

Mapping of Anesthesia Curricular Competencies with Assessment Tools

This outline maps curricular competencies/objectives with the assessment tools and potential test type. Tests will emphasize certain parts of the outline, and no single test will include questions on all aspects. Questions may include content that is not included in this outline.

Construct	Domain	Rotation	Year	Code	Performance indicator (Curriculum)	Page #	Learning Domain (1:Cognitive, 2:Skills, 3:Attitude)	Assessment Method			
								MCQ - Part I Written	MCQ - Final Written	OSCE - Final Clinical	SOE - Final Clinical
A. Medical Expert	A1 Basic science	CORE ANESTHESIA	Junior	A1.1	Explain the adult anatomy and physiology of the following systems and the pathophysiology of the disease states that affect them: - Cardiovascular - Upper airway and respiratory system - Central and peripheral nervous systems - Hepatic - Renal - Endocrine - Hematologic	18	1	*	*		*
				A1.2	Explain the concepts in physics, biochemistry, and pharmacology, relevant to anesthesia, as detailed in the overall program curriculum: - Gas delivery system - Anesthesia machine - Electricity and electrical hazards	18	1	*	*		*
				A1.3	Explain the principles of function of all anesthetic equipment, including the anesthetic machine, mechanical ventilator, safe delivery of anesthetic gases, and monitoring equipment.	19	1	*	*		*
				A1.4	Explain the principles of function of all anesthetic equipment, including the anesthetic machine, mechanical ventilator, safe delivery of anesthetic gases, and monitoring equipment.	19	1	*	*		*
		TRAUMA	Junior	A1.5	Demonstrate an understanding of trauma, its effect on patient management from emergency room to operation theater, and postoperative management.	25	1	*	*		*
				A1.6	Understand the core principles of trauma care: - Trauma epidemiology, mechanisms of injury, and prehospital care - Initial evaluation and management, team approach, triage, surgical priorities, and mass casualty management. - Airway management and algorithms for emergency induction and intubation - Vascular cannulation - Shock resuscitation, fluid therapy, and damage control resuscitation - Blood component therapy, trauma coagulopathy, and massive transfusion protocols - General anesthesia for trauma - Regional anesthesia for trauma - Trauma patient monitoring - Ultrasound and echocardiography in trauma - Trauma patient postoperative care - Chemical and radiologic exposures in trauma	25	1	*	*		*
				A1.7	Be aware of the monitoring requirements and the availability of resuscitative equipment and fluids.	27	1	*	*		*
		OBSTETRIC ANESTHESIA	Senior	A1.8	Explain the physiologic changes of normal pregnancy and labor and their anesthetic implications, including the relative importance of each change throughout gestation.	29	1	*	*		*
				A1.9	Explain the pharmacokinetic and pharmacodynamic changes in normal pregnancy and their anesthetic implications.	29	1	*	*		*
				A1.10	Discuss the principles and importance of the assessment of outcomes of patient care and practice including QA methods	33	1	*	*		*
		PEDIATRIC ANESTHESIA	Junior	A1.11	Acquire an understanding of the anatomical, physiological, pharmacological, and psychological differences between the neonate, child and adolescent in relation to anesthesia practice.	35	1	*	*		*
				A1.12	Demonstrate knowledge concerning: - Respiratory system - Anatomic differences of the neonate and pediatric airway - Age differences in respiration control, compliance, lung volume, oxygen consumption - Neonatal postoperative apnea - Cardiovascular system - Anatomy and physiology of transitional circulation - Maturation of the myocardium and autonomic nervous system - Normal vital signs for ages	35	1	*	*		*

		<p>Central nervous system</p> <ul style="list-style-type: none"> - Anatomy differences (e.g. fontanelles) - Age differences (e.g. intracranial pressure and cerebral blood flow and auto-regulation) <p>Genitourinary system</p> <ul style="list-style-type: none"> - Renal maturation - Fluids and electrolytes, maintenance requirements, and hydration <p>Gastrointestinal/hepatic system</p> <ul style="list-style-type: none"> - Feeding and fasting guidelines - Glucose control - Maturation of hepatic function 						
	A1.13	<p>Demonstrate knowledge concerning:</p> <p>Hematological system</p> <ul style="list-style-type: none"> - Normal values in infants and children - Natural history of fetal hemoglobin - Blood component therapy <p>Thermoregulation</p> <ul style="list-style-type: none"> - Body surface area and heat loss - Differences and ability to thermoregulate - Heat loss and heat loss prevention <p>Psychological issues</p> <ul style="list-style-type: none"> - Anxiety/fear at different ages - Separation anxiety and parental anxiety - Use of premedications <p>Pharmacology</p> <ul style="list-style-type: none"> - Pediatric induction techniques, inhalation, intravenous, and sedation - Ages difference in volume of distribution, pharmacokinetics, pharmacodynamics, and toxicity <p>Pain management</p> <ul style="list-style-type: none"> - Options of regional and neuraxial analgesia, and ultrasound guidance - Multimodal analgesic techniques - Differences in performing epidural blocking in children vs. adults <p>Anesthesia equipment</p> <ul style="list-style-type: none"> - Equipment specific to patient age and circuit ventilators - Mask sizes, ETT, LMA, laryngoscopy blades, bronchoscope, and GlideScope - Vascular access and invasive monitoring - Regional block equipment - Warming devices 	36	1	*	*		*
	A1.14	<p>Acquire the knowledge and understanding of coexisting disease in pediatric patients to aid providing anesthetic care for children.</p> <ul style="list-style-type: none"> - Full-term infants, former preterm infants and healthy children and adolescents presenting for common surgical procedures. The anesthetic management of neonates and premature infants. <p>Cardiovascular disease (ASD, VSD, PDA, TOF) and repaired simple lesions:</p> <ul style="list-style-type: none"> - Cardiomyopathy - Heart transplant recipients - Complex congenital heart disease (e.g. transposition of the great vessels, truncus arteriosus, single ventricle physiology, abnormal pulmonary venous return) - Postoperative (e.g. Norwood, bicavopulmonary anastomosis, Fontan) - Obstructive lesion and pulmonary hypertension <p>Respiratory disease</p> <ul style="list-style-type: none"> - Upper respiratory tract infections - Asthma - Cystic fibrosis - Obstructive sleep apnea - Stridor, congenital and acquired (e.g. cystic hygroma, epiglottitis, croup, retropharyngeal abscess) <p>Gastrointestinal disease</p> <ul style="list-style-type: none"> - Hepatobiliary disease - Gastroesophageal reflux - Feeding disorders <p>Neuromuscular disease</p> <ul style="list-style-type: none"> - Hydrocephalus - Repaired spina bifida - Cerebral palsy - Muscular dystrophy - Myotonic dystrophy - Seizures disorders and developmental delay 	36-40	1	*	*		*

Infections

- Hepatitis, tuberculosis, HIV

Endocrine and metabolic

- Diabetes
- Thyroid
- Obesity
- Mitochondrial disease, mucopolysaccharidosis, lactic acidosis

Hematological/malignancies

- Anemia (e.g. sickle cell disease, thalassemia)
- Bleeding disorders (e.g. hemophilia, Von Willebrand disease)
- Malignancies
- Mediastinal masses
- Common syndromes
- Down syndrome
- Other syndromes (e.g. Pierre Robin sequence, Crouzon syndrome, Goldenhar syndrome, Treacher Collins syndrome)

Preterm infant and neonate

- Tracheoesophageal fistula repair, omphalocele, gastroschisis, congenital diaphragmatic hernia

- Bowel obstruction, necrotizing enterocolitis, duodenal atresia, malrotation, volvulus, imperforate anus

Term infant

- Hernia
- Pyloromyotomy

General surgery

- Appendectomy
- Cholecystectomy
- Thoracic surgery and thoracoscopy, including the need for lung isolation

Otolaryngology

- Tonsillectomy and adenoidectomy, including post-tonsillectomy bleed
- Myringotomy, mastoidectomy
- Thyroidectomy tympanoplasty
- Laryngoscopy for diagnosis and treatment, airway papilloma, epiglottitis
- Bronchoscopy, removal of foreign body from the airway
- Laryngeal/tracheal reconstruction
- Neonatal airway surgery

Orthopedic surgery

- Fracture reduction
- Soft tissue surgery
- Club foot repair
- Congenital/acquired (e.g. cerebral palsy)

Spinal surgery

Plastic surgery

- Cleft lip/palate, isolated
- Burn debridement/skin grafting
- Craniofacial reconstruction surgery

Neurosurgery

- V-P shunt insertion, revision
- Tumor resection
- Raised ICP
- Myelomeningocele repair
- Neonatal V-P insertion

Urology

- Circumcision, hypospadias
- Ureteric reimplantation
- Cystoscopy, nephrectomy
- Renal transplant vs. bladder exstrophy repair

Ophthalmology

- Strabismus
- Cataract
- Laser for retinopathy of prematurity

Cardiac procedures

- Pacemaker insertion
- Cardiac catheterization
- PDA ligation

Dental surgery

- Dental extraction/restoration
- Orthognathic surgery

Remote locations

- Radiology (MRI/CT) and angio-suite
- Cardiac catheterization
- Radiation and chemotherapy

			<ul style="list-style-type: none"> Perioperative/PACU issues - Delirium - Postextubation stridor - Pain - Laryngospasm - Nausea and vomiting Regional - Perform single shot caudal blocks, ilioinguinal and dorsal penile blocks - Neuroaxial technique and ultrasound-guided regional blocks 						
INTENSIVE CARE CARDIAC ANESTHESIA	Senior	A1.15	To access and apply relevant information to clinical practice.	43	1,2		*	*	*
	Junior	A1.16	Classify shock and outline hemodynamic patterns.	44	1	*	*		*
	Senior	A1.17	To describe the normal coronary anatomy and variants, normal cardiac physiology, and the effects of disease states on the normal physiology.	48	1		*		*
		A1.18	To describe the anatomy and physiology of cardiac valves, left ventricle, right ventricle, atrial, major cardiac vessels, and circulatory system in both normal and diseased states.	48	1		*		*
		A1.19	To describe the normal conduction pathways of the heart and its clinical significance in disease.	48	1		*		*
		A1.20	To describe the embryologic circulation, development of the heart, and fetal physiology as it applies to adult congenital heart disease.	48	1		*		*
		A1.21	To describe the altered respiratory physiology of the immediately postoperative ventilated patient with significant surgical incisions and pain (sternotomy, large abdominal incision).	48	1		*		*
		A1.22	Describe common physiological changes occurring in the postoperative period and the impact these have on end organ function (neurologic, renal, cardiac, hepatic, gastro-intestinal).	48	1		*		*
		A1.23	know commonly prescribed medications for cardiac surgical patients, the implications for disease, and the impact on anesthetic management.	49	1		*		*
		A1.24	Know Commonly used cardiac anesthetics and dosages.	49	1		*		*
		A1.25	Know Heparin, antiplatelet agents, and anesthetic implications.	49	1		*		*
		A1.26	Know Protamine for heparin reversal, along with side effects and complications.	49	1		*		*
		A1.27	Know Antifibrinolytic agents, mechanisms of action, and indications.	49	1		*		*
		A1.28	Know The use of blood products (PRBC, FFP, platelets, cryoprecipitate) and blood alternatives (albumin, starch) as well as transfusion reactions and complications.	49	1		*		*
		A1.29	Know Coagulation drugs (DDAVP, activated factor 7a), their indications, contraindications, dosages, and complications.	49	1		*		*
		A1.30	Know Commonly used vasodilators, vasoconstrictors, inotropic agents, and their indications, dosages, and side effects.	49	1		*		*
	A1.31	To demonstrate the principles of noninvasive and invasive blood pressure monitoring and its pitfalls.	49	1		*		*	
	A1.32	To know the basic principles of cardiac support devices including IABP and extracorporeal membrane oxygenation.	51	1		*		*	
	A1.33	know the common pathophysiology of: <ul style="list-style-type: none"> - Coronary artery disease, acute myocardial ischemia and infarction, complications of myocardial infarction and thrombolytic therapy - Valvular heart disease and valve replacement or repair - Aortic dissection, thoracic and thoracoabdominal aortic aneurysm - Shock and the use of volume resuscitation, venodilators/constrictors, inotropes, and lusitropes - Emergencies requiring ACLS - Cardiac tamponade, constrictive pericarditis - Dilated, restrictive and obstructive cardiomyopathy, CHF, and diastolic dysfunction - Aberrant conduction, dysrhythmia, sudden acute and subacute ventricular and supra-ventricular arrhythmia - Pacemakers and the indications for and applications of the various modes of temporary pacing - Pneumothorax - Pulmonary edema, pneumonia, CHF - COPD, asthma, sleep apnea in the ventilated patient - Heparin-induced thrombocytopenia and heparin resistance - Neurologic risk stratification during CPB procedures - Renal failure and its management - Diabetes and endocrine control, and the implications of hyperglycemia 	51	1		*		*	

		REGIONAL ANESTHESIA	Junior	<p>A1.34 Demonstrate the understanding of anatomy, physiology, pharmacology and knowledge acquisition in the following areas:</p> <p>Anatomy related to specific regional anesthesia technique including surface landmarks, perineural structure, ultra sound anatomy, sensory innervation, motor innervation, and components and details of brachial plexus, lumbar plexus, and sacral plexus.</p> <p>Physiology related to specific regional anesthesia techniques and disease processes, including nerve transmission/blockade, physiologic response to acute pain, and the patient with chronic pain at the site of surgery.</p> <p>Pharmacology of local anesthetics, adjuvants (e.g. epinephrine, opioids, HCO₃), chronic opioid use in the patient presenting for surgery.</p> <p>Regional anesthesia equipment including needles, peripheral nerve stimulator, ultrasound, catheters, and stimulating catheters.</p> <p>Contraindications related to specific regional anesthesia techniques including infection, anticoagulation, pre-existing neural injury, increased ICP, and pulmonary disease.</p>	53	1	*	*		*
		REGIONAL ANESTHESIA	Junior	<p>A1.35 The resident must be aware of the need to provide preoperative (ability to identify by history, physical examination and lab data the appropriateness of conduction anesthesia) and postoperative care in an objective manner. The resident will actively seek access to surgical procedures appropriate for conduction anesthesia. Assistance from the assigned anesthesiologist or a resource person should be obtained. The minimal learning objectives include:</p> <p>Anatomy -Anatomy for different blocks.</p> <p>Physiology - Nerve conduction (structural classification of nerve type and relevance to local anesthetics action, generation of action potential, refractory period and recovery). - Neuroaxial block (differences and similarities between spinal and epidural blockade with respect to mechanism of action, effects of adjuvants and cardiorespiratory physiology, effects on cardiorespiratory system, effects on coagulation, neurohormonal stress response, effects on intraoperative blood loss, effects on postoperative respiratory). - Neuroendocrine stress response (systems affected by the stress response).</p> <p>Pharmacology:</p> <p>- Mechanism of action of local anesthetics. - Structure–activity relationship (e.g. describe the difference between amide and ester LA and understand the physiochemical properties of potency, protein binding, pKa and pH). - Kinetics (e.g. describe drug, patient and technical factors contributing to accelerate recovery from local anesthetics as well as describe the determinants of serum LA concentration, its measurement and the role of protein binding). - Adjuvants e.g epinephrine, bicarbonate, opioids and NMDA antagonists. List clinical indications, advantages and disadvantages of inclusion of adjuvants in spinal, epidural, regional and local infiltration.</p>	54,55	1	*	*		*

