

A Competency-Based Education Approach to Improve Clinical Performance in Nurse Anesthesia Residents

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Nurse anesthetists develop a high level of technical skill during their education that prepares them to safely care for patients undergoing various procedures. A nurse anesthesia program (NAP) located in the Midwest region identified an increasing trend in nurse anesthesia resident (NAR) failure to progress in the clinical setting based on not meeting performance expectations. The NAP faculty created and implemented competency-based educational interventions to address this concern and promote NAR clinical practica success. These interventions included: (1) performing a restructuring of the anesthesia basic principles course to create a targeted learning environment, (2) creating and implementing standardized procedure and skill simulation rubrics, (3) increasing NAR proctored simulation time and experiences, and (4) requiring individualized NAR skill demonstrations through high-fidelity simulation prior to entering the clinical practica environment. Following implementation of these revisions, all NARs have successfully progressed in their clinical practica.

INTRODUCTION

Clinical experiences are paramount to nurse anesthesia resident (NAR) education. The Council on Accreditation of Nurse Anesthesia Educational Programs (COA), responsible to accredit all nurse anesthesia programs (NAP), states that for students entering healthcare professions today, simulation-based education will be a growing and continued part of their education from entry to practice, to part of their ongoing professional education, and potentially some component of their certification or recertification process or staff credentialing, just as it has evolved in other high-hazard/high reliability professions.¹ Per the COA, each NAR is required to complete a specific number of clinical cases, experiences, and hours, along with the required didactic education before NARs can apply for boards. The COA requirements are essential to developing NARs into successful anesthesia providers. Simulation, didactic education, and clinical experiences are main components to this development. Creating clinical readiness utilizing simulation experiences and didactic education is an important factor in preparing and training NARs.

Clinical readiness contributing to clinical success has been evaluated in several fields, including within the military setting, to both develop and assess knowledge, skills, and abilities to be successful in a wartime mission.² Clinical readiness was recently assessed in a qualitative descriptive

review by Tubog et al³ with Certified Registered Nurse Anesthetist (CRNA) clinical coordinators and NARs. The authors found that strong simulation experiences promote clinical readiness and stated that simulation training is the cornerstone for nurse anesthesia education because it teaches psychomotor skills prior to hands on patient care.³ The use of simulation experiences has been strongly supported in both the nursing and medical professions to create clinical success.

Simulation can be performed using high-fidelity simulation scenarios with tasked rubric clinical skills to help develop the NAR's clinical readiness. Several studies have demonstrated that experience in anesthesia training in a simulated environment before patient encounters can improve procedural efficiency, decrease error rates, and positively affects quality care and patient safety.⁴ Simulation allows the replication of anesthesia care in a safe learning environment that is beneficial to develop NARs, particularly uncovering and addressing unsafe or inefficient aspects of the anesthesia care.⁵ Clinical readiness, simulation, and clinical experiences are main components in developing the success of NARs. Anesthesiology-specific simulation training improves knowledge, skill, task completion time, and behavioral processes.⁶ Creating focused simulation and clinical scenarios for NARs will help to prepare them for clinical readiness and clinical success. Carefully designed and implemented simulation education ses-

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sions can be advantageous in preparing NARs for residency rotations.⁷ Research supports utilizing simulation to develop successful NARs for the clinical setting.

The development of competency-based education (CBE) in nursing further supports the focus on simulation and clinical readiness. CBE provides learners with personalized support for their learning needs, meaningful assessments, and measurable objectives so the learner can apply the knowledge, skills, and abilities toward current and future educational needs.⁸ CBE has many guiding principles that follow the themes of simulation and clinical readiness for NAR clinical success. Greenwood and Ledvina⁹ emphasized the obligation to ensure that trainees can demonstrate fundamental standards of care from the minute they begin interacting with patients. By analyzing the historical importance of clinical experiences for NARs, utilizing CBE, and applying the current evidence on simulation and clinical readiness, an improved educational model can be developed to promote clinical readiness and success for NARs.

