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Lateral Decubitus and Prone Positioning: An Objective Structured Clinical Evaluation

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LATERAL DECUBITUS AND PRONE POSITIONING: AN OBJECTIVE

STRUCTURED CLINICAL EVALUATION

by

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A Doctoral Project
Submitted to the Graduate School,
the College of Nursing and Health Professions
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ABSTRACT

Improper positioning of patients in the lateral decubitus or prone positions can lead to significant complications, including but not limited to: airway and invasive line loss, physiologic derangements, soft tissue injury, and peripheral nerve injuries (PNI) (Barash et al., 2017; Butterworth et al., 2018). Chui et al.'s (2018) analysis found that PNIs accounted for 12% of anesthesia malpractice since 1990, making PNIs costly. PNIs effects are not limited to cost and result in increased lengths of stay, increased pain levels, and decreased quality of life (Wojtkiewicz et al., 2015). The massive effect poor positioning can have requires that the anesthesia provider is suitably trained, as they ultimately are responsible for patient positioning.

Objective Structured Clinical Examinations (OSCE) are an educational tool for teaching, developing, and uniformly evaluating skills in students in clinical simulations. An OSCE for positioning patients in the lateral decubitus and prone position at The University of Southern Mississippi's (USM) Nurse Anesthesia Program (NAP) did not exist. Therefore, an OSCE for each position was developed from the best available current scientific knowledge to address this knowledge gap. A panel of currently practicing anesthesia providers evaluated the OSCEs to determine if the OSCEs agreed with current clinical expertise. Survey results determined that the OSCEs were evidence-based and represented doctoral-level work; thus, the tools were well received.

DEDICATION

James Bailey

I would like to recognize the significant contributions of my loving wife, Amber Bailey. Your encouragement, support, and sacrifices have been tremendous. I look forward to the wonderful years we have ahead of us. I would also like to thank the rest of my family, particularly my mother, Sandy Bailey. She has never once been anything other than supportive throughout my life. Thank you for all the sacrifices you made for my sisters and me.

David Hesley-Hernandez

Earning my DNP was not something I had to do alone, I am lucky to have my husband Sergio at my side from day one. Thank you for supporting me, I am grateful for the multiple sacrifices you have made so I can pursue my dreams, I love you. Thank you to the many healthcare workers who have influenced my nursing practice and career through their mentorship, wisdom, and examples. To my family, thank you for your unconditional love and support. I would like to dedicate this DNP project to my late grandfather: Poppy, you told me I could accomplish anything I put my mind to, it took me a while to believe it, but you were right, thank you.

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AANA	American Association of Nurse Anesthetists
ASA	American Society of Anesthesiologists
CRNA	Certified Registered Nurse Anesthetist
DNP	Doctor of Nursing Practice
IRB	Institutional Review Board
MAC	Monitored Anesthesia Care
NAP	Nurse Anesthesia Program
OSCE	Objective Structured Clinical Evaluation
PNI	Peripheral Nerve Injury
SRNA	Student Registered Nurse Anesthetist
USM	The University of Southern Mississippi

CHAPTER I – INTRODUCTION

Positioning the patient for surgery is a core skill in anesthesia (American

Association of Nurse Anesthetists [AANA], 2019; Barash et al., 2017). Various surgeries

use lateral decubitus and prone positions. Procedures that involve the upper extremity,

hip, back, hip, or lower extremities often use the lateral decubitus position (Barash et al.,

2017). The prone position is necessary for many neurosurgical, spine and back, vascular,

and colorectal procedures (Barakat-Johnson et al., 2020). Improper positioning can lead

to a patient's airway loss or invasive lines needed for monitoring and treating patients.

Poor positioning also results in harmful physiologic changes and compression of body

structures that cause substantial patient morbidity (Barash et al., 2017; Butterworth et al.,

2018). Compression of body structures near peripheral nerves leads to peripheral nerve

injuries, and these surgical injuries account for 12% of general anesthesia malpractice

claims since 1990 (Chui et al., 2018). Due to the possible poor patient outcomes from

improper positioning, this skill is vital to providing quality anesthesia to patients.

Problem Description

The positioning of patients for surgical procedures is the responsibility of the

anesthesia provider (AANA, 2019; Barash et al., 2017). Patient positioning varies from

surgery to surgery, and the prone and lateral decubitus are of particular interest because

of their frequent use. Often registered nurses and surgical technicians physically position

a patient. However, suppose a patient is injured or has an adverse event due to patient

positioning. In that case, the fault does not fall on the registered nurse or surgical

technicians, as it is the responsibility of the anesthesia provider (AANA, 2019; Kremer et

al., 2019). The anesthesia provider is responsible for positioning patients appropriately and understanding the beneficial and negative impacts of each position.

Statement of the Problem

Currently, The University of Southern Mississippi's Nurse Anesthesia Program (NAP) does not have a means to uniformly measure student competency when positioning patients in the lateral decubitus and prone position, and represents a knowledge and assessment gap. The knowledge and assessment gap can potentially result in poor patient outcomes, adverse economic impacts on patients and facilities, and decreased student confidence. Therefore, to aid in the uniform clinical student evaluation of both lateral and prone positions, OSCEs for the lateral decubitus and prone positions were presented to The University of Southern Mississippi's NAP. Upon completion, these OSCEs were submitted for consideration to the curriculum.

Significance of the Problem

Healthcare providers are entrusted with patients' well-being every day. Anesthesia providers need to have an established knowledge set to guide their practice as they supervise the positioning of surgical patients. In school, anesthesia students need not just to understand the theory but also the proper execution of positioning to mitigate poor outcomes from patient positioning mistakes. Students in the clinical setting can be confident in their ability to supervise the positioning of patients when their program utilizes OSCEs. The OSCEs can positively influence the quality of education for students and serve as a resource for the program to ensure students have a comprehensive understanding of patient positioning.

Available Knowledge

Objective Structured Clinical Examination

Dr. Ronald Harden developed the objective structured clinical examination OSCE in the 1970s (Mondal et al., 2012). Since its conception, educational institutes have adopted OSCEs as the standard technique for testing healthcare students' knowledge and skill. An OSCE directs students to move through a series of stations and assess a particular skill or knowledge point. The criteria used to assess the student are predetermined and checked off as students demonstrate critical skills or knowledge (Zayyan, 2011).

Proper execution of an OSCE requires simulating clinical situations, making a quality simulation lab necessary (Mondal et al., 2012). The cost of a simulation lab can be a drawback to this assessment method (Zayyan, 2011). However, studies agree that this evaluation method is superior to traditional conventional examinations (Mondal et al., 2012). Student feedback indicates that expectations are more explicit with OSCEs than with conventional exams (Mondal et al., 2012). OSCEs allow a multi-dimensional view of the student's knowledge and skills. Conventional examinations heavily test the theory.

In contrast, OSCEs allow testing students' communication skills, ability to obtain and utilize patient data, and ability to respond to unique patient variables. OSCEs are versatile examination tools that allow for more objective and uniform testing (Zayyan, 2011). The structured steps of an OSCE will help create a tool to uniformly evaluate anesthesia students in clinical skills, including patient positioning.

Prone Position

Procedures commonly use the prone position in the operating room. In the prone position, the patient is turned from a back lying position into a stomach lying position, keeping the head and extremities in a neutral position, and protecting the structures of the face. This position is necessary for many neurosurgical, spine and back, vascular, and colorectal procedures (Barakat-Johnson et al., 2020). This position has benefits and risks for the surgical patient. The prone position allows for increased recruitment of alveoli, enhancing the patient's respiratory efforts. This effect is often why the position is typical for patients with acute respiratory distress syndrome.

However, the prone position does present a risk for injury due to the acute pressure on the body's anterior surfaces (Feix & Sturgess, 2014). Patients are repositioned by providers from supine to prone after anesthesia induction. The anesthesia provider leads providers in repositioning the patient and protecting the integrity of the patient's airway. Concerns during repositioning include loss of airway, central or peripheral lines, dislodgement of a foley catheter, and sustained pressure to areas of the body susceptible to nerve injury or pressure-induced ischemia (Church & Chechile, 2020).