	A1.36	Demonstrate an understanding of the technology available for identification of nerves for performance of plexus blocks and peripheral nerve blocks as well as epidural space detections. - Nerve stimulation - To describe the rationale of nerve stimulation. - To describe the advantages, disadvantages and limitations of nerve stimulators. - To know different types of needles (insulated vs. noninsulated). - To demonstrate how to use a nerve stimulator. - Ultrasound - To describe the basic physics principles of ultrasound and their clinical relevance in locating different anatomical structures. - To describe the advantages, disadvantages and limitations of ultrasound in locating nerves. - To select appropriate ultrasound probe and machine settings to properly identify the desired structures. - To know different types of techniques (in-plane vs. out-of-plane).	55	1	*	*		*	
	A1.37	The resident must demonstrate competency and cognitive knowledge by oral and/or written examination on the following topics: - IV regional - Spinal anesthesia - Epidural anesthesia/analgesia - Thoracic - Lumbar - Caudal - Cervical plexus block - Brachial plexus block - Interscalene - Supraclavicular - Axillary - Infraclavicular block - Intercostal, intrapleural block - Paravertebral block, thoracic and lumbar - Lower limb blocks - Femoral - Sciatic - Obturator - Lateral femoral cutaneous - Ankle block	56	1	*	*		*	
	A1.38	Demonstrate knowledge of anatomy and physiology of pain pathways in the peripheral and central nervous system.	59	1	*	*		*	
	A1.39	Understand the role of psychological factors, particularly anxiety and depression, on pain perception and disability.	59	1	*	*		*	
	A1.40	Acute pain management: - Describe the physiologic changes producing and induced by perioperative pain.	60	1	*	*		*	
	A1.41	Identify the important determinants of health affecting pain patients.	61	1	*	*		*	
VASCULAR ANESTHESIA	Junior	A1.42	Demonstrate knowledge of general internal medicine, anatomy, physiology and pharmacology with particular reference to the cardiovascular, respiratory, hepatic, renal and coagulation systems, blood transfusion, acid-base, fluid and electrolyte balance.	63	1	*	*		*
	Senior	A1.43	Demonstrate knowledge of the principles and practice of anesthesia as they apply to patient support during vascular surgery.	63	1		*		*
	Junior	A1.44	Demonstrate knowledge and competence in the anatomy, physiology, and pathophysiology of the peripheral circulation.	63	1	*	*		*
		A1.45	know the epidemiologic, medical, and surgical aspects of vascular disease (pathophysiology of atherosclerosis, natural history of patients with peripheral vascular disease, medical therapy of atherosclerosis).	63	1	*	*		*

		Senior	A1.46	know the pharmacological agents used in vascular patients (nitrates, adrenergic receptor antagonists, ACE inhibitors, angiotensin II receptor antagonists, digoxin, loop and thiazide diuretics, spironolactone, calcium channel blockers, clonidine, hydralazine, insulin and oral hypoglycemic, cholesterol lowering agents, epinephrine and norepinephrine, dopamine and dobutamine, milrinone, vasopressin, heparin, low-molecular-weight heparin, anticoagulants).	63	1		*		*	
			A1.47	Understand perioperative renal protection (cardiac performance and perfusion pressure,).	64	1			*		*
			A1.48	Understand the advantages, indications, contraindications and complications of the following: arterial pressure monitoring, CVP monitoring, pulmonary artery catheterization, cardiac output, TEE.	64	1			*		*
			A1.49	Understand abdominal aortic reconstruction etiology, epidemiology and pathophysiology of AAA and aortoiliac occlusive disease, natural history and surgical mortality, pathophysiology of aortic occlusion and reperfusion (cardiovascular changes, renal hemodynamics and renal protection, humoral and coagulation profile, visceral and mesenteric ischemia, central nervous system and spinal cord ischemia and protection).	64	1			*		*
NEUROANESTHESIA		Senior	A1.50	Demonstrate knowledge of basic sciences as applicable to neuroanesthesia, including: neuroanatomy, neurophysiology and neuropharmacology.	68	1			*	*	
			A1.51	Understand the pathway and physiology of CSF circulation and factors affecting it. Also it is important to know the anatomy of cerebral circulation and factors affecting it and methods for controlling intra-cranial pressure (ICP).	68	1			*		*
THORACIC ANESTHESIA		Senior	A1.52	Demonstrate knowledge of general internal medicine with particular reference to the cardiovascular, respiratory, renal and coagulation systems, blood transfusion, fluid, electrolyte and acid-base balance	72	1			*	*	
			A1.53	Specific knowledge requirements: Anatomy/physiology (thoracic cavity, airway, mediastinum, pulmonary vasculature, bronchial vessels, lymphatic system, work of breathing, physiology of lung collapse, cough reflex)	72	1			*		*
			A1.54	Demonstrate knowledge of Preoperative alcohol abuse, pneumonectomy, Intraoperative high ventilatory pressures and excessive amounts of fluid administration)	72	1			*		*
PICU		Senior	A1.55	Understand normal physiology and pathophysiology of major organ systems.	77	1			*	*	
			A1.56	To demonstrate thorough knowledge of etiology, pathophysiology of common PICU problems Cardiopulmonary failure and arrest - Respiratory failure - Shock - Septic shock and multiple organ dysfunction syndrome (MODS) - Nutrition: enteral and parenteral - Renal failure, electrolytes and acid-base abnormalities - Hematologic dysfunction and blood products replacement therapy - Neurological emergencies: coma, status epilepticus, intracranial hypertension - Pain, anxiety, sedation - Brain death and organ donation - Pharmacology and toxicology - Polytrauma, traumatic brain injury and burns	77	1			*		*
NICU		Senior	A1.57	Understand the physiological, anatomical and pharmacological considerations for the premature and neonate.	81	1			*	*	
			A1.58	Know the following about the normal heart and blood vessels: - The anatomy of the heart. - The normal physiology of the cardiovascular system. - The generation and conduction of the electrical activity in the heart. - The mechanism of metabolic regulation within the heart.	84	1			*		*
CCU		Junior	A1.59	Understand the pathophysiology of hypertension.	85	1		*	*	*	
			A1.60	Understand the factors influencing atherogenic heart disease, cholesterol metabolism, and prevention of coronary atherosclerosis.	85	1		*	*	*	
		Senior	A1.61	The resident should know the following about the normal heart and blood vessels: - The anatomy of the heart. - The normal physiology of the cardiovascular system. - The generation and conduction of the electrical activity in the heart. - The mechanism of metabolic regulation within the heart.	84	1			*		*

			A1.62	Disorders of the cardiovascular system: - Describe the pathophysiology, diagnose, investigate and treat heart failure. - Discuss the pathophysiology of hypotension and shock. - Describe the pathophysiology of high output states. - Describe the disturbances of cardiac rhythm and conduction. - Describe mechanisms of arrhythmias and conduction abnormalities. - Describe the mechanisms of sudden death.	84	1		*		*
			A1.63	The resident will understand the pathophysiology of angina pectoris, myocardial infarction and other manifestations of myocardial ischemia.	85	1		*		*
			A1.64	The heart and other medical problems: Describe the changes found in the cardiac system with: - Pregnancy - Aging - Obesity - Chronic renal failure - Electrolyte disturbances - Stress	86	1		*		*
			A1.65	Pulmonary hypertension and other cardiac disorders: - Discuss the pathophysiology and complications of bacterial endocarditis Be familiar with commonly used protocols for prophylaxis of bacterial endocarditis. - Be familiar with myocardial disease. - Describe the effects of trauma on the heart.	85	1		*		*
			A1.66	Understand the pathophysiology angina pectoris, myocardial infarction and other manifestations of myocardial ischemia.	85	1		*		*
A2 Assessment & Diagnosis	CORE ANESTHESIA	Junior	A2.1	Assess the suitability for discharge to Intensive Care Unit (ICU), intermediate care, ward and home settings.	19	1	*	*		*
			A2.2	Identify complications as they occur in the perioperative period.	19	1	*	*		*
			A2.3	Identify risk factors for postoperative complications of anesthetics	19	1	*	*		*
			A2.4	Predict, identify impediments to recovery in the perioperative period, e.g.: - Postoperative nausea and vomiting - Pain - Functional impairment - Ileus - Malnutrition	19	1	*	*		*
			A2.5	Identify and correct equipment malfunction before and during anesthesia care.	19	1	*	*		*
			A2.6	Select, apply, and interpret information from the appropriate monitors, including invasive and noninvasive blood pressure monitors, 5-lead EKG, neuromuscular monitor, oximeter, end-tidal gas monitor, temperature, urine output, and invasive monitors of cardiac output and filling.	19	1	*	*		*
			A2.7	Identify and correct sources of error in the above monitoring equipment.	20	1	*	*		*
			A2.8	Appropriately assess the patient and the risks of perioperative patient management, taking into account the underlying medical condition, surgical procedure, coexisting patient factors including other medical problems, anxiety, discomfort, culture, language, ethnicity, age, and gender.	20	1	*	*		*
			A2.9	Provide anesthetic care with specific reference to pregnant patients for obstetric and nonobstetric procedures, patients in the geriatric age group, and ambulatory patients.	20	1	*	*		*
	TRAUMA	Junior	A2.10	Understand the core principles of trauma care: - Trauma prehospital care - Initial evaluation, team approach, triage, and surgical priorities. - Trauma patient monitoring - Ultrasound and echocardiography in trauma - Trauma patient postoperative care - Chemical and radiologic exposures in trauma	25	1	*	*		*
			A2.11	Completely evaluate a trauma patient preoperatively, anticipating the need for special equipment for airway and or resuscitative management.	26	1	*	*		*
			A2.12	Critically evaluate trauma cases for better outcome and quality management.	28	1	*	*		*

		OBSTETRIC ANESTHESIA	Senior	A2.13	Diagnose the following obstetric complications: -Pre-eclampsia/eclampsia -Preterm labor -Amniotic fluid embolism -Fatty liver of pregnancy -Chorioamnionitis -Fetal death -Prolapsed umbilical cord -Tetanic contractions -Maternal resuscitation and life support -Placenta previa and placental abruption	30	1		*		*		
				A2.14	Identify and assess the following medical/surgical issues in the obstetric patient: - Diabetes - Hypertension - Heart disease (e.g. corrected congenital heart disease, valvular heart disease, coronary artery disease, shunts) - Hemoglobinopathy and coagulopathy (e.g. sickle cell disease, thalassemia, Von Willebrand disease) - Neurological diseases (e.g. raised intracranial pressure, central nervous system diseases, peripheral nervous system diseases, muscular dystrophy, mental health) - Trauma	30	1		*		*		
				A2.15	To interpret information used for assessment of fetal well-being and to identify the anesthetic implications of that information: -Biophysical profile - Fetal heart rate monitoring -Scalp sampling -Doppler blood flow	30	1		*		*		
				A2.16	To diagnose the following obstetric complications: -Pre-eclampsia/eclampsia -Preterm labor -Amniotic fluid embolism -Fatty liver of pregnancy -Chorioamnionitis -Fetal death -Prolapsed umbilical cord -Tetanic contractions -Maternal resuscitation and life support -Placenta previa and placental abruption	30	1		*		*		
			INTENSIVE CARE	Junior	A2.17	Demonstrate diagnostic skills for ethical and effective patient care.	43	1,2	*	*	*	*	
				A2.18	To perform, interpret the findings of, present, and document a physical examination that is relevant and appropriate	43	1,2	*	*	*	*		
				A2.19	To select medically appropriate investigative tools, interpret the results of common diagnostic tests, and demonstrate an understanding of their cost effectiveness, limitations and complications.	43	1	*	*	*	*		
				Senior	A2.20	To formulate a comprehensive patient problem list, synthesize an effective diagnostic plan	43	1		*	*	*	
				Junior	A2.21	Recognize common rhythm disturbances.	43	1	*	*	*	*	
					A2.22	Interpret blood gases and assess acid-base status.	43	1	*	*	*	*	
				Senior	A2.23	To personally examine and review each of the assigned patients before morning rounds.	44	2,3					
					A2.24	To interpret an electrocardiogram and recognize important life-threatening findings.	44	1		*	*	*	
					A2.25	Be familiar with indication and interpretation of TEE.	44	1		*	*	*	
					A2.26	Identify problems in a critically ill patient and generate a problem list.	45	1		*	*	*	
				CARDIAC ANESTHESIA	Senior	A2.27	interpret ECG for ischemia, infarction, arrhythmias, and paced rhythms, and to recognize the limitations and the sensitivity/specificity of ECG as an ischemia monitoring tool.	49	1		*	*	*
						A2.28	Interpret CVP and data from PA catheter (PAP, PCWP, Cardiac output) and know its indications, complications, and management.	50	1		*	*	*
			A2.29		Understand laboratory monitoring of the coagulation system (PTT, INR, fibrinogen) as applied to the cardiac patient.	50	1		*	*	*		
			A2.30		Understand the indicators of volume status, especially when weaning from bypass, and including the findings from invasive monitors, TEE, and clinical indicators (urine volume).	50	1		*	*	*		
			A2.31		Recognize the parameters used to assess intraoperative blood loss and options to treat blood loss including medical and surgical alternatives.	50	1		*	*	*		
			A2.32		Assess the adequacy of mechanical ventilation using clinical parameters and laboratory arterial blood gas analysis.	50	1		*	*	*		
			A2.33		Know current indications and recommendations for SBE prophylaxis.	50	1		*	*	*		