An integrated NAP located in the Midwest region, founded in 2017 with graduation of the first cohort of NARs in 2020, experienced a sudden rise in the need for clinical practica remediation among 2 different NAR cohorts at various clinical sites. This resulted in the removal of NARs from the clinical environment, conduction of a root cause analysis of the issue by NAP administration and faculty, and the development of interventions to promote NAR success in clinical practica. The integrated design of this NAP is intended to provide NARs with fundamental knowledge of anesthesia pharmacology, anesthesia basic principles, and essential anesthesia skills prior to entering clinical practica. Essential anesthesia skills include preoperative evaluation concepts, anesthesia machine basics and monitoring modalities, airway principles, positioning, application of certain types of anesthetics for specific surgical cases, basic principles of fluid and blood administration, basics of regional anesthesia, understanding the postoperative course for surgical patients, and developing basic care ranges for patients in extreme ages. These concepts are introduced during didactics and reinforced during deliberate practice over the course of 11 months prior to the start of clinical practica. Following the start of clinical practica, NARs simultaneously continue didactic studies with advanced anesthesia principles content.

The root cause analysis of the increased need for clinical practica remediation exposed opportunities for improvement in the deliverance of anesthesia content within the anesthesia basic principles course. Notable deficiencies and opportunities for improvement included: (1) NARs had minimal simulation training with faculty before the administration of simulation competency evaluation rubrics; (2) one cohort's simulation training was not evaluated at any point in time with a simulation competency rubric before entering the clinical practica environment; (3) Year 3 NARs were relied upon to train Year 1 NARs using simulation experiences resulting in training deficiencies; and (4) an unsuccessful trial with one cohort to primarily observe anesthesia care 1 day per week for 6 weeks prior to completion

Table 1. Clinical Practica I Expectations

Clinical Practica I Expectations
• Comprehensive anesthesia machine check • Performs anesthesia and medication cart set ups • Conducting preoperative assessments on PS I and II patients • Able to insert intravenous catheters in uncomplicated patients • Start to establish an induction routine • Developing bag valve masking and intubation techniques • Recognizes esophageal intubation • Appropriate positioning for basic patient positions in the operating room • Developing anesthesia titration skills • Appropriate charting and anesthesia plans for PS I and II patients • Management of fluid therapy for patients • Verbalize and recognize extubation criteria • Ability to transfer care of patient to next phase of care

Abbreviation: PS, physical status

Table 2. Clinical Practica II Expectations

Clinical Practica II Expectations
• Competency in all clinical practica I expectations • Established induction, maintenance, and emergence routines • Management of fluids, colloids, and blood replacement therapies • Recognizes complications/untoward trends and verbalizes interventions • Developing regional anesthesia insertion skills

Abbreviation: PS, physical status

Table 3. Clinical Practica III Expectations

Clinical Practica III Expectations
• Competency in all clinical practica II expectations • Skillfully performs laryngoscopy and intubation • Appropriate anesthetic titration techniques • Uses a variety of anesthesia techniques • Anticipates, diagnoses and responds appropriately to changes in patient condition • Coordinates emergence with surgical completion • Appropriate anesthesia preoperative assessment • Anesthesia planning and maintenance on fluid volume status on PS I, II and III patients

Abbreviation: PS, physical status

of essential anesthesia didactic content and simulation experiences.

Following the root cause analysis, NAP faculty designed interventions to promote NAR success in clinical practica, including: (1) restructuring the anesthesia basic principles course, (2) creation of standardized rubrics, and (3) provision of deliberate practice opportunities. The anesthesia basic principles course was restructured to enhance the clinical preparation of NARs. Clinical Practica I-III in this NAP correlate with didactics in the anesthesia basics principles course. NARs requiring clinical remediation specifically struggled with the expectations of Clinical Practica I, II, and III. [Tables 1-3](#) provide details of the NAP expectations of each of these clinical practica.

