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Final Project Report for Students Graduating in May 2024

Addressing CRNA Student Clinical Orientation through Needs Assessment and Education
Implementation

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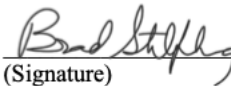


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Abstract

Background: Orientation programs are crucial for introducing individuals to educational institutions, internships, residencies, and workplaces, providing insight into expectations and operational procedures. However, at Marian University, there was a notable absence of a formalized orientation program for nurse anesthesia students before their immersion into the clinical setting.

Purpose: This Doctor of Nursing Practice (DNP) project assessed the impact of a structured, student-led clinical orientation program on enhancing student preparedness in clinical environments. As part of this initiative, clinical site handbooks were developed to give students site-specific expectations, guidelines, and vital information pertinent to each clinical setting before their clinical immersion.

Methods: Quantitative data were collected using electronic pre- and post-educational surveys using a 5-point Likert scale. Essential information for clinical site navigation was disseminated through handbooks created and posted on a dedicated Canvas page.

Implementation: A convenience sample of 10 Marian University Student Registered Nurse Anesthesia (SRNA) students participated in this project. Before the educational orientation, pre-test surveys were provided to students to identify any practice or knowledge gaps among the participants and any additional information needed before their initial clinical rotation.

Conclusion: Overall, the findings indicate a significant increase in student preparedness ($p < 0.001$) post-implementation of the clinical orientation program. Clinical site handbooks were found notably beneficial ($p < 0.05$), and the adopted teaching methods were deemed significantly advantageous ($p < 0.001$).

Keywords: Nurse Anesthesia, Curriculum Development, Orientation Program, SRNA

Addressing CRNA Student Clinical Orientation through Needs Assessment and Education Implementation

This project was submitted to the faculty of Marian University Leighton School of Nursing as a partial fulfillment of degree requirements for the Doctor of Nursing Practice, Nurse Anesthesia track. Preparing for the first clinical rotation as a student registered nurse anesthetist (SRNA) was cited as one of anesthesia school's most overwhelming and stressful experiences (Chipas et al., 2012). For many, the transition from didactic education to clinical reality comes with a spectrum of emotions filled with change and challenges. One way to reduce the stress and anxiety experienced by SRNAs was through the use of an orientation program to the clinical environment.

Background

More than 8,500 student nurse anesthetists are enrolled in 128 accredited nurse anesthesia programs throughout the United States (National Board of Certification & Recertification for Nurse Anesthetists, 2022). Nurse anesthesia schooling has been documented as one of the most arduous academic pursuits, characterized by demanding classroom requirements and rigorous clinical residencies (Mesisca & Mainwaring, 2021). The substantial classroom workload significantly elevates stress levels for students, a burden compounded by the addition of clinical residencies (Chu et al., 2013). Typically, students enrolled in front-loaded programs, where the bulk of didactic coursework occurs early in the program, embark on their clinical training component in their second year of anesthesia school. The transition from classroom student to resident trainee is inherently stressful, underscoring the necessity for students to feel adequately equipped with the knowledge and tools essential for clinical success. Establishing a seamless

transition from classroom instruction to clinical practice, complete with transparent guidelines and expectations, is pivotal in reducing stress levels and enhancing clinical performance.

A formalized orientation involves “organized induction and planned learning activities aimed to generate explicit, structured knowledge and skills designed for the profession” (Wiese, 2022, p. 6). Providing clear guidelines through a formalized orientation enhances student preparedness and alleviates stress levels as they transition into the clinical setting. The expressed concerns regarding unpreparedness among current students in a small, Midwestern nurse anesthesia program prompted the formulation of the following PICO question: Among doctorate-level nurse anesthesia students, would the implementation of a formalized student-led clinical orientation program improve preparedness for the clinical setting within the initial two months compared to the absence of such a program?

Problem Statement

The primary goal of this educational initiative was to address the challenges encountered by SRNAs during their initial clinical rotation by creating and executing an evidence-based orientation program. To achieve this goal, the project team identified gaps in the existing orientation process and designed a comprehensive orientation program that aimed to facilitate the transition from didactic instruction to practical application within the clinical environment.

The orientation program encompassed a detailed introduction to the clinical tracking database Medatrax and furnished site-specific insights pertinent to clinical rotations. Additionally, it offered guidance on various aspects of clinical readiness, including essential drug conversions and other pertinent information aimed at bolstering students’ confidence and preparedness for the clinical environment.

Additionally, specific clinical sites were incorporated into this standardized process to extend structured orientation to the clinical facilities. A clinical rotation handbook tailored to each site was created for students to refer to before and throughout their rotation. The clinical rotation handbook included information such as site expectations, technology and access information, logistics of the site (parking, breakrooms, and out-of-suite locations), supplies specific to the clinical site (anesthesia machines used and airway equipment available for use), and site-specific onboarding requirements (background check, health screen, and hospital orientation). The primary goal was to provide students with the necessary information to adjust to their new surroundings, reduce stress and anxiety, enhance communication, boost confidence, and promote success in this pivotal time of the anesthesia program.

Currently, some clinical sites provide pertinent information, while others provide little to none. The clinical rotation handbooks are a convenient resource, granting students and the program easy access to essential information. By ensuring that students are equipped with all necessary resources and support, these handbooks serve as an additional tool in fostering an environment conducive to excellence throughout their clinical rotations.

The preliminary plan for creating an orientation program involved gathering feedback from second and third-year students at Marian University to ascertain what information they felt was lacking before embarking on the clinical phase of their training. Subsequently, that feedback was organized and consolidated into a student-led orientation session, which was then presented between the spring and summer semesters of 2023. During this orientation program, summer clinical requirements were clearly delineated and discussed. Additionally, supplementary materials, including PowerPoint presentations detailing instructions for completing care plans and face sheets prior to clinical, were made available.

Upon completing this comprehensive orientation, SRNAs were equipped with the necessary knowledge and readiness to engage in clinical practice at any assigned location. The envisioned outcomes of these interventions included heightened levels of preparedness among students, reduced stress and anxiety levels, and a smoother transition into clinical rotations. By shifting the focus away from logistical concerns, unclear expectations, and resource availability, the aim was to expedite the transition into performing anesthesia and ensuring safe patient care.

Needs Assessment and Gap Analysis

The inconsistency nurse anesthesia students encounter as they transition from student to resident and move between clinical facilities poses a significant challenge. Students have expressed that the variations among clinical sites contribute to heightened stress levels, leaving them feeling unprepared and frustrated. For instance, while some clinical sites offer a structured day-long orientation encompassing hospital and surgery center tours, introductions to clinical preceptors, insights into operating room protocols, and clear expectations for the rotation, others provide minimal information or lack any orientation altogether. This disparity leaves students feeling overwhelmed and unsure of what to expect and adds to the anxiety and stress experienced by novice providers entering their clinical residencies. Thus, establishing a standardized format for clinical site-specific information, documented in individual clinical site handbooks accessible to students before each rotation, can effectively bridge this gap and alleviate the challenges encountered by many students. Guaranteeing students access to consistent and comprehensive information will likely foster confidence, enhance preparedness, and mitigate stress levels as they embark on their clinical rotations.