REGIONAL ANESTHESIA	Senior	A2.34	To use appropriate intraoperative blood work for the management of patient care, and be aware of new monitoring devices (noninvasive CO, BIS) and their potential applications during cardiac surgery.	50	1		*		*
		A2.35	To complete a detailed history, physical exam, order appropriate laboratory and ancillary investigations, and provide a management plan for a cardiac surgical patient.	50	1		*		*
		A2.36	Complete a detailed history, physical exam, order appropriate laboratory and ancillary investigations, for a cardiac surgical patient.	50	1,2		*	*	*
		A2.37	Complete a detailed history, physical exam, order appropriate laboratory and ancillary investigations for a cardiac surgical patient.	50	1,2		*	*	*
		A2.38	Perform/assist the following procedures: - IV regional - Spinal anesthesia - Epidural anesthesia/analgesia - Thoracic - Lumbar - Caudal - Cervical plexus block - Brachial plexus block - Interscalene - Supraclavicular - Axillary - Infraclavicular block - Intercostal, intrapleural block - Paravertebral block, thoracic and lumbar - Lower limb blocks - Femoral - Sciatic - Obturator - Lateral femoral cutaneous - Ankle block	53	2			*	
	Junior	A2.39	Demonstrate competency and cognitive knowledge by oral and/or written examination on the following topics: - IV regional - Spinal anesthesia - Epidural anesthesia/analgesia - Thoracic - Lumbar - Caudal - Cervical plexus block - Brachial plexus block - Interscalene - Supraclavicular - Axillary - Infraclavicular block - Intercostal, intrapleural block - Paravertebral block, thoracic and lumbar - Lower limb blocks - Femoral - Sciatic - Obturator - Lateral femoral cutaneous - Ankle block	56	1,2	*	*		*
		A2.40	To be aware of the monitoring requirements of various regional techniques according to the standard guidelines	58	1,2	*	*	*	*
		A2.41	Demonstrate knowledge acquisition in the following areas: Complications/side effects, including: IV toxicity, local anesthetic overdose, neural injury, needle trauma to surrounding tissue (i.e. hematoma, pneumothorax, dural puncture), unintended neural blockade (i.e. phrenic nerve, epidural).	53	1		*		*
	Senior	A2.42	Demonstrate an ability to perform the following specific objectives for all regional anesthetic techniques. - To discuss the advantages, disadvantages and physiological implications of regional anesthesia with patients. - To discuss regional anesthesia + GA vs. GA vs. regional anesthesia. - Nerve localization - To describe anatomic landmarks for performance of blocks. - To use a nerve stimulator or ultrasound for identification of plexuses and peripheral nerves.	55	1,2		*	*	*

PAIN MEDICINE	A2.43	Contraindications and complications - To know relative and absolute contraindications. - To be aware of the complications of regional anesthesia. - To describe the complications of regional anesthesia and the risk factors, presentation, diagnosis and treatment of: - Failed block - Intravascular injection of LA - Systemic toxicity - Total spinal - Over dosage - Epidural hematoma and abscess - PDPH - Hypotension	56	1		*		*
	Senior	A2.44	Obtain a complete pain history and perform a relevant physical examination.	59	2			*
	Junior	A2.45	Demonstrate knowledge of specific diagnostic modalities (indications, contraindications, complications, and techniques).	59	1,2	*	*	*
	Senior	A2.46	Formulate a differential diagnosis which incorporates pharmacologic and non-pharmacologic modalities of treatment.	59	1		*	*
VASCULAR ANESTHESIA		A2.47	Assess pain in the perioperative period.	60	1		*	*
	Senior	A2.48	Perform the preoperative evaluation and preparation of the vascular patient: - Clinical predictors of increased perioperative CVS risk, type of surgery, ACC/AHA guidelines on perioperative cardiovascular evaluation care of patients undergoing noncardiac surgery, assess and optimize coexisting disease (coronary artery disease, heart failure, cardiac valvular disease, diabetes mellitus, COPD and tobacco abuse, renal failure, cerebrovascular disease), coronary revascularization before noncardiac surgery risks vs. benefits, PTCA and stenting before noncardiac surgery Implications and optimal timing of noncardiac surgery after PTCA and stenting.	63	1		*	*
		A2.49	Perform monitoring during vascular anesthesia electrocardiography arrhythmias, conduction defects, myocardial ischemia (three electrode system, modified three electrode system, five electrode system, pulse oximetry, capnometry, noninvasive blood pressure monitoring, body temperature, invasive hemodynamic monitoring.	64	1		*	*
	Junior	A2.50	Demonstrate knowledge in the following topics: Clamp level: infrarenal, suprarenal, supraceliac - Thoracoabdominal aortic aneurysm surgery etiology and preoperative preparation and monitoring - Classification of TAAA's - Morbidity and mortality - Neurologic complications: anatomy and blood supply of spinal cord, artery of Adamkiewicz, cerebrovascular accidents, spinal cord infarction, paraplegia, Crawford's classification of TAAA's and incidence of paraplegia	64	1	*	*	*
			Spinal cord protection - Renal ischemia and protection - Stents: graft devices and approval - Patient selection - Preoperative diagnostic imaging of aneurysm, surrounding anatomy and device sizing - Indications for CSF drainage in TEVAR - Complications (damage to access vessels, endoleaks, graft migration, Renal ischemia, paraplegia, stroke, aorto-esophageal fistula, conversion to open) - Patient outcomes: open vs. Endovascular					

Senior	A2.51	Consider hematologic parameters in vascular surgery (normal hemostasis, laboratory evaluation, congenital bleeding disorders, acquired bleeding disorders, platelet defects, hypercoagulable states and venous thrombosis), antithrombin III deficiency, protein C deficiency, protein S deficiency, defects in fibrinolysis, venous thrombosis, anticoagulant therapy, heparin, LMWH and heparinoids, Coumadin, platelet inhibitors, herbal therapy, thrombolytic therapy, pentoxifylline (procoagulant therapy), tranexamic acid, desmopressin (intraoperative blood loss and replacement, postoperative bleeding and reoperation).	64	1		*		*
Junior	A2.52	Demonstrate knowledge in the following topics: - Thoracoabdominal aortic aneurysm surgery etiology and preoperative preparation and monitoring - Classification of TAAA's - Morbidity and mortality - Neurologic complications: anatomy and blood supply of spinal cord, artery of Adamkiewicz, cerebrovascular accidents, spinal cord infarction, paraplegia, Crawford's classification of TAAA's and incidence of paraplegia	64	1	*	*		*
	A2.53	Spinal cord protection - Patient selection - Preoperative diagnostic imaging of aneurysm, surrounding anatomy and device sizing - Indications for CSF drainage in TEVAR - Complications (damage to access vessels, endoleaks, graft migration, Renal ischemia, paraplegia, stroke, aorto-esophageal fistula, conversion to open) - Patient outcomes: open vs. Endovascular						
	A2.54	Demonstrate knowledge in lower extremity revascularization epidemiology and natural history of peripheral vascular disease, pathophysiology of atherosclerosis, medical therapy for atherosclerosis and complications of medical therapy, chronic medical problems and risk prediction in peripheral vascular disease patients, acute arterial occlusion, chronic arterial occlusion, surgical management, preoperative preparation and monitoring, regional versus general anesthesia, neuraxial anesthesia and agents affecting hemostasis, risk of spinal or epidural hematoma, anesthetic management, postoperative considerations.	65	1	*	*		*
	A2.55	Demonstrate knowledge in carotid endarterectomy, surgical indications, perioperative cardiovascular morbidity and mortality, preoperative evaluation, anesthetic management: - GA vs. regional anesthesia vs. local anesthesia: advantages and disadvantages of each - Superficial and deep cervical plexus block - Neurologic monitoring and cerebral perfusion, neurologic assessment of awake patient, assessment of cerebral blood flow, cerebral electrical activity electroencephalography ± computer processing steps, cerebral oxygenation, jugular venous oxygen saturation, cerebral oximetry postoperative considerations, neurologic injury, postoperative hyperperfusion syndrome blood pressure liability, cranial nerve and carotid body dysfunction, airway and ventilation problems, cardiac ischemia/MI - Endovascular treatment of carotid disease: carotid angioplasty and stenting	65	1	*	*		*

	Senior	A2.56	Demonstrate knowledge invasive monitoring in ICU complications post vascular surgery, including: complications of invasive monitoring, complications of the surgical procedure, respiratory complications (risk factors, pulmonary disease, cardiac disease, emergency surgery)	66	1		*		*
NEUROANESTHESIA	Senior	A2.57	Demonstrate clinical knowledge and skills necessary for the practice of neuroanesthesia including: - Preoperative neurological assessment (using Glasgow Coma Scale, Classification for SAH and basic neurological exam). - Understanding basic principles of neurophysiologic monitoring: EEG, evoked potential (SSEP, BAEP), transcranial Doppler, cerebral oximetry, and intracranial pressure monitoring methods available.	68	1		*		*
THORACIC ANESTHESIA	Senior	A2.58	Demonstrate knowledge of the principles and practice of anesthesia as they apply to patient support during thoracic surgery.	72	1		*		*
		A2.59	Physical examination (respiratory pattern, respiratory rate and pattern, breath sounds)	72	2			*	
		A2.60	Diagnostic studies (EKG, CXR, ABG)	72	1		*		*
		A2.61	Assessment of respiratory function (respiratory mechanics and volumes: spirometry, flow-volume loops; lung parenchymal function: diffusing capacity for carbon monoxide; cardiopulmonary interaction: maximal oxygen consumption; ventilation-perfusion scintigraphy, split-lung function studies).	72	1		*		*
		A2.62	Preoperative evaluation of the patient undergoing thoracic surgery, including: history (dyspnea, cough, cigarette smoking, exercise tolerance, risks factors for acute lung injury)	72	1		*		*
		A2.63	Monitoring during thoracic anesthesia: - Oxygenation (pulse oximetry, ABGs), capnometry, invasive hemodynamic monitoring (arterial line, CVP, PAC, TEE, continuous spirometry) - Positioning (lateral position). - Physiology of one lung ventilation. - One lung ventilation indications, methods of lung separation - Double-lumen tubes (design, size selection, insertion methods, positioning complications, contraindications), Univent tube, bronchial blockers - Management and strategies to improve oxygenation during one lung ventilation. - Anesthetic management and techniques - General anesthesia, regional anesthesia, combined epidural blockade and general anesthesia, fluid management, nitrous oxide, temperature, prevention of bronchospasm, CAD - Hypoxic pulmonary vasoconstriction mechanisms effects of anesthetics, nitric oxide.	73	1		*		*
		A2.64	Assessment of respiratory function (respiratory mechanics and volumes: spirometry, flow-volume loops; lung parenchymal function: diffusing capacity for carbon monoxide; cardiopulmonary interaction: maximal oxygen consumption; ventilation-perfusion scintigraphy, split-lung function studies). Factors and medical conditions affecting the outcome including: - Cardiovascular disease (ischemia, arrhythmia) - Age - Renal dysfunction - COPD (respiratory drive, elevated PaCO ₂ at rest, nocturnal hypoxemia, right ventricular dysfunction, bullae, flow limitation, auto-peep) Restrictive pulmonary disease: - Primary thoracic tumors - Anesthetic considerations in lung cancer patients (mass effects, metabolic effects, metastases, medications, intrathoracic metastatic manifestations, extrathoracic metastatic manifestations, extrathoracic nonmetastatic manifestations)	73	1		*		*

			Preoperative preparation of the patient undergoing thoracic surgery, including: - Premedication - Treat bronchospasm, atelectasis, infection and pulmonary edema preoperatively - Hydration and removal of bronchial secretions, physiotherapy, smoking cessation						
		A2.65	Anesthetic management for common surgical procedures - Flexible fiberoptic bronchoscopy, rigid bronchoscopy (apneic oxygenation, apnea and intermittent ventilation, Sanders injection system, mechanical ventilator, HFPPV), mediastinoscopy, VATS, thoracotomy - Anesthesia for patients undergoing bronchoalveolar lavage - Anesthetic implications of spontaneous pneumothorax - Anesthesia for patients undergoing bullectomy and volume reduction pneumoplasty - Anesthesia for patients undergoing decortication and pleurodesis procedures - Anesthesia for patients undergoing esophageal surgery - Anesthesia for patients undergoing laser surgery of the airway. - Physics of lasers, laser surgery of the airway, intraoperative considerations, complications - Anesthesia for patients undergoing lung transplantation. - Pathophysiology of the transplanted lung, preoperative assessment and patient selection, donor selection and procurement, preoperative preparation, postoperative analgesia, operation for single-lung transplantation, bilateral sequential single-lung versus double-lung transplantation, postoperative Signs and symptoms, diagnostic evaluation, anesthetic implications and management (airway obstruction, vascular/cardiac compression, superior vena cava syndrome) - Anesthesia for patients with thoracic outlet syndrome - Anesthesia for patients undergoing thymectomy: myasthenia gravis - myasthenic syndrome - Anesthesia for patients undergoing tracheal resection and trancheobronchial reconstruction - Surgical considerations, perioperative management issues, modes of ventilation - Anesthesia for patients undergoing urgent surgery - Anesthesia for patients with massive hemoptysis, anesthesia for patients undergoing removal of foreign body from the airways, anesthesia for patients undergoing endoscopy for ingested foreign bodies - Complications of thoracic surgery and their management strategies: 1- Respiratory failure and management of postoperative mechanical ventilation, atelectasis, pneumothorax, cardiac herniation, cardiac	74	1,2		*	*	*
PICU	Senior	A2.66	To demonstrate thorough knowledge of clinical features, diagnosis, complications, prognosis and prevention of common PICU problems Cardiopulmonary failure and arrest - Respiratory failure - Shock - Septic shock and multiple organ dysfunction syndrome (MODS) - Nutrition: enteral and parenteral - Renal failure, electrolytes and acid-base abnormalities - Hematologic dysfunction and blood products replacement therapy - Neurological emergencies: coma, status epilepticus, intracranial hypertension - Pain, anxiety, sedation - Brain death and organ donation - Pharmacology and toxicology - Polytrauma, traumatic brain injury and burns	77	1		*		*
		A2.67	Recognize, assess and stabilize critically ill pediatric patient.	77	1		*		*
		A2.68	Demonstrate the ability to obtain and document complete and focused medical history.	77	2			*	

