percentage of FTE working with SRNAs as a CRNA clinical instructor	<10%	11.8%	25%	22.2%
	10-24%	35.3%	50%	33.3%
	25-49%	41.2%	25%	44.4%
	50-74%	0%	0%	0%
	>75%	11.8%	0%	0%
Shifts worked per week	>5	5.9%	25%	11.1%
	3-5	88.2%	50%	88.9%
	1-2	5.9%	25%	0%
	<1	0%	0%	0%
Years practicing as a CRNA	0-2	29.4%	37.5%	33.3%
	3-5	35.3%	37.5%	33.3%
	6-10	11.8%	0%	0%
	11-15	11.8%	25.0%	22.2%
	16-20	11.8%	0%	11.1%
	>20	0%	0%	0%

Table 3. Demographic data

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Attitudes & Perceptions

Level I, reactions, assessed CRNA clinical instructors' attitudes and perceptions regarding NTS, satisfaction with SRNA communication, how well the educational modules met stated objectives, and how well the participants liked the training. Reactions were measured by questions included in the pre-and immediate post-intervention surveys.

Team structure, situational monitoring, mutual support, communication, and satisfaction with SRNA communication attitudes and perceptions mean scores increased between the pre- and immediate post-intervention data (*Figure 6*); increases ranged from 0.68% to 2.59% (*Table 4*). Leadership attitudes and perceptions mean score decreased by 0.77% from the pre- to the immediate post-intervention data.

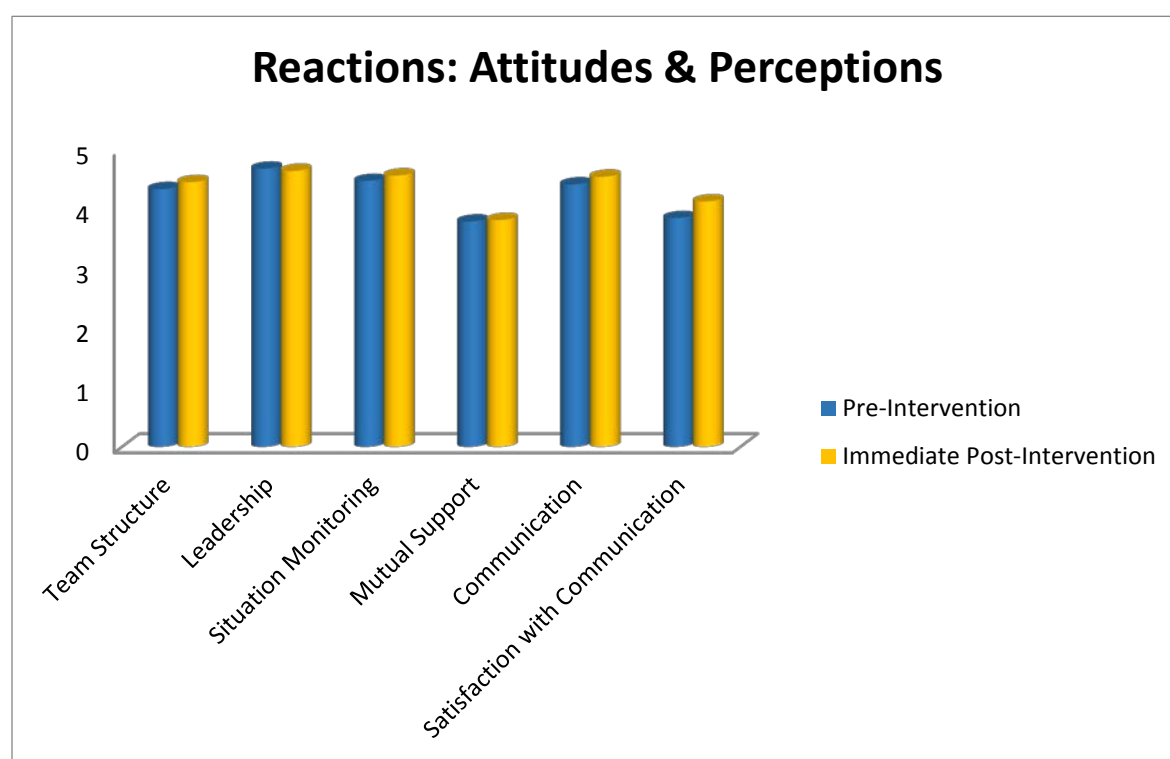


Figure 6. Pre- and immediate post-intervention attitudes and perceptions mean scores

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Reactions: Attitudes & Perceptions	Pre-Intervention (mean score)	Immediate Post-Intervention (mean score)	Percentage Change
Team Structure	4.33	4.45	2.69%
Leadership	4.68	4.64	-0.77%
Situation Monitoring	4.47	4.56	2.06%
Mutual Support	3.79	3.81	0.68%
Communication	4.41	4.54	2.94%
Satisfaction with Communication	3.85	4.13	7.27%

Table 4. Pre- and immediate post-intervention attitudes and perceptions mean scores and percentage change

All of the CRNA clinical instructor participants who completed the immediate post-intervention survey indicated that the NTS educational modules met stated objectives well or very well, and agreed or strongly agreed that they were sequenced to facilitate learning. Seven of the eight immediate post-intervention survey participants specified that they agreed or strongly agreed that the modules were well organized, provided practical and useful information, and were up to date in terms of current practice and issues. One respondent disagreed that the learning modules provided practical and useful information and selected a neutral response when asked if the modules were well organized and were up to date in terms of current practice and issues.

Learning

Level II, learning, gathered data on previous, baseline NTS education and training and assessed the performance of CRNA clinical instructors on items designed to test knowledge of the content presented in the educational modules. Previous NTS learning was measured by questions in the pre-intervention survey, and educational module knowledge assessment was measured by questions included in the immediate post-intervention survey.

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Four of the 17 pre-intervention survey participants (23.5%) had previous NTS education or training. This education or training occurred under various circumstances including “training to improve learning (specific to adult learners)”, “preceptors to new nurses in the ICU when I was a nurse and taught critical care classes to new grads”, “RN precepting in the ICU”, and “seminar for teaching”.

Seven of the eight immediate post-intervention survey CRNA clinical instructors (87.5%) scored 80% or higher on the 10 educational module knowledge assessment questions; three participants scored 100%, three participants scored 90%, one participant scored 80%, and one participant scored 70% (*Figure 7*).

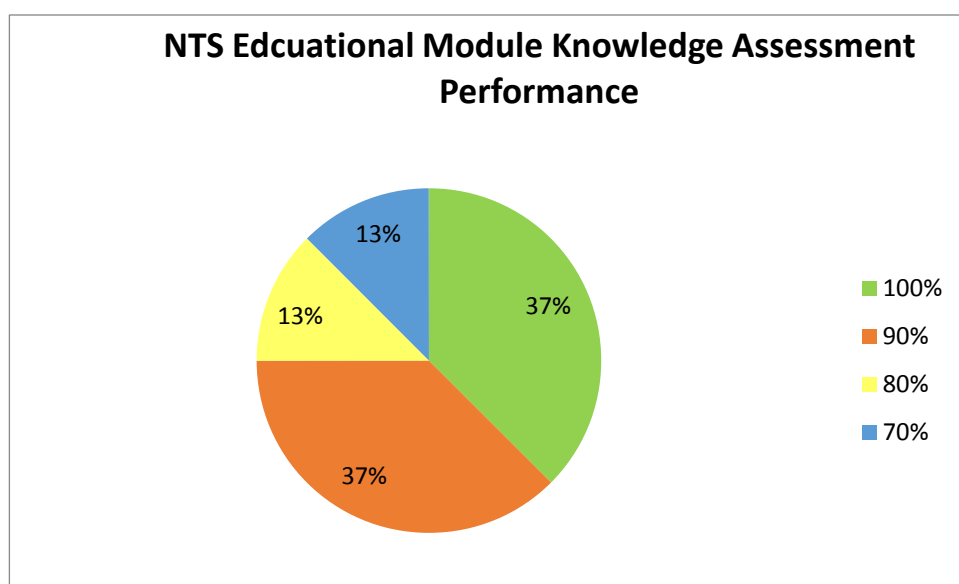


Figure 7. CRNA clinical instructor performance on NTS educational module knowledge assessment

Behavior

Level III, behaviors, attempted to examine whether or not CRNA clinical instructors integrated the NTS knowledge gained from the educational modules into practice via self-report. NTS behaviors were measured by questions included in the pre-and 1-month post-intervention surveys.