Furthermore, nurse anesthesia students have articulated feelings of unpreparedness regarding specific expectations required for clinical rotations. They have stressed the need for a

more structured clinical orientation preceding their practicum, emphasizing the necessity for clear expectations and requirements. Several key themes voiced by nurse anesthesia students include the need for a comprehensive explanation and understanding of Medatrax, clarity on preceptor expectations, addressing microaggressions in the clinical environment, strategies for navigating direct questioning by preceptors, and understanding care plan requirements for the clinical semester.

A student-led formalized orientation is poised to significantly reduce stress levels and equip students with the essential tools for success in their initial clinical rotation. Moreover, a site-specific information handbook will give students the necessary knowledge to be well-prepared on their first day of clinical and subsequent rotations. This comprehensive handbook will include details such as contact information and hospital maps, available case types and experiential opportunities, orientation and preceptor expectations, operating room protocols, the perioperative workflow, parking information, necessary supplies and their locations, useful lodging options, and any other pertinent information aimed at ensuring students' success in the clinical setting. Both elements of this project will help enhance students' overall clinical experience by reducing stress and bolstering feelings of preparedness, confidence, and perceived competence in the clinical environment.

By performing a needs assessment and literature review on how an orientation to the clinical environment and site-specific clinical handbooks could enhance student preparedness, this study demonstrated that by incorporating a formalized orientation to the clinical environment before starting clinical residency enhanced confidence, perceived competence in the clinical setting, while reducing overall stress among Marian SRNAs.

Review of the Literature

A computerized systematic literature search was conducted through the Marian University library portal to identify, appraise, select, and synthesize all high-quality research evidence relevant to formalized orientation programs specific to SRNAs. This review was conducted from October 2022 to December 2022 using Medline-Ovid and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The database searches were performed using the keywords and mesh terms *orientation, nurse anesthesia, curriculum development, orientation program, education, and SRNA*. The database searches were performed using the BOOLEAN phrases nurse anesthesia OR SRNA AND orientation program AND curriculum development. The following criteria were applied: articles published 2016-Present and academic peer-reviewed journals in English. The database search resulted in zero studies for review. Google Scholar was then used to hand-search relevant studies, resulting in seven pertinent studies conducted in the United States, Australia, Ireland, and Israel from 2011-2022. These articles are included in the literature matrix found in *Appendix A*.

Benefits of a Structured Orientation

The significance of a structured orientation cannot be overstated, as studies indicate that introducing new students to clinical sites can temporarily elevate mortality rates and medication errors (Wiese & Bennett, 2022). Therefore, a comprehensive orientation program is imperative for students embarking on clinical rotations to bolster their success and enhance patient safety (Wiese & Bennett, 2022). In a study conducted in Ireland, Wiese and Bennett (2022) interviewed fifteen medical consultants using the ready-set-go model, employing a constructivist grounded theory methodology to explore the significance of orientation in a new clinical environment. This study underscored the advantages of informal and formal orientation programs in improving clinical preparedness and patient safety (Wiese & Bennett, 2022).

To facilitate the transition from student to practicing clinician, the University of Maryland Medical Center implemented a formalized orientation program for nurse practitioner students (Bahouth & Esposito-Herr, 2009). This comprehensive program included both simulation and didactic critical care education while also emphasizing the availability of formalized resources. By preparing new practitioners for potential clinical scenarios and clarifying the expectations of their advanced provider role, this initiative aimed to equip them for success in their professional endeavors (Bahouth & Esposito-Herr, 2009).

Furthermore, Messiah University, a private institution located in Pennsylvania, conducted a quality improvement initiative involving 32 advanced practice providers at the National Institute of Health (NIH) (Ebenezer, 2021). A tailored onboarding toolkit was developed under the premise that a structured orientation process would enhance the role transition and integration of advanced practice providers within the clinical environment. Both quantitative and qualitative data corroborated the necessity for a comprehensive onboarding procedure. Notably, statistically significant improvements were observed in perceived clinical, professional, and organizational competencies (Ebenezer, 2021). Hence, these findings suggest that the implementation of an onboarding toolkit can effectively enhance role transition for advanced practice providers.

Impact on Lowering Stress and Improving Confidence

Several studies have highlighted the association between the commencement of clinical residency and heightened levels of anxiety and stress (Watt et al., 2016). In their research, Watt et al. (2016) examined 118 registered nursing students enrolled at an Australian metropolitan university who participated in a structured three-day learning program preceding their clinical rotations. The study's primary objective was to evaluate the impact of this pre-clinical learning

program on mitigating anxiety and enhancing self-efficacy among the participants. Utilizing the General Self-Efficacy Scale (GSES-12) and the Hospital Anxiety and Depression Scale (HAD), the researchers evaluated self-efficacy and anxiety levels, respectively (Watt et al., 2016). The results demonstrated a significant reduction in anxiety levels following participation in the structured learning program, indicating its efficacy in alleviating preclinical apprehensions (Watt et al., 2016).

Moreover, Watt et al. (2016) emphasized the correlation between the introduction to a new clinical environment and a decline in self-efficacy. However, they noted that structured orientation programs, characterized by clear expectations and guidelines, have been shown to boost confidence levels. The GSES-12 and HAD scales quantitatively evaluated self-efficacy and anxiety levels in the same cohort of 118 registered nursing students (Watt et al., 2016). The results unveiled a noteworthy increase in self-efficacy levels post-participation in the program, underscoring the potential benefits of structured learning initiatives before students enter the clinical arena (Watt et al., 2016).

In a subsequent study, Tracy (2017) conducted interviews with fifteen Certified Registered Nurse Anesthetists (CRNAs) to explore the crucial factors contributing to a successful transition from student to provider. A recurring theme highlighted by CRNAs was the pivotal role of self-efficacy and confidence in the anesthesia profession (Tracy, 2017). Furthermore, the study underscored that a lack of orientation hindered role transition, exacerbating feelings of anxiety and stress among CRNAs (Tracy, 2017). Conversely, formalized orientation programs were reported to have a positive impact on facilitating role transition (Tracy, 2017). Additionally, CRNAs emphasized the importance of allowing students to

familiarize themselves with equipment and personnel during the orientation process (Tracy, 2017).

Impact on Level of Preparedness

Goldschmidt et al. (2011) conducted a survey involving seven advanced nurse practitioners at the Children's Hospital of Philadelphia to evaluate the effectiveness of the hospital's onboarding process. Over 50% of the respondents expressed satisfaction with the preparation they received during onboarding, perceiving it as sufficient for success in their new roles (Goldschmidt et al., 2011). A prevalent theme among all participants highlighted the necessity for an onboarding process explicitly tailored to acute care areas. Moreover, the participants emphasized the crucial role of orientation in establishing clarity of roles and adequate preparation for their responsibilities (Goldschmidt et al., 2011).