Deliberate practice is an engagement in structural activities created specifically to improve performance in a domain.¹⁰ Providing deliberate practice opportunities for the NARs in this NAP created a structured and safe environment to practice core anesthesia skills prior to evaluation. It provided NARs with the benefit of faculty involvement, opportunity to receive feedback, participation in peer-to-peer learning, and an overall increased time in simulation training. Faculty involvement allowed immediate feedback to be given to NARs with the opportunity for correction. Peer-to-peer learning provided benefits to both Year 3 and Year 1 NARs as teaching others solidifies knowledge and retention within a supportive environment.

FRAMEWORK

Promoting NAR success in clinical practica through restructuring the anesthesia basic principles course, creation of standardized rubrics, and providing deliberate practice was accomplished through the pedagogical framework of CBE as it provides necessary elements for NAR success in the clinical environment. The American Association of College of Nursing (AACN) defines CBE as a system of instruction, assessment, feedback, self-reflection, and academic reporting that is based on demonstration of a student's knowledge, attitudes, motivations, self-perceptions, and skills expected as they progress through their education.¹¹ The AACN's *2021 Essentials* emphasizes the importance and benefits of CBE.¹¹ The basic principles of this framework create a set of expectations that focus on outcomes through demonstrating and assessing several methods by different assessors as a learner progresses to mastery of content and skills. The structure of CBE allows the learner to serve as an active participant in the assessment processes.

In this NAP, NARs gathered and reviewed performance evidence with various faculty members during the basic principles course to help achieve the defined student learning outcomes (SLO). Creation of standardized rubrics and integration of deliberate practice sessions within the basic principles course has followed a main guiding principle within CBE of progression to mastery with frequent formative feedback. Core principles for CBE assessments are outlined by the AACN and have been implemented within the NAP course revision.¹¹ These AACN CBE core principles include multiple points, assessors and methods, active learner engagement, direct observation, and frequent formative feedback prior to summative evaluation.¹¹ The principles of CBE were utilized extensively within the basic principles course revision to aid with NARs clinical competency success.

LEARNING ENVIRONMENT

Revision of the anesthesia basic principles course involved creation and incorporation of simulation experiences for essential anesthesia skill development in NARs, the use of standardized rubrics for both formative and summative evaluation, and development of new SLOs. Formative evaluation of essential anesthesia skill development occurred

during the entire semester of the anesthesia basic principles course with various faculty and senior NARs. The summative evaluation of essential anesthesia skills was completed at the end of the semester by faculty who utilized the standardized rubric. Updated SLOs included language addressing: (1) performance of a proper preoperative anesthesia evaluation, (2) understanding the application of certain types of anesthetics used for specific cases, (3) reviewing the basics of the anesthesia machine and monitoring modalities used in the care of the anesthetized patient, (4) applying the principles of airway and anesthetic management, (5) demonstrating proper positioning of the surgical patient, (6) applying the basic principles of fluid and blood administration, as well as electrolytes and arterial blood gas analysis, (7) exploring the basics of regional anesthesia with application of ultrasonography, (8) understanding the basic care of patients at the extremes of age, and (9) demonstrating an understanding of the post-operative course and pain management. The updated SLOs aligned components of CBE within the anesthesia basic principles course revision.

The course revision occurred over 2 phases. During the initial phase of revision, simulation experiences and standardized rubrics were created for: (1) preoperative anesthesia assessment, (2) standard general anesthesia induction, (3) rapid sequence general anesthesia induction, (4) standard anesthesia cart set up, (5) anesthesia machine checkout, (6) epidural placement, and (7) spinal placement (see Tables 4 - 10). The textbooks *Miller's Anesthesia*¹² and *Nurse Anesthesia*¹³ were the primary content resources utilized in the development of the standardized rubrics which included evaluation criteria, quality definitions, and a scoring matrix. The NAP faculty and administration received input from clinical practica experiences to aid in design and standardization of the rubrics. These experiences were gathered from practicing, expert CRNAs to assist in the real-life anesthesia flow of the essential anesthesia skills detailed in the rubrics. The rubrics were created using evaluation criteria, quality definitions, and a scoring strategy.