NONTECHNICAL SKILLS EDUCATION

Communication, situational monitoring, mutual support, and communication tools behavior mean scores increased between the pre- and 1-month post-intervention survey results (*Figure 8*); increases ranged from 1.50% to 9.63% (*Table 5*).

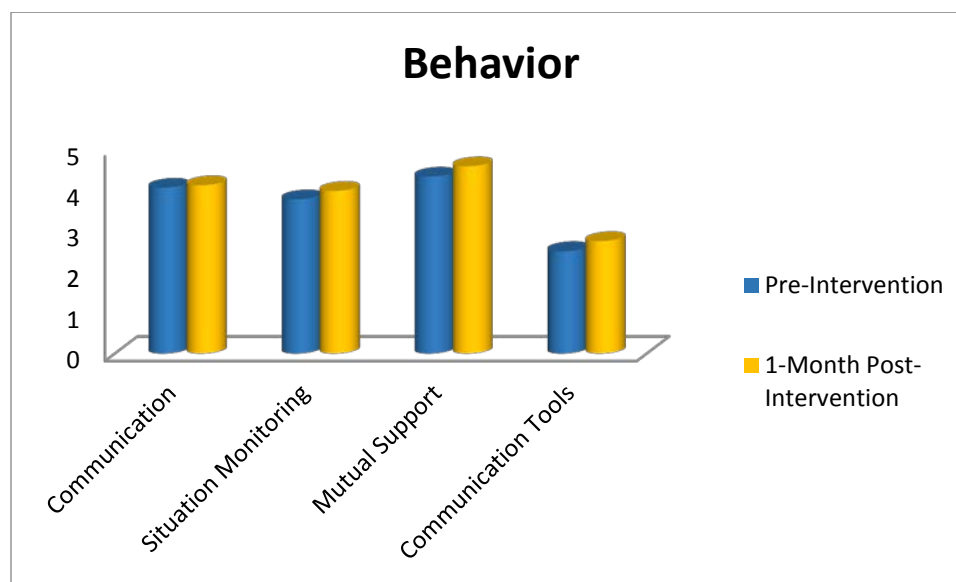


Figure 8. Pre- and immediate post-intervention attitudes and perceptions mean scores

Behavior	Pre-Intervention (mean score)	1-Month Post-Intervention (mean score)	Percentage Change
Communication	4.05	4.11	1.50%
Situation Monitoring	3.76	3.97	5.51%
Mutual Support	4.32	4.58	5.83%
Communication Tools	2.50	2.74	9.63%

Table 5. Pre- and immediate post-intervention attitudes and perceptions mean scores and percentage change

Discussion

The results of this scholarly project suggest the potential for a simple, cost effective educational intervention to alter the attitudes, perceptions, and behaviors of CRNA clinical instructors related to NTS utilization when working with SRNAs. It also illustrates the ability of

NONTECHNICAL SKILLS EDUCATION

TeamSTEPPS® to function as a framework for CRNA clinical instructor NTS education.

TeamSTEPPS® has myriad modules and open access on-line training that can be adapted and integrated into a variety of workshops, continuing education presentations, and simulation experiences to enhance the SRNA education by improving the NTS of CRNA clinical instructors.

Limitations

Limitations of this scholarly project include a small sample size, discontinuity in research participation, the potential for self-selection and social desirability bias, inability to determine statistical significance, and the lack of correlation of CRNA clinical instructor NTS behaviors to SRNA educational objectives and performance.

The pilot nature of this study resulted in a small sample size, and the electronic platform and anonymity created discontinuity in research participation. Ideally, all participants would have completed each project task in the correct order. Of the 22 CRNA clinical instructors, 17 completed the pre-intervention survey, eight completed the immediate post-intervention survey, and nine completed the 1-month post-intervention survey; how many participants completed the four NTS educational modules is unknown. Based on the number of participants in each survey sample population and the inconsistent demographic data, different subsets of study volunteers completed the pre-, immediate post-, and 1-month post-intervention surveys.

Survey data inherently has the potential to be biased due to self-selection and/or self-reporting. Self-selection bias can occur with any type of nonprobability sampling in which participants volunteer for a study group. Social desirability bias can occur with any self-reported data; participants are often motivated to answer in a manner that portrays them positively and consistently with cultural norms.

NONTECHNICAL SKILLS EDUCATION

There was no correlation between the NTS behaviors of CRNA clinical instructors and the educational objectives and performance of SRNAs. There were no direct observations of CRNA clinical instructor NTS behaviors, evaluation of CRNA clinical instructor NTS performance by SRNAs, or correlation of SRNA clinical outcomes with CRNA clinical instructor NTS. Time constraints and the pilot nature of this scholarly project made Level IV, result, evaluation impractical.

Suggestions for Future Research

Future research should utilize SRNA educational objectives and performance as a primary outcome and include direct measures of CRNA clinical instructor NTS behaviors while teaching SRNAs and SRNA evaluation of CRNA clinical instructor NTS performance.

The NTS of CRNA clinical instructors can be measured utilizing direct observation during simulated or actual clinical SRNA interactions. Simulation provides a safe environment for exploring stressful situations and NTS assessment.⁴ This is essential, because nurse anesthesia clinical education occurs in a setting in which the quality of care and patient safety is paramount.⁴

Data concerning nontechnical teaching skills of CRNA clinical instructors can be collected utilizing the Anaesthetists' Non-Technical Skills (ANTS) System. The ANTS System enables NTS assessment of anesthesia provider performance in everyday and emergency situations.²¹ Anesthesia providers are observed during a high fidelity simulation scenario and scored based on ANTS elements to evaluate cognitive skills determined to be essential to safe and effective anesthesia care.⁴ The ANTS System has been evaluated for reliability and validity and can be applied to nontechnical teaching skills assessment in simulated CRNA clinical instructor-SRNA scenarios that would be difficult or dangerous to reproduce in real clinical situations.^{4,7,11,21}

NONTECHNICAL SKILLS EDUCATION

The ANTS System is a hierarchical system for scoring four basic categories of NTS including task management, teamwork, decision-making, and situational awareness.⁷ These NTS categories are broken down into 15 skill elements rated with behavioral examples depicting excellent and poor practice for a maximum score of 60 points.⁷ The ANTS System provides an anesthesia specific simulation-based option for CRNA clinical instructor NTS evaluation. The ANTS System establishes a framework for reviewing CRNA clinical instructor NTS performance objectively.¹¹