In a separate investigation, Chu et al. (2013) conducted a study involving twenty-two anesthesia residents at Stanford University who participated in a 10-month program called Successful Transition to Anesthesia Residency Training (START) before commencing their clinical residencies. The program's primary objective was to enhance the perceived level of preparedness among interns before they began their clinical rotations (Chu et al., 2013). The findings revealed that the implementation of a 10-month program specifically designed to facilitate clinical preparation significantly augmented interns' subjective assessment of their readiness to embark on an anesthesiology residency (Chu et al., 2013).

Impact on Satisfaction Transitioning to Professional Roles

In Israel, a cross-sectional survey encompassing 79 graduate nurses from four institutions was conducted by Strauss et al. (2016). The objective was to assess the perceived effectiveness of a structured orientation program in facilitating students' transition into their professional roles.

The findings indicated that graduate nurses who underwent a formalized orientation reported higher satisfaction levels than those who did not (Strauss et al., 2016). These results underscore the association between formalized orientation programs and heightened learner satisfaction.

Literature Review Conclusion

This literature review focused on scrutinizing and assessing the orientation procedures implemented in various SRNA programs across the United States. It encompassed an analysis of the orientation processes tailored for SRNAs, medical students, registered nurses, and medical residents. Upon thorough examination of the literature, it was discerned that research specifically targeting SRNA orientation programs was limited. However, abundant data existed concerning orientation initiatives tailored to medical students, registered nurses, and residents. Consequently, it was deduced that there exists a pressing need for a formalized orientation process tailored specifically for SRNAs as they embark on their clinical journey.

Theoretical Framework

The Keller Attention, Relevance, Confidence, and Satisfaction (ARCS) Model of Instructional Design served as the guiding framework for the development of a formalized student-led orientation. Appendix B represents the current conceptual illustration and representation of this theory. Developed by John Keller, the ARCS model aims to stimulate and sustain learning motivation (Cai et al., 2022). This method was devised to comprehensively grasp the primary influencers of motivation within the learning process (Laurens-Arredondo, 2022). The model delineates four key conceptual pillars: attention, relevance, confidence, and satisfaction, each playing a crucial role in informing various learning strategies.

Attention is widely regarded as the cornerstone of effective learning (Liu et al., 2020). Studies have consistently demonstrated that actively engaged and focused learners exhibit

greater retention and integration of acquired knowledge (Liu et al., 2020). According to Keller, three motivational strategies, perceptual arousal, inquiry arousal, and variability, play pivotal roles in capturing attention (Liu et al., 2020). In developing the student-led orientation program, both auditory and visual techniques were integrated to pique learner interest, ensuring that the information was presented in an engaging manner conducive to knowledge retention.

Relevance pertains to the significance and appropriateness of the acquired information, focusing on its alignment with the learner's existing knowledge, needs, and goals. Learners are inherently more motivated when they perceive that the knowledge, they acquire will directly contribute to achieving their future goals (Liu et al., 2020). Keller identified several motivational strategies, including goal orientation, motive matching, and familiarity, to establish relevance to the learner (Liu et al., 2020). These strategies underscore the practical applicability and personal significance of the learned material, thereby enhancing motivation and engagement (Liu et al., 2020).

Confidence was established through various successful learning experiences, such as engaging with video or audio media, hands-on practice sessions, or teach-back methods (Liu et al., 2020). These activities enabled learners to develop a sense of self-assurance, knowing they had acquired the necessary knowledge to perform tasks proficiently and competently. To enhance confidence, motivational strategies focused on identifying learning requirements, offering opportunities for achievement, and empowering learners with a sense of personal control over their learning process (Liu et al., 2020). By aligning learning objectives with individual needs, providing avenues for success, and fostering autonomy, learners were better equipped to approach their tasks confidently and effectively.

Satisfaction was attained upon the culmination of the learning journey, characterized by

learners' positive outlook on the newly acquired knowledge and the milestones achieved during the process. Motivational strategies aimed at fostering learner satisfaction encompassed intrinsic reinforcement, extrinsic rewards, and equity considerations (Liu et al., 2020). Studies have correlated higher satisfaction scores with well-designed projects featuring challenging tasks and prompt feedback mechanisms (Liu et al., 2020). These four elements within the ARCS model formed the foundation for motivational learning initiatives.

Liu et al. (2020) introduced the ARCS model as a framework for designing an interactive EKG-focused e-book and assessing its impact on nursing students' EKG-related learning outcomes, contrasting it with conventional learning materials. Building upon this approach, the Keller ARCS model was harnessed to shape the development of a student-led clinical orientation program for junior student nurse anesthetists before embarking on their clinical residency rotations. Moreover, the ARCS model served as a blueprint for crafting a clinical rotation handbook aimed at preparing students before starting their clinical rotations, allowing for subsequent comparison of its impact on students who lacked such a handbook in the preceding year. A PowerPoint presentation with audio recordings was employed to capture learners' attention, enabling students to revisit the information as needed. Feedback from students emphasized the need for comprehensive information prior to starting clinical rotations to facilitate a smooth transition and ensure a successful start. Many students identified existing gaps in the current process, indicating a high level of engagement with the topic and eliciting perceptual arousal.

Project Aims and Objectives

Project Aims

This quality improvement project aimed to provide junior SRNAs with a structured student-led orientation and a comprehensive clinical rotation handbook prior to their first clinical rotation. The project delineated four specific aims:

- Identify and address gaps in the existing faculty-led orientation process through feedback and assessment from second and third-year SRNAs.
- Develop a formalized student-led orientation program and produce a clinical rotation handbook tailored to the needs of first-year SRNAs preparing for their initial clinical rotation.
- Equip SRNAs with essential guidelines, expectations, and foundational knowledge to facilitate a smooth transition from didactic learning to clinical practice, thereby promoting clinical success.
- Evaluate the project's impact on student self-efficacy and stress levels by measuring changes in preparedness and competence before and after the formalized orientation program.

Project Objectives

The project outcomes are outlined as follows:

- Gather feedback from second and third-year SRNAs via anonymous *Qualtrics* surveys to identify deficiencies in the orientation process and inform the development of the student-led orientation program for first-year SRNAs.
- Develop a structured student-led orientation program utilizing the Keller ARCS Model, tailored specifically for student nurse anesthetists.

- Create clinical rotation handbooks containing site-specific information to aid students during their assigned rotations, outlining expectations, resources, and essential details for success.
- Employ the General Self-Efficacy Scale to assess changes in students' self-efficacy levels before and after the formalized orientation, utilizing *Qualtrics* survey software during the Summer 2023 semester.
- Analyze the disparity between pre-test and post-test scores, comparing results with those of previous cohorts.