Necessary equipment for proning patients aims to help prevent pressure injuries and facilitate neutral positioning of the patient. Equipment used is determined by what is available, ranging from pillows, blankets, foam padding, and tape to devices developed explicitly for proning patients. Devices are used to position the prone patient's head, prevent excessive pressure on the occipital area, temples, face, and eyes while keeping the patient's endotracheal tube in the proper position to protect the patient's airway. These devices can also be adjusted to keep the cervical spine in neutral alignment. Most of these

devices facilitate viewing the patient's face with a mirror. Accomplishing a neutral

positioning of the patient utilizes axilla rolls around the chest and pillows under the legs

(Barakat-Johnson et al., 2020).
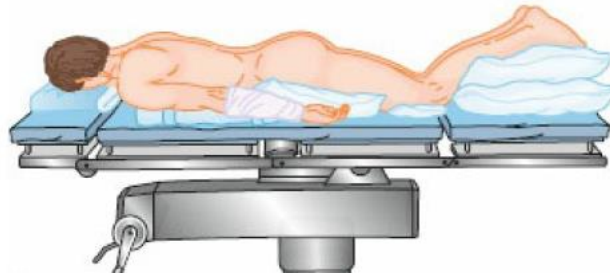
Figure 1. Prone Position with relaxed arms alongside patient's head

Note: (Barash et al., 2017)
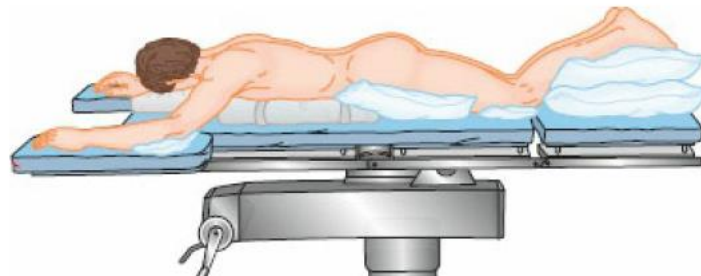
Figure 2. Prone position with arms snugly retained alongside the torso

Note. (Barash et al., 2017)

Lateral Decubitus

The lateral decubitus position is for procedures that involve the upper extremity,

hip, back, hip, or lower extremities (Barash et al., 2017). According to (Barash et al.,

2017; Kloen & Ring, 2018), the patient is positioned on their side, with hands abducted

away from the body but less than 90 degrees. The anesthesia provider must pay attention

to the airway and intravenous access when turning the patient. Support the face with soft

padding and a cervical spine aligned with the remaining spine (American Society of

Anesthesiologists [ASA], 2018). The lower extremities can be slightly flexed, or only the

downside leg may be flexed. Flexing of the legs helps stabilize the patient. Support the

upper arm with a soft padded post (Kloen & Ring, 2018). The hips and knees should not be excessively flexed, as it could obstruct venous return (Barash et al., 2017).

Supporting the patient's body in the lateral decubitus position requires specific equipment. Hip straps ensure that the patient's body remains stable throughout the procedure. These straps must lie between the iliac crest and the head of the femur; otherwise, the femur may dislocate, or the floating ribs may be damaged (Barash et al., 2017). A chest roll can be placed under the chest to aid in comfort. However, studies have not shown that this decreases the risk of impaired perfusion or nerve injury to the upper extremity (Barash et al., 2017). Commonly the body is held in place with a vacuum-sealed bean bag or a frame (Barash et al., 2017: Kloen & Ring, 2018). This knowledge of evidence-based recommendations for the lateral decubitus position is relevant to the development of an OSCE, as it will provide a clear rationale for the step of each position.
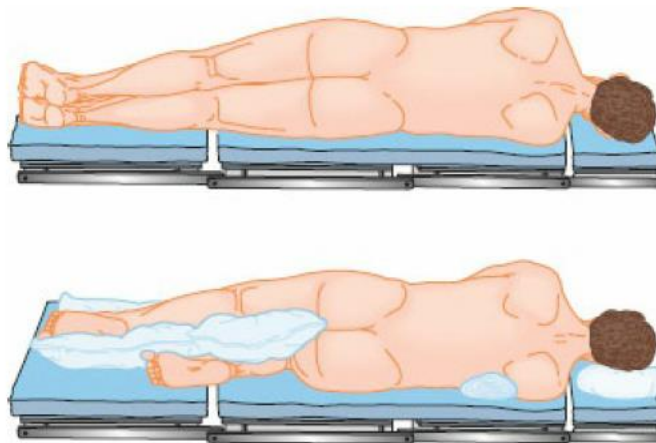
Figure 3. Standard lateral decubitus positions.

Note. (Barash et al., 2017)

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General Positioning Poor Outcomes

The act of physically placing patients in lateral decubitus and prone positions is a well-orchestrated event involving many surgical team members (AANA, 2019). When providers are positioning a patient, the prevention of losing the patient's airway is of utmost importance and requires the vigilance of the anesthesia provider. The body's physical placement, such as in the prone or lateral decubitus position, leads to physiologic changes and compression of bodily structures (Barash et al., 2017; Butterworth et al., 2018). These physiologic changes vary with position and include decreased chest wall compliance, venous congestion of the optic canal, and increased intraabdominal pressure. In addition, the ears, eyeballs, genitalia, and peripheral nerves are at increased risk of damage in the prone or lateral decubitus position (Barash et al., 2017).

The risk of prone and lateral decubitus positions is not limited to physiological derangements. Patients in lateral decubitus or prone position are at increased risk of developing a peripheral nerve injury (PNI) (Chui et al., 2018). According to Chui et al. (2018), a PNI indicates that a nerve has been damaged to the point that there is a "loss in anatomical nerve integrity." The damage done to nerves most often occurs due to pressure or stretch on the nerves, which reduces blood supply or impairs the physical integrity of the nerve. The signs, symptoms, and duration of PNI vary depending on the specific nerve-injured and the degree of damage (Barash et al., 2017; Butterworth et al., 2018). The damage may present as muscle weakness, tingling, parathesis, or pain (ASA, 2018). The severity of PNI will determine if the damage is transient, lasting weeks to months, or a permanent injury, which can lead to disability (Chui et al., 2018).

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Potential Poor Outcomes in the Prone Position

Injuries in the prone position result from sustained pressure on the body's anterior plane (Barash et al., 2017). Sustained pressure can damage the eyes, ears, genitalia, and nerves. Therefore, injuries must be considered and proactively prevented. Head structures, such as the nose and ears, must also be protected from excessive compression. Tracheal compression can occur and result in airway complications. The genitalia of the patient must also be protected from direct or indirect compression while in the prone position (Barash et al., 2017; Feix & Sturgess, 2014).

Unrelieved stretching of neural tissues is a crucial risk factor for injuries to peripheral neural tissues (Barash et al., 2017). In its small boney groove and superficial location, the ulnar nerve is at high risk for injury (Hall, 2016). Damage to the peroneal nerve can occur from compression by straps or improperly positioned pads. If not adequately protected, the eyes can be injured from compression of the globe (Barash et al., 2017). Protecting the brachial plexus focuses on adequately positioning the arms during surgery in either a side-lying position or extended alongside the patient's head. Pressure injuries can also appear on the patient's skin due to ischemia secondary to pressure from the patient's body weight or surgeon leaning on them (Feix & Sturgess, 2014).

Adverse Outcomes in the Lateral Decubitus Position

While in the lateral decubitus position, multiple body parts are at an increased risk for injury. The brachial plexus and common peroneal nerve must be adequately padded and protected. Over flexing of the upper extremity can lead to excessive stretching of the brachial plexus, causing injury (Barash et al., 2017). The common peroneal nerve lies

superficially outside of the knee. Damage to the common peroneal nerve can occur from compression into the surgical bed (Barash et al., 2017; Butterworth et al., 2018; Hall, 2016).

Proper head and neck support are essential. Neutral alignment of the head must be maintained, as abnormal flex of the cervical vertebrae leads to perfusion deficits, damage to surrounding structures, and the possibility of permanent injury. Soft pads are placed underneath the head to support the skull and cervical spine (Barash et al., 2017; Chui et al., 2018). The exact steps in the OSCEs are founded on evidence-based interventions aimed at preventing or minimizing the risk of adverse outcomes.