The standardized rubrics were available to NARs at the start of the anesthesia basic principles course and deliberate practice sessions were provided throughout the semester to promote development and success with the identified essential anesthesia skills. An 84% was required on each standardized rubric during summative evaluation prior to entry into clinical practica. The standardized rubrics included a designated time limit for NARs to finish each procedure or skill for the summative skill evaluation. A 5% grade reduction was assigned on the standardized rubric for exceeding the designated time limits of specific essential anesthesia skills (See [Figures 4-10](#)).

The second phase of revision, implemented with the following cohort, increased the simulation content and standardized rubric evaluations in the anesthesia basic principles course to include: (1) emergence from general anesthesia, (2) Situation, Background, Assessment, and Recommendation (SBAR) anesthesia report format to be provided in the post-anesthesia care unit, and (3) generalized peripheral nerve block (see [Figures 11-13](#)). In this

Figure 4. Preoperative Anesthesia Assessment Summative Evaluation**Preoperative Anesthesia Assessment Rubric**

		POINTS
Introduce self and wash hands	Name, DNP nurse anesthesia student, clean hands	1
Check patient identifiers	Name, date of birth	1
Subjective questions		
	What procedure are you having done today?	1
	Do you have any allergies?	1
	Do you take any medications, supplements, herbal supplements?	1
	Did you take any of your medications today? If not, do you normally take any meds in the morning?	1
	Do you drink alcohol? History of alcohol abuse?	1
	Any current or history of illicit drug use?	1
	When is the last time you had anything to eat or drink?	1
	Have you ever had surgery?	1
	Any problems with anesthesia in the past?	1
	Do you or anyone in your family have a history of problems with anesthesia (such as high fevers)? Has anyone in your family been told they have Malignant Hyperthermia?	2
	Do you have any medical problems?	1
	Subjective Total	/14
Review of Systems		
Cardiac	History of any cardiac problems?	1
	Do you have hypertension? Do you take medications for high blood pressure?	1
	Ever been told you had a heart attack?	1
	Ever had any chest pain?	1
	Have you had any cardiac testing? If so, what and when?	1
	Can you easily walk up a flight of stairs?	1
Respiratory	Have you had or currently have any upper respiratory symptoms (such as a cold, seasonal allergies)? If so, how long? Any fever?	2
	Do you smoke cigarettes, e-cigarettes, marijuana?	1
	Do you have asthma/COPD, or emphysema? If so, do you take any medication for it?	2
	Do you have obstructive sleep apnea? If so, do you use CPAP? How often?	1
	Do you snore?	1
	Any problems breathing? SOB?	1
Liver/Kidney/Endocrine	Do you have diabetes? If so, type I or II? Do you use insulin?	2
	Any history of kidney disease?	1
	Any history of liver disease?	1
GI/Reproduction	Do you have acid reflux (GERD)? If so, is it well-controlled? How often?	1
	Are you pregnant? Breastfeeding?	1
Neuro/Musculoskeletal	Have you ever had a stroke? If so, any residual issues?	1
	Have you ever had a TIA?	1
	Do you have any arthritis?	1

		POINTS
	Any problems with your jaw? TMJ?	1
	Any problems moving any of your extremities?	1
	Any joint pain? Positions that are painful/uncomfortable?	1
	Review of Systems Total	/26
AIRWAY ASSESSMENT		
	Inspect oral cavity	1
	Verbalize Mallampati score	1
	Do you have any loose teeth, chipped teeth, dentures, bridges, caps or crowns?	1
	Verbalize thyromental distance	1
	Verbalize mouth opening	1
	Assess head and neck ROM	1
	Airway Assessment Total	/6
ASA STATUS	Verbalize ASA status and rationale	2
PREOP TESTING	Verbalize which tests and rationale	2
PREOP MEDICATIONS	Verbalize any preop medications and rationale	2
OBTAIN INFORMED CONSENT	Verbalize risks/benefits and obtain verbal consent to anesthesia	2
	Time penalty 5%	
	PREOP ASSESSMENT GRAND TOTAL	/54