This project was designed to facilitate a seamless transition from didactic coursework to clinical practice within the nurse anesthesia program. Integrating an orientation program into the curriculum aimed to enhance the competence, confidence, and comfort of SRNAs, thus facilitating a smoother transition into clinical rotations while reducing stress and anxiety commonly experienced during this phase of the program.

SWOT Analysis

A comprehensive SWOT analysis was instrumental in identifying the strengths, weaknesses, opportunities, and threats associated with the development of a formalized student-led orientation program for student nurse anesthetists embarking on clinical residency, as detailed in Appendix C. The strengths of this project stem from the invaluable support of university faculty, clinical residency sites, and clinical site coordinators. Both the university and clinical sites approved project implementation, underscoring their endorsement of this project. Participation in this project encompassed cohorts from 2023, 2024, and 2025, thereby ensuring a comprehensive perspective and representation across multiple years of the program. Notably, this project incurred no additional costs for the institution or clinical sites, demonstrating its

efficiency and resourcefulness. This project established instructional materials to equip upcoming students for success in their first clinical rotations. Information was easily accessible through the required Canvas courses and recorded PowerPoint presentations. Furthermore, site-specific clinical rotation handbooks were readily accessible via a faculty-managed Canvas page, ensuring easy access for Marian University SRNAs.

While this project showcased numerous strengths, it also faced several challenges. One significant obstacle was the scarcity of research on existing clinical orientation processes, compounded by an even more limited body of research concerning the initiation of an institution's start-up orientation. Additionally, the narrow timeframe for implementing this project to facilitate the comparison of pre-and post-orientation results and to evaluate stress levels and preparedness required expedited action to ensure timely completion and achieve project objectives. Furthermore, one of the primary objectives of this project relied on the participation of existing clinical sites. However, the decision of several facilities to stop taking Marian University SRNAs in the past year presented a substantial challenge during the implementation phase of this project.

Although this project was tailored to a specific academic program, the approach was designed to be flexible and transferable to other nurse anesthesia programs, representing a significant opportunity for broader implementation and impact. Additional opportunities afforded by this project include improved student motivation and confidence, enhancing the clinical experiences of SRNAs while mitigating stress levels in their future rotations. Threats to the project encompass the fluctuating landscape of clinical sites, where there is a risk of sites being either added or lost, alongside the potential resistance from faculty towards adopting a new

orientation process. Furthermore, there is the looming possibility of an institutional facility altering their support for the project during the implementation phase.

Project Design/Methods

Drawing from the ARCS theoretical framework, an educational initiative was crafted to formulate and implement a structured orientation program. The 2025 cohort of student nurse anesthetists participated in pre- and post-orientation surveys aimed at gathering both quantitative and qualitative data, enabling a comprehensive assessment of their confidence levels before and after the intervention. Analysis of this data informed the refinement and execution of a formal orientation program, with the dual objectives of enhancing preparedness and mitigating stress among SRNAs as they transition into clinical residency.

A clinical site handbook template was also developed and disseminated to clinical site coordinators. These handbooks serve as valuable resources, offering pertinent information for students to consult during their clinical rotations. Accessibility was ensured through integration into the Nurse Anesthesia Program Canvas page, facilitating easy reference and utilization by students and faculty alike.

Project Site and Population

The study involved participants enrolled in a doctoral Nurse Anesthesia program at a small, privately funded Midwestern University. Selection criteria were based on enrollment in the program, spanning three distinct cohorts. The needs assessment sample comprised 12 third-year SRNAs and 20 second-year SRNAs. Pre and post-tests were administered to 33 students from the 2025 cohort of first-year SRNAs.

The recruitment of participants was facilitated through email communication, which outlined the study's purpose and instructions for completing the pre-survey. To ensure

anonymity, participant identities were protected by utilizing only the last four digits of their student identification numbers. Importantly, participation in the student survey was entirely voluntary, with no inducements or compensations offered for involvement. It is important to note that participants were not influenced by external incentives or rewards, ensuring the integrity and authenticity of their responses.

The student-led formal orientation was conducted at the university with permission granted by the program director, as outlined in Appendix D. Inclusion criteria had to be met to participate in this project, including current Nurse Anesthesia students and those willing to participate in this study voluntarily. However, students who failed to participate within the stipulated deadline outlined in the email communication, or those who did not complete both pre and post-test surveys, were excluded from the data collection process.

Measurement Instruments

To measure the outcomes and effectiveness of this DNP project, the following instruments were utilized: a needs assessment survey and a pre-and post-test survey featuring questions rated on a five-point Likert scale. Questions using the Likert scale gauged participants' perceived self-efficacy regarding clinical residency, with responses ranging from 1 for strong disagreement to 5 for strong agreement. Participants' responses to both surveys were meticulously analyzed before and after the implementation of the orientation program. Scores derived from the surveys were subjected to analysis, ensuring the anonymity of individual participants.

An examination of overall categorical responses from the pre-and post-orientation program surveys across each Likert category was conducted to discern any significant changes. Additionally, we integrated qualitative questions, including both select all that apply and free-

text formats, to identify recurring themes among participants. This qualitative data facilitated the customization of the orientation presentation to better align with the needs and preferences of the participants.

The needs assessment survey and the pre-and post-test survey questionnaires, outlined in Appendix E, were created using *Qualtrics* computer software. Subsequently, these surveys were distributed to participants via their Marian University email addresses, utilizing a *Qualtrics* link to ensure efficient and seamless data collection.

Data Collection Procedures

Data collection was streamlined through the use of *Qualtrics*, an online survey software platform that facilitated the design, distribution, and analysis of the survey questionnaires. Initially, an email containing a survey link was sent to the 2023 and 2024 cohorts, inviting them to identify any gaps in the current orientation process and highlight challenges or areas for improvement. Participants were given 2.5 weeks to complete the survey, with reminder emails sent twice during this period to encourage participation.

Following this, the data collected was utilized to structure a pre-test survey, which was then emailed to the 2025 cohort. This survey sought insights into any knowledge gaps or areas requiring additional information or practice during the clinical orientation week. Participants were given three weeks to complete the survey, with reminder emails sent two weeks after the initial invitation and on the final day of the survey period to maximum participation.

The data gathered from the pre-test survey was instrumental in shaping the structure and content of the formal student-led clinical orientation conducted during the clinical orientation week. Subsequently, a post-test survey was distributed to the 2025 cohort via email link six weeks following the student-led clinical orientation. Participants were allotted two weeks to

complete the survey, with a reminder email dispatched after one week to encourage timely response.

Ethical Considerations/Protection of Human Subjects

Approval from the Marian Internal Review Board (IRB) was obtained prior to initiating this project, as documented in Appendix F. Given that the project was confined to a single institution and entailed an educational endeavor, it posed minimal risk to the participants. Participant confidentiality remained uncompromised as the study did not require access to protected personal health information. All data utilized to assess the project's impact were aggregated and devoid of any identifying details.