Conclusion

High quality SRNA clinical education is an extension of the didactic knowledge provided by the NAEP.² Novice CRNAs are expected to enter practice able to autonomously provide anesthesia care within their full scope of practice with little to no orientation. While scientific and theoretical knowledge are the foundation of nurse anesthesia practice, clinical education provides SRNAs with the opportunity to apply what they have learned in the classroom. Knowledge must be transformed from academic, theoretical concepts into explicit knowledge with a tacit dimension.⁶ Optimizing the quality of clinical education is essential to the success of CRNAs, SRNAs, and NAEPs. Fostering a positive clinical educational environment conducive to learning is vital to successful enculturation into nurse anesthesia practice.² Student Registered Nurse Anesthetist clinical skill and knowledge acquisition is dependent on the behaviors of CRNA clinical instructors.^{1,3} The CRNA and SRNA do not function independently of each other but as part of a team that is influenced by external factors; proper functioning of the CRNA-SRNA team is critical to maintaining patient safety in the operating room.¹²

Impaired communication and unsuccessful teamwork increases CRNA and SRNA stress and anxiety.¹ Formal nontechnical teaching skills education for CRNA clinical instructors is

NONTECHNICAL SKILLS EDUCATION

needed to improve SRNA clinical education quality and consistency. Nontechnical skills education may also positively impact and improve CRNA clinical practice. Giving CRNA clinical instructors the tools and skills necessary to enhance teaching and clinical practice is essential. Advanced Practice Registered Nurses (APRN) and Advance Practice Registered Nursing Educational Programs are being evaluated more critically than ever as the APRN role and scope of practice expands. Evidence-based nontechnical teaching skills education and NTS evaluation coupled with a curriculum based on educational theory is crucial to maintaining the highest standards for CRNA clinical instructors while providing SRNAs outstanding and consistent clinical education.

NONTECHNICAL SKILLS EDUCATION

Appendix A. University of Michigan – Flint IRB approval letter



Flint Institutional Review Board • 530 French Hall, 101 E. Kearsley St, Flint, MI 48502 • phone (810) 762-1181 • fax (313) 591-0526 • research@umflint.edu

To: Gena Welch

From:

Marianne McGrath

Cc:

Jane Motz

Shawn Fryzel

Gena Welch

Subject: Notice of Exemption for [HUM00120505]

SUBMISSION INFORMATION:

Title: Nontechnical Teaching Skills Education for Certified Registered Nurse Anesthetist Clinical Instructors

Full Study Title (if applicable): Nontechnical Teaching Skills Education for Certified Registered Nurse Anesthetist Clinical Instructors and the Impact on the Clinical Education of Student Registered Nurse Anesthetists

Study eResearch ID: [HUM00120505](#)

Date of this Notification from IRB: 1/4/2017

Date of IRB Exempt Determination: 1/4/2017

UM Federalwide Assurance: FWA00004969 (For the current FWA expiration date, please visit the [UM HRPP Webpage](#))

OHRP IRB Registration Number(s): IRB00000248

IRB EXEMPTION STATUS:

The IRB Flint has reviewed the study referenced above and determined that, as currently described, it is exempt from ongoing IRB review, per the following federal exemption category:

EXEMPTION #2a:

Minimal risk research that involves a non-invasive intervention followed by data collection via survey, interview (including focus groups), or observation unless: (i) information obtained is recorded in such a manner that

human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation. **The research is not federally sponsored or intended to collect pilot data to support proposals for federal funding.**

Note that the study is considered exempt as long as any changes to the use of human subjects (including their data) remain within the scope of the exemption category above. Any proposed changes that may exceed the scope of this category, or the approval conditions of any other non-IRB reviewing committees, must be submitted as an amendment through eResearch.

Although an exemption determination eliminates the need for ongoing IRB review and approval, you still have an obligation to understand and abide by generally accepted principles of responsible and ethical conduct of research.

Examples of these principles can be found in the Belmont Report as well as in guidance from professional societies and scientific organizations.

SUBMITTING AMENDMENTS VIA eRESEARCH:

You can access the online forms for amendments in the eResearch workspace for this exempt study, referenced above.

ACCESSING EXEMPT STUDIES IN eRESEARCH:

Click the "Exempt and Not Regulated" tab in your eResearch home workspace to access this exempt study.

A handwritten signature in blue ink, appearing to read "Marianne McGrath". The signature is stylized with loops and a long tail.

Marianne McGrath

Chair, IRB Flint

NONTECHNICAL SKILLS EDUCATION

Appendix B. Invitation to participate in NTS education pilot project email

As a graduate student in the University of Michigan-Flint/Hurley Medical Center Doctor of Anesthesia Practice program, I invite you to participate in a research project.

Project objective: To assess knowledge, behavior, and attitudes concerning the role of nontechnical skills in the clinical teaching of student nurse anesthetists.

Project description: Study participants will complete a pre-intervention survey, four narrated nontechnical skills Microsoft PowerPoint modules (each approximately 10-15 minutes in length), immediate post-intervention survey, and 1-month post-intervention survey. The total time commitment for participants is approximately 1.5 hours.

Inclusion criteria: Currently practicing CRNAs serving as clinical instructors for nurse anesthesia students 2 or more days per month are eligible for participation in the study.

Risks are minimal for involvement in this study. There are no direct benefits for participants; it is hoped that through your participation, researchers will learn more about the role of nontechnical skills in the clinical teaching of student nurse anesthetists. There is no direct compensation.

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator has deleted it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher, you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu. You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Want to participate? Interested CRNA clinical instructors are asked to respond to the primary investigator, Gena Welch, by email at welchg@umflint.edu to request study survey links, project participation instructions, and educational modules.

Thank you,

Gena M. Welch, CRNA, MS

NONTECHNICAL SKILLS EDUCATION

Appendix C. Instructions for NTS pilot project participation email

Dear CRNA clinical instructor:

Thank you for your interest in participating in this nontechnical skills education for CRNA clinical instructors doctoral research project! This email contains instructions for project participation, four attached nontechnical skills narrated Microsoft PowerPoint modules, and a link to the pre-intervention survey.

Instructions for project participation:

1. **Take the pre-intervention survey using the following link within 48 hours ([link for survey was placed here](#)).**
2. **Complete the four attached nontechnical skills narrated Microsoft PowerPoint modules within 2 weeks of receiving the modules.**
NOTE: The Microsoft PowerPoint modules are narrated. Viewing the modules in “slideshow” will enable the audio. Click on each slide after the audio has finished; this will advance the module to the next slide and audio clip.
3. **Take the immediate post-intervention survey using the link provided in the final PowerPoint module.**
4. **In approximately 45 days, you will receive another survey link. Take this survey, the 1-month post-intervention survey, after receiving the link from the primary research via email within 48 hours of receiving the link.**

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator has deleted it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university. If you desire to withdraw, please close your Internet browser and notify the principal investigator at this email: welchg@umflint.edu.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher, you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu. You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Thank you again for your participation,

Gena M. Welch, CRNA, MS

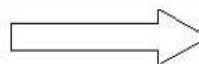
NONTECHNICAL SKILLS EDUCATION

Appendix D. TeamSTEPPS® Teamwork Perceptions Questionnaire²⁰**TeamSTEPPS® 2.0****TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ)**

Instructions: Please respond to the questions below by placing a check mark (✓) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Team Structure						
1.	The skills of staff overlap sufficiently so that work can be shared when necessary.					
2.	Staff are held accountable for their actions.					
3.	Staff within my unit share information that enables timely decision making by the direct patient care team.					
4.	My unit makes efficient use of resources (e.g., staff supplies, equipment, information).					
5.	Staff understand their roles and responsibilities.					
6.	My unit has clearly articulated goals.					
7.	My unit operates at a high level of efficiency.					
Leadership						
8.	My supervisor/manager considers staff input when making decisions about patient care.					
9.	My supervisor/manager provides opportunities to discuss the unit's performance after an event.					
10.	My supervisor/manager takes time to meet with staff to develop a plan for patient care.					
11.	My supervisor/manager ensures that adequate resources (e.g., staff, supplies, equipment, information) are available.					
12.	My supervisor/manager resolves conflicts successfully.					
13.	My supervisor/manager models appropriate team behavior.					
14.	My supervisor/manager ensures that staff are aware of any situations or changes that may affect patient care.					