		A2.69	Demonstrate the ability to perform and document complete and focused physical examination.	78	2			*	
		A2.70	Interpret commonly employed laboratory tests (blood gas, biochemical or hematological tests), imaging, EKG and monitoring (invasive or noninvasive).	78	1		*		*
		A2.71	Integrate history physical examination and laboratory test findings into a meaningful diagnostic formulation in the care of critically ill pediatric patient.	78	1		*		*
		A2.72	understand and adapt patient assessment based on important determinants of health (psychosocial, economic and biologic).	79	1		*		*
		A2.73	Develop the ability to perform focused histories and physical examinations in the PICU.	79	2			*	
NICU	Senior	A2.74	Perform a history and physical assessment of a neonate requiring admission to the NICU.	81	2			*	
		A2.75	Gain an appreciation of the presentation, diagnosis of the following: - Transient tachypnea of the newborn - Respiratory distress syndrome - Bronchopulmonary dysplasia - Pulmonary interstitial emphysema - Necrotizing enterocolitis - Intraventricular hemorrhage - Hyperbilirubinemia - Neonatal asphyxia	81	1		*		*
		A2.76	Interpret laboratory results and CXR in the newborn and premature infant.	81	1		*		*
		A2.77	Assess and initiate resuscitation of the asphyxiated newborn according to NRP guidelines.	81	1,2		*	*	*
		A2.78	Identify neonatal patients requiring resuscitation.	81	1		*		*
CCU	Senior	A2.79	Take a complete cardiovascular history and physical examination of the heart, peripheral vasculature, precordium, and lungs. - Interpret the resting electrocardiogram and chest x-ray. - Assess patients with abnormal myocardial contractility, electrical or conduction abnormalities in the heart, and myocardial ischemia and infarction.	84	1,2		*	*	*
		A2.80	Disorders of the cardiovascular system: - Diagnose, investigate patients with chest pain. - Describe the diagnosis and investigation heart failure. Describe the physical findings, investigation of shock and acute pump failure. - Describe the investigation of high output states. - Describe the disturbances of cardiac rhythm and conduction. Describe and investigate mechanisms of arrhythmias and conduction abnormalities. Have a clear differential diagnosis of the patient with syncope. - Describe the mechanisms of sudden death. The resident will discuss the predictors and prevention of sudden cardiac death.	84	1		*		*
		A2.81	Understand the investigation of angina pectoris, myocardial infarction and other manifestations of myocardial ischemia. - Discuss the diagnosis of nonatherosclerotic coronary artery disease including coronary artery spasm.	85	1		*		*
		A2.82	Disease of the heart and blood vessels: Describe the history, physical findings, investigation for patients with the following conditions: - Rheumatic fever - Aortic valve disease - Mitral valve disease - Tricuspid and pulmonary valve disease	85	1		*		*
		A2.83	Systemic arterial hypertension: Describe a plan of investigation for hypertensive patient.	85	1		*		*

			A2.84	Pulmonary hypertension and other cardiac disorders: - Discuss the investigation, diagnosis of primary pulmonary hypertension, pulmonary embolism, pulmonary infarction, acute cor pulmonale and chronic cor pulmonale. - Discuss the investigation and complications of bacterial endocarditis. - Be familiar with myocardial disease, diagnose and investigate cardiomyopathies. - Diagnose, the patient with acute and chronic pericardial disease. - Describe the effects of trauma on the heart. - Describe the diagnosis, investigation of patients who have peripheral vascular disease. Describe the physical findings, investigation and treatment of patients who have peripheral venous disease.	85	1		*		*
			A2.85	The resident will understand the pathophysiology and investigation of angina pectoris, myocardial infarction and other manifestations of myocardial ischemia. - The resident will discuss the diagnosis of nonatherosclerotic coronary artery disease including coronary artery spasm.	85	1		*		*
			A2.86	The resident will be familiar with the following techniques. The resident will discuss the complications of these techniques: - Electrocardiography - Exercise test - Holter monitoring - His bundle electrocardiography - Cardioversion - Techniques for insertion of perivenous and epicardial pacemakers - Echocardiography and transesophageal echocardiography (tee) - Cardiac catheterization - Swan-ganz catheterization - Intra-aortic balloon augmentation of cardiac output - Cardiopulmonary bypass - Percutaneous transluminal coronary angioplasty	86	1		*		*
			A2.87	The resident will be able to assess cardiac patients pre-operatively for noncardiac surgery and be able to order appropriate investigations as well as optimize patients for surgery.	86	1		*		*
			A2.88	The resident will triage and prioritize those patients requiring the most urgent care.	87	1		*		*
	MEDICAL ROTATION	Senior	A2.89	Identify cardiovascular risk stratification using updated risk indices.	89	1		*		*
			A2.90	Discuss medical complications of pregnancy (diabetes mellitus, hypertension, thyroid disease, thromboembolism).	89	1		*		*
			A2.91	Use of diagnostic tests for cardiac and pulmonary patient (e.g. echocardiogram stress test, pulmonary function test etc.) as preoperative assessment tests and implementation of guidelines.	89	1		*		*
A3 Management	CORE ANESTHESIA	Junior	A3.1	Appropriately select and administer a complete spectrum of anesthetic and analgesic agents for the induction and maintenance of anesthesia, taking into account the relative advantages and disadvantages of each approach, and to tailor each approach to the specific anesthetic goals for each individual case.	19	1,2	*	*	*	*
			A3.2	Appropriately select and administer a complete spectrum of drugs for cardiovascular support and resuscitation during anesthesia and the perioperative period, taking into account the relative advantages and disadvantages of each approach, and to tailor each approach to the specific anesthetic goals for each individual case.	19	1	*	*		*
			A3.3	Independently perform specific techniques for the administration of general, local and regional anesthesia, with a sufficient spectrum of choice to meet the anesthetic goals for all patients within the scope of practice defined above.	19	1,2	*	*	*	*
			A3.4	Manage complications as they occur in the perioperative period.	19	1	*	*		*
			A3.5	Modify anesthetic plans to minimize postoperative complications	19	1	*	*		*
			A3.6	Contribute to the alleviation of impediments to recovery in the perioperative period, e.g.: - Postoperative nausea and vomiting - Pain - Functional impairment - Ileus - Malnutrition	19	1	*	*		*
			A3.7	Use the anesthesia machine to provide anesthesia care, including performing appropriate safety inspection.	19	1,2	*	*	*	*
			A3.8	Select and administer appropriate fluids and blood products, taking into account the indications, contraindications, and correct procedures.	20	1	*	*		*

TRAUMA

A3.9	Appropriately modify management in response to monitoring information, and change in patient, anesthetic, or surgical factors.	20	1	*	*		*
A3.10	Manage adult patients in a variety of settings, e.g.: - Elective, urgent, and emergent/trauma procedures - Sites distant from the operating room - Unforeseen emergencies (e.g. malignant hyperthermia and anaphylaxis)	20	1	*	*		*
A3.11	Manage complications of fluid and blood product administration in the entire perioperative period.	20	1	*	*		*
A3.12	Independently perform all technical skills necessary to manage adult patients in the perioperative period, e.g.: - Routine and difficult airway management - Techniques of monitored anesthesia care (MAC) - Local and regional anesthesia - Techniques of general anesthesia including induction, maintenance, and emergence techniques - Peripheral and central venous access invasive monitoring - Resuscitation of the critically ill adult patient (with reference to ACLS and ATLS procedures and protocols)	20	2			*	
A3.13	Formulate and implement an individualized plan for perioperative patient management, taking into account the underlying medical condition, surgical procedure, coexisting patient factors including other medical problems, anxiety, discomfort, culture, language, ethnicity, age, and gender.	20	1	*	*		*
A3.14	Provide anesthetic care with specific reference to pregnant patients for obstetric and nonobstetric procedures, patients in the geriatric age group, and ambulatory patients.	20	1	*	*		*
A3.15	Initiate appropriately individualized perioperative pain management strategies.	20	1	*	*		*
Junior A3.16	To understand the core principles of trauma care: - Prehospital care - Initial management, team approach, and mass casualty management. - Airway management and algorithms for emergency induction and intubation - Vascular cannulation - Shock resuscitation, fluid therapy, and damage control resuscitation - Blood component therapy, trauma coagulopathy, and massive transfusion protocols - General anesthesia for trauma - Regional anesthesia for trauma - Trauma patient postoperative care - Chemical and radiologic exposures in trauma	25	1,2	*	*	*	*
A3.17	To thoroughly set up for an emergency case including anesthesia machine checkout, selection of routine and special monitoring devices, selection of appropriate airway equipment, selection of vascular access catheters and fluid delivery systems, choose appropriate anesthetic and resuscitation drugs, create an environment for temperature homeostasis.	26	1,2	*	*	*	*
A3.18	To describe the anesthetic management for the following special populations: - Burn trauma patients - Pediatric trauma patients - Geriatric trauma patients - Pregnant trauma patients	26	1	*	*		*
A3.19	To perform the following procedures: - Endotracheal intubation with and without inline cervical immobilization including, but not limited to, direct and fiberoptic techniques on both awake and unconscious patients (The procedure may be performed in the operating room, trauma resuscitation unit, or emergency department, and the resident should be able to manage the most challenging airways.) - Use of tracheal tube introducers, supraglottic airways, and videolaryngoscopy - Percutaneous cricothyroidotomy and retrograde intubation (task simulator) - Induction, maintenance, and emergence of general anesthesia - Invasive monitoring - Patient positioning for common procedures with attention to pressure points and eye protection - Regional anesthetic blocks for extremity and other procedures for which they are indicated	26	2			*	

OBSTETRIC
ANESTHESIA

A3.20	To understand the core principles of trauma care: -Trauma prehospital care -Initial management, team approach, and mass casualty management. -Airway management and algorithms for emergency induction and intubation -Vascular cannulation -Shock resuscitation, fluid therapy, and damage control resuscitation -Blood component therapy, trauma coagulopathy, and massive transfusion protocols -General anesthesia for trauma -Regional anesthesia for trauma -Trauma patient postoperative care	25	1	*	*		*
A3.21	Manage trauma patient preoperatively, anticipating the need for special equipment for airway and or resuscitative management.	26	1	*	*		*
A3.22	Anticipate the need for special equipment for airway and or resuscitative management for trauma patients	26	1	*	*		*
A3.23	Manage patients in the Postanesthesia Care Unit.	27	1	*	*		*
A3.24	Make therapeutic decisions and to provide a rationale, taking into account the effect of pharmacologic agents and anesthetic techniques on uterine blood flow and fetal development.	29	1		*		*
A3.25	To provide effective labor analgesia by means of: -Nonpharmacologic analgesia (e.g. emotional support, acupuncture, and Lamaze technique) -Pharmacologic analgesia, including parenteral opioid, patient-controlled, inhalational, and regional analgesia (e.g. epidural, spinal, or combined)	29	1		*		*
A3.26	To formulate an individualized treatment plan, and to provide a rationale based on: -Physiology and anatomy of labor pain -Family involvement and patient satisfaction -Consent issues concerning labor analgesia -Goals of analgesia and strategies for maintenance -Physiologic effects, contraindications, and complications of obstetric analgesia	29	1		*		*
A3.27	Direct the management of the following obstetric complications, and to provide a rationale based on the pathophysiology, pharmacological management, expected obstetric management, and anesthetic implications: -Pre-eclampsia/eclampsia -Preterm labor -Amniotic fluid embolism -Fatty liver of pregnancy -Chorioamnionitis -Fetal death -Prolapsed umbilical cord -Tetanic contractions -Maternal resuscitation and life support -Placenta previa and placental abruption	30	1		*		*
A3.28	To interpret information used for assessment of fetal well-being and to identify the anesthetic implications of that information: -Biophysical profile -Fetal heart rate monitoring -Scalp sampling -Doppler blood flow	30	1		*		*
A3.29	To diagnose and direct the management of the following obstetric complications, and to provide a rationale based on the pathophysiology, pharmacological management, expected obstetric management, and anesthetic implications: -Pre-eclampsia/eclampsia -Preterm labor -Amniotic fluid embolism -Fatty liver of pregnancy -Chorioamnionitis -Fetal death -Prolapsed umbilical cord -Tetanic contractions -Maternal resuscitation and life support -Placenta previa and placental abruption	30	1		*		*
A3.30	To formulate and implement a plan for anesthetic management of the following situations, and to provide a rationale based on relative advantages and disadvantages, contraindications, and complications: -Anesthesia for instrumental vaginal delivery -Anesthesia for elective, urgent, and emergency cesarean section -Airway management in the parturient -Anesthetic implications of multiple gestation and malpresentations (e.g. twins, breech, and transverse lie)	30	1		*		*

		A3.31	To formulate and implement a plan for the anesthetic management of obstetric hemorrhage, and to provide a rationale that takes into account: -Classification and differential diagnosis -Maternal and fetal effects of hemorrhage -Anesthetic considerations -Commonly used obstetric drugs	30	1		*		*
		A3.32	To formulate and implement an appropriate anesthetic plan, and to provide a rationale based on the pathophysiology and anesthetic implications of the abovementioned problems.	30	1		*		*
		A3.33	To formulate and implement a plan for the anesthetic management for nonobstetrical surgery in the healthy or complicated pregnant patient, and to provide a rationale that takes into account: -Physiologic changes of pregnancy -Fetal and maternal effects of anesthetic drugs and interventions -Risk assessment and choice of anesthetic -Intraoperative considerations including positioning and monitoring -Postoperative considerations including monitoring and analgesia	31	1		*		*
		A3.34	To demonstrate the following skills: -Spinal anesthesia -Epidural anesthesia -Combined Spinal and Epidural (CSE) anesthesia -General anesthesia for cesarean section or other indication	31	1,2		*	*	*
	INTENSIVE CARE	Junior	A3.35	Demonstrate therapeutic skills for ethical and effective patient care.	43	1,2	*	*	*
		Senior	A3.36	Synthesize an effective therapeutic plan, and establish an appropriate follow-up plan.	43	1		*	*
			A3.37	Apply basic airway management skills (bag/mask ventilation and uncomplicated intubation).	44	1		*	*
			A3.38	Be familiar with airway management and indications for intubation.	44	1		*	*
			A3.39	Use inotropes and vasopressors appropriately.	44	1		*	*
			A3.40	Demonstrate therapeutic skills for ethical and effective patient care.	43	1		*	*
		Junior	A3.41	Provide basic ventilator orders for most patients.	44	1	*	*	*
		Senior	A3.42	Outline a plan to address the problems identified for each patient.	45	1		*	*
			A3.43	place central line with appropriate technique (e.g. using US guidance).	44	2			*
			A3.44	Place arterial line with appropriate technique (e.g. using US guidance)	44	2			*
		Junior	A3.45	Understand the principles of ACLS and to apply them in patient resuscitation.	44	1	*	*	*
	CARDIAC ANESTHESIA	Senior	A3.46	Acquire skills of arterial and central venous cannulation (with ultrasound), peripheral venous cannulation, and pulmonary artery catheterization.	49	2			*
			A3.47	To understand the basics of introductory TEE, including techniques of probe insertion and several basic views, and its implication and application to the critically ill patient.	50	1		*	*
			A3.48	To know the significance of temperature management in the intraoperative period, including hypothermic techniques and the importance of normothermia during beating heart procedures.	50	1		*	*
			A3.49	To manage medical bleeding.	50	1		*	*
			A3.50	To correct common derangements in metabolic and electrolyte disturbances in the intraoperative period.	50	1		*	*