To uphold confidentiality, participants were anonymized using only the last four digits of their student identification numbers. Furthermore, electronic files containing identifiable information were safeguarded with passwords, accessible solely to designated project coordinators. Once data was collected, student identifiers were deleted to protect participant anonymity. Participants were duly informed of the potential risks through an information letter that was emailed alongside project invitations. Engagement in this project was voluntary, with implicit consent assumed upon participation.

Data Analysis and Results

Data Analysis

The data collected for this DNP project underwent a careful analysis aimed at extracting valuable insights and evaluating the efficacy of implementing a student-led formal orientation program alongside the development of site-specific clinical handbooks. Before delving into the analysis, a thorough data-cleaning process was conducted to uphold accuracy and reliability.

This process entailed identifying and addressing any inconsistencies, missing values, or outliers that could potentially skew the results.

After completing the data-cleaning process, both one-sample t-tests and paired t-tests were utilized to analyze the quantitative data. Statistical analysis was conducted using IBM Statistical Package of Social Science (SPSS) software provided by Marian University. All analyses were performed by evaluating significance, with a p -value < 0.05 considered statistically significant. In addition to quantitative data, qualitative data was collected to offer insights for future enhancements to the clinical orientation process. This qualitative information provided valuable context and potential areas for improvement, complementing the quantitative findings.

Results

A combined total of 32 students participated in the needs assessment survey, with 12 students from the 2023 cohort and 20 students from the 2024 cohort contributing valuable insights. Among these participants, seventeen felt unprepared to begin clinical rotations. When asked where the majority of pertinent clinical information was obtained, twenty-three students indicated upperclassmen, previous cohorts, or fellow students, while only one selected Marian University faculty. Additionally, eighteen students felt unprepared to input essential clinical information into Medatrax before starting clinical rotations. Regarding the components deemed essential for a formalized clinical orientation, the survey revealed strong preferences: Medatrax (30 participants), care plans (21 participants), first-day preparedness (30 participants), stress management (19 participants), microaggression (22 participants), expectations (29 participants), and preoperative interviewing (24 participants). Furthermore, twenty-seven participants indicated

that access to a clinical site handbook would be highly or somewhat helpful before commencing clinical rotations.

Additionally, 33 participants from the 2025 cohort were eligible to participate in this project. Among these eligible participants, 21 students engaged in the pre-test survey. However, only ten participants from the 2025 cohort elected to participate in both the pre and post-test surveys.

Pre-test Survey

Seventeen participants emphasized preceptor uncertainty as a significant source of pressure before embarking on clinical rotations, while eighteen participants identified knowledge gaps as another notable stressor. Among the respondents, seventeen felt somewhat prepared to conduct preoperative interviews, with three expressing a neutral stance. Additionally, seventeen participants admitted to feeling either somewhat or highly unconfident in their ability to draft detailed anesthesia plans and backup plans. Participants highlighted the need for additional information on various aspects, including clinical expectations, first-day preparedness, and examples of questions from preceptors. Furthermore, twenty-one participants believed that a formalized clinical orientation would either highly or somewhat alleviate their concerns before starting their first clinical rotation. In comparison, nineteen participants viewed a question-and-answer session during clinical orientation as highly or somewhat beneficial in reducing stress levels. Finally, twenty-one participants indicated that having access to a clinical site handbook would be highly or somewhat helpful before commencing clinical rotations.

Post-test Survey

Ten participants reported that the information provided during clinical orientation significantly enhanced their preparedness before embarking on their first clinical rotation.

Among them, eight participants found the clinical site handbooks to be either highly or somewhat helpful. However, two participants noted the absence of clinical site handbooks tailored to their specific site. Additionally, eight participants expressed feeling either highly or somewhat prepared to input clinical and case information into Medatrax following the instructional sessions during clinical orientation. Furthermore, nine participants indicated feeling highly confident in their ability to develop anesthesia care plans and backup care plans for their patients.

A paired T-test was employed to compare pre-and post-test survey results regarding participants' confidence in developing anesthesia care plans and backup plans for specific patients. Before clinical orientation, nine out of ten participants expressed feeling unconfident about this task. However, nine out of ten participants reported feeling confident in their ability to develop detailed care plans and backup plans after clinical orientation. The paired T-test, conducted at a 95% confidence interval, produced a two-sided p-value of .004, indicating a statistically significant improvement in participants' confidence levels regarding anesthesia care plan development and backup planning. Further statistical details are outlined in Table 1.

Table 1

Paired Sample T-Test (Level of Preparedness for Care Plan Development)

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	p
				Lower	Upper			
Pre- Intervention	.9000	.73786	.23333	.37216	1.42784	3.857	9	.004
Post Intervention								

Note. t = ratio; df = degrees of freedom.

A one-sample T-test was conducted to assess students' preparedness to input case information into Medatrax following clinical orientation instruction. Eight participants reported

feeling highly prepared, while two expressed a neutral reaction. The analysis, conducted with a 99% confidence interval, revealed a p-value of less than .001, indicating a significant level of preparedness. Detailed results are presented in Table 2.

Table 2

One-Sample T-Test (Medatrax Database Entry)

	Mean	Std. Deviation	99% Confidence Interval of the Difference		t	df	p
			Lower	Upper			
Post- Intervention	1.40	.843	.53	2.27	5.250	9	<.001

Note. t = ratio; df = degrees of freedom.

Furthermore, students emphasized the necessity of a structured orientation before commencing clinical. Subsequently, a paired T-test was employed to evaluate the efficacy of the teaching methods employed. While nine participants found the methods highly beneficial, one deemed them somewhat helpful. The paired T-test, conducted with a 95% confidence interval, yielded a two-sided p-value of <.001, indicating a significant effectiveness of the teaching methods. Comprehensive results are presented in Table 3.

Table 3

Paired Sample T-Test (Teaching Methods)

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	p
				Lower	Upper			
Pre- Intervention	-.9000	.31623	.10000	-1.12622	-.67378	-9.0000	9	<.001
Post Intervention								

Note. t = ratio; df = degrees of freedom.

Additionally, a one-sample T-test was utilized to evaluate the impact of the intervention on students' preparedness before their first clinical rotation. All ten participants reported a

noticeable improvement in preparedness attributed to the structured clinical orientation.

Analyzed with a 99% confidence interval, the one-sample T-test yielded a p-value of <.001, demonstrating a substantial elevation in preparedness levels following the formalized clinical orientation. Detailed findings are presented in Table 4.

Table 4

One-Sample T-Test (Clinical Orientation)

	Mean	Std. Deviation	99% Confidence Interval of the Difference		t	df	p
			Lower	Upper			
Post-Intervention	1.10	.316	.78	1.42	11	9	<.001

Note. t = ratio; df = degrees of freedom.