PLEASE CONTINUE TO THE NEXT PAGE

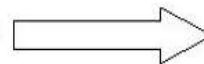




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		Strongly Disagree				
		Disagree				
		Neutral				
		Agree				
		Strongly Agree				
Situation Monitoring						
15.	Staff effectively anticipate each other's needs.					
16.	Staff monitor each other's performance.					
17.	Staff exchange relevant information as it becomes available.					
18.	Staff continuously scan the environment for important information.					
19.	Staff share information regarding potential complications (e.g., patient changes, bed availability).					
20.	Staff meets to reevaluate patient care goals when aspects of the situation have changed.					
21.	Staff correct each other's mistakes to ensure that procedures are followed properly.					
Mutual Support						
22.	Staff assist fellow staff during high workload.					
23.	Staff request assistance from fellow staff when they feel overwhelmed.					
24.	Staff caution each other about potentially dangerous situations.					
25.	Feedback between staff is delivered in a way that promotes positive interactions and future change.					
26.	Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.					
27.	When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard.					
28.	Staff resolve their conflicts, even when the conflicts have become personal.					

PLEASE CONTINUE TO THE NEXT PAGE



TeamSTEPPS® 2.0



		Strongly Disagree				
		Disagree				
		Neutral				
		Agree				
		Strongly Agree				
Communication						
29.	Information regarding patient care is explained to patients and their families in lay terms.					
30.	Staff relay relevant information in a timely manner.					
31.	When communicating with patients, staff allow enough time for questions.					
32.	Staff use common terminology when communicating with each other.					
33.	Staff verbally verify information that they receive from one another.					
34.	Staff follow a standardized method of sharing information when handing off patients.					
35.	Staff seek information from all available sources.					

NONTECHNICAL SKILLS EDUCATION

Appendix E. TeamSTEPPS® Teamwork Attitudes Questionnaire²⁰

TeamSTEPPS® 2.0



TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ)

Instructions: Please respond to the questions below by placing a check mark (✓) in the box that corresponds to your level of agreement from *Strongly Disagree* to *Strongly Agree*. Please select only one response for each question.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Team Structure						
1.	It is important to ask patients and their families for feedback regarding patient care.					
2.	Patients are a critical component of the care team.					
3.	This facility's administration influences the success of direct care teams.					
4.	A team's mission is of greater value than the goals of individual team members.					
5.	Effective team members can anticipate the needs of other team members.					
6.	High performing teams in health care share common characteristics with high performing teams in other industries.					
Leadership						
7.	It is important for leaders to share information with team members.					
8.	Leaders should create informal opportunities for team members to share information.					
9.	Effective leaders view honest mistakes as meaningful learning opportunities.					
10.	It is a leader's responsibility to model appropriate team behavior.					
11.	It is important for leaders to take time to discuss with their team members plans for each patient.					
12.	Team leaders should ensure that team members help each other out when necessary.					

PLEASE CONTINUE TO THE NEXT PAGE





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		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Situation Monitoring						
13.	Individuals can be taught how to scan the environment for important situational cues.					
14.	Monitoring patients provides an important contribution to effective team performance.					
15.	Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16.	It is important to monitor the emotional and physical status of other team members.					
17.	It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18.	Team members who monitor their emotional and physical status on the job are more effective.					
Mutual Support						
19.	To be effective, team members should understand the work of their fellow team members.					
20.	Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21.	Providing assistance to team members is a sign that an individual does not have enough work to do.					
22.	Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23.	It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24.	Personal conflicts between team members do not affect patient safety.					

PLEASE CONTINUE TO THE NEXT PAGE 

TeamSTEPPS® 2.0



		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Communication						
25.	Teams that do not communicate effectively significantly increase their risk of committing errors.					
26.	Poor communication is the most common cause of reported errors.					
27.	Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28.	I prefer to work with team members who ask questions about information I provide.					
29.	It is important to have a standardized method for sharing information when handing off patients.					
30.	It is nearly impossible to train individuals how to be better communicators.					

Please provide any additional comments in the space below.

Thank you for your participation!

NONTECHNICAL SKILLS EDUCATION

Appendix F. TeamSTEPPS® Course Evaluation²⁰



COURSE EVALUATION

**Team Strategies and Tools to Enhance Performance and Patient Safety
(TeamSTEPPS®)**

Location: _____

Date: _____

Rating Scale
(Circle one) 1 = Poor, inadequate, did not meet, ineffective
2 = Good, adequate, met, satisfactory, effective
3 = Excellent, more than adequate, exceeded, very effective

Module 01: Introduction – 50 minutes

Instructor Name:	Poor	Good	Excellent
------------------	------	------	-----------

To what extent was the speaker knowledgeable, organized, & effective in his/her presentation? 1 2 3

To what extent did you achieve the objectives of this session?

- | | | | |
|-----------------------------------------------------------|---|---|---|
| 1. Describe the TeamSTEPPS Master Trainer course..... | 1 | 2 | 3 |
| 2. Describe the impact of errors and why they occur | 1 | 2 | 3 |
| 3. Describe the TeamSTEPPS framework..... | 1 | 2 | 3 |
| 4. State the outcomes of the TeamSTEPPS framework..... | 1 | 2 | 3 |

To what extent were the teaching methods and aids used effectively?..... 1 2 3

Comments:

Module 02: Team Structure – 50 minutes

Instructor Name:	Poor	Good	Excellent
------------------	------	------	-----------

To what extent was the speaker knowledgeable, organized, & effective in his/her presentation? 1 2 3

To what extent did you achieve the objectives of this session?

- | | | | |
|-----------------------------------------------------------------------------------|---|---|---|
| 1. Discuss the benefits of team structure in teamwork..... | 1 | 2 | 3 |
| 2. Define a "team" | 1 | 2 | 3 |
| 3. Identify the role of patients and their families as part of the care team..... | 1 | 2 | 3 |
| 4. Describe the components and composition of a multi-team system | 1 | 2 | 3 |

To what extent were the teaching methods and aids used effectively?..... 1 2 3

Comments:

NONTECHNICAL SKILLS EDUCATION



TeamSTEPPS® 2.0

Rating Scale
 (Circle one) 1 = Poor, inadequate, did not meet, ineffective
 2 = Good, adequate, met, satisfactory, effective
 3 = Excellent, more than adequate, exceeded, very effective

Module 03: Communication – 45 minutes			
Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Describe how communication affects team processes and outcomes	1	2	3
2. Define effective communication	1	2	3
3. Identify communication challenges	1	2	3
4. Identify TeamSTEPPS tools and strategies that can improve a team's communication	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

Module 04: Leading Teams – 50 minutes			
Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Describe how leadership affects team processes and outcomes.....	1	2	3
2. Identify different types of team leaders	1	2	3
3. Describe the activities involved in successfully leading teams.....	1	2	3
4. Describe the tools for leading teams, including briefs, huddles, and debriefs.....	1	2	3
5. Apply the tools for leading teams to specific clinical scenarios	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