Abbreviations: DNP, Doctor of Nursing Practice; COPD, chronic obstructive pulmonary disease; CPAP, continuous positive airway pressure; SOB, shortness of breath; GERD, gastroesophageal reflux disease; TIA, transient ischemic attack; TMJ, temporomandibular joint dysfunction; ROM, range of motion; ASA, American Society of Anesthesiologists

phase NAP faculty offered weekly proctored deliberate practice and Year 3 NARs were invited to participate in peer-to-peer learning with Year 1 NARs.

RESULTS

Commencing with the anesthesia basics principles course instructional revision, all NARs have successfully remained in the clinical environment and are meeting Clinical Practica I, II, and III expectations (see [Tables 1-3](#)) for the past 3 cohorts. Three cohorts have completed the revised anesthesia basic principles course and there has been significantly less clinical practica concerns related to NAR clinical performance at the NAP's clinical locations. Every NAR has successfully remained in the clinical setting for Clinical Practica I, II, or III following the revision of the anesthesia basic principles course.

DISCUSSION

Utilization of the CBE framework, introduction of standardized rubrics, and provision of deliberate practice sessions covering essential anesthesia skills during the revision of the anesthesia basic principles course has produced successful clinical experiences within this NAP. Based on the

feedback from clinical sites, NARs have continued to meet and exceed the clinical expectations of Clinical Practica I, II, and III (see [Tables 1-3](#)). The NAP has received positive qualitative feedback from clinical site preceptors via direct communication and on NAR clinical daily evaluations. Each cohort is continuing to improve and exceed clinical practica expectations.

Effective learning occurs when NARs are given explicit instructions, offered deliberate practice sessions, and are supervised by faculty to allow individualized identification of errors, informative feedback, and remedial training.² It is incumbent on faculty to organize the sequence of appropriate training tasks and monitor improvement to decide when transitions to more complex and challenging tasks are appropriate.² Revision of the NAP faculty approach to educating NARs through the use of the CBE framework, addition of increased deliberate practice, introduction of standardized rubrics for summative evaluation with a minimum required score, and peer-to-peer learning has improved NAR clinical readiness, creating a successful transition to the clinical environment for NARs and promoting adherence to COA's accrediting requirements.

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Figure 5. Standard General Anesthesia Induction Summative Evaluation**Standard General Anesthesia Induction Rubric**

		POINTS	COMMENTS
MONITORS AND POSITIONING			
	Place monitors on patient	1	
	Adjust table height	1	
	Preoxygenate – verbalize endpoints	2	
INDUCTION			
	Verbalize induction medications and dosages	5	
	Check lid reflexes	1	
	Tape eyes	1	
	Verbalize how you assess patient is apneic	2	
	Ensure BMV of patient – verbalize adjustments if you cannot BMV	2	
	Give NMB – verbalize dose and onset	2	
	Check TOF for confirmation of adequate relaxation prior to intubation	2	
INTUBATION			
	Open mouth	1	
	Insert laryngoscope	1	
	Visualize VC	1	
	Verbalize airway structures	1	
	Insert ETT	1	
	Remove stylet	1	
	Inflate cuff	1	
	Connect to circuit	1	
	Verify placement	4	
	Secure ETT	1	
	Remove glove(s) Maintain clean workspace	2	
	Turn on ventilator – verbalize settings	2	
	Turn on agent	1	
	Decrease flows and O ₂ %	1	
	Time deduction (5%)		
	TOTAL POINTS	/38	