Financial Impact

Many parts of the body are at risk for injury when positioning patients, including the eyes, ears, extremities, genitals, and peripheral nerves (ASA, 2018; Chui et al., 2018). Most litigation from improper positioning is related to developing a PNI (Chui et al., 2018; Hewson et al., 2018). According to Chui's (2018) systematic review, the overall incidence of PNI is around 1% of patients undergoing any surgical procedure but varies depending on the type of surgery. Chui's (2018) analysis found that PNI was more frequent during cardiac, neurosurgery, ortho, and general surgery cases. In addition to the type of surgery, patient comorbidities appear to be a factor in the development of PNI. Comorbidities that increase the risk of PNI include hypertension, diabetes, and smoking (ASA, 2018; Chui et al., 2018).

Despite the low incidence rate of PNIs, they account for 12% of general anesthesia malpractice claims since 1990 (Chui et al., 2018). Chui et al.'s analysis found that the overall incidence of PNI is has decreased over the past couple of decades.

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However, the average cost of PNI for hospitals is $47,704 +/- 185, and increasing at a

rate of "$4623 per year and compounded annual growth of 9.59%" (Karsy et al., 2019).

While the cost of PNI is high, the effects of PNI are not limited to cost. PNIs also lead to

increased length of stay, increased pain, and negatively impact the quality of life

(Wojtkiewicz et al., 2015). In Karsy et al. (2019), researchers found that length of stay

and the total number of corrective procedures had the most impact on the cost of PNI.

Therefore, the understanding of the financial impacts of improper positioning is essential

to anesthesia providers.

General Equipment for Positioning

The ASA (2018) states that soft padding of any kind is preferred to no padding

when positioning patients. All bony prominences need padding, including the forehead,

elbow, knees, and hips. In addition to the need for soft padding, each position requires

adequate patient stabilization for patient safety (ASA, 2018).

Prone Equipment

Equipment needed to place a patient in the prone position helps the anesthesia

provider redistribute pressure from the face, eyes, chest, anterior pelvis, legs, wrists, and

arms. Pillows or chest rolls help offset pressure placed on the body and provide support

across the anterior pelvis and the shoulders (Oliveira et al., 2017). Tape or eye shields are

necessary to prevent incidental separation of the eyelids leading to corneal abrasions

during surgery. Additionally, applying ocular lubrication to the eyes before taping them

can provide additional protection (Barash et al., 2017).

Supporting and positioning the patient's head requires careful attention. The

patient's head and cervical spine should be supported in a neutral position. Positioning

should spare structures such as the eyes, nose, and ears from compression. Positioning

may be assisted using silicone or air-filled cushions that redistribute pressure. Specially

designed positioners may also have a mirror attached to the base facing the patient, which

allows the healthcare provider to visualize the patient's face and airway (Barakat-Johnson

et al., 2020). Positioning the patient's head does not require a specially designed

positioner. The objectives for head positioning are to keep the bony prominences padded,

prevent any damage to the eyes and maintain neutral alignment.

Lateral Decubitus Equipment

The lateral decubitus position requires support for the body by specific

equipment. At a minimum, Barash et al. (2017) recommends using hip straps to ensure

that the body stays in place throughout the procedure. The hip straps must lie between the

iliac crest and the head of the femur; otherwise, dislocation of the femur may occur, or

the floating ribs can be damaged. A chest roll can be placed under the chest to aid

comfort; however, studies have not definitively shown that a chest roll decreases the risk

of impaired perfusion or nerve injury to the upper extremity (Barash et al., 2017).

A pegboard operating table or suction bean bag will hold the body in place

(Barash et al., 2017; Kloen & Ring, 2018). The head and cervical vertebrae should be

neutrally aligned with the spine and supported with soft padding (ASA, 2018; Kloen &

Ring, 2018). The provider should ensure no pressure on the eyes and that the ears are not

bent or overly compressed (ASA, 2018; Kloen & Ring, 2018). Positioning patients is not

a one-size-fits-all, nor does every hospital use the same equipment. Understanding the

specific and general equipment needed to position patients adequately is a goal of the

OSCEs for lateral decubitus and prone positions.

Rationale

Miller's framework for clinical assessment is a theory that lays out a strategy for how students should achieve a particular goal (Miller, 1990). The framework is a pyramid with four separate sections, which from the base to the peak is as follows: knows, knows how, shows how does. The bottom tier *knows*, represents the knowledge that the student must know to carry out a task effectively. The next tier, *knows how* represents competence. Competence means that the student can use the accumulated knowledge and formulate a plan (Miller, 1990). In the third tier, *shows how* the student must demonstrate that the plan of action can be effectively carried out. To accomplish the third stage of the Miller pyramid, the development and implementation of OSCEs for positioning surgical patients can be implemented. By using a standardized method such as an OSCE, students will be uniformly and objectively evaluated on their ability to properly position surgical patients. In the final stage of Miller's pyramid, *does*, the student completes the task in the clinical setting (Miller, 1990).

In the clinical setting, certified registered nurse anesthetists (CRNA) monitor hemodynamics and address any acute patient issues that arise during the perioperative periods (AANA, 2019). Ultimately, patient positioning, maintenance of perfusion of blood to bodily organs and tissues, protection of pressure points, and protection of nerve plexuses are components of the AANA Standards of Care VIII (Kremer et al., 2019), and therefore the anesthesia providers' responsibility. In Kremer's (2019) work, 75% of malpractice claims involved not following the established standards of care. By using Miller's pyramid to guide the development of these OSCEs, students will be better

prepared to care for patients in the clinical setting, and patients will not experience adverse outcomes from improper positioning.

In 2006 the American Association of College of Nurses published *The Essential of Doctoral Education for Advanced Nursing Practice, which* created and outlined essential elements that all Doctor of Nursing Practice (DNP) educated advanced practice nurses should have regardless of specialty (American Association of College of Nurses, 2006). The elements are covered in eight essential competencies, and this DNP project primarily focused on Essentials I, VI, and VII. Essential I, Scientific Underpinnings for Practice, involves using the body of knowledge that has been gained via scientific research and then applying that knowledge in nursing. The OSCEs were developed by analyzing and synthesizing scientific research to meet Essential I.

Essential VI, Inter-Professional Collaboration for Improving Patient and Population Health Outcomes, incorporate healthcare professionals' communication and collaboration to provide care that results in positive patient outcomes. This DNP project satisfies Essential VI by synthesizing CRNA input and faculty direction to create OSCEs to improve patient care. Essential VII, clinical prevention and population health for improving the nation's health, patient safety is a key target of these OSCEs and the use of these OSCES could potentially reduce injury from improper positioning, which would improve patient health.

<center>Specific Aims</center>

The project aims to research best practices, develop two OSCEs for positioning surgical patients in the lateral decubitus and prone position, and implement the OSCE's use in the anesthesia curriculum at USM. Incorporating the OSCEs into The University of

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Southern Mississippi's NAP curriculum will potentially benefit students by increasing their confidence through mastering skills (Zayyan, 2011). An expert panel including CRNAs, student registered nurse anesthetists (SRNA), and USM faculty was created to provide input through a Qualtrics[©] survey. Qualitative and quantitative data from survey results guided changes to the OSCEs content. Once integrated, the OSCEs could be utilized in teaching and examining student knowledge and competency in a simulated setting prior to the beginning of the student's clinical rotations.

Summary

Proper patient positioning is essential to positive patient outcomes during surgical procedures (Chui et al., 2018). Ultimately patient positioning falls under the responsibility of the anesthesia provider (Kremer et al., 2019). Two positions of particular importance to the CRNA are lateral decubitus and prone. Each of these positions involves risks that warrant the anesthesia provider's attention. These risks include loss of airway, loss of IV access, damage to bodily structures, and hemodynamic changes (Barakat-Johnson et al., 2020; Chui et al., 2018). Patient positioning is an essential skill for the anesthesia provider (Barash et al., 2017). The SRNA needs to understand how to safely position patients before entering a clinical setting. To better prepare USM NAP students for positioning in the lateral decubitus and prone positions, an OSCE for each of these positions was developed to ensure uniform skill and competency of SRNAs.