	A3.51	To know the management of patients with complications of: - Coronary artery disease, acute myocardial ischemia and infarction, complications of myocardial infarction and thrombolytic therapy - Valvular heart disease and valve replacement or repair - Aortic dissection, thoracic and thoracoabdominal aortic aneurysm - Shock and the use of volume resuscitation, venodilators/constrictors, inotropes, and lusitropes - Emergencies requiring ACLS - Cardiac tamponade, constrictive pericarditis - Dilated, restrictive and obstructive cardiomyopathy, CHF, and diastolic dysfunction - Aberrant conduction, dysrhythmia, sudden acute and subacute ventricular and supra-ventricular arrhythmia - Pacemakers and the indications for and applications of the various modes of temporary pacing - Pneumothorax - Pulmonary edema, pneumonia, CHF - COPD, asthma, sleep apnea in the ventilated patient - Heparin-induced thrombocytopenia and heparin resistance - Neurologic risk stratification during CPB procedures - Renal failure and its management - Diabetes and endocrine control, and the implications of hyperglycemia	51	1		*		*	
	A3.52	Know The appropriate use of pain medications, non-steroidal anti-inflammatory drugs and regional anesthetic techniques in cardiac surgical patients.	49	1		*		*	
	A3.53	Provide a management plan for a cardiac surgical patient.	50	1		*		*	
	A3.54	To know management of patients with complications of: - Coronary artery disease, acute myocardial ischemia and infarction, complications of myocardial infarction and thrombolytic therapy - Valvular heart disease and valve replacement or repair - Aortic dissection, thoracic and thoracoabdominal aortic aneurysm - Shock and the use of volume resuscitation, venodilators/constrictors, inotropes, and lusitropes - Emergencies requiring ACLS - Cardiac tamponade, constrictive pericarditis - Dilated, restrictive and obstructive cardiomyopathy, CHF, and diastolic dysfunction - Aberrant conduction, dysrhythmia, sudden acute and subacute ventricular and supra-ventricular arrhythmia - Pacemakers and the indications for and applications of the various modes of temporary pacing - Pneumothorax - Pulmonary edema, pneumonia, CHF - COPD, asthma, sleep apnea in the ventilated patient - Heparin-induced thrombocytopenia and heparin resistance - Neurologic risk stratification during CPB procedures - Renal failure and its management - Diabetes and endocrine control, and the implications of hyperglycemia	51	1		*		*	
REGIONAL ANESTHESIA	Senior	A3.55	Provide a management plan for a cardiac surgical patient.	50	1,2		*	*	*
		A3.56	Demonstrate knowledge of management of local anesthetic overdose, neural injury, needle trauma to surrounding tissue (i.e. hematoma, pneumothorax, dural puncture), unintended neural blockade (i.e. phrenic nerve, epidural).	53	1		*		*

PAIN
MEDICINE

	A3.57	Demonstrate an ability to perform the following specific objectives for all regional anesthetic techniques. - Anesthetic planning - To elaborate an anesthetic plan including appropriate options, contingency plans and expansions. - To select regional anesthetic techniques for anesthetic care. - To know regional techniques in pediatrics. - Nerve localization - To describe anatomic landmarks for performance of blocks. - To use a nerve stimulator or ultrasound for identification of plexuses and peripheral nerves.	55	1,2		*	*	*
	A3.58	Contraindications and complications - To describe guidelines for regional anesthesia for patient taking anticoagulant drugs, and to interact with surgeon and administrators to create policies governing the interaction of anticoagulant therapy and anesthetic/analgesic management. - To describe the treatment of: - Failed block - Intravascular injection of LA - Systemic toxicity - Total spinal - Over dosage - Epidural hematoma and abscess - PDPH - Hypotension	56	1		*		*
Junior	A3.59	Demonstrate competency and cognitive knowledge by oral and/or written examination on the following topics: - IV regional - Spinal anesthesia - Epidural anesthesia/analgesia - Thoracic - Lumbar - Caudal - Cervical plexus block - Brachial plexus block - Interscalene - Supraclavicular - Axillary - Infraclavicular block - Intercostal, intrapleural block - Paravertebral block, thoracic and lumbar - Lower limb blocks - Femoral - Sciatic - Obturator - Lateral femoral cutaneous - Ankle block	56	1,2	*	*	*	*
Junior	A3.60	Demonstrate knowledge of specific treatment modalities (indications, contraindications, complications, and techniques).	59	1	*	*		*
	A3.61	Formulate a treatment plan, which incorporates pharmacologic and non-pharmacologic modalities of treatment.	59	1	*	*		*
	A3.62	Describe the options available for perioperative analgesia, their advantages and disadvantages, and select appropriate therapies for each individual patient.	60	1	*	*		*
	A3.63	To use a multimodal approach by utilizing both pharmacological and nonpharmacological modalities. Chronic pain management: The resident should be able to apply knowledge gained in the treatment of the following specific pain disorders: - Complex regional pain syndrome - Neuropathic pain syndromes (i.e. peripheral diabetic neuropathy, postherpetic neuralgia) - Central pain syndromes - Intractable anginal pain - Visceral pain - Pelvic pain - Headaches - Pain related to peripheral vascular insufficiency - Role of personality disorders, anxiety states, depression, compensation and disability	60	1	*	*		*
	A3.64	Demonstrate knowledge of chronic pain medication (opioids, antiinflammatory drugs, anticonvulsants, antidepressants).	59	1	*	*		*
	A3.65	Be aware of national practice guidelines for chronic pain management, especially in relation to controlled medications.	59	1	*	*		*

VASCULAR ANESTHESIA

	A3.66	Demonstrate knowledge of basic interventional techniques commonly employed in chronic pain medicine including: peripheral nerve blocks, sympathetic blockade for upper & lower extremity, trigger point injections, epidural steroid injections, blocks for diagnosis and treatment of the facet joint syndrome, and sacroiliac joint injections.	59	1	*	*		*
	A3.67	To demonstrate basic knowledge of the management of an ambulatory care pain clinic.	61	1	*	*		*
Junior	A3.68	To demonstrate competence in BLS, ACLS and ATLS.	63	1,2	*	*	*	*
Senior	A3.69	To know the etiology and prevention of perioperative myocardial ischemia: - Perioperative medical management of coronary artery disease: nitrates, adrenergic blockade (2-agonists, calcium channel blockers, statins, ACE inhibitors)	64	1		*		*
Junior	A3.70	To demonstrate knowledge in the following topics: Clamp level: infrarenal, suprarenal, supraceliac - Anesthetic management: autologous blood transfusion, anesthetic drugs and techniques, thoracic epidural - Thoracoabdominal aortic aneurysm surgery etiology and preoperative preparation and monitoring - Classification of TAAA's Spinal cord protection - Renal ischemia and protection - Coagulation and metabolic management - One lung ventilation - Anesthetic management - Endovascular aortic repair - Stents: graft devices and approval - Patient selection - Preoperative diagnostic imaging of aneurysm, surrounding anatomy and device sizing - Endovascular technique for EVAR and TEVAR - Anesthetic management: regional vs. GA - Indications for CSF drainage in TEVAR - Complications (damage to access vessels, endoleaks, graft migration, Renal ischemia, paraplegia, stroke, aorto-esophageal fistula, conversion to open) - Patient outcomes: open vs. Endovascular	64	1	*	*		*
	A3.71	Demonstrate knowledge of medical therapy for atherosclerosis and complications of medical therapy, surgical management, preoperative preparation and monitoring, regional versus general anesthesia, neuraxial anesthesia and agents affecting hemostasis, risk of spinal or epidural hematoma, anesthetic management, postoperative considerations. Demonstrate knowledge in carotid endarterectomy, surgical indications, perioperative cardiovascular morbidity and mortality, anesthetic management: - GA vs. regional anesthesia vs. local anesthesia: advantages and disadvantages of each - Superficial and deep cervical plexus block - Endovascular treatment of carotid disease: carotid angioplasty and stenting	65	1	*	*		*
Senior	A3.72	To demonstrate knowledge in postoperative management of vascular patients, including postoperative pain management: - Mechanical ventilation - Technical skills - Proficiency in the provision of thoracic epidural analgesia for upper abdominal and thoracic surgical procedures - Airway management for bronchoscopy, one lung ventilation and insertion of spinal drains and CSF monitoring for thoracic aneurysm repair - Starting large bore intravenous infusions, arterial lines, CVP and PA lines in vascular surgical patients	66	1,2		*	*	*

NEUROANESTHESIA	Senior	A3.73	Demonstrate clinical knowledge and skills necessary for the practice of neuroanesthesia including: - Intraoperative support including: - Special Positioning (sitting, prone, park-bench, lateral and knee-chest). - Specific interventions: systemic arterial hypotension/hypertension, CSF drainage, ICP management, hypothermia and precordial Doppler monitoring for air embolus. - Management of specific perioperative complications such as seizures, cerebral ischemia, intracranial hypertension, intraoperative aneurysm rupture, air embolism, cranial nerve dysfunction and neuroendocrine disturbance (DI, SIADH). - Postoperative management of neurological patients in PACU, ICU and the Neuro-Observation Unit.	68	1,2		*		*
		A3.74	Demonstrate basic understanding of the impact of commonly performed neurosurgical procedures on anesthetic management.	68	1		*		*
		A3.75	Demonstrate competence in all technical procedures commonly employed in neuroanesthesia practice, including airway management (basic and difficult), cardiovascular and neuroresuscitation, invasive monitoring (arterial line, central line and LP drain placement).	68	2			*	
		A3.76	Develop and implement a rational anesthetic plan of management for each of the following neurosurgical procedures: - Craniotomy for mass lesions (tumor, abscess, hematoma) - Cerebrovascular procedures (aneurysm, AVM, carotid vascular disease) - CSF shunting procedures - Transsphenoidal surgery - Stereotactic procedures - Awake craniotomy - Neuroradiological procedures (embolization, thrombolytic, MRI) - Spine surgery	68	1		*		*
THORACIC ANESTHESIA	Senior	A3.77	Demonstrate competence in BCLS, ACLS and ATLS.	72	1,2		*	*	*
		A3.78	Demonstrate knowledge of the principles and practice of anesthesia as they apply to patient support during thoracic surgery.	72	1		*		*
		A3.79	Anesthetic management for common surgical procedures - Flexible fiberoptic bronchoscopy, rigid bronchoscopy (apneic oxygenation, apnea and intermittent ventilation, Sanders injection system, mechanical ventilator, HFPPV), mediastinoscopy, VATS, thoracotomy - Anesthesia for patients undergoing bronchoalveolar lavage - Anesthetic implications of spontaneous pneumothorax - Anesthesia for patients undergoing decortication and pleurodesis procedures - Anesthesia for patients undergoing esophageal surgery - Anesthesia for patients undergoing laser surgery of the airway. - Physics of lasers, laser surgery of the airway, intraoperative considerations, complications - Anesthesia for patients undergoing lung transplantation. - Pathophysiology of the transplanted lung, preoperative assessment and patient selection, donor selection and procurement, preoperative preparation, postoperative analgesia, operation for single-lung transplantation, bilateral sequential single-lung versus double-lung transplantation, postoperative management - Anesthesia for patients with mediastinal masses	74	1		*		*

		<p>Anesthetic implications and management (airway obstruction, vascular/cardiac compression, superior vena cava syndrome)</p> <ul style="list-style-type: none"> - Anesthesia for patients with thoracic outlet syndrome - Anesthesia for patients undergoing thymectomy: myasthenia gravis myasthenic syndrome - Anesthesia for patients undergoing tracheal resection and trancheobronchial reconstruction - Surgical considerations, perioperative management issues, modes of ventilation - Anesthesia for patients undergoing urgent surgery - Anesthesia for patients with massive hemoptysis, anesthesia for patients undergoing removal of foreign body from the airways, anesthesia for patients undergoing endoscopy for ingested foreign bodies - Complications of thoracic surgery and their management strategies: <ol style="list-style-type: none"> 1- Respiratory failure and management of postoperative mechanical ventilation, atelectasis, pneumothorax, cardiac herniation, cardiac ischemia and arrhythmias, low cardiac output syndrome, hemorrhage, nerve injuries (brachial plexus, sciatic nerve, peroneal nerve) 2- Postoperative pain management - Systemic analgesia, local anesthetics/nerve blocks (intercostal nerve blocks, intrapleural analgesia, thoracic paravertebral block, epidural analgesia), shoulder pain, post-thoracotomy neuralgia and chronic incisional pain 						
	A3.80	Be proficient in the provision of thoracic epidural analgesia for upper abdominal and thoracic surgical procedures	74	1,2		*	*	*
	A3.81	Be skilled in airway management for bronchoscopy, mediastinal masses and one-lung ventilation	74	1,2		*	*	*
	A3.82	Be skilled in starting large bore intravenous infusions, arterial lines, CVP and PA lines in thoracic surgical patients.	74	1,2		*	*	*
PICU	Junior	A3.83	To demonstrate knowledge of all guidelines concerning trauma and trauma management.	27	1	*	*	*
	Senior	A3.84	Recognize, assess and stabilize critically ill pediatric patient.	77	1		*	*
	Senior	A3.85	Demonstrate thorough knowledge of management, of common PICU problems Cardiopulmonary failure and arrest <ul style="list-style-type: none"> - Respiratory failure - Shock - Septic shock and multiple organ dysfunction syndrome (MODS) - Nutrition: enteral and parenteral - Renal failure, electrolytes and acid-base abnormalities - Hematologic dysfunction and blood products replacement therapy - Neurological emergencies: coma, status epilepticus, intracranial hypertension - Pain, anxiety, sedation - Brain death and organ donation - Pharmacology and toxicology - Polytrauma, traumatic brain injury and burns 	77	1		*	*
		A3.86	Become familiar with technical procedures: non-invasive airway management and theory of rapid sequence intubation, venous or arterial access and lumbar puncture.	77	1,2		*	*
		A3.87	Understand the roles and implications of aggressive care, palliative care and code status decision.	77	1		*	*
		A3.88	Understand and adapt management based on important determinants of health (psychosocial, economic and biologic).	79	1		*	*
		A3.89	Understand basic principles of mechanical ventilation (modes, strategies, weaning).	78	1		*	*
		A3.90	Integrate history physical examination and laboratory test findings into a meaningful treatment plan in the care of critically ill pediatric patient.	78	1			
NICU	Senior	A3.91	Understand the principles of neonatal resuscitation.	81	1		*	*
		A3.92	Gain an appreciation of the management of the following: <ul style="list-style-type: none"> - Transient tachypnea of the newborn - Respiratory distress syndrome - Bronchopulmonary dysplasia - Pulmonary interstitial emphysema - Necrotizing enterocolitis - Intraventricular hemorrhage - Hyperbilirubinemia - Neonatal asphyxia 	81	1		*	*
		A3.93	Initiate resuscitation of the asphyxiated newborn according to NRP guidelines.	81	1		*	*