Finally, a paired T-test was conducted to compare pre- and post-test survey responses regarding the effectiveness of clinical site-specific handbooks. Eight participants found the handbooks highly helpful, while two indicated that they were not created for their specific site. Analyzed with a 95% confidence interval, the paired T-test yielded a two-sided p-value of .05, denoting the significant value of the clinical site handbooks in preparing for clinical rotations. Refer to Table 5 for detailed statistical information.

Table 5

Paired Sample T-Test (Clinical Site Handbooks)

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	p
				Lower	Upper			
Pre-Intervention	-.6000	.84327	.26667	-1.20324	.00324	-2.250	9	.051
Post-Intervention								

Note. t = ratio; df = degrees of freedom.

Discussion

Based on the needs assessment and the pre-test surveys, it was decided to conduct a comprehensive three-and-a-half-hour presentation during the clinical orientation week for the 2025 SRNA cohort. Using Microsoft PowerPoint, a detailed presentation was developed and delivered, with a total of thirty-three participants from the 2025 cohort in attendance. The presentation covered various topics related to Medatrax, including data entry, clinical case entry, DNP project hour tracking, daily preceptor evaluations, and summative evaluations. Participants received instructions on creating anesthesia care plans and backup strategies for patients, with examples and review provided during the session. Furthermore, detailed instructions were provided on conducting thorough preoperative interviews. A dedicated segment addressed strategies for managing microaggressions in the operating room. To bolster participants' understanding, preceptor-style questions were provided to simulate scenarios encountered during clinical rotations. Additionally, the presentation delved into essential areas such as clinical expectations, first-day preparedness, stress and time management, as well as academic support and mental health services available through Marian University. The presentation concluded with a question-and-answer session, and all materials, examples, and handouts were distributed to participants for reference following the session.

Strengths and Limitations

It is important to acknowledge this project's limitations. The relatively small sample size raises concerns regarding the replicability of the results if this project were to be repeated. Although 21 participants completed the pre-test survey and 17 completed the post-test survey, only 10 participants completed both surveys, resulting in a reduction in the project's sample size. Despite sending several email reminders for pre- and post-test surveys, survey participation

remained voluntary and may have contributed to the lack of completion. Additionally, the failure to consistently use the same four-digit code number for both surveys may have further hindered participation.

The creation of site-specific clinical handbooks also posed significant challenges for this project. Unfortunately, despite efforts to engage clinical coordinators, a notable portion of them did not respond to the authors' emails soliciting their support for the project or assistance in compiling handbook information. Out of the 37 clinical sites, only eight clinical site handbooks were successfully created. Three clinical sites declined to participate in the DNP project altogether. This limited number stemmed from various factors, including challenges in contacting clinical site coordinators, the loss of clinical sites and clinical coordinators during the project timeframe, and instances of clinical sites voluntarily opting out.

Despite these limitations, the results underscore the importance of implementing a formalized clinical orientation to enhance the preparedness of SRNA students as they embark on clinical rotations. Moving forward, future efforts include further development and customization of the formalized clinical orientation program to cater to the needs of incoming SRNA cohorts. Furthermore, ensuring the accuracy and currency of handbook content due to the dynamic nature of clinical environments is imperative to students' success. Policies, procedures, personnel, and facilities change regularly, necessitating ongoing maintenance and updates to the handbooks. Additionally, adding or removing clinical sites from the program can significantly impact the creation and maintenance of site-specific handbooks. Therefore, establishing clear lines of responsibility for creating, maintaining, and updating these handbooks will be essential to prevent inconsistencies or oversights in information and updates.

Conclusion

Overall, the results of this project provide valuable insights into the effectiveness of a student-led formal clinical orientation program in enhancing participants' confidence and level of preparedness while reducing stress and anxiety levels. Providing a structured framework for students to familiarize themselves with the expectations, guidelines, and operational procedures specific to the clinical setting enhances their sense of readiness and ability to navigate complex healthcare scenarios with confidence.

Additionally, the creation of clinical site-specific handbooks serves as an invaluable tool in alleviating the stress and anxiety often experienced by SRNAs as they transition between various hospital rotations. These handbooks offer a centralized resource containing essential information tailored to each clinical site, including facility protocols, contact details, and key personnel, streamlining the adaptation process for SRNAs. By providing access to pertinent information in advance, these handbooks empower SRNAs to navigate their rotations more efficiently, enabling them to focus their energy on delivering quality patient care rather than grappling with logistical uncertainties and apprehension. Thus, the combination of a formalized student-led orientation program and the provision of clinical site-specific handbooks not only enhances the confidence and preparedness of SRNAs but ultimately enhances their educational experience and professional development.

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Appendix A

Literature Review Matrix

Citation	Research Design & Level of Evidence	Theoretical / Conceptual Framework	Purpose / Aim	Population / Sample size n=x	Major Variables	Instruments / Data collection	Results
Chu et al. (2013)	Longitudinal study; Level VI	N/A	To determine if an e-learning curriculum would increase interns' preparedness for the transition to the first year of clinical anesthesiology training and reduce stress by improving confidence and perceived competence in performing professional responsibilities.	N= 22 interns	10-month E-learning curriculum	Survey: a repeated-measures analysis of variance (ANOVA) was computed, with time as the repeated measure, followed by the Student-Newman-Keuls test for post hoc comparisons	After participating in START, each intern's self-assessed preparedness score improved from baseline by an average (SD) of 72% (114%). Participation in the 10-month e-learning curriculum and virtual mentorship program improved interns' impression of their residency program and significantly increased interns' subjective assessment of their preparedness to begin anesthesiology residency.
Ebenezer (2021)	Qualitative and Quantitative Study; Level VI	Meleis' transition theory and the Ottawa Model of Research use	To improve the integration and engagement of advanced practice providers (APPs) within the National Institutes of Health (NIH), thereby enhancing their	N= 32 advanced practice providers	Orientation and role transition into practice versus no orientation	Survey: Qualitative and quantitative questions using Qualtrics	Comprehensive onboarding programs for improving role transitions for APPs.

			practice, creating more substantial teams, and enhancing patient care.				
Goldschmidt et al. (2011)	Qualitative; Level VI	Role Implementing Strategies	To evaluate the achievement of the program goals and identify opportunities for improvement	N= 7 APN	Onboarding and achievement of program goals	Survey; 5-point Likert Scale	Developing a solid onboarding and orientation process is critical for the new APN for role clarity and preparation, credentialing, and feeling connected to their peers. A formalized orientation process led by an orientation coordinator provides additional support for the APN.
Strauss et al. (2016)	Cross-sectional Study; Level IV	N/A	To determine whether the graduates' transition into their workplace included a structured orientation program and to assess the program's effectiveness from the graduate's perspective.	N= 100 graduate nurses from four different institutions in Israel	Structured orientation program and satisfaction	Cross-sectional survey; evaluated for internal consistency by standardized Cronbach's alpha coefficients	Positive significant correlations between having a structured orientation program to the adaptation of the graduate nurses to the ward satisfaction of the graduates on the ward. Positive correlations were also found between the graduates' support and their satisfaction on the ward. Retention on the ward was highly correlated with having a program, satisfaction, adaptation, and support.
Tracy (2017)	Qualitative, descriptive, phenomenographic design; Level VI	Meleis and colleagues' Transitions Theory	To examine and describe the factors affecting CRNAs during	N= 15 CRNAs	Factors affecting transition	Semi-structural online interviews using the Internet communication software audio-video conferencing (Skype,	Several community-based transition conditions or factors were identified as facilitating and inhibiting CRNA role transition.