CHAPTER II - METHODS

Introduction

Healthcare providers across the spectrum may assist with the positioning of surgical patients. However, injuries that occur due to improper positioning are the responsibility of the anesthesia provider (AANA, 2019). Improper positioning can range from acute emergencies to permanent severe disabilities. Student nurse anesthetists are responsible for recognizing and correcting improper positioning during clinical rotations. At The University of Southern Mississippi Nurse Anesthesia program, there is no standard objective tool available to evaluate student nurse anesthetists in executing the lateral decubitus and prone position. This project aimed to create Objective Structured Clinical Examinations for the lateral decubitus and prone positions. These two educational tools are founded on current evidence-based literature. An expert panel then evaluated the OSCEs via an anonymous questionnaire to determine their applicability to patient care and student training.

Context

Patient positioning is the responsibility of the anesthesia provider (AANA, 2019). Providing quality care to the surgical patient necessitates proper positioning techniques. This project created OSCEs for the lateral decubitus and prone positions to bridge the gap in knowledge for anesthesia students at The University of Southern Mississippi.

The University of Southern Mississippi is located in Hattiesburg, Mississippi. The School of Leadership and Advanced Nursing Practice has a thirty-six-month-long Nurse Anesthesia program and various other advanced nursing practice programs. The Nurse Anesthesia Program is solely didactic learning in the first year, and the second and third

years are a hybrid of didactic and clinical anesthesia. The program has four nurse anesthesia faculty professors and 20 students per cohort. The faculty is supportive and actively promotes the development of OSCEs for the program. In addition to the Nurse Anesthesia program actively developing an OSCE program, other programs within The School of Leadership and Advanced Nursing Practice at The University of Southern Mississippi also use OSCEs as part of the program curriculum.

USM's NAP currently lacks OSCEs for the lateral decubitus and prone positions. The faculty of the nurse anesthesia program confirmed the need for a tool to educate and examine students in positioning patients in lateral decubitus and prone positions (Collins, 2020). The OSCEs for Prone and Lateral Decubitus positions were designed to be administered at any point in the program, particularly in conjunction with the following courses: NUR 837 - Basic principles of anesthesia practice, and NUR 855 - Clinical correlation and professional facets.

<div align="center">Interventions</div>

The University of Southern Mississippi Institutional Review Board approved this project, Protocol # 21-430 (Appendix A). After approval from USM's Institutional Review Board (IRB), the authors created OSCEs for positioning the surgical patient in lateral decubitus and prone position. Interventions taken during this project are explained below.

1. The authors requested approval for the project from the Institutional Review Board of The University of Southern Mississippi.

2. After Institutional Review Board approval, the authors created an Objective Structured Clinical Examinations for lateral decubitus and prone positions based on evidence-based peer-reviewed literature and current anesthesia texts.

3. Questionnaires were created to examine the quality of the OSCEs of both the prone and lateral decubitus positions.

4. A panel of experts from the faculty of the USM CRNA program, SRNAs, and clinical preceptors were identified.

5. The panel of experts received an email invitation (Appendix B). The email included an OSCE for the lateral decubitus position (Appendix C), an OSCE for the prone position (Appendix D), and informed consent (Appendix E). The email also included a link to an anonymous Qualtrics survey (Appendix F).

6. Responses were inputted into a table and graph to analyze further and recognize common trends. If evidence-based peer-reviewed literature supported the recommendations, they were implemented into the OSCEs for lateral decubitus or prone positioning.

7. The DNP Chair reviewed and approved the OSCEs.

8. Once approval was received, a demonstration video was created following the steps of the approved OSCE for lateral decubitus and prone positioning. The DNP chair and committee reviewed and approved the video.

9. OSCEs for lateral decubitus and prone positioning, supporting documents, demonstration videos, and the survey results were disseminated at The School of Leadership and Advanced Nursing Practice DNP Scholarship Day on March 4,

2022, and to The University of Southern Mississippi Nurse Anesthesia Program

Administration for consideration for incorporation into the curriculum.

Electronic data was destroyed by deleting files and emptying the trash bin on a secured

personal computer.

<center>Measures and Instruments Used to Study the Intervention</center>

To gather data, the panel of experts received two Qualtrics$^©$ questionnaires.

Qualtrics© is an anonymous online electric survey platform. The questionnaire contained

both quantitative and qualitative questions. The questionnaires' purpose was to gain

feedback regarding the clinical expertise of the OSCEs. The questionnaires also provided

the respondents with opportunities to suggest recommendations or improvements.

Informed consent was obtained for survey participation. The questionnaires contained

seven questions, with the final question being an open-ended response. The open-ended

response allowed for feedback regarding the expert's opinion on any suggestions for

improvements to the OSCEs.

The panel of experts was currently practicing nurse anesthetists or anesthesia

students, who were in the clinical stage of the nurse anesthesia program. In addition, the

currently practicing nurse anesthetists were drawn from the current program faculty and

clinical preceptors associated with The University of Southern Mississippi School of

Leadership and Advanced Nursing Practice Nurse Anesthesia Program. Faculty offered

valuable insight into the project because of their experience in anesthesia practice and as

educators. Input from educators and students allowed for a multidirectional view of the

OSCEs, allowing input from those that will use the tool to evaluate skills and those that

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the OSCEs will evaluate. Institutional Review Board standards dictated how to obtain contact information.

The questionnaire's recommendations and common themes were weighed against current evidence-based research and used to modify the OSCEs for lateral decubitus and prone positions when supported by literature and approved by the project chair. The goal of the questionnaire was to determine the value of the OSCEs for lateral decubitus and prone positions as an evaluation tool. Data indicated a high value for the OSCEs which could be the reason for implementation into the current USM nurse anesthesia curriculum.

Analysis

Data used in this project is mixed methods with quantitative and qualitative data. Data was inputted into a table and graph to organize and analyze for common themes and organize the recommendations. A Likert scale that ranged from strongly agree to strongly disagree was used. Although qualitative data does not require any statistical analysis, data reporting showed the percentage of responses and common themes in the data.

Ethical Considerations

Ethical considerations regarding the OSCEs for lateral decubitus and prone positions regard implementation. Faculty could opt out of utilizing the OSCEs for lateral decubitus and prone positions, which could result in nonuniform evaluation throughout the cohorts of the nurse anesthesia program. The DNP project was submitted to The University of Southern Mississippi's IRB and received approval for the development of the OSCEs after ensuring that the proposed project met the relevant federal and institutional standards and guidelines.

Summary

     In summary, the methodology of this doctoral project involved the creation of two OSCEs and two surveys. The surveys were used to gather feedback from clinicians regarding the applicability and clinical expertise of the OSCEs. The project received approval from The University of Southern Mississippi Institutional Review Board, Protocol # 21-430. The ethical considerations for the DNP project were limited to faculty opting out of using the OSCEs.

CHAPTER III - RESULTS

Introduction

The University of Southern Mississippi Nurse Anesthesia Program does not

currently possess a way to uniformly assess student competency in positioning surgical

patients in lateral decubitus and prone positions. A lack of comprehensive understanding

of patient positioning can lead to poor patient outcomes, adverse economic impacts for

patients and facilities, and decreased student confidence. Therefore, the project aimed to

develop OSCEs for the lateral decubitus and prone positions from current published and

peer-reviewed evidence. The OSCEs have the potential to provide The University of

Southern Mississippi's Nurse Anesthesia Program with a means to uniformly evaluate

students on the ability to position patients in the lateral decubitus and prone position.

Nurse anesthesia students must have a sound grasp of the theories behind surgical

positioning and the skills to execute them effectively. Patient positioning, maintenance of

blood perfusion to bodily organs and tissues, protection of pressure points, and protection

of nerve plexuses are components of the AANA Standards of Care VIII (AANA, 2019).

Ultimately the anesthesia provider is responsible for patient positioning. If patents are

improperly positioned, there is the potential for significant injury (ASA, 2018).