TeamSTEPPS® 2.0



Rating Scale
 (Circle one) 1 = Poor, inadequate, did not meet, ineffective
 2 = Good, adequate, met, satisfactory, effective
 3 = Excellent, more than adequate, exceeded, very effective

Module 05: Situation Monitoring – 45 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Discuss how situation monitoring affects team processes and outcomes.....	1	2	3
2. List components of the STEP mnemonic.....	1	2	3
3. Explain situation awareness and identify undermining conditions.....	1	2	3
4. Define a shared mental model and how it is cultivated within a team.....	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

Module 06: Mutual Support – 50 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Describe how mutual support affects team processes and outcomes	1	2	3
2. Discuss specific strategies to foster mutual support (e.g., task assistance, feedback)	1	2	3
3. Identify specific tools to facilitate mutual support.....	1	2	3
4. Describe conflict resolution strategies.....	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

NONTECHNICAL SKILLS EDUCATION



TeamSTEPPS® 2.0

Rating Scale
(Circle one)

1 = Poor, inadequate, did not meet, ineffective
2 = Good, adequate, met, satisfactory, effective
3 = Excellent, more than adequate, exceeded, very effective

Module 07: Summary—Pulling It All Together – 50 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Discuss how to use the tools and strategies presented in this training	1	2	3
2. Demonstrate how to appropriately apply the tools and strategies in clinical scenarios	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3

Comments:

Module 08: Change Management: How to Achieve a Culture of Safety – 60 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. List the Eight Steps of Change.....	1	2	3
2. Identify errors common to organizational change	1	2	3
3. Discuss what is involved in creating a new culture	1	2	3
4. Begin planning your organizational change strategy.....	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3

Comments:

NONTECHNICAL SKILLS EDUCATION

TeamSTEPPS® 2.0

Rating Scale
 (Circle one) 1 = Poor, inadequate, did not meet, ineffective
 2 = Good, adequate, met, satisfactory, effective
 3 = Excellent, more than adequate, exceeded, very effective

Module 09: Coaching Workshop – 75 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Define coaching and its outcomes	1	2	3
2. Describe the role of a TeamSTEPPS coach	1	2	3
3. List competencies of an effective coach	1	2	3
4. Describe how to implement coaching in TeamSTEPPS	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

Module 10: Measurement – 50 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Describe the importance of measurement	1	2	3
2. Describe the Kirkpatrick model of training evaluation	1	2	3
3. Identify measures that can be used to assess the impact of TeamSTEPPS	1	2	3
4. Describe the AHRQ Surveys on Patient Safety Culture	1	2	3
5. Prepare a plan for determining if TeamSTEPPS worked	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3
Comments:			

NONTECHNICAL SKILLS EDUCATION



TeamSTEPPS® 2.0

Rating Scale
(Circle one)

1 = Poor, inadequate, did not meet, ineffective
2 = Good, adequate, met, satisfactory, effective
3 = Excellent, more than adequate, exceeded, very effective

Module 11: Implementation Planning Workshop – 150 minutes

Instructor Name:	Poor	Good	Excellent
To what extent was the speaker knowledgeable, organized, & effective in his/her presentation?	1	2	3
<i>To what extent did you achieve the objectives of this session?</i>			
1. Describe the steps involved in implementing TeamSTEPPS.....	1	2	3
2. Develop a TeamSTEPPS implementation plan.....	1	2	3
To what extent were the teaching methods and aids used effectively?	1	2	3

Comments:

Rate the following:

The activity:

- Was well organized, using the scheduled time efficiently. Agree Neutral Disagree
- Provided practical, useful information. Agree Neutral Disagree
- Used a sequence that facilitated learning. Agree Neutral Disagree
- Was up to date in terms of current practice and issues. Agree Neutral Disagree

Please respond to the following questions regarding disclosure of commercial support:

Were you provided disclosure of significant support or substantial financial relationships between faculty and commercial entities? Yes Neutral No

Was bias in favor of a product present to the extent that the presentation was unbalanced or represented commercial promotion? Yes Neutral No

If you feel any of the presentations were unbalanced, please elaborate.

TeamSTEPPS® 2.0



Please respond to the following additional questions about the course:

What changes will you make in your practice as a result of this activity?

How can the educational aspects of this activity be improved?

What recommendations do you have for future speakers or topics?

Additional Comments:

NONTECHNICAL SKILLS EDUCATION

Appendix G. Pre-intervention Qualtrics survey

Q1 Informed Consent

As a graduate student in the University of Michigan-Flint/Hurley Medical Center Doctor of Anesthesia Practice program, I invite you to participate in a research project by taking a few minutes to complete the following survey.

Project description and objective: To assess knowledge, behavior, and attitudes concerning the role of nontechnical skills in the clinical teaching of student nurse anesthetists.

The questionnaire consists of 23 questions and will take approximately 15 minutes to complete. This questionnaire will be conducted with an on-line Qualtrics-created survey. You are not required to answer every question. Answering one or more survey questions implies consent to participate in this project.

Risks are minimal for involvement in this study. There are no direct benefits for participants; it is hoped that through your participation, researchers will learn more about the role of nontechnical skills in the clinical teaching of student nurse anesthetists. There is no direct compensation.

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator has deleted it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university. If you desire to withdraw, please close your Internet browser and notify the principal investigator at this email: welchg@umflint.edu.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu.

You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Thank you for your anticipated participation,

Gena M. Welch, CRNA, MS

Q2 I have read and understood the above informed consent form and voluntarily consent to participate in this study.

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q3 Do you provide clinical instruction to SRNAs 2 or more clinical days per month?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

NONTECHNICAL SKILLS EDUCATION

Q4 Please answer the following questions while considering your ATTITUDE and PERCEPTIONS concerning interactions between SRNAs and CRNA clinical instructors.

Q5 When thinking about your attitude and perceptions with regards to the TEAM STRUCTURE between CRNA clinical instructors and SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important to ask SRNAs for feedback regarding the effectiveness of CRNA clinical instructor communication (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are a critical component of the care team (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors anticipate the needs of SRNAs (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are held accountable for their actions (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors are held accountable for their actions when working with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs and CRNA clinical instructors share information that enables timely patient care decision making (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

their roles and responsibilities in the clinical environment (13)					
SRNAs and CRNA clinical instructors have clearly articulated goals for patient care (7)	○	○	○	○	○
SRNAs and CRNA clinical instructors operate as a highly efficient team (15)	○	○	○	○	○

NONTECHNICAL SKILLS EDUCATION

Q6 When thinking about your attitude and perceptions with regards to the LEADERSHIP provided to SRNAs by CRNA clinical instructors:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important for CRNA clinical instructors to share information with SRNAs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors should create opportunities for SRNAs to share information (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors view honest mistakes as meaningful learning opportunities (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors are responsible for modeling appropriate team and communication behaviors (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for CRNA clinical instructors to take time to discuss care plans for each patient with SRNAs (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructor should provide SRNAs with support and assistance when needed (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

CRNA clinical instructors should consider SRNA input when making decisions about patient care (10)	○	○	○	○	○
CRNA clinical instructors should provide opportunities to discuss clinical performance with SRNAs (11)	○	○	○	○	○