Abbreviations: BMV, bag valve mask; NMB, neuromuscular blocker; TOF, train of four; VC, vocal cords; ETT, endotracheal tube; O₂, oxygen

Figure 6. Rapid Sequence General Anesthesia Induction Summative Evaluation**Rapid Sequence General Anesthesia Induction Rubric**

		POINTS	COMMENTS
MONITORS AND POSITIONING	Place monitors on patient	1	
	Adjust table height	1	
	Preoxygenate – verbalize endpoints	2	
	Verbalize indications for RSI	2	
INDUCTION	Verbalize induction medications and dosages	5	
	Have an assistant apply cricoid pressure (verbalize when to ask for pressure)	2	
	Check lid reflexes	1	
	Tape eyes	1	
	Verbalize how you assess patient is apneic	2	
	Do NOT mask ventilate	1	
INTUBATION	Open mouth	1	
	Insert laryngoscope	1	
	Visualize VC	1	
	Verbalize airway structures	1	
	Insert ETT	1	
	Remove stylet	1	
	Inflate cuff	1	
	Connect to circuit	1	
	Verify Placement (verbalize)	4	
	Verbalize that assistant can stop cricoid pressure	1	
	Secure ETT	1	
	Remove glove(s) Maintain clean workspace	2	
	Turn on ventilator – verbalize settings	2	
	Turn on agent	1	
	Decrease flows and O2 %	1	
	Time deduction (5%)		
	TOTAL POINTS	/38	

Abbreviations: RSI, rapid sequence induction; VC, vocal cords; ETT, endotracheal tube; O2, oxygen

Figure 7. Cart Setup Summative Evaluation**Cart Setup Rubric**

		Points	Comments
MACHINE	Verbalize full FDA machine check has been completed	1	
	Designate clean area	1	
SUCTION	Functional with yankaur tip attached	1	
MONITORS	EKG	1	
	BP cuff	1	
	End tidal CO2	1	
	Pulse oximeter	1	
	Temperature monitor	1	
	Pressure monitoring cables	1	
	Ancillary (BIS, peripheral nerve stimulator)	1	
AIRWAY			
	Verbalize anesthesia circuit with mask properly connected	1	
	Ambu bag on machine	1	
	Laryngoscope	1	
	Laryngoscope blade (2)	1	
	Prepare ETT (balloon, stylet, syringe)	3	
	Oral airways (2)	1	
	LMA	1	
	Lube	1	
	Tongue blade	1	
	Oral and nasopharyngeal airways	2	
	Bougie in room	1	
	Verbalize location of difficult airway cart	1	
IV'S	IV kit/IV's	1	
	IV equipment (IV pump/propofol pump)	2	
DRUGS			
	Label, date, and initial induction syringes	5	
	Assemble and label emergency meds	5	
SPECIALS			
	Bair hugger blankets and machine	1	
	Stethoscope	1	
	Gloves	1	
	Medipore tape/ETT tape	1	
	Time deduction (5%)		
	TOTAL POINTS	/42	

Abbreviations: FDA, Food and Drug Administration; EKG, electrocardiogram; BP, blood pressure; CO2, carbon dioxide; BIS, bispectral index; ETT, endotracheal tube; LMA, laryngeal mask airway; IV, intravenous

Figure 8. Aestiva Anesthesia Machine Check Summative Evaluation

Aestiva Anesthesia Machine Check Grading Rubric

Competency	Points	Earned	Notes
Checks vaporizer functioning and level	2		
Tests anesthesia circuit	2		
Tests mechanical ventilator function	2		
Checks pipeline & cylinder pressures	2		
Checks patient suction	2		
Calibrates oxygen analyzer	2		
Turns on machine	1		Automatic exam failure if machine not turned on.
Checks for ambu bag	2		
Checks scavenging system	2		
Checks carbon dioxide absorbent	2		
Verifies unidirectional valve function	1		
Assesses flow meter function	2		
Assesses auxiliary oxygen supply	1		
Returns items to ready position	2		
TOTAL	25		
Time deduction 5%			