			A3.94	Gain proficiency in the following procedural skills: - Intravenous access in the premature and newborn infant, including umbilical vein/artery catheterization - Mask ventilation, oral intubation, and nasal intubation of the newborn infant - Tracheal suctioning in the newborn suspected of meconium aspiration - Initiation of controlled ventilation of the newborn and premature infant - CPR - Perform lumbar puncture in the septic newborn	81	2			*	
			A3.95	Develop a management plan for the following neonatal surgical emergencies: necrotizing enterocolitis, patent ductus arteriosus, congenital diaphragmatic hernia, tracheoesophageal fistula, omphalocele, gastroschisis.	82	1		*		*
	CCU	Senior	A3.96	Disease of the heart and blood vessels: Describe the current management of patients with the following conditions: - Rheumatic fever - Aortic valve disease - Mitral valve disease - Tricuspid and pulmonary valve disease	85	1		*		*
			A3.97	Systemic arterial hypertension: Describe a plan of management to the hypertensive patient.	85	1		*		*
			A3.98	Disorders of the cardiovascular system: - Manage patients with chest pain. - Describe the management of shock and acute pump failure. - Manage all common arrhythmias and rhythm abnormalities. - Have a clear plan of management of the patient with syncope. - Describe the prevention of sudden cardiac death. - Discuss the current standards of cardiopulmonary resuscitation.	84	1		*		*
			A3.99	Pulmonary hypertension and other cardiac disorders: - Discuss the treatment of primary pulmonary hypertension, pulmonary embolism, pulmonary infarction, acute cor pulmonale and chronic cor pulmonale. - Discuss the treatment of bacterial endocarditis. Be familiar with commonly used protocols for prophylaxis of bacterial endocarditis. - Treat cardiomyopathies. - Manage and treat the patient with acute and chronic pericardial disease. - Describe treatment of patients who have peripheral vascular disease. Describe the current management of aneurysms of the aorta. Describe the treatment of patients who have peripheral venous disease.	85	1		*		*
			A3.100	Discuss the treatment of nonatherosclerotic coronary artery disease including coronary artery spasm.	85	1		*		*
			A3.101	Describe the indications for cardiac pacing. Discuss the various forms of cardiac pacemakers.	86	1		*		*
			A3.102	Be familiar with the following techniques and therapeutic procedures & discuss the complications of these techniques: - Electrocardiography - Exercise test - Holter monitoring - His bundle electrocardiography - Cardioversion - Techniques for insertion of perivenous and epicardial pacemakers - Echocardiography and transesophageal echocardiography (tee) - Cardiac catheterization - Swan-ganz catheterization - Intra-aortic balloon augmentation of cardiac output - Cardiopulmonary bypass - Percutaneous transluminal coronary angioplasty	86	1,2		*	*	*
			A3.103	Assess cardiac patients pre-operatively for noncardiac surgery and be able to order appropriate investigations as well as optimize patients for surgery.	86	1		*		*
		Senior	A3.104	Apply perioperative management of medications, anticoagulation, and steroids.	89	1		*		*
			A3.105	Practice the perioperative management of common clinical problems (e.g diabetes mellitus and hypertension).	89	1		*		*
			A3.106	Justify approach to postoperative cardiac and respiratory complications.	89	1		*		*
			A3.107	Justify approach to postoperative electrolyte abnormalities.	89	1		*		*
A4 Health Promotion &	CORE ANESTHESIA	Junior	A4.1	Recognize individual and systemic issues with an impact on anesthetic care and safety of the adult patient.	23	1	*	*		*

Illness prevention	PEDIATRIC ANESTHESIA	Senior	A4.2	To demonstrate knowledge of safe anesthesia working practices such as effective anesthesia gas scavenging and appropriate handling of narcotics.	42	1		*	*	
		INTENSIVE CARE	Junior	A4.3	Identify the important determinants of health.	46	1	*	*	*
			CAEDIC ANESTHESIA VASCULAR ANESTHESIA	Senior	A4.4	Know Pharmacology of perioperative risk reduction strategies (lipid lowering agents, β -blockers, aspirin).	49	1		*
		A4.5		To understand perioperative renal protection (cardiac performance and perfusion pressure, fluid management, mannitol, N-acetylcysteine, fenoldopam).	64	1		*	*	
		A4.6		To know the etiology and prevention of perioperative myocardial ischemia: - Perioperative stress response and risk of myocardial ischemia - Perioperative medical management of coronary artery disease: nitrates, adrenergic blockade (2-agonists, calcium channel blockers, statins, ACE inhibitors)	64	1		*	*	
		A4.7		Discuss perioperative management of thromboembolic disease.	89	1		*	*	
		MEDICAL ROTATION	A4.8	Employ endocarditis prophylaxis.	89	1		*	*	
		B Communicator	Verbal	Junior	B.1	Listening to patients, answering their questions, and decreasing their anxiety	21-60	3		*
B.2	Impart sufficient information to patients and appropriate family members or delegates to allow a complete understanding of the implications of the planned procedure, options, risks and benefits.				21	3		*	*	
B.3	Be able to deliver bad news to patients and family members.				21-83	3		*	*	
B.4	Record appropriate information for anesthetics and consultations provided.				22	2		*	*	
B.5	Resolve conflicts or provide feedback when appropriate.				22	3		*	*	
B.6	Communicate identified concerns and risks to patients, other health care professionals, and administration as applicable.				23	3		*	*	
B.7	To present patients in a cohesive systematic approach to an attending anesthesiologist and propose an anesthetic plan.				26	2,3		*	*	
B.8	Display effective communication skills with patients and family members, colleagues, nursing staff, respiratory therapists, administrative staff, and other support personnel.				27	3		*	*	
B.9	Be able to recognize conflict in patient care situations, professional relationships, and value systems, and demonstrate the ability to discuss and resolve differences of opinion. Additionally, to be able to accept constructive feedback and criticism and implement appropriate advice.				22-34-42	3		*	*	
B.10	Gather sufficient information from the patient, family members, and/or medical personnel to identify factors that contribute to perioperative management problems, e.g.: -Medical and surgical status of the patient - Patient expectations, beliefs and concerns (in addition to medical history) -Age, gender, and ethnocultural, spiritual, and socioeconomic background				21-43	3		*	*	
B.11	Provide clear, concise and timely verbal and written communication as applied to progress notes, sign over of patient care, and discharge planning.				44	3		*	*	
B.12	Demonstrate effective communication skills in dealing with the patient's problems.				57	3		*	*	
B.13	Demonstrate respect and compassion, be able to communicate that the patient's problems have been understood, and describe options, side effects and complications of various anesthetic options in a manner such that the patient can make an informed decision regarding choice of anesthesia.				57-69	3		*	*	
B.14	Provide appropriate handover to residents on-call at the end of the day.				58	3		*	*	
B.15	Demonstrate appropriate oral and written communication skills in inpatient, outpatient, and OR environments.				60	2		*	*	
B.16	Demonstrate effective communication with the OR team (vascular surgeons, nurses and other members of the healthcare team) and postoperative team (ICU, PACU), by providing clear and concise written consultation and anesthetic records.				66-75	2,3		*	*	
B.17	Demonstrate skills in conveying and discussing scientific research to scientific communities through posters, abstracts, teaching slides manuscripts, grant applications, or other scientific communications				91	3		*	*	
B.18	Communicate and collaborate effectively with research team members to conduct the research.				91	3		*	*	

Senior	B.19	Exchange information with the patients, their family, and other healthcare team members, and to encourage patient participation in decision-making, including pregnant patients in challenging situations (e.g. pain, anxiety, fetal concerns) and obtaining the appropriate consent.	21-31-34-44-57	3			*
	B.20	Apply knowledge of age-specific psychological concerns of pediatric patients with respect to anesthesia and surgery and the ability to respond to these concerns at an age-appropriate level.	40	3			*
	B.21	Discuss appropriate information with the child, family and other healthcare provider, surgeons and nursing staff to facilitate the optimal management plan for the care of the patient. This should include discussion of anesthetic procedures, options and risk, answering questions and decreasing anxiety.	40-44	3			*
	B.22	Participate in pediatric anesthesia rounds in order to continue to develop formal communication skills involved in a presentation of a topic and response to questions from peers.	40	3			*
	B.23	Present the history and physical findings of critically ill patients to the attending physician in an organized and concise manner.	43-44	3			*
	B.24	Establish a professional relationship with patients and families.	44	3			*
	B.25	Communicate with patients and families regarding informed consent, medical condition, plan of treatment, prognosis, secondary prevention, adverse events, medical uncertainty, medical errors, autopsy, and organ donation.	21-44-60	3			*
	B.26	Demonstrate effective communication with patients and families (description of procedures, informed consent, anesthetic options and risks).	51	3			*
	B.27	Demonstrate effective communication with OR team (cardiac surgeons, nurses, perfusionists) and postoperative team, particularly during the initiation conduct and removal of cardiopulmonary bypass.	51-52-58	3			*
	B.28	Drovide clear and concise written consultation and anesthetic records.	51	2			*
	B.29	Make decisions when the family must be relied upon for substitute decisionmaking when the patient is incapable of deciding for himself or herself.	57	1,3		*	*
	B.30	Demonstrate an ability to provide appropriate information to the patients and/or their family so they can make an informed decision (and obtain consent) regarding regional anesthesia as: - A primary anesthetic technique. - A component of intra- and postoperative analgesia. - Dealing with adverse outcomes.	58	3			*
	B.31	Inform the patient of the options available, the associated risks and benefits, as well as the expectations and progress in a manner that is understandable to the patient.	61	2			*
	B.32	Demonstrate effective communication with patients and families of description of procedures, informed consent and anesthetic options and risks.	62-66-75	3			*
	B.33	Establish a therapeutic relationship with patients and their families in the limited time available.	69	3			*
	B.34	Obtain and collate relevant history from patients and families.	69	2			*
	B.35	Communicate effectively with medical/surgical colleagues, nurses, and paramedical personnel regarding the anesthetic management of the patient.	69	3			*
	B.36	Demonstrate effective tools for gathering historical information from patients and their families in the critical care settings.	78	2,3			*
	B.37	Present efficiently patient problems, assessment and treatment plan during rounds.	78	2			*
	B.38	Discuss diagnoses, investigations and management options with patients and their families.	78	3			*
	B.39	Deliver understandable information to patients and their families dealing with difficult situations.	78	3			*
	B.40	Communicate and support patients and families confronted with critical illness.	78	3			*
	B.41	Be exposed to communication of difficult news to families of children with critical illness.	78	3			*
	B.42	Effectively communicate with consultants, asking appropriate questions.	78	3			*
	B.43	Recognize the unique stressful environment of the critical care environment.	78	3			*
	B.44	Communicate clearly with other healthcare workers and students.	82	3			*

	2.2 Non-verbal		B.45	Explain procedures in a clear manner and obtain informed consent from the parents for invasive procedures (e.g. lumbar puncture, transfusion in the newborn).	82	2,3			*	
			B.46	Answering questions and keeping the parents updated of the infants progress in a caring, reassuring and compassionate manner	83	3			*	
			B.47	Be able to effectively communicate with the patient and their family regarding all aspects of their care. This includes being able to put the patient at ease as well as eliciting all necessary information from the patient.	86	3			*	
			B.48	Be able to communicate effectively with other specialty services regarding cardiology patients.	87	3			*	
			B.49	Be able to perform complete consultations and communicate their concerns and issues in writing as well as verbally.	87	3			*	
			B.50	Know when consultation with other services is required and in the best interest of the patient.	87	3			*	
			B.51	Accurately elicit and synthesize information from patients, families, colleagues, and other professionals	89	2,3			*	
			B.52	Convey accurately relevant information and treatment plans to patients, families, colleagues, and other professionals	89	3			*	
			B.53	Convey effective oral and written information about the encounter	90	2,3			*	
		Junior	B.54	To maintain a complete anesthetic record during all cases either hand written or with an automated, computerized record keeper if applicable.	26	2			*	
		B.55	To behave properly with trauma patients, their family, and all personnel involved in patient care (e.g. the anesthesiology team, surgical team, and nursing staff).	28	3			*		
		B.56	To gather appropriate information concerning the following issues, while demonstrating consideration of the special situation of the pregnant patient (e.g. stress, anxiety, and pain): - Medical and surgical status of the patient and fetus - Patient expectations, beliefs, and concerns (in addition to medical history)	31	2			*		
		B.57	To demonstrate respect, empathy, and confidentiality while considering the influences of age, gender, and ethnocultural, spiritual, and socioeconomic background of the patient	31	3			*		
		B.58	To demonstrate consideration and compassion in communicating with patients and families.	44	3			*		
		B.59	To write daily progress notes on assigned patients. The notes are expected to be clear and should identify the relevant daily events and issues for each patient.	45	2			*		
		Senior	B.60	To establish a therapeutic relationship with both pediatric patients and parents, emphasizing understanding, trust, empathy and confidentiality.	40	3			*	
		B.61	To elicit and synthesize relevant information from the patient and family and be able to assess and take into account, the impact of the child's age, gender, ethno cultural background, social supports, and emotional influences on illness and preoperative clinical course.	40	2,3			*		
		B.62	Demonstrate empathy, consideration and compassion in communicating with patients and families.	69	3			*		
		B.63	Demonstrate appropriate written communication skills through accurate, legible, and complete documentation of the anesthetic record, patient chart and in consultation.	70	2			*		
		B.64	Provide clear and concise written consultation and anesthetic records.	75	2			*		
		B.65	Demonstrate the ability to obtain and document complete and focused medical history.	77	2			*		
		B.66	Demonstrate the ability to perform and document complete and focused physical examination.	78	2			*		
		B.67	Provide a clear concise summary of the newborn problems both verbally and in a written format.	82	2			*		
		B.68	The resident will document clearly, concisely and legibly all aspects of their involvement with the patient.	87	2			*		
		B.69	Convey effective oral and written information about the encounter	90	2			*		
		C Collaborator	Junior	C.1	Consult other physicians and allied health professionals in order to provide optimal perioperative care.	21	3			*
		C.2	Promote cooperation and communication among health professionals involved in patient care (nurses, obstetricians, neonatologists, and anesthesiologists) regarding areas of responsibility, and consistent patient information.	32	3			*		
		C.3	Show recognition of personal limits through appropriate consultation (with staff supervisors, other physicians, and other health professionals) and show appropriate respect for those consulted.	34	3			*		
		C.4	Contribute effectively to other interdisciplinary team activities.	45	3			*		