Upon completing this DNP project, two OSCEs were submitted for consideration

to The University of Southern Mississippi Nurse Anesthesia Program's curriculum. If

adopted into the curriculum, the OSCEs will allow anesthesia students to be uniformly

evaluated and practice surgical positioning prior to entering the clinical setting. SRNAs

with a comprehensive understanding of proper patient positioning will have the potential

to be better equipped to provide quality care to patients and mitigate poor outcomes, improving student confidence in their clinical performance.

Steps of the Intervention

After a proposal for this project, the DNP project chair and committee approved the development OSCEs for the lateral decubitus and prone positions. Post-approval, current, peer-reviewed research was analyzed to guide the step-by-step process in the OSCEs. Included in the OSCEs were the objectives, expected outcomes, recommended reading and lectures, a clinical scenario, and the equipment needed. The OSCEs also included the process for executing the lateral decubitus and prone positions; the execution was broken down into short steps. Finally, the OSCEs included a debriefing form and rubric for student assessment. The DNP project did not deviate from the proposed methodology process throughout the project.

After approval from DNP project committee members, the project was submitted to IRB for approval. The information submitted to IRB included the OSCE templates, informed consent for participants, the recruitment email announcement, and a survey questionnaire to provide feedback on the quality of the OSCEs and recommendations for improvement. After IRB approval an expert panel was formed using the drafted recruitment email. The potential expert panel included 20 currently practicing CRNAs, 31 SRNAs, and four members of the NAP faculty.

The recruitment email was sent with the OSCEs for lateral decubitus and prone positions, an informed consent document, and a link to the surveys to initiate data collection. The surveys were put into Qualtrics$^{©}$ to provide the expert panel with a means to respond to the survey anonymously. A summary of the questions are as follows: (1)

Consent given for study participation, (2) is the scenario realistic, (3) is the OSCE

doctoral-level work, (4) does the OSCE address major concerns/complications, (5) would

implementation be beneficial. An additional area was provided at the end of the

questionnaire for participants to provide qualitative feedback for the OSCEs. Of the 60

individuals contacted, 32 responded, which yielded a 53% participation rate.

The data collected from the expert panel was then evaluated. For the first question

which involved survey consent, 84.4% of respondents selected yes on both surveys. Five

respondents did not select a choice regarding consent, yet the respondents all completed

the rest of the survey. Question two asked if the objectives were clear. Regarding the

lateral decubitus position OSCE, 96.9% of participants strongly agreed, and 3.1%

somewhat agreed. Regarding the prone position OSCE, 100% of respondents strongly

agreed with Question 2.

The third question asked if the scenario was realistic. For the lateral decubitus

position OSCE, 96.9% of participants strongly agreed, and 3.1% somewhat agreed. As

for the prone position OSCE, 100% of participants agreed with Question 3. The fourth

question asked if the project was evidence of doctoral-level work. Both OSCEs had

identical results, with 96.9% strongly agreeing and 3.1% somewhat agreeing. Question

five asked if major concerns and complications were addressed. Again, both OSCEs had

identical results, with 90.6% strongly agreeing, 6.3% somewhat agreeing, and 3.1% one

respondent somewhat disagreeing. Question 6 asked if the OSCEs would improve student

confidence in the clinical setting. For the lateral decubitus position OSCE, 96.9%

strongly agreed, and 3.1% somewhat agreed. For the prone position OSCE, 100% of

participants agreed with question 6.

Question seven was an open-ended question asking for suggestions, critiques, and general feedback. Each survey had four total responses; for exact statements, see Table 1. In general, two respondents expressed approval of the two OSCEs. One respondent suggested that the OSCEs include diagrams showing the positions and nerves at risk for injury. Another respondent suggested that "general anesthesia" be included in the prone OSCE. Additionally, this respondent suggested that the objectives follow educator taxonomy and that the concerns and complications be "spelled out" for clarity.

The data was input into tables to analyze data and look for trends. Two bar charts, one for each survey, were made for the Likert scale questions. Figure 4 contains the bar chart for the lateral decubitus survey, while Figure 5 contains the bar chart for the prone survey.
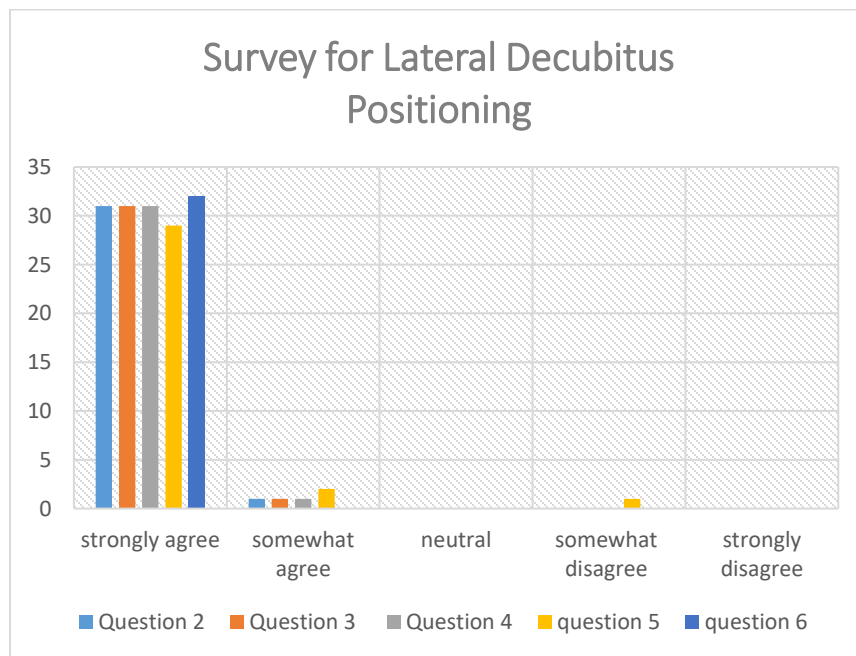

Figure 4. Responses to Survey Questions Two Through Five for Lateral Decubitus.
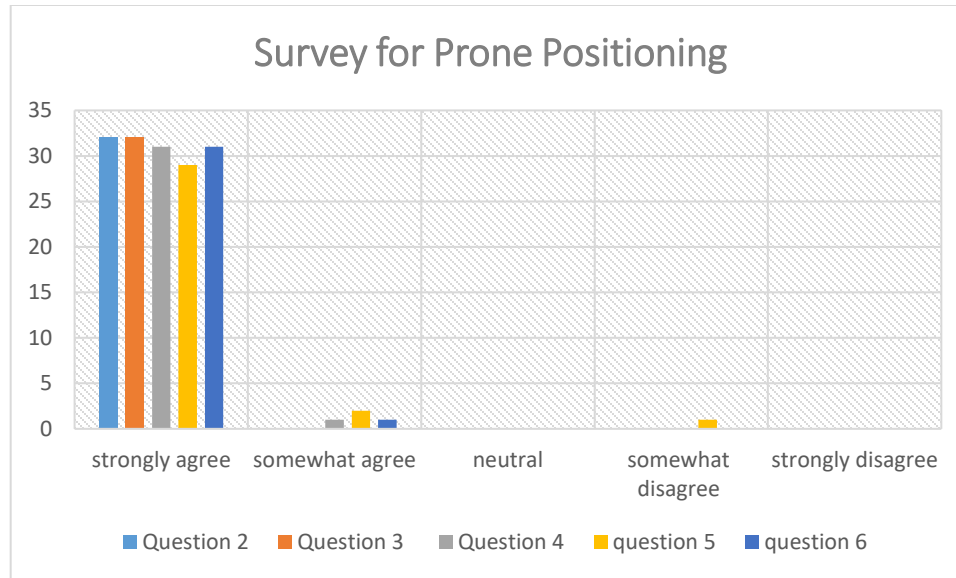
Figure 5. Responses to Survey Questions Two Through Five for Prone.

Table 1

Panel of Experts Comments

Respondent #	**Lateral Decubitus OSCE**	**Prone OSCE**
6	"An excellent OSCE that any program would be mistaken if they did not implement it."	"An excellent OSCE that any program would be mistaken if they did not implement it."
8	"I think this is a great idea! Wish we did more of this when I was in school."	"Good job, very nice"
21	"Re: Addresses concerns and complications: The rubric does not "grade" the 3rd objective. The concerns and complications are not spelled out anywhere in the OSCE documents provided. Suggestions: The objectives are not worded using educator taxonomy. Suggest using Demonstrate the proper lateral decubitus positioning of a patient	"I think general anesthesia should be used in the scenario to be sure that it is clear. Addresses concerns and complications: The rubric does not "grade" the 3rd objective. The concerns and complications are not spelled out anywhere in the OSCE documents provided. Suggestions: The objectives are not worded using educator taxonomy.