Figure 9. Epidural Summative Evaluation**Epidural Rubric**

		POINTS	COMMENTS
MONITORS AND POSITIONING	Verbalize proper patient positioning for epidural placement (sitting and lateral) Consent/risks for epidural placement	2	
	Place monitors on patient	1	
	Proper height/location for anesthesia provider	1	
	Identify landmarks for proper location for starting for epidural procedure	1	
Prepping			
	Open epidural kit	1	
	Don sterile gloves	1	
	Prepare epidural kit for use	1	
Epidural Procedure			
	Injection site prep	2	
	Place sterile drape	2	
	Inject local/skin wheel	2	
	Place Tuohy needle Discuss layers for arrival to epidural space	4	
	Remove the stylet	2	
	Attach loss of resistance syringe (glass or plastic)	2	
	Verbalize marks on Tuohy needle	2	
	Verbalize loss of resistance at what distance Verbalize air or saline for loss of resistance syringe	2	
	Insert the epidural catheter. Verbalize length of catheter advanced in epidural space for adequate epidural catheter placement	2	
	Attach the infusion clamp/port	2	
	Inject epidural test dose. Verbalize medication amount and rationale for test dose medication. Aspirate before test dose- why?	4	
	Verbalize how you would recognize a positive test dose? Intrathecal dose?	2	
	Secure the catheter	2	
	Verbalize assessment of anesthetic level for procedure Assess patient's right and left side for level	2	
	Verbalize medication and dosing For maintenance infusion and bolus	2	
	Maintain sterile technique throughout and remove the sterile drape	2	
	Time deduction (5%)		
	TOTAL POINTS	/44	

Figure 10. Subarachnoid Block Insertion Summative Evaluation**Subarachnoid Block Insertion Rubric**

		POINTS	COMMENTS
MONITORS AND POSITIONING			
	Place monitors on patient	1	
	Adjust table height	1	
	Position patient (sitting or lateral)	1	
EQUIPMENT AND PREPARATION			
	Assemble and prepare for equipment	1	
	Verbalize spinal landmarks	1	
	Verbalize location landmarks	1	
	Maintain sterile technique	2	
INSERTION TECHNIQUE			
	Injection site prep	2	
	Localization of injection site	2	
	Insertion of introducer needle	2	
	Insertion of spinal needle stating internal anatomy	4	
	Verbalize end location anatomy	2	
	Verbalize CSF flow and turn needle in quadrants if weak CSF flow	2	
	Attach medication syringe and verbalize medication and dose	4	
	Beginning, mid-point, and end-point aspiration during medication injection	2	
	Remove needles and syringe after injection	2	
	Remove sterile drape and properly dispose spinal tray	2	
	Verbalize assessment of anesthetic level	2	
	Time deduction (5%)		
	TOTAL POINTS	/34	

Abbreviations: CSF, cerebrospinal fluid

Figure 11. General Anesthesia Emergence Summative Evaluation**General Anesthesia Emergence Rubric**

		Points	Comments
Surgical Closure	Verbalize surgical closure is commencing	1	
Emergence of Anesthesia	Reverse NMB (verbalize successful reversal)	2	
	Place patient on 100% O ₂	1	
	Begin titrating anesthetic agent to off	1	
	Verbalize adjusting ventilator settings to initiate patient returning to spontaneous respirations	2	
	Place oral airway	1	
	Suction oropharynx	1	
	Titrate pain medications to RR and VS	2	
	Verbalize extubation criteria (global and respiratory)	4	
	Extubate patient	1	
	Apply O ₂	1	
	Transport to PACU	1	
	Time deduction (5%)		
	Total Points	/18	

Abbreviations: NMB, neuromuscular blocker; O₂, oxygen; RR, respiratory rate; VS, vital signs; PACU, post anesthesia care unit