NONTECHNICAL SKILLS EDUCATION

Q7 When thinking about your attitude and perceptions with regards to CRNA clinical instructor
SITUATION MONITORING of SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important for CRNA clinical instructors to monitor the emotional and physical status of SRNAs (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors anticipate SRNA needs (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors monitor SRNA performance and correct their mistakes (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors and SRNAs continuously communicate and reevaluate patient care goals (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is appropriate for CRNA clinical instructors to offer patient care assistance to SRNAs who may be too tired or stressed to perform at an appropriate level (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors who monitor their own emotional and physical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

status are more effective (12)					
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NONTECHNICAL SKILLS EDUCATION

Q8 When thinking about your attitude and perceptions with regards to CRNA clinical instructor providing MUTUAL SUPPORT to SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Asking for assistance from a CRNA clinical instructor is a sign that the SRNA does not know how to effectively provide anesthesia care (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs should feel comfortable asking CRNA clinical instructors for assistance when they feel overwhelmed (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors provide SRNAs with assistance during periods of high workload (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors who provide SRNAs with assistance when needed improve team performance (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is appropriate for SRNAs to advocate for patients when their opinion is in conflict with that of the CRNA clinical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

instructor (11) CRNA clinical instructors who monitor their own emotional and physical status are more effective (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal conflicts between CRNA clinical instructors and SRNAs do not affect patient safety (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructor feedback is delivered to SRNAs in a way that promotes positive interactions and future change (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q9 When thinking about your attitude and perceptions with regards to COMMUNICATION between CRNA clinical instructors and SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
CRNA clinical instructors and SRNAs that do not effectively communicate significantly increase their risk of committing errors (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adverse events can be reduced through frequent information exchange between CRNA clinical instructors and SRNAs (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors provide SRNAs with time to ask questions (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors verbally verify information they exchange with SRNAs (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall communication between CRNA clinical instructors and SRNAs could be improved (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using communication tools and common language would improve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

communication between CRNA clinical instructors and SRNAs (24)					
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NONTECHNICAL SKILLS EDUCATION

Q10 Please indicate your level of satisfaction with the following aspects of communication with SRNAs as a CRNA clinical instructor:

	Very Dissatisfied (1)	Dissatisfied (3)	Neutral (4)	Satisfied (5)	Very satisfied (7)
Overall communication with SRNAs (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preoperative communication with SRNAs (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intraoperative communication with SRNAs (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Postoperative communication with SRNAs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug administration communication with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anesthetic plan communication with SRNAs (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedure communication (SAB, epidural, aline, etc.) with SRNAs (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication between SRNAs and anesthesiologists (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 Have you had previous clinical teaching skills, nontechnical skills, or TeamSTEPPS training?

Yes (1)

No (2)

If No Is Selected, Then Skip To End of Block

Q12 Please list and describe the type(s) of previous clinical teaching skills, nontechnical skills, or TeamSTEPPS training you have received:

NONTECHNICAL SKILLS EDUCATION

Q13 Please answer the following questions while considering YOUR BEHAVIORS while interacting with SRNAs as a CRNA clinical instructor.

Q14 When thinking about your COMMUNICATION with SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
Goals for each clinical day are identified and a plan to achieve each goal is developed (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The anesthetic plan of care for each patient is discussed and adjusted as needed pre-, intra-, and post-operatively (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA performance is reviewed at the end of the clinical day based on the identified goals and plan (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommendations for continuing SRNA improvement are identified based on performance (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA successes are reinforced (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are given the opportunity to express thoughts and feelings (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are given the opportunity to provide feedback to the CRNA clinical instructor on teaching (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q15 When thinking about your SITUATION MONITORING of SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
SRNAs are monitored for fatigue level, workload, task performance, skill level, and stress level (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored to provide constructive feedback (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored to provide support or assistance when needed (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored using a checklist (i.e. I'M SAFE) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q16 When thinking about the MUTUAL SUPPORT you provide to SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (3)	About half the time (4)	Most of the time (5)	Always (6)
SRNAs are provided with appropriate back-up and a safety net (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with an environment of trust and psychological safety (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with task assistance as needed (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with regular feedback throughout the clinical day (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goals are set for the SRNA throughout the clinical day based on continuous feedback (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA feedback is timely, respectful, specific, directed, and considerate (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict with SRNAs is resolved in a timely manner (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict with SRNAs is resolved with a win-win solution (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Interpersonal conflict with SRNAs is discussed in a private location (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict resolution with SRNAs focuses on what is right rather than who is right (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critique of SRNA performance is done privately in a non-critical manner (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q17 When thinking about the COMMUNICATION TOOLS you use with SRNAs as a CRNA clinical instructor:

	never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
Briefing is used preoperatively to share the anesthesia care plan (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Huddles are used intraoperatively to adjust the anesthesia care plan (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Debriefing is used postoperatively to review anesthesia care plan and SRNA performance (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The I'M SAFE checklist is used to monitor SRNA status (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The DESC script is used to resolve interpersonal conflict with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The SMART feedback model is used when critiquing SRNA performance (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q18 What is your gender?

- Female (1)
- Male (2)

Q19 What is your current age?

- 20 to 24 (1)
- 25 to 34 (2)
- 35 to 44 (3)
- 45 to 54 (4)
- 55 to 64 (5)
- 65 or over (6)

Q20 What is your current FTE?

- Full-time (0.7-1.0 FTE) (1)
- Part-time (0.1-0.6 FTE) (2)
- Locum tenens (3)
- Other (please specify) (4) _____

Q21 What percentage of your FTE is spent working with SRNAs as a CRNA clinical instructor during a typical week?

- <10%(1)
- 10-24% (2)
- 25-49% (3)
- 50-74% (4)
- >75% (5)

Q22 How many shifts do you typically work per week?

- >5 (1)
- 3-5 (2)
- 1-2 (3)
- <1 (4)

Q23 How long have you been a practicing CRNA?

- 0-2 years (1)
- 3-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- 16-20 years (5)
- >20 years (6)

NONTECHNICAL SKILLS EDUCATION

Appendix H. Immediate post-intervention Qualtrics survey

Q1 Informed Consent

As a graduate student in the University of Michigan-Flint/Hurley Medical Center Doctor of Anesthesia Practice program, I invite you to participate in a research project by taking a few minutes to complete the following survey.

Project description and objective: To assess knowledge, behavior, and attitudes concerning the role of nontechnical skills in the clinical teaching of student nurse anesthetists.

The questionnaire consists of 31 questions and will take approximately 15 minutes to complete. This questionnaire will be conducted with an on-line Qualtrics-created survey. You are not required to answer every question. Answering one or more survey questions implies consent to participate in this project.

Risks are minimal for involvement in this study. There are no direct benefits for participants; it is hoped that through your participation, researchers will learn more about the role of nontechnical skills in the clinical teaching of student nurse anesthetists. There is no direct compensation.

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator deletes it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university. If you desire to withdraw, please close your Internet browser and notify the principal investigator at this email: welchg@umflint.edu.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu.

You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Thank you for your anticipated participation,

Gena M. Welch, CRNA, MS

Q2 I have read and understood the above informed consent form and voluntarily consent to participate in this study.

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q3 Do you provide clinical instruction to SRNAs 2 or more clinical days per month?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

NONTECHNICAL SKILLS EDUCATION

Q4 Please answer the following questions while considering your ATTITUDE and PERCEPTIONS concerning interactions between SRNAs and CRNA clinical instructors.