			their role transition.			Microsoft Corp) and recording software (Evaer, Evaer Technology). Verbatim transcripts were analyzed through inductive content analysis.	
Watt et al. (2016)	Repeated Measures Design; Level IV	N/A	To evaluate the duration of the effect of a three-day structured learning program within the clinical placement on final-year Bachelor of Nursing students' reports of anxiety and self-efficacy.	N= 118 Final year Bachelor of Nursing Students	Three-day structured learning program, anxiety, and self-efficacy	A 30-point questionnaire, an anxiety subscale of The Hospital Anxiety & Depression Scale (The HAD), and the General Self-Efficacy Scale (GSES-12). The questionnaire was completed at three time points: on day one of the clinical placement, upon completion of the three-day structured clinical program, and upon completion of the clinical placement on day 18.	There was a statistically significant effect in reducing anxiety over time: $F(1.73,74.46) = 25.20, p < 0.001$ and increasing self-efficacy over time $F(1.32,41.04) = 7.72, p < 0.004$.
Wiese & Bennett (2022)	Qualitative Study; Level VI	Constructivist Grounded Theory	To conceptualize the strategies consultants, use in the early stages of working with new trainees that will be useful for future faculty development in this area.	N= 20 consultants	Informal versus formal orientation strategies	Data were collected between February and December 2019. An in-person semi-structured interview with each participant at their workplace. Interviews ranged between 60 and 120 minutes, were audio-recorded, and transcribed verbatim.	The model of orientation constructed could be a valuable tool to support faculty development initiatives, the reflective learning practice of clinical supervisors, and curriculum design. This model suggests that a program of collective, individual, formal, and informal interactions and experiences may be needed to integrate trainees

							successfully into a new clinical environment.
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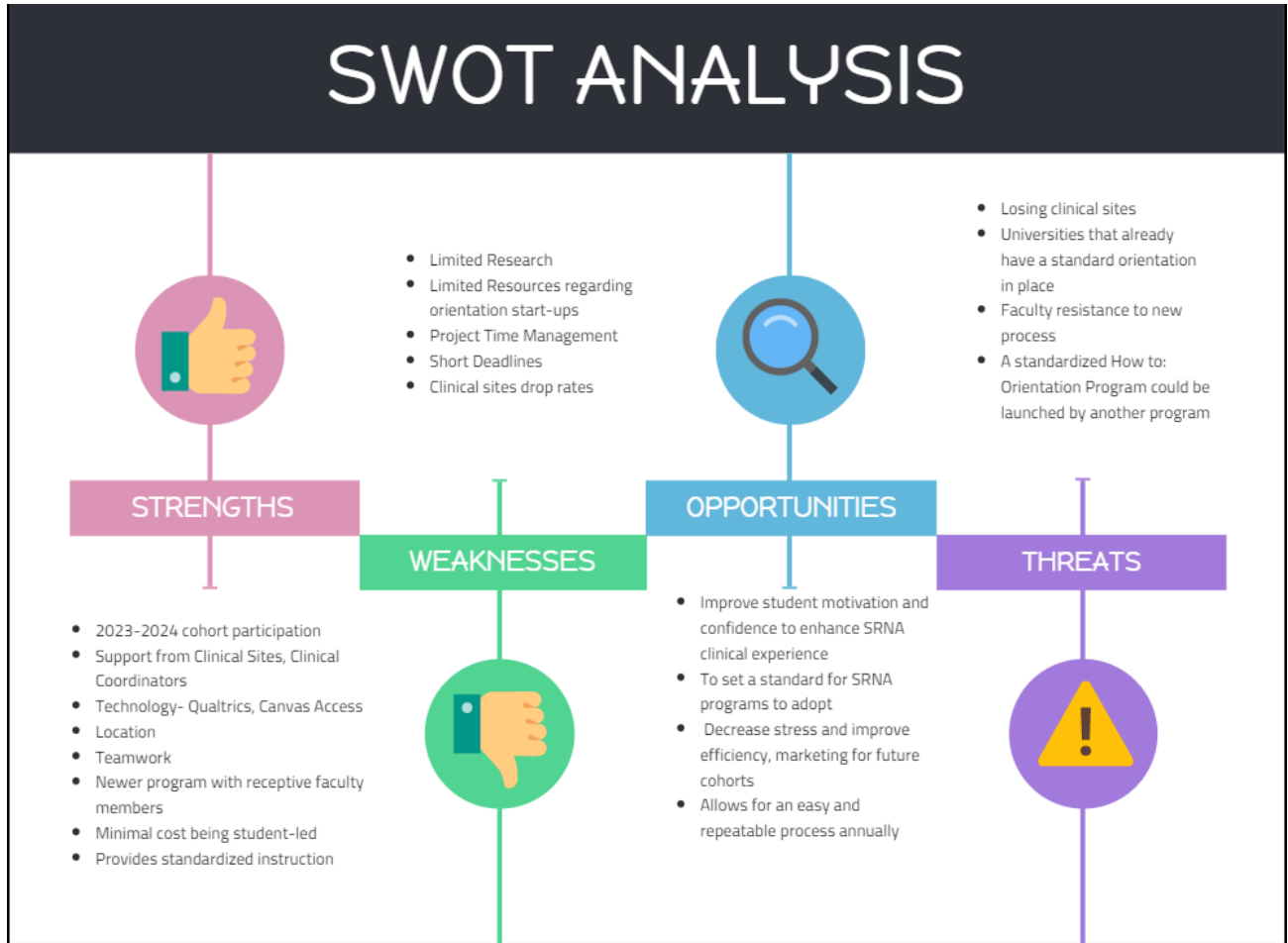
Appendix B

Keller Attention, Relevance, Confidence, and Satisfaction (ARCS) Model of Instructional Design



Appendix C

SWOT Analysis



Appendix D

Site Permission Letter



8 February, 2023

To whom it may concern,

Sara Starr and Morgan Jarvis have my permission to conduct their DNP project at Marian University.

Thank you,

A handwritten signature in black ink that reads "Brad Stelflug".

Bradley Stelflug, DrAP, MBA, CRNA
Director, DNP Program Nurse Anesthesia Track
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*Appendix E***Needs Assessment Survey**

Participation in this survey is on a voluntarily basis. By selecting yes, you agree to participate in our DNP research project.