Table 1 (continued).

Respondent #	**Lateral Decubitus OSCE**	**Prone OSCE**
21	under general anesthesia....and Demonstrate the lateral decubitus positioning properly utilizing operating room equipment, as examples. The scenario, evidence-based process of positioning, and rubric were well written."	"Suggest using Demonstrate the proper prone positioning of a patient under general anesthesia....and Demonstrate prone positioning while properly utilizing operating room equipment, as an example. The scenario (add general anesthesia), evidence-based process of positioning, and rubric were well written."
32	"Consider adding a diagram of the proper position and nerves frequently injured."	"Consider adding a diagram of the proper position and nerves frequently injured."

Details of the Process Measures and Outcomes

The intention of drafting the questionnaires for the expert panel was to allow anonymous critique of the OSCEs. The survey participants were healthcare providers who regularly utilized these positions in the clinical setting and provided vital feedback. The panel included SRNAs in their second and third year of training at The University of Southern Mississippi Nurse Anesthesia Program, CRNAs, and The University of Southern Mississippi NAP faculty. The faculty feedback was instrumental as they have recent experience in managing, developing, and using OSCEs.

The panel of experts determined that the OSCEs have applicability in the clinical setting. Feedback from the Qualtrics© surveys indicates that these two OSCEs incorporations into The University of Southern Mississippi's Nurse Anesthesia Program's curriculum have the potential to provide clinical students with a

comprehensive understanding of these positions and how to perform the positions safely. The problem statement of the project was addressed. The created OSCEs can possibly fill the knowledge and assessment gap at The University of Southern Mississippi Nurse Anesthesia Program.

Summary

Sixty individuals received the recruiting email, OSCE, supporting documentation, and video demonstration. Of the 60 individuals, 32 responded to the surveys. The anonymous responses were organized into a table to recognize trends and identify possible improvements to the OSCE. The feedback for each survey indicated that the respondents generally felt the OSCEs would be beneficial to SRNAs, patients, and The University of Southern Mississippi.

CHAPTER IV – DISCUSSION

Summary

The feedback from the expert panel indicated that the OSCEs created during this project have the potential to be beneficial to SRNA's training when it comes to positioning surgical patients in lateral decubitus and prone positions. Most of the expert panel also agreed that the OSCEs addressed major concerns and complications related to these two surgical positions and that the OSCEs represent doctoral-level work. This project has several strengths, one of the strengths is loaned from the panel's expertise that gave feedback on the OSCEs. The panel included CRNAs that are currently practicing and experts in their field. Incorporating NAP faculty into the panel further strengthens the validity of the feedback. The faculty members have recent clinical experience as CRNAs, teach SRNAs the lateral decubitus and prone positions, and have experience in the management, development, and use of OSCEs. The use of visual media is another strength as students are provided multiple modes of learning aside from traditional text and lectures.

This project aimed to research best practices and develop OSCEs for the positioning of surgical patients in lateral decubitus and prone positions and then use two surveys to gain feedback from expert clinicians regarding the validity of the OSCEs. Adopting the OSCEs into the anesthesia curriculum at The University of Southern Mississippi NAP can be beneficial. Feedback from the expert panel agreed that these OSCEs have the potential to improve student confidence and be beneficial to SRNAs in their clinical performance. The OSCEs for prone and lateral decubitus positions are

designed to be used with the following courses: NUR 837 - Basic principles of anesthesia practice, and NUR 855 - Clinical correlation and professional facets.

Interpretation

Comments and feedback were considered and weighed against current published and peer-reviewed sources. After analyzing data from the table, reviewing feedback and comments, the DNP chair and committee approved the addition of photos and diagrams to the OSCEs. The use of educator taxonomy clarified the objectives, concerns, and complications. A decision was made to disregard the suggestion to use "general anesthesia" in the prone OSCE, as the prone position is not exclusively used in general anesthesia. Monitored anesthesia care (MAC) cases, conscious sedation, and regional anesthesia also use the prone position. The OSCEs were modified, and a demonstration video for the lateral decubitus and prone positions was made in the simulation lab provided by The University of Southern Mississippi's Nurse Anesthesia Program. The purpose of the video was to provide visual instruction for positioning in the lateral decubitus and prone positions. The video also supplements the written process created from current published and peer-reviewed sources.

Textbooks and peer-reviewed literature did not contain studies examining using an OSCE to teach lateral decubitus or prone position. A majority of the expert panel agreed that the OSCEs for lateral decubitus and prone positioning has the potential to prepare SRNAs to use these two positions in the clinical setting safely. SRNAs that are trained using these OSCEs have the potential to be better prepared to actively mitigate adverse outcomes, benefiting the patient and healthcare organizations. The OSCEs could also be used and incorporated into areas outside of the NAP. Areas outside the NAP that

could potentially benefit from the OSCEs include The University of Southern Mississippi School of Nursing and various healthcare institutions. No cost or strategic tradeoffs exist for this study.

Limitations

Limitations of the project include the potential bias of the panel. Distribution was limited to only USM nurse anesthesia faculty, CRNAs associated with The University of Southern Mississippi Nurse Anesthesia Program, and SRNAs at The University of Southern Mississippi. USM nurse anesthesia faculty were selected due to their clinical expertise and OSCE development and implementation knowledge. The SRNAs were selected due to their perspective of both learner and provider, which could give rich feedback. Additionally, SRNAs will have limited clinical experience and, therefore, a limited basis for comparison.

The size of the panel is also a limitation. An increase in sample size would increase the feedback and input to fuel improvements. In addition, the sample size could be increased by including other anesthesia programs or sending a reminder email for survey participation. Even though the sample size was small, the response rate was 53%. Lastly, the survey itself was small, only consisting of seven questions. The number of questions was small to decrease the inconvenience of participants and increase the response rate.

Conclusions

The DNP chair and committee approved this project and agree that it meets the requirements set forth by The University of Southern Mississippi School of Advanced Nursing Practice. The OSCEs and instructional video have been submitted to The

University of Southern Mississippi Nurse Anesthesia Program for consideration for adoption into the program's curriculum. However, the use of these OSCEs is not limited to The University of Southern Mississippi Nurse Anesthesia Program.

The OSCEs could be beneficial to anyone who participates in the positioning of surgical patients. Surgical positioning often involves people across the healthcare spectrum, including registered nurses, surgical technicians, physician assistants, and physicians or surgeons. The OSCEs could also benefit other anesthesia programs, medical schools, nursing schools, and healthcare institutions. The use of the two surgical positions addressed in this project is worldwide, so the uses of the created OSCEs are far-reaching. Further research on this work could involve studies evaluating SRNAs trained traditionally vs. trained with these OSCEs.

APPENDIX A – IRB Approval Letter

Office *of* Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI.

118 COLLEGE DRIVE #5116 • HATTIESBURG, MS | 601.266.6756 | WWW.USM.EDU/ORI

NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: 21-430
PROJECT TITLE: Lateral Decubitus and Prone Positioning: An Objective Structured Clinical Evaluation
SCHOOL/PROGRAM Leadership & Advanced Nursing
RESEARCHERS: PI: David Hesley
Investigators: Hesley, David~Bailey, James~Collins, Mary Jane~
IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited Category
PERIOD OF APPROVAL: 17-Feb-2022 to 16-Feb-2023

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

Dear Participant,

We are conducting research regarding an evidence-based objective structured clinical evaluation for nurse anesthetists concerning lateral decubitus and prone positioning, as part of a DNP project. I am inviting you to participate because you are involved in patient positioning as an anesthesia provider.