Q5 When thinking about your attitude and perceptions with regards to the TEAM STRUCTURE between CRNA clinical instructors and SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important to ask SRNAs for feedback regarding the effectiveness of CRNA clinical instructor communication (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are a critical component of the care team (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors anticipate the needs of SRNAs (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are held accountable for their actions (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors are held accountable for their actions when working with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs and CRNA clinical instructors share information that enables timely patient care decision making (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

<p>their roles and responsibilities in the clinical environment (13)</p>					
<p>SRNAs and CRNA clinical instructors have clearly articulated goals for patient care (7)</p>	○	○	○	○	○
<p>SRNAs and CRNA clinical instructors operate as a highly efficient team (15)</p>	○	○	○	○	○

NONTECHNICAL SKILLS EDUCATION

Q6 When thinking about your attitude and perceptions with regards to the LEADERSHIP provided to SRNAs by CRNA clinical instructors:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important for CRNA clinical instructors to share information with SRNAs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors should create opportunities for SRNAs to share information (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors view honest mistakes as meaningful learning opportunities (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors are responsible for modeling appropriate team and communication behaviors (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for CRNA clinical instructors to take time to discuss care plans for each patient with SRNAs (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructor should provide SRNAs with support and assistance when needed (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

CRNA clinical instructors should consider SRNA input when making decisions about patient care (10)	○	○	○	○	○
CRNA clinical instructors should provide opportunities to discuss clinical performance with SRNAs (11)	○	○	○	○	○

NONTECHNICAL SKILLS EDUCATION

Q7 When thinking about your attitude and perceptions with regards to CRNA clinical instructor
SITUATION MONITORING of SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is important for CRNA clinical instructors to monitor the emotional and physical status of SRNAs (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors anticipate SRNA needs (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors monitor SRNA performance and correct their mistakes (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors and SRNAs continuously communicate and reevaluate patient care goals (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is appropriate for CRNA clinical instructors to offer patient care assistance to SRNAs who may be too tired or stressed to perform at an appropriate level (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors who monitor their own emotional and physical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

status are more effective (12)					
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NONTECHNICAL SKILLS EDUCATION

Q8 When thinking about your attitude and perceptions with regards to CRNA clinical instructor providing MUTUAL SUPPORT to SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Asking for assistance from a CRNA clinical instructor is a sign that the SRNA does not know how to effectively provide anesthesia care (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs should feel comfortable asking CRNA clinical instructors for assistance when they feel overwhelmed (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors provide SRNAs with assistance during periods of high workload (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors who provide SRNAs with assistance when needed improve team performance (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is appropriate for SRNAs to advocate for patients when their opinion is in conflict with that of the CRNA clinical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

instructor (11) CRNA clinical instructors who monitor their own emotional and physical status are more effective (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal conflicts between CRNA clinical instructors and SRNAs do not affect patient safety (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructor feedback is delivered to SRNAs in a way that promotes positive interactions and future change (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q9 When thinking about your attitude and perceptions with regards to COMMUNICATION between CRNA clinical instructors and SRNAs:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
CRNA clinical instructors and SRNAs that do not effectively communicate significantly increase their risk of committing errors (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adverse events can be reduced through frequent information exchange between CRNA clinical instructors and SRNAs (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective CRNA clinical instructors provide SRNAs with time to ask questions (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRNA clinical instructors verbally verify information they exchange with SRNAs (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall communication between CRNA clinical instructors and SRNAs could be improved (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using communication tools and common language would improve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

communication between CRNA clinical instructors and SRNAs (24)					
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NONTECHNICAL SKILLS EDUCATION

Q10 Please indicate your level of satisfaction with the following aspects of communication with SRNAs as a CRNA clinical instructor:

	Very Dissatisfied (1)	Dissatisfied (3)	Neutral (4)	Satisfied (5)	Very satisfied (7)
Overall communication with SRNAs (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preoperative communication with SRNAs (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intraoperative communication with SRNAs (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Postoperative communication with SRNAs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug administration communication with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anesthetic plan communication with SRNAs (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedure communication (SAB, epidural, aline, etc.) with SRNAs (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication between SRNAs and anesthesiologists (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q11 How well did the Coaching module achieve the following objectives?

	Very Poorly (8)	Poorly (9)	Average (10)	Well (11)	Very Well (12)
Define coaching (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describe the key characteristics of effective feedback (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify the components of the SMART feedback model (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Illustrate methods to motivate SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss the communication, performance improvement, relationship building, and execution coaching competencies (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q12 How well did the Leading Teams module achieve the following objectives?

	Very poorly (8)	Poorly (9)	Average (10)	Well (11)	Very Well (12)
Define roles of the SRNA and CRNA clinical instructor within the team (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify the qualities of an effective team leader (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describe the use of briefings, huddles, and debriefings to communicate the anesthesia care plan throughout the perioperative period (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q13 How well did the Situational Awareness module achieve the following objectives?

	Very Poorly (8)	Poorly (9)	Average (10)	Well (11)	Very Well (12)
Define situational awareness with regards to the SRNA (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describe the areas in which SRNAs should be monitored (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss the use of the I'M SAFE checklist for monitoring SRNA status (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q14 How well did the Mutual Support module achieve the following objectives?

	Very Poorly (8)	Poorly (9)	Average (10)	Well (11)	Very Well (12)
Define mutual support for the SRNA (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describe mechanisms for encouraging and providing mutual support (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss the importance of effective feedback (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify the characteristics of effective feedback (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explain interpersonal conflict between the SRNA and CRNA clinical instructor (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Characterize the components and keys to successful use of the DESC script to resolve interpersonal conflicts (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q15 The learning modules:

	Strongly Disagree (1)	Disagree (2)	Neutral (4)	Agree (6)	Strongly agree (7)
Were well organized (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provided practical and useful information (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were sequenced to facilitate learning (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were up to date in terms of current practice and issues (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q16 What does the I'M SAFE checklist assess?

- Illness, meals, standing, allergies, fun, effort (1)
- Illness, medication, stress, alcohol/drugs, fatigue, eating or elimination (3)
- Illness, monitoring, standing, alcohol/drugs, fasting, errors (4)
- Illness, medications, stress, allergies, fasting, enthusiasm (5)
- Illness, meals, standing, alcohol/drugs, fatigue, eating or elimination (6)

Q17 _____ provide SRNAs and CRNA clinical instructors with a mechanism to review performance, promote self-learning, recount key events, and summarize goals for improvement.

- Briefings (1)
- Debriefings (2)
- Huddles (3)

Q18 _____ are a way for SRNAs and CRNA clinical instructors to share the plan for anesthesia care with clearly established goals.

- Briefings (1)
- Debriefings (2)
- Huddles (3)

Q19 _____ allow SRNAs and CRNA clinical instructors to communicate changes in the anesthesia plan of care.

- Briefings (1)
- Debriefings (2)
- Huddles (3)

Q20 All of the following items are keys to resolving interpersonal conflict EXCEPT:

- Choose a private location for discussion (5)
- Finger pointing and blaming (4)
- Frame problems with lessons learned (1)
- Use "I" statements (2)
- Work toward a win-win resolution (6)

Q21 Effective feedback should be (select 5):

- Abstract (6)
- Attainable (1)
- Measurable (2)
- One-way (7)
- Realistic (3)
- Specific (4)
- Timely (5)

Q22 When working with SRNAs, CRNA clinical instructors are _____ team leaders.

- Contextual (3)
- Designated (1)
- Environmental (4)
- Situational (2)

NONTECHNICAL SKILLS EDUCATION

Q23 Effective team leaders (select 5):

- Assign tasks and responsibilities (6)
- Facilitate information sharing (11)
- Foster interpersonal conflict (12)
- Keep plan to themselves (16)
- Model effective behavior (13)
- Monitor and modify plans (14)
- Provide assistance when needed (15)

Q24 Key aspects of mutual support include (select 4):

- Discouraging an environment of trust (5)
- Encouraging SRNAs to ask for assistance (1)
- Filling in when the SRNA cannot perform a task (2)
- Limiting feedback (6)
- Offering or requesting assistance (3)
- Monitoring performance to anticipate the need for assistance (4)

Q25 _____ is defined as instructing, directing, and prompting SRNAs to improve performance and achieve specific goals.