- Yes
- No

Please enter the last four digits of your Marian Student ID Number

What year are you in the CRNA program?

- Junior
- Senior

How prepared did you feel before starting clinical?

- 5- Highly prepared
- 4- somewhat prepared
- 3- Neither prepared nor unprepared
- 2- Somewhat unprepared
- 1- Highly unprepared

Where did you get the majority of your information for clinical?

- Marian University Faculty
- Upperclassmen, previous cohorts, or other students
- Figured it out myself
- Other Resources (Please Explain)

How confident did you feel using Medatrax to enter case information prior to starting clinical?

- 5- highly prepared
- 4- somewhat prepared
- 3- neither prepared nor unprepared
- 2- somewhat unprepared
- 1- highly unprepared

Do you feel that the clinical experience orientation received on campus was helpful in preparing you for your first clinical rotation?

- Yes
- No
- I never received a clinical experience orientation

What components should a formalized clinical orientation program from Marian include?
(Select all that apply):

- Medatrax
- Care Plans
- First Day Preparedness
- Stress Management
- Microaggression/ Pimping
- Expectations
- Performing dosage calculations
- Performing preoperative Interview
- Other

Thinking back to your first clinical rotation, how did the clinical site coordinator reach out to you prior to starting?

- Email
- Phone Call
- Text Message
- I never heard from my clinical coordinator prior to starting the rotation.

Did you receive an orientation at your clinical site?

- Yes (Please describe)

- No

Would a site-specific clinical orientation guide have been helpful in preparing for your first rotation?

- Yes
- No (Why not?)

What information would you have liked to have known prior to starting clinical but didn't?

After starting your first clinical rotation, what did you realize you were completely unprepared for?

What was your biggest source of pressure prior to entering clinical rotations? (Select all that apply):

- Preceptor Uncertainty
- Finances
- Knowledge Gaps
- Family Strain
- Travel
- Life/School Balance
- Other

How stressed were you in your first few months of clinical?

- 5- No stress at all
- 4- A little more stressed than usual
- 3- Average amount of stress
- 2- Above average stressed
- 1- Highly Stressed

Is there anything that could have been done to help lower the stress caused by clinical?

How far in advance would it be helpful to receive clinical site information on your next rotation?

- 4 weeks
- 2-3 weeks
- 1 week
- Other

Thank you for participating in our survey!

Pre-Test Survey

Participation in this survey is on a voluntarily basis. By selecting yes, you agree to participate in our DNP research project.

- Yes
- No

Please enter the last four digits of your Marian Student ID Number

How prepared do you feel to do a preoperative interview?

- 5- Highly Prepared
- 4- Somewhat Prepared
- 3- Neutral
- 2- Somewhat Unprepared
- 1- Highly Unprepared

How confident do you feel performing dosage calculations?

- 5- Highly Confident
- 4- Somewhat Confident
- 3- Neutral
- 2- Somewhat Unconfident
- 1- Highly Unconfident

How confident do you feel writing a detailed plan of care for your patient and a back-up plan of care?

- 5- Highly Confident
- 4- Somewhat Confident
- 3- Neutral
- 2- Somewhat Unconfident
- 1- Highly Unconfident

How helpful do you feel a formalized clinical orientation would be prior to starting your first clinical rotation?

- 5- Highly Helpful
- 4- Somewhat Helpful
- 3- Neutral
- 2- Somewhat Unhelpful
- 1- Highly Unhelpful

How helpful do you feel a clinical site handbook would be prior to starting clinical?

- 5- Highly Helpful
- 4- Somewhat Helpful
- 3- Neutral
- 2- Somewhat Unhelpful
- 1- Highly Unhelpful

How confident do you feel in your ability to deal with microaggression or pimping in the OR?

- 5- Highly Confident
- 4- Somewhat Confident
- 3- Neutral
- 2- Somewhat Unconfident
- 1- Highly Unconfident

How helpful would a formalized clinical orientation consisting of Q&A be at lowering stress levels prior to starting clinical?

- 5- Highly Helpful
- 4- Somewhat Helpful
- 3- Neutral
- 2- Somewhat Unhelpful
- 1- Highly Unhelpful

What is your biggest source of pressure prior to entering clinical rotations? (Select all that apply)

- Preceptor Uncertainty
- Finances
- Knowledge Gaps
- Family Strain
- Travel
- Life/School Balance
- Other

Have you heard from your clinical site? (If no, where is your first rotation)

- Yes
- No

What information would you like to have prior to starting clinical?

Thank you for participating in our survey!

Post-Test Survey

Participation in this survey is on a voluntarily basis. By selecting yes, you agree to participate in our DNP research project.

- Yes
- No

Please enter the last four digits of your Marian Student ID Number

How helpful were the teaching methods used in this clinical orientation?

- Highly Helpful
- Somewhat Helpful
- Neither Helpful nor Unhelpful
- Somewhat Unhelpful
- Highly Unhelpful
- I did not attend clinical orientation.

How helpful were the clinical site guidebooks that were created as part of your orientation?

- Highly Helpful
- Somewhat Helpful
- Neither helpful nor unhelpful
- Somewhat Unhelpful
- Highly Unhelpful
- There was not a clinical guidebook created for my clinical site. Please list your clinical site.

*Appendix F***IRB Approval Letter***Institutional Review Board*

DATE: 03-03-2023
 TO: Morgan Jarvis, Sara Starr, & Dr. Lee Ranalli
 FROM: Institutional Review Board
 RE: S23.128
 TITLE: A Formalized Orientation Program to Ensure Student Success in Clinical Rotations
 SUBMISSION TYPE: New Project
 ACTION: Determination of EXEMPT Status
 DECISION DATE: 03-03-2023

The Institutional Review Board at Marian University has reviewed your protocol and has determined the procedures proposed are appropriate for exemption under the federal regulation. As such, there will be no further review of your protocol and you are cleared to proceed with your project. The protocol will remain on file with the Marian University IRB as a matter of record.

Although researchers for exempt studies are not required to complete online CITI training for research involving human subjects, the IRB **recommends** that they do so, particularly as a learning exercise in the case of student researchers. Information on CITI training can be found on the IRB's website: <http://www.marian.edu/academics/institutional-review-board>.

It is the responsibility of the PI (and, if applicable, the faculty supervisor) to inform the IRB if the procedures presented in this protocol are to be modified or if problems related to human research participants arise in connection with this project. Any procedural modifications must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project. Please contact me if you are unsure whether your proposed modification requires review. Proposed modifications should be addressed in writing to the IRB. **Please reference the above IRB protocol number in any communication to the IRB regarding this project.**

A handwritten signature in blue ink, appearing to read 'Amanda C. Egan'.

Amanda C. Egan, Ph.D.
 Chair, Marian University Institutional Review Board