	C.5	Develop an ability to work effectively and harmoniously with other healthcare workers.	45	3			*
	C.6	Identify and describe the role, expertise and limitations of all members of an interdisciplinary team required to optimally achieve a goal related to patient care, a research problem, an educational task, or an administrative responsibility.	45	3			*
	C.7	Identify, consult and collaborate with appropriate experts to conduct the research	92	3			*
	C.8	To collaborate in a professional and competent manner when acting as a consultant, or when consulting other disciplines.	27	3			*
	C.9	To identify and describe the role (expertise and limitations) of all members of the maternal/fetal interdisciplinary care team dealing with obstetric patient care.	32	3			*
	C.10	To participate in patient care as a part of a multidisciplinary obstetrical care team in the obstetrical suite, recovery room, OR, ICU, ER, Preoperative Assessment Clinic, etc. whenever the resident's participation is expected or requested. Participation will include demonstrating the ability to consider and respect the opinions of other team members while personally contributing specialty specific expertise.	32	3			*
	C.11	To consult with, and delegate or transfer care to, other health professionals (e.g. mother to PACU/ICU, neonate to NICU).	32	3			*
	C.12	Consult effectively with other physicians and healthcare professionals.	45	3			*
	C.13	To effectively participate in interdisciplinary rounds, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing personal specialty-specific expertise.	45	3			*
	C.14	Respect the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.	62	3			*
Senior	C.15	To coordinate the care of pediatric patients with other members of the OR team, especially surgeons and nurses as well as staff in the ICU, ward and PACU and in offsite locations such as radiology and the cardiac catheterization laboratory.	41	3			*
	C.16	To recognize the need to utilize other specialists for the care and management of the critical patient.	52	3			*
	C.17	To demonstrate a professional attitude and competent manner when acting as a consultant as well as be able to consult other disciplines when appropriate.	57	3			*
	C.18	Develop their anesthetic plan for their patients in consultation and in concert with surgery, nursing and ICU for more complicated neurosurgical patients.	70	3			*
	C.19	Understand and value the skills of other specialists and healthcare professionals.	70	3			*
	C.20	Be able to understand, accept and respect the opinions of others on the neuroteam.	70	3			*
	C.21	To seek perioperative consultation with colleagues when required.	75	3			*
	C.22	Respect the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.	76	3			*
	C.23	Recognize and respect the roles of allied healthcare professionals (physicians, nursing personnel, RT, OT, PT, dieticians, pharmacists, social workers, secretaries) in the management of critically ill patients.	79	3			*
	C.24	Demonstrate appropriate use of consultant services.	79	3			*
	C.25	To work and communicate effectively in a team with other physicians and allied healthcare professionals to develop a care plan for the patient.	79	3			*
	C.26	Work effectively as an integral member of the NICU team	82	3			*
	C.27	Understand the role and importance of each member in the care of the NICU patient	82	3			*
	C.28	Encouraging input from the multidisciplinary team members	82	3			*
	C.29	The resident will interact with other physicians and health professionals in a mature, respectful and professional manner.	87	3			*
	C.30	To provide consultation in the trauma resuscitation unit or emergency department timely.	27	3			*
	C.31	To consult with other physicians and healthcare professionals and demonstrate appropriate judgment regarding the assessment of pediatric anesthetic risk.	41	3			*
	C.32	To contribute effectively to other interdisciplinary team activities.	75	3			*
	C.33	Understand the role of the neonatologist in the peripartum management of the neonate	82	1		*	*
	C.34	The resident will strive to involve other medical subspecialties when necessary, as well as other allied health professionals in order to better care for their patients.	87	3			*
	C.35	Participate in an inter-professional healthcare team	90	3			*
	C.36	Effectively work with other health professionals to deal with inter-professional conflict	90	3			*

D Manager/ Leader	Junior	D.1	Demonstrate ability to work in a team in a clinical environment.	21	3				
		D.2	Coordinate care of adult patients with other members of the Operating Room (OR), Postanesthesia Care Unit, ICU, and others.	21	3				
		D.3	Manage urgent and crisis situations such as cardiac arrest, trauma, anaphylaxis, and malignant hyperthermia, as a team member or a team leader.	21	3				
		D.4	Work in a team to resolve conflicts or provide feedback when appropriate.	32	3				
		D.5	Seek perioperative consultation with colleagues when required, and to contribute effectively with other interdisciplinary team activities by demonstrating the ability to function in the clinical environment using the full abilities of all team members.	66	3				
		D.6	Demonstrate an understanding of the respective abilities of all team members.	61	1				
		D.7	To be able to be team player.	61	3				
		D.8	Demonstrate knowledge of the management of operating rooms.	22	3				
		D.9	Demonstrate knowledge of the contributors to anesthetic expenditures.	22	3				
		D.10	Explain how an anesthetic department is structured and managed.	22	1				
		D.11	Demonstrate principles of quality assurance, and be able to conduct morbidity and mortality reviews.	22	1,2				
		D.12	Use personal and outside resources effectively to balance patient care, continuing education, practice, and personal activities.	22	3				
		D.13	Manage assigned room/slate regarding maintaining the schedule, changing the schedule in response to emergencies, delays, additional cases, etc.	22	3				
		D.14	Manage after-hours scheduling of cases, including prioritization and adaptation to changes.	22	3				
		D.15	Schedule coresidents to various list assignments when responsible as senior resident.	22	3				
		D.16	Use limited health resources appropriately, e.g.: - Time for patient assessment, OR equipment preparation, anesthesia induction and emergence, and OR changeover - Expenses of anesthesia resources, including cost-effective drug and technique choice, equipment and invasive monitoring options	22	3				
		D.17	Participate in the assessment of outcomes of patient care and practice, including Quality Assurance (QA) methods. These include: - Maintaining a personal record of experience and outcomes (log of experience) - Participating in case reviews	22	3				
		D.18	Implement standards and guidelines related to anesthetic practice and equipment.	23	3				
		D.19	Continually review personal and professional abilities and demonstrate a pattern of continuing development skills and knowledge through education.	24	3				
		D.20	Identify problems of physical and mental health including chemical dependence, stress, depression, and ways to deal with these problems in oneself and others.	24	1				
		D.21	Act as trauma anesthesia team leader under the supervision of the attending staff.	26	3				
		D.22	To be aware of the cost of various treatment modalities and the necessity of allocating resources appropriately, particularly in internal and external disaster planning.	27	1				
		D.23	To use personal and outside resources effectively to balance patient care, continuing education, practice, and personal activities.	32	3				
		D.24	Demonstrate wise use of available obstetrical care resources.	32	3				
		D.25	Demonstrate an understanding of the cost of investigative tools	43	3				
		D.26	To allocate finite healthcare resources wisely	45	3				
		D.27	To work effectively and efficiently in a healthcare organization	45	3				
		D.28	Use information technology to optimize patient care and lifelong learning.	45	3				
		D.29	To complete the tasks discussed on rounds in a timely manner.	45	3				
		D.30	To seek help appropriately and appreciate personal limitations.	45	3				
		D.31	Apply the principles of quality improvement and quality assurance.	46	3				
		D.32	To be aware of the value of quality assurance, and morbidity and mortality review.	58	3				
		D.33	Demonstrate knowledge of quality assurance to outcomes in a chronic pain clinic.	61	3				
		D.34	Demonstrate effective time management skills.	61	3				
		D.35	Establish a pattern of continuing development of personal clinical skills and knowledge through medical education.	62	3				

	D.36	To show recognition of limits of personal skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.	67	3				
	D.37	Independently utilize available resources and regularly meet with an identified research mentor.	92	3				
Senior	D.38	To foster healthy team relationships.	51	3				
	D.39	To involve the attending anesthesiologist in the room and the surgeon in all decisions pertaining to a patient's postoperative analgesia management plans.	57	3				
	D.40	Demonstrate the ability to function in the clinical environment using the full abilities of all team members (surgical, nursing, ICU, etc.).	70	3				
	D.41	To contribute to productive communication and cooperation among colleagues.	79	3				
	D.42	Synthesize and communicate a clear plan to the team members	82	3				
	D.43	To manage urgent and crisis situations such as hemodynamic or respiratory instability and cardiac arrest as a team member or leader.	41	3				
	D.44	Function in the OR as a member of the neuroteam and work in a positive, constructive manner, respecting the importance of the roles of all team members.	70	3				
	D.45	Understand the limits of their knowledge and skills.	70	3				
	D.46	To demonstrate ability to function in the clinical environment using the full abilities of all team members.	75	3				
	D.47	Demonstrate an increasing sense of responsibility and case ownership	82	3				
	D.48	To manage urgent and crisis situations such as fetal distress, maternal hemorrhage, cardiac arrest, trauma, and anaphylaxis, as a team member or a team leader.	32	3				
	D.49	To discuss the administrative aspects of obstetrical anesthetic practice, including: - Budgets including anesthetic costs - Ordering appropriate anesthetic equipment supplies - Quality assurance programs - Practice and equipment guidelines - Maintaining appropriate records	32	3				
	D.50	To manage: - Daily elective and emergent cases on the labor floor (including preparation, time management, facilitating completion, adjusting case order, etc.) - On-call experience including facilitation and prioritization of emergency cases; duties as a resident member of obstetrical anesthesia (section committee/team)	33	3				
	D.51	To maintain a personal record of experience and outcomes (log of experience)	33	2				
	D.52	To participate in any scheduled obstetric case reviews	33	3				
	D.53	To demonstrate efficient use of time regarding, patient assessment, OR setup, anesthesia induction, transfer to PACU or ICU, and OR turnover.	41	3				
	D.54	To demonstrate the ability to make judgments regarding the cost-effective use of anesthesia resources in drug and equipment options and monitoring.	41	3				
	D.55	To demonstrate awareness of the principles and priorities for patient scheduling, OR lists (elective and emergent) and ICU/PACU/ward care postoperatively.	41	3				
	D.56	To manage assigned rooms with regards to maintaining the schedule or changing the schedule in response to emergencies and additional cases.	41	3				
	D.57	To manage after hours scheduling of cases, including prioritization and adapting to changes.	41	3				
	D.58	To use personal resources effectively in order to balance patient care, continuing education, and personal activities.	45	3				
	D.59	To use appropriate time management for effective patient care, administrative duties, and scholarly activities.	45	3				
	D.60	To implement patient care practices considering available healthcare resources	45	3				
	D.61	To manage OR time by efficiently conducting the anesthetic, continuing education, and personal activities.	52	3				
	D.62	To make effective use of healthcare resources.	52	3				
	D.63	To demonstrate responsibility in providing consultations and interventions in a timely manner.	57	3				
	D.64	To be aware of the cost of various treatment modalities and the necessity of allocating resources appropriately.	58	3				
	D.65	To use information technology to optimize patient care and lifelong learning.	61	3				
	D.66	To demonstrate understanding of: - The structure of the pain service, and how it fits in the administrative structure of the institution. - The advantages and disadvantages of alternative models. - The costs incurred by pain management strategies.	61	1				

D.67	To manage OR time by efficiently conducting the anesthetic, continuing education and personal activities utilize information technology to optimize patient care and lifelong learning	66	3					
D.68	Demonstrate the ability to manage the OR by ensuring the necessary equipment, monitoring, and medication are available, making the preparations to deal with anticipated complications, and conduct all these activities should be conducted in an effective and efficient timely manner in order to avoid OR delays.	70	3					
D.69	Utilize personal resources effectively in order to balance patient care, continuing education and personal activities.	70	3					
D.70	Utilize information technology to optimize patient care and lifelong learning.	70	3					
D.71	Adopt a leadership role in the postoperative care of their patients by anticipating and arranging for the PACU, ICU, or Neuro-Observation Unit care.	71	3					
D.72	Recognize limits of personal skill and knowledge by appropriately consulting other physicians when caring for the patient.	71	3					
D.73	Manage OR time by efficiently conducting the anesthetic, continuing education and personal activities.	75	3					
D.74	Utilize information technology to optimize patient care and lifelong learning.	75	3					
D.75	Show recognition of limits of personal skill and knowledge by appropriate consulting other physicians and paramedical personnel when caring for the patient.	76	3					
D.76	Develop time management skills to balance priorities for patient care, work practice and personal life.	79	3					
D.77	Organize and prioritize the care of many sick patients with multiple problems.	79	1					
D.78	To rationally use healthcare resources.	79	3					
D.79	Recognize and acknowledge personal emotional reactions and limitations in one's own knowledge, skills and attitudes, and to take appropriate action about this.	80	3					
D.80	To be sensitive to diversity through patient's management, didactic teaching sessions and self-directed learning, the resident should be able to fulfill the objectives for the rotation in PICU.	80	3					
D.81	Be able to utilize resources effectively	82						
D.82	Understand the difficulties of decision making related to resource allocation	83						
D.83	Practice according to national standards and provincial guidelines for the management of neonatal intensive care patients	83						
D.84	Provide expertise and leadership in maintaining and improving the standards of neonatal intensive care	83						
D.85	Manage time appropriately in order that all patients requiring attention can be seen.	87						
D.86	Supervise junior residents and medical students appropriately, as well as seek supervision from the attending staff when needed.	87						
D.87	Delegate certain responsibilities to other team members when necessary and appropriate.	87						
D.88	Must always ensure that the highest standards of care are practiced, and that all guidelines and policies are adhered to.	87						
D.89	Develop time management skills to reflect and balance priorities for patients, sustainable practice, and personal life	90						
D.90	Allocate finite healthcare resources appropriately by applying evidence	90						
E Scholar	Junior	E.1	Develop and maintain a personal learning strategy for continuing certification.	23, 34	3			
		E.2	Demonstrate knowledge of the national guidelines concerning anesthetic practice and equipment.	22	1			
		E.3	Seek out and critically appraise literature to support clinical care decisions and practice evidence-based application of new knowledge.	23	1			
		E.4	Contribute to the appropriate application, dissemination, and development of new knowledge.	23	3			
		E.5	Teach medical students, other residents, faculty members, other health professionals, and patients using the principles and methods of adult learning.	23	3			
		E.6	Continue reading around problems and cases in order to continually improve knowledge.	28	3			
		E.7	Demonstrate skill with critical appraisal of literature and evidence-based application of new knowledge.	34	3			
		E.8	Develop, implement, and monitor a personal continuing education strategy.	46	3			
		E.9	Critically appraise sources of medical information.	46	1			
		E.10	Facilitate learning of patients, students, and other healthcare professionals.	46	3			
		E.11	Read around their cases and recognize gaps in knowledge.	46	2,3			