- Coaching (1)
- Leading teams (4)
- Mutual support (2)
- Situational monitoring (3)

NONTECHNICAL SKILLS EDUCATION

Q26 What is your gender?

- Female (1)
- Male (2)

Q27 What is your current age?

- 20 to 24 (1)
- 25 to 34 (2)
- 35 to 44 (3)
- 45 to 54 (4)
- 55 to 64 (5)
- 65 or over (6)

Q28 What is your current FTE?

- Full-time (0.7-1.0 FTE) (1)
- Part-time (0.1-0.6 FTE) (2)
- Locum tenens (3)
- Other (please specify) (4) _____

Q29 What percentage of your FTE is spent working with SRNAs as a CRNA clinical instructor during a typical week?

- <10% (1)
- 10-24% (2)
- 25-49% (3)
- 50-74% (4)
- >75% (5)

Q30 How many shifts do you typically work per week?

- >5 (1)
- 3-5 (2)
- 1-2 (3)
- <1 (4)

Q31 How long have you been a practicing CRNA?

- 0-2 years (1)
- 3-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- 16-20 years (5)
- >20 years (6)

NONTECHNICAL SKILLS EDUCATION

Appendix I. 1-month post-intervention survey email

Dear CRNA clinical instructor:

Thank you for participating in the nontechnical skills education for CRNA clinical instructors doctoral research project!

Please complete the 1-month post-intervention survey using the following link within 48 hours (link for survey was placed here).

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator has deleted it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university. If you desire to withdraw, please close your Internet browser and notify the principal investigator at this email: welchg@umflint.edu.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher, you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu. You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Thank you again for your participation,

Gena M. Welch, CRNA, MS

NONTECHNICAL SKILLS EDUCATION

Appendix J. 1-month post-intervention Qualtrics survey

Q1 Informed Consent

As a graduate student in the University of Michigan-Flint/Hurley Center Medical Doctor of Anesthesia Practice program, I invite you to participate in a research project by taking a few minutes to complete the following survey.

Project description and objective: To assess knowledge, behavior, and attitudes concerning the role of nontechnical skills in the clinical teaching of student nurse anesthetists.

The questionnaire consists of 14 questions and will take approximately 5 minutes to complete. This questionnaire will be conducted with an on-line Qualtrics-created survey. You are not required to answer every question. Answering one or more survey questions implies consent to participate in this project.

Risks are minimal for involvement in this study. There are no direct benefits for participants; it is hoped that through your participation, researchers will learn more about the role of nontechnical skills in the clinical teaching of student nurse anesthetists. There is no direct compensation.

All data obtained from participants will be anonymous, kept confidential, and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator and advising professors listed below will have access to them. The data collected will be stored in the HIPAA-compliant, Qualtrics-secure database until the primary investigator has deleted it.

Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your employment or academic status, GPA, or standing with the university. If you desire to withdraw, please close your Internet browser and notify the principal investigator at this email: welchg@umflint.edu.

If you have questions regarding this study, you may contact Gena Welch, 810-262-7264, welchg@umflint.edu. If you have questions but do not feel comfortable asking the researcher you may contact Dr. Shawn Fryzel, 810-262-9536, sfryzel@umflint.edu or Dr. Jane Motz, 810-262-6789, motzj@umflint.edu.

You may also contact the University of Michigan-Flint Institutional Review Board (IRB) Research Compliance Specialist, Mary Mandeville, 810-762-3383, irb-flint@umflint.edu. University of Michigan-Flint IRB ID: HUM00120505.

Thank you for your anticipated participation,

Gena M. Welch, CRNA, MS

Q2 I have read and understood the above informed consent form and voluntarily consent to participate in this study.

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q3 Do you provide clinical instruction to SRNAs 2 or more clinical days per month?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

NONTECHNICAL SKILLS EDUCATION

Q4 Please answer the following questions while considering YOUR BEHAVIORS while interacting with SRNAs as a CRNA clinical instructor.

Q5 When thinking about your COMMUNICATION with SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
Goals for each clinical day are identified and a plan to achieve each goal is developed (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The anesthetic plan of care for each patient is discussed and adjusted as needed pre-, intra-, and post-operatively (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA performance is reviewed at the end of the clinical day based on the identified goals and plan (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommendations for continuing SRNA improvement are identified based on performance (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA successes are reinforced (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are given the opportunity to express thoughts and feelings (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are given the opportunity to provide feedback to the CRNA clinical instructor on teaching (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q6 When thinking about your SITUATION MONITORING of SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
SRNAs are monitored for fatigue level, workload, task performance, skill level, and stress level (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored to provide constructive feedback (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored to provide support or assistance when needed (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA clinical performance is monitored using a checklist (i.e. I'M SAFE) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q7 When thinking about the MUTUAL SUPPORT you provide to SRNAs as a CRNA clinical instructor:

	Never (1)	Sometimes (3)	About half the time (4)	Most of the time (5)	Always (6)
SRNAs are provided with appropriate back-up and a safety net (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with an environment of trust and psychological safety (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with task assistance as needed (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNAs are provided with regular feedback throughout the clinical day (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goals are set for the SRNA throughout the clinical day based on continuous feedback (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SRNA feedback is timely, respectful, specific, directed, and considerate (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict with SRNAs is resolved in a timely manner (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict with SRNAs is resolved with a win-win solution (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Interpersonal conflict with SRNAs is discussed in a private location (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal conflict resolution with SRNAs focuses on what is right rather than who is right (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critique of SRNA performance is done privately in a non-critical manner (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NONTECHNICAL SKILLS EDUCATION

Q8 When thinking about the COMMUNICATION TOOLS you use with SRNAs as a CRNA clinical instructor:

	never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Always (5)
Briefing is used preoperatively to share the anesthesia care plan (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Huddles are used intraoperatively to adjust the anesthesia care plan (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Debriefing is used postoperatively to review anesthesia care plan and SRNA performance (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The I'M SAFE checklist is used to monitor SRNA status (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The DESC script is used to resolve interpersonal conflict with SRNAs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The SMART feedback model is used when critiquing SRNA performance (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 What is your gender?

- Female (1)
- Male (2)

NONTECHNICAL SKILLS EDUCATION

Q10 What is your current age?

- 20 to 24 (1)
- 25 to 34 (2)
- 35 to 44 (3)
- 45 to 54 (4)
- 55 to 64 (5)
- 65 or over (6)

Q11 What is your current FTE?

- Full-time (0.7-1.0 FTE) (1)
- Part-time (0.1-0.6 FTE) (2)
- Locum tenens (3)
- Other (please specify) (4) _____

Q12 What percentage of your FTE is spent working with SRNAs as a CRNA clinical instructor during a typical week?

- <10% (1)
- 10-24% (2)
- 25-49% (3)
- 50-74% (4)
- >75% (5)

Q13 How many shifts do you typically work per week?

- >5 (1)
- 3-5 (2)
- 1-2 (3)
- <1 (4)

Q14 How long have you been a practicing CRNA?

- 0-2 years (1)
- 3-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- 16-20 years (5)
- >20 years (6)

NONTECHNICAL SKILLS EDUCATION

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