Figure 12. Anesthesia SBAR Summative Evaluation

Anesthesia SBAR Rubric

		Points	Comments
IDENTIFY	Introduce self	1	
	Surgeon	1	
	Patient name, age, DOB	1	
SITUATION AND BACKGROUND	Procedure/intervention and reason	1	
	PMH, labs, diagnostics	1	
	Pre-op information (weight, allergies, preop meds, T&S, antibiotics, beta blockers)	1	
ASSESSMENT	Type of anesthetic	1	
	Airway	1	
	IV access/lines	1	
	Intraop meds and doses (opioids, vasopressors, muscle relaxants/ reversals)	1	
	I&O (fluids, EBL, UOP)	1	
	Notable/adverse events	1	
RECOMMENDATION	Intraop potential concerns (pending labs, redosing antibiotics/ meds)	1	
	Emergence (antiemetics, pain control)	1	
	Airway/oxygen needs	1	
	Time deduction (5%)		
	Total Points	/15	

Abbreviations: SBAR, Situation, Background, Assessment, and Recommendation; DOB, date of birth; PMH, past medical history; Pre-op, preoperative; T&S, type and screen; IV, intravenous; Intraop, intraoperative; I&O, intake and output; EBL, estimated blood loss; UOP, urine output

Figure 13. Peripheral Nerve Block Summative Evaluation**Peripheral Nerve Block Rubric**

		Points	Comments
Monitors and Positioning	Verbalize proper patient positioning for peripheral nerve block	2	
	Discuss consent and risks for peripheral nerve block	2	
	Place monitors and supplemental oxygen on the patient and verify patient has working IV	1	
	Proper alignment of anesthesia provider, patient and ultrasound machine	1	
	Identify external landmarks for peripheral nerve block	2	
Prepping and scanning	Open peripheral nerve block supplies and maintain sterile field (gloves, needle, ultrasound gel, Chloraprep, other supplies)	2	
	Verbalize local anesthetic dose and local anesthetic amount utilized for the peripheral nerve block	2	
	Perform peripheral nerve block time out (correct patient, correct side, site marked, allergies, procedure, emergency medications/supplies)	2	
	Discuss sedation plan for patient receiving peripheral nerve block	1	
	Sterile prep the peripheral nerve block location	1	
	Place sterile ultrasound gel in peripheral nerve block region	1	
	Identify peripheral nerve block structures and other anatomy related to peripheral nerve block on ultrasound	2	
	Adjust gain and depth accordingly for optimal view and verbalize ultrasound probe and screen alignment	2	
	Maintain peripheral nerve block structures in the middle of the ultrasound screen during visualization	2	
Peripheral Nerve Block Placement	Prepare syringe and needle tubing for peripheral nerve block placement. Confirm tubing is primed with local anesthetic	1	
	Connect peripheral nerve stimulator to needle nerve stimulator port	1	
	Insert needle (in-plane or out-of-plane) based on peripheral nerve block being performed	2	
	Maintain needle and peripheral nerve block structures in view during advancement	2	
	Once peripheral nerve block structures and needle are in proper placement, verbalize peripheral nerve stimulation motor components (motor function of nerves and range of Mhz on nerve stim)	2	
	Verbalize assistant staff to aspirate back on catheter (what are you looking for in the catheter?)	1	
	Direct staff to inject 1 -2 ml of local anesthetic at peripheral nerve block structures	1	
	Assess patient for signs and symptoms of paresthesias during initial injection	1	
	Direct staff to aspirate and inject local anesthetic in 5 mL increments	2	
	Verbalize assessment of LAST symptoms during injections of local anesthetic	2	
	Once peripheral nerve block is completed, complete assessment of block effectiveness for surgical procedure	2	
	Time deduction (5%)		
	TOTAL POINTS	/40	

Abbreviations: IV, intravenous; LAST, local anesthetic systemic toxicity



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