Participation in this research includes answering an electronic survey about an evidence-based objective structure clinical evaluation for nurse anesthetists concerning lateral decubitus and prone positioning. If you agree to complete this voluntary, anonymous questionnaire, it will take approximately 30 minutes. Participation is voluntary; there will be no repercussions for non-participation

An informed consent is required and is included in the survey. This project and the informed consent form have been reviewed by The University of Southern Mississippi Institutional Review Board which ensures that research projects involving human subjects follow federal regulations. This project is assigned IRB protocol number 21-430. Refer to the informed consent for participant assurance information.

If you have any questions, please contact us using the information provided below. Thanks in advance for your time and cooperation!
David Hesley

James Bailey

ANESTHESIA OBJECTIVE STRUCTURED CLINICAL EXAM
Positioning of the surgical patient in the lateral decubitus position

LEARNER OUTCOMES:
1. Properly position the patient in the lateral decubitus position
2. Be able to use operating room equipment for positioning
3. Identify anatomical structures which are at risk for injury in the lateral decubitus position

DOMAINS:

Assessment – Pre/intra/post-op	Evaluation of teaching
Consent	Formative evaluation - feedback
Communication	Interprofessional collaboration
Clinical skill	**Performance assessment**
Critical thinking	Progression evaluation
Didactic knowledge	Summative evaluation

Communication, Clinical Skill, Performance assessment
PURPOSE: The purpose of this OSCE is to assess the ability of the SRNA to properly position a patient in the lateral decubitus position.
LEARNER OBJECTIVES:
1. Identify specific nerves and body structures that are at an increased risk of injury in the lateral decubitus position.
    a. Soft tissues- eyes, ears, nose, breasts, & genitals
    b. Nerves- brachial plexus, ulnar, common peroneal
    c. Loss of airway or lines
2. Appropriately communicate with OR staff to position the patient in the lateral decubitus position.

INDIVIDUAL OR GROUP OSCE: group (3-4 participants)
REQUIRED READING and ASSOCIATED LECTURES:
1. Barash, P., Cullen, B., Stoelting, R., Cahalan, M., Stock, M., Ortega, R., Sharar, S., Holt, N. (2017). Patient Positioning and Potential Injuries. Clinical Anesthesia (8th ed., pp. 2005-2043). Wolters Kluwer
2. USM NAP NSG 837 Positioning Lectures

REQUIRED VIDEO: Lateral Decubitus Demonstration Video
REQUIRED PARTICIPANTS: Student examinee, Volunteer student x2-3, examiner
VENUE: The University of Southern Mississippi Simulation Lab
STUDENT LEVEL OF OSCE: Semester 1-2, **3**-4, 5-6, 7-9
TIME ALLOTED: 20

SEQUENTIAL PRACTICE & TESTING: This OSCE is an evaluation and requires no further testing.
RECOMMENDED PRACTICE PRIOR TO EXAMINATION: 60 minutes

CONTENT OUTLINE

CONTEXT: You are assigned to care for Mike Johnson. He has a previous history of DM type II, peripheral neuropathy, osteoporosis, HTN, and a cervical neck fusion. He is scheduled for a left total hip arthroplasty. His vital signs are as follows: HR 75, BP 140/85, RR 15, SpO2 98% on room air. All lab work is within normal limits. CXR was clear with no acute abnormalities. His EKG showed NSR.

EQUIPMENT& SUPPLIES: OR BED, hip straps, bean bag, chest roll, pillows, foam headrest, 8 foam pads, ETT, tape, armrest for OR table
SITE SELECTION: USM NAP simulation lab
TASK STATEMENT:
Position Mr. Johnson in the lateral decubitus position for his hip surgery. Properly communicate and utilize the equipment provided by the OSCE to prevent damage to anatomical structures or possible emergent situations.

PROCESS

1. Gather supplies, help, & assign team member roles.
2. Obtain baseline vital signs.
3. Ensure securement of lines, drains, and tubes.
4. Disconnect ETT from the ventilator
5. Coordinate rolling of the patient onto their side.
6. Reconnect ETT to ventilator and monitor.
7. Ensure proper placement of ETT.
8. Stabilize the body
9. Obtain vital signs
10. Place chest roll
11. Ensure arms are not abducted more than 90 degrees
12. Ensure neutral body alignment
13. Pad all bony prominences
14. Ensure there is no pressure on the eyes and the ears are not bent

DEBRIEFING FORM:

1. What are your top priorities for this position? In particular, what body parts are at increased risk for injury.
2. What factors in this scenario would you change to ensure better patient outcomes?
3. Were team member roles assigned and performed adequately?
4. Do you have any comments or questions about the exercise?

ASSESSMENT
QUESTION & DEMONSTRATION STATION:

	TASKS	PASS	FAIL	COMMENTS
	Prepares and selects appropriate equipment			
	Gathers help and assigns roles			
	Gather baseline vital signs.			
*	Secure lines, drain, & tubes • Evaluate airway position, noting the depth			
*	Disconnect ETT from the ventilator			
*	Coordinate rolling of the patient onto their side			
*	Reconnect ETT to the ventilator, and determine proper placement of ETT • Listen to bilateral breath sounds • Ensure ETT depth hasn't changed • Observe for CO_2 waveform			
*	Ensure body stabilization (Suction bean bag or place pegs for OR bed)			
	Obtain vital signs			
	Place chest roll			
*	Ensure neutral body alignment • Padding Is appropriately placed under the head			
	Place arms on arm board • Arms are not abducted more than 90 degrees			
*	Pad all bony prominences and nerves at risk for injury • Elbows for ulnar nerve • Knees for common peroneal nerve • Ankles			

*	Ensure no pressure on soft tissues • Eyes, ears, nose, breast, genitals			

Steps with * Must be properly completed. All steps must be completed/passed to receive a passing grade.
The OSCE by the student demonstrates foundational knowledge and correct use of the ultrasound machine in obtaining IV access: (Circle one) **PASS   FAIL**

Does the student need to repeat this OSCE at a later date to satisfy learning requirements? (Circle one) **YES   NO   Date to return for evaluation:** _____

EXAMINER: _____   DATE: _____

ANESTHESIA OBJECTIVE STRUCTURED CLINICAL EXAM

Positioning of the surgical patient in Prone Position OSCE

LEARNER OUTCOMES:

1. Demonstrate the proper prone positioning of a patient under general

2. Demonstrate proper use of operating room equipment for positioning

3. Demonstrate ability to identify anatomical structures which are at risk for injury in the prone position

DOMAINS:

Assessment – Pre/intra/post-op	Evaluation of teaching
Consent	Formative evaluation - feedback
Communication	Interprofessional collaboration
Clinical skill	**Performance assessment**
Critical thinking	Progression evaluation
Didactic knowledge	Summative evaluation

Communication, Clinical Skill, Performance Assessment

PURPOSE: The purpose of this OSCE is to assess the ability of the SRNA to properly position a patient in the prone position.

LEARNER OBJECTIVES:

1. Identify specific nerves and body structures that are at an increased risk of injury in the prone position.
    a. Soft tissues- eyes, ears, nose, breasts, & genitals
    b. Nerves- brachial plexus, ulnar, common peroneal
    c. Loss of airway or lines
2. Appropriately communicate with OR staff to position the patient in the prone position.
3. Appropriately place a patient in the prone position.

INDIVIDUAL OR GROUP OSCE: group

REQUIRED READING and ASSOCIATED LECTURES:

1. Barash, P., Cullen, B., Stoelting, R., Cahalan, M., Stock, M., Ortega, R., Sharar, S., Holt, N. (2017). Patient Positioning and Potential Injuries. Clinical Anesthesia (8th ed., pp. 2005-2043). Wolters Kluwer
2. USM NAP NSG 837 Positioning Lectures

REQUIRED VIDEO: Prone Positioning Demonstration Video

REQUIRED PARTICIPANTS: Volunteer student x 3, Student examinee, examiner

VENUE: USM Simulation lab

STUDENT LEVEL OF OSCE: Semester 1-2, **3**-4, 5-6, 7-9

TIME ALLOTED: 20 minutes

SEQUENTIAL PRACTICE & TESTING: This OSCE is an evaluation and requires no further testing.

RECOMMENDED PRACTICE PRIOR TO EXAMINATION: 60-80 minutes

CONTENT OUTLINE

CONTEXT: You are assigned to Mike Johnson. Previous History: DM1, peripheral neuropathy, osteoporosis, HTN, cervical neck fusion. He was in a car wreck and suffered T11 and T12 burst fractures. He is scheduled to have a T11/T12 fusion. His vital signs are as follows: HR 75, BP 160/78, RR 10, SpO2 98% on RA. All lab work is within normal limits. CXR was clear with no acute abnormalities. His EKG showed NSR.

EQUIPMENT& SUPPLIES: Stretcher, OR table, Chest roll, Hip roll, Extra ECG leads, Pillows, Head positioner, Foam pads – 8 sets, ETT tube, Tape

SITE SELECTION: USM NAP Simulation Lab

TASK STATEMENT: Position Mr. Johnson in the prone position for laminectomy. Properly utilize the equipment provided by the OSCE to prevent damage to anatomical structures or possible emergent situations.

PROCESS

Exact steps lined out that you will be evaluating. Number each step. You can go as broad or narrow as you like. For example, if you are looking at IV start you may list out all supplies as each being a step or you may list simply supplies as the step. You may list out

tearing tape ahead of time because you feel that is important or you may not require that. There is flexibility here.

1. Gather supplies and help.
2. Position stretcher and OR bed alongside each other and in a locked position
3. Assign team member roles
4. Obtain baseline vital signs.
5. Ensure securement of the airway.
6. Tape eyes
7. Arrange lines towards the head
8. Place chest roll and hip roll on the OR table
9. Disconnect from monitor
10. Disconnect ETT from ventilator and place head positioner over patients face, ensuring no pressure on any soft tissue
11. Coordinate rolling of the patient into a prone position
12. Reconnect ETT to the ventilator and ensure proper placement and that there is no pressure on any soft tissues
13. Ensure neutral body alignment
14. Reconnect to monitor and obtain vitals, compare to baseline.
15. Pad all bony prominences and joints
16. Ensure genitalia and breasts are free from compression
17. Review and ensure all lines remain intact and functional

DEBRIEFING FORM:

1. What are your top priorities for this position?
2. What factors in this scenario would you change to ensure better patient outcomes?
3. Were team member roles assigned and performed adequately?
4. Do you have any comments or questions about the position?

ASSESSMENT

RUBRIC FOR POSITIONING IN THE PRONE POSITION

QUESTION & DEMONSTRATION STATION:

	TASKS	PASS	FAIL	COMMENTS
	Prepares and selects appropriate equipment			
	Gathers help and assigns roles			
*	Align stretcher and OR bed, ensuring both are locked			
	Gather baseline vital signs.			
*	Evaluate airway position			
	Provide eye care			

	Arrange lines towards the head			
*	Position chest and hip roll			
	Disconnect patient from monitor			
*	Disconnect ETT from the ventilator			
*	Place head positioner on patient's face • No pressure on eyes, ears, nose, lips			
	Coordinate rolling of the patient to prone position			
*	Reconnect ETT to ventilator			
*	Reevaluate airway position • Listen to bilateral breath sounds • Ensure ETT depth hasn't changed • Observe for CO_2 waveform			
*	Ensure no pressure on eyes, ears nose, lips			
	Ensure neutral body alignment			
	Reconnect to monitor, obtain vitals, compare to baseline			
*	Pad all bony prominences and joints • Anterior shoulders – brachial plexus • Hips • Arms – ulnar nerve • Wrists • Knees – peroneal nerve • Feet			
*	Ensure genitalia and breasts are free from compression			
	Ensure all lines remain intact and functional			
	Obtain vital signs			

Steps with * Must be properly completed. All steps must be completed/passed to receive a passing grade.

The OSCE by the student demonstrates foundational knowledge and ability to position the surgical patient in the prone position: **PASS FAIL**

Does the student need to repeat this OSCE at a later date to satisfy learning requirements? **YES   NO   Date to return for evaluation:** _____

EXAMINER: _____   DATE: _____

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ORI | **Office** *of*
Research Integrity

INSTITUTIONAL REVIEW BOARD
STANDARD (ONLINE) INFORMED CONSENT

STANDARD (ONLINE) INFORMED CONSENT PROCEDURES
The Project Information and Research Description sections of this form should be completed by the Principal Investigator before submitting this form for IRB approval. Use what is given in the research description and consent sections below when constructing research instrument online.

Last Edited May 13th, 2019

Today's date: 2-20-22
PROJECT INFORMATION
Project Title: Lateral Decubitus and Prone Positioning: An Objective Structured Clinical Evaluation

Principal Investigator: David Hesley	Phone: 903-746-5363	Email: david.hesley@usm.edu
College: Nursing and Health Professions	School and Program: School of Leadership and Advanced Nursing Practice	

RESEARCH DESCRIPTION

1. **Purpose**:

   The purpose of the survey is to provide an evidence based objective structure clinical evaluation for nurse anesthetitists concerning lateral decubitus and prone positioning.

2. **Description of Study:**

   An anonymous electronic survey will be utilized to evaluate an objective structured clincal evaluation for lateral decubitus and prone positionig. The survey can be completed in 30 minutes with minimal inconvenience to particpants. The data will be collected and analyzed for common themes. This data will be used to create an evidence based objective structure clinical evaluation for nurse anesthetitists concerning lateral decubitus and prone positioning.. Results will be disseminated at USM SLANP Scholarship Day in March, 2022.

3. **Benefits:**

   No benefits have been identified to the participant or to others as a result of participation in the study.

4. **Risks:**

   The time required to complete this survey is the only expected inconvenience. The survey is brief and consists of nine questons to minimize the inconveniece to the particiapnt.

5. **Confidentiality:**

   The electronic survey is anonymous with no participant identifiers. Deidentified survey results will be kept confidential by storing on a password protected computer, and in a locked drawer. Following the dissemination of research results, electronic data will be destroyed by deleting from the password protected computer and trash bin will be deleted. Physical data will be destroyed by shredding.

6. Alternative Procedures:

The survey is voluntary with no repercussions for non-participation. Alternatives to participation will be the choice to not participate.

7. Participant's Assurance:

This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997.

Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

CONSENT TO PARTICIPATE IN RESEARCH

I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty, prejudice, or loss of benefits. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness to continue participation in the project.

Include the following information only if applicable. Otherwise delete this entire paragraph before submitting for IRB approval: The University of Southern Mississippi has no mechanism to provide compensation for participants who may incur injuries as a result of participation in research projects. However, efforts will be made to make available the facilities and professional skills at the University. Participants may incur charges as a result of treatment related to research injuries. Information regarding treatment or the absence of treatment has been given above.

CONSENT TO PARTICIPATE IN RESEARCH

By clicking the box below, I give my consent to participate in this research project.

☐ Check this box if you consent to this study, and then click "Continue." (Clicking "Continue" will not allow you to advance to the study, unless you have checked the box indicating your consent.)

If you do not wish to consent to this study, please close your browser window at this time.

APPENDIX F –Surveys

Do you consent to this survey?

○ Yes

○ No

Please select how you feel regarding the following statements.

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The objectives are clear.	○	○	○	○	○
The scenario provides a realistic example of how to position a patient in the lateral decubitus position.	○	○	○	○	○
This objective structured clinical examination (OSCE) shows evidence of doctoral-level work.	○	○	○	○	○
The OSCE rubric addresses major concerns and complications associated with the lateral decubitus position.	○	○	○	○	○
Implementing this OSCE will improve SRNA confidence in placing a patient in the lateral decubitus position.	○	○	○	○	○

Do you have any suggestions, critiques, or feedback regarding this OSCE?

_____

Do you consent to this survey?

○ Yes

○ No

Please select how you feel regarding the following statements.

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The objectives are clear.	○	○	○	○	○
The scenario provides a realistic example of how to position a patient in the prone position.	○	○	○	○	○
This objective structured clinical examination (OSCE) shows evidence of doctoral-level work.	○	○	○	○	○
The OSCE rubric addresses major concerns and complications associated with prone and lateral decubitus positions.	○	○	○	○	○
Implementing this OSCE will improve SRNA confidence in placing a patient prone for surgery.	○	○	○	○	○

Do you have any suggestions, critiques, or feedback regarding this OSCE?

_____

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