E.12	To be aware of the medical literature available, and to understand how to search and critically appraise the medical literature	46	3				
E.13	Critically evaluate and understand outcome studies related to the influence of regional anesthesia on outcome postoperatively.	58	1				
E.14	Critically appraise sources of information in the pain management literature.	62	1				
E.15	To be able to judge whether a research project is properly designed using critical appraisal methods.	62	1				
E.16	Demonstrate knowledge of chronic pain medication (opioids, antiinflammatory drugs, anticonvulsants, antidepressants).	59	1				
E.17	To be aware of national practice guidelines for chronic pain management, especially in relation to controlled medications.	59	1				
E.18	Demonstrate commitment to continuing personal education, be able to critically review vascular anesthesia literature and describe the principles of research relevant to this population, and assist in the education of other members of the OR team.	67	3				
E.19	Critically appraise the background literature of the research project.	91	1				
E.20	Demonstrate an understanding of the basic principles of research design, methodology, biostatistics, and clinical epidemiology.	91	1				
E.21	Pose a research question (clinical, basic or population health).	92	1				
E.22	Develop a proposal to solve the research question: - Conduct an appropriate literature search based on the question. - Propose a methodological approach to solve the question.	92	1				
E.23	Carry out the research outlined in the proposal.	92	1				
E.24	Critically analyze and disseminate the results of the research.	92	1				
E.25	Identify areas for further research.	92	1				
E.26	Demonstrate personal responsibility for setting research goals and working with mentors to set and achieve research timeline objectives.	92	3				
E.27	Participate as possible in specialty organizations that promote scholarly activity and continuous professional development.	92	3				
E.28	Publish accurate and reliable research results, with attention to appropriate authorship attribution criteria.	92	3				
E.29	Independently identify an area of research interest and a research mentor in order to engage in the scholarship of scientific inquiry and dissemination.	92	1				
E.30	Disclose potential financial conflicts of interest (including speaker fees, consultative relationships, investments, etc.) as appropriate when engaging in and disseminating research results.	93	3				
E.31	Recognize the contributions of scientific research in improving the health of patients and communities.	92	1				
Senior	E.32	Understand the principles and methods of adult learning and apply these appropriately when teaching medical students, other residents, faculty members, other health professionals, and patients.	34	1			
	E.33	Develop and implement a personal continuing education strategy.	41	3			
	E.34	Demonstrate the ability to critically appraise current anesthesia literature and apply new knowledge based on appropriate evidence.	41	1			
	E.35	Perform effective oral presentation of case reports, journal club, or rounds with synthesis of pertinent information.	41	2			
	E.36	Demonstrate the ability to formulate questions for ongoing appraisal.	41	1			
	E.37	Effectively teach medical students or other residents.	41	2,3			
	E.38	Demonstrate the ability to teach medical students, residents, patients, and other healthcare professionals.	46	2,3			
	E.39	Demonstrate commitment to continuing personal education including use of information technology.	52	3			
	E.40	To be able to critically review cardiac anesthesia literature and to describe the principles of research relevant to this population.	52	1			
	E.41	Assist in education of other members of the OR team.	52	3			
	E.42	Be responsible for developing, implementing and regularly re-evaluating a personal continuing education strategy.	71	3			
	E.43	Contribute to the development of new knowledge through facilitation/participation in ongoing departmental research activities.	71	3			
	E.44	Be prepared in advance for the OR cases scheduled through additional reading, patient chart review/assessment.	71	3			
	E.45	Demonstrate commitment to continuing personal education.	76	3			
	E.46	To be able to critically review thoracic anesthesia literature and describe the principles of research relevant to this population.	76	1			
	E.47	Assist in education of other members of the OR team.	76	3			
	E.48	Demonstrate the ability to generate clinical questions related to patient care.	79	1			

			E.49	Critically appraise the literature regarding issues in critical care medicine.	79	1				
			E.50	utilize information technology to optimize patient care and lifelong learning.	79	3				
			E.51	Adapt teaching skills.	79	3				
			E.52	Have the ability to critically review the literature to understand and evaluate new information and research	83	1				
			E.53	Contribute to the learning of others; teach medical students about clinical problems	83	3				
			E.54	Demonstrate continued self-directed learning in order to improve their patient care.	88	3				
			E.55	Be able to critically appraise the literature in order to determine the optimal management plans for their patients, while ensuring that their practice is evidence based.	88	1				
			E.56	Appropriately teach more junior members of the team, while ensuring a high standard of patient care.	88	3				
			E.57	Critically appraise literature regarding the diagnosis and treatment of issues in perioperative care	90	1				
			E.58	Demonstrate an effective lecture or presentation	90	2,3				
F Health advocate		Junior	F.1	Provide direction to health administrators regarding compliance with national practice guidelines and equipment standards for anesthesia.	23	3				
			F.2	Recognize the opportunities for anesthesiologists to advocate for resources for pain management, emerging medical technologies and new healthcare practices in general.	23	3				
			F.3	Intervene on behalf of individual patients and the system as a whole regarding quality of care and safety.	23	3				
			F.4	Identify and react to risks to healthcare providers specifically including, but not limited to: -Substance abuse among anesthesiologists and other healthcare providers -Hazards in workplace environment	23	1,3				
			F.5	Identify the determinants of health related to general, obstetric, and anesthetic care, and to advocate for improved health for individual patients and communities or groups. Examples may include: -Advise to pregnant women regarding pain relief for labor and delivery -Advise to patients regarding cessation of smoking, treatment for substance abuse, appropriate diet, exercise, and weight reduction - Advise to patients regarding risk reduction with associated problems (e.g. reducing aspiration risk and patients with full stomachs) by using rapid sequence induction or delay of surgery, regional vs. general anesthesia, optimization of medical problems, and timing of surgery -Advise to government and public regarding risk associations such as alcohol consumption during pregnancy and fetal alcohol syndrome, and cigarette smoking, multiparity, and low birth weight.	33	1				
			F.6	To adhere to nationally approved guidelines and CAS and CSA standards and guidelines related to anesthetic practice and equipment.	33	3				
			F.7	To advocate for needed resources to improve obstetrical patient care, including patient safety and pain management.	33	3				
			F.8	Educate patients and families about and promote the importance of long-term healthy behaviors and preventive healthcare (e.g. smoking cessation, screening tests, vaccinations, exercise, nutrition).	46	3				
			F.9	Respect and empower patient autonomy.	46	3				
			F.10	Promote fair healthcare.	46	3				
			F.11	Appreciate the existence of global health advocacy and initiative for elimination of disease (tuberculosis, malaria, HIV), and the role of advocacy groups and funding agencies.	46	3				
			F.12	To be aware of effective use of consultation services in chronic pain management.	59	1				
		Senior	F.13	Demonstrate knowledge and recognition of broad health and societal issues with impact on anesthetic care of the pediatric surgical patient, including severe maternal chronic disorders (e.g. maternal malnutrition, hemoglobinopathies), child abuse, maternal and adolescent drug/alcohol abuse, and safety promotion (e.g. seat belt and helmet use).	42	1				
			F.14	Contribute effectively to improved health of patients and communities.	46	3				
			F.15	Recognize and respond to those issues where advocacy is appropriate.	46	3				
			F.16	Demonstrate the use of risk reduction strategies, including use of ultrasound and sterile technique for invasive lines.	52	3				
			F.17	Recognize opportunities for anesthesiologists to advocate for resources for pain management.	61	3				

		F.18	Educate both patients, and families about their pain conditions, as well as other members of the healthcare team.	61	3				
		F.19	Provide patient advocacy for various perioperative issues (i.e., patient safety, analgesia, postoperative monitoring).	67	3				
		F.20	Recognize the opportunities to advocate for neurosurgical patients, in particular with regards to patient safety.	71	3				
		F.21	provide patient advocacy for various perioperative issues (i.e. patient safety, analgesia, postoperative monitoring).	76	3				
		F.22	Identify opportunities for patient counseling and education regarding their medical condition.	79	3				
		F.23	Demonstrate a commitment to patient care	83	3				
		F.24	Be an advocate to the family and the patient in the medical environment; understand the complex emotional and ethical situations that arise in this environment	83	3				
		F.25	Must always be an advocate for the patient, especially when the patient is unable to do so for him/herself.	87	3				
		F.26	Identify opportunities for patient counseling and education regarding their medical conditions	90	3				
		F.27	Educate patients regarding lifestyle modifications, especially pertaining to cardiorespiratory disease	90	3				
G Professional	Junior	G.1	Deliver the highest-quality patient care with integrity, honesty, and compassion.	24	3				
		G.2	Demonstrating respect and empathy in relationships with patients	21	3				*
		G.3	Fulfill the ethical and legal aspects of patient care.	24	3				
		G.4	Maintain patient confidentiality.	24	3				
		G.5	Demonstrate appropriate interpersonal and professional behavior.	24	3				*
		G.6	Recognize personal limits through appropriate consultation (with staff supervisors, other physicians, and other health professionals) and show appropriate respect for those consulted.	24	3				
		G.7	Recognize conflict in patient care situations, professional relationships, and value systems, and demonstrate the ability to discuss and resolve differences of opinion.	24	3				
		G.8	Accept constructive feedback and criticism, and implement appropriate advice.	24	3				*
		G.9	To follow-up patients who experience complications and/or side effects.	28	3				3
		G.10	Deliver the highest-quality patient care with integrity, honesty, and compassion.	34	3				
		G.11	To be aware of the ethical and legal aspects of obstetrical patient care, e.g.: - Consent -Fetal vs. maternal rights -Maternal/paternal conflicts	34	1	*	*		*
		G.12	Demonstrate appropriate interpersonal and professional behavior.	34	3				*
		G.13	To follow protocols implemented in the unit and adhere to established unit standards.	43	3				
		G.14	To be aware of the ethical principles appropriate to critically ill patients.	44	1	*	*		*
		G.15	Deliver the highest quality care with integrity, honesty and compassion.	46	3				
		G.16	Exhibit appropriate personal and interpersonal professional behaviors.	46	3				*
		G.17	Practice medicine ethically consistent with the obligations of a physician.	47	3				
		G.18	Exhibit appropriate personal and interpersonal professional behaviors. This includes keeping attending physicians apprised of relevant events, interacting appropriately with the nursing staff, and being available to the unit when needed while on call.	47	3				
		G.19	Recognize, analyze and attempt to resolve in clinical practice ethical issues such as truth telling, consent, advanced directives, confidentiality, end-of-life care, conflict of interest, resource allocation, research ethics, and interactions with the pharmaceutical industry.	47	3				
		G.20	Recognize and know how to deal with unprofessional behaviors in clinical practice, taking into account local and provincial regulations.	47	3				
		G.21	Evaluate one's abilities, knowledge and skills, to recognize one's limitations, and to use appropriate strategies to maintain and advance professional competence.	47	3				
		G.22	Know and understand the professional, legal and ethical codes to which physicians are bound.	47	1	*	*		*
		G.23	Demonstrate knowledge of basic legal, social, and bioethical issues encountered in chronic pain management, including informed consent.	59	1	*	*		*

	G.24	Recognize and have an approach to ethical and psychosocial issues in pain medicine.	62	1	*	*		*
	G.25	Deliver the highest quality of care with integrity, honesty, and compassion.	62	3				
	G.26	Exhibit appropriate personal and interpersonal professional behaviors.	62	3			*	
	G.27	Practice medicine ethically, consistent with the obligations of a physician.	62	3				
	G.28	Establish a professional relationship with patients and families.	60	3			*	
	G.29	Demonstrate a sense of responsibility, integrity, honesty and compassion when caring for patients.	67	3				
	G.30	Demonstrate respect for patients and colleagues by delivering the highest quality care to patients, practicing medicine ethically consistent with the obligations of a physician, respecting the opinions of fellow consultants and referring physicians in the management of patient problems, and be willing to provide means whereby differences of opinion can be discussed and resolved.	67	3			*	
	G.31	Uphold ethical and professional expectations of research consistent with institutional review board guidelines, including maintenance of meticulous data and conduct of ethically sound human or animal research.	92	3				
Senior	G.32	Deliver anesthesia care with integrity, honesty and compassion.	42	3				
	G.33	Demonstrate the attitude, behaviors and ethical standards expected of a practitioner of anesthesia.	42	3				
	G.34	To be aware of the ethical and legal aspects of pediatric patient care	42	1		*		*
	G.35	Recognize personal limits through appropriate consultation with staff, other physicians and other health professionals and show appropriate respect for those consulted.	42	3				
	G.36	Demonstrate respect for patients by including the patient and family in discussions of care management.	42	3			*	
	G.37	Recognize potential conflicts in patient care, professional relationships and value systems, and to demonstrate the ability to discuss and resolve differences of opinion.	42	3			*	
	G.38	To always demonstrate respectful and compassionate behavior toward patients, their families, and other healthcare providers.	52	3			*	
	G.39	Demonstrate an appropriate sense of responsibility to themselves and their patients.	52	3				
	G.40	Remain calm and organized in stressful or emergency situations.	52	3			*	
	G.41	Respond to calls from the PACU when they are needed for acute pain issues.	58	3				
	G.42	Demonstrate a commitment to executing, professional responsibilities with integrity, honesty and compassion.	71	3				
	G.43	Demonstrate appropriate personal and interpersonal professional behaviors and boundaries.	71	3			*	
	G.44	Demonstrate a sense of responsibility, integrity, honesty and compassion when caring for patients.	76	3				
	G.45	Demonstrate respect for patients and colleagues.	76	3				
	G.46	Deliver the highest quality care to patients.	76	3				
	G.47	Practice medicine ethically consistent with the obligations of a physician.	76	3				
	G.48	Demonstrate professional attitudes, altruism, honesty, integrity and respect in interactions with patients, families and other healthcare professionals or when facing ethical situations.	80	3				
	G.49	Deliver high quality care with integrity, honesty and compassion.	80	3				
	G.50	Honor patient confidentiality and deliver the highest quality care with integrity, honesty and compassion	83	3				
	G.51	Demonstrate a mature sense of responsibility for his/her patients and ensure proper hand over of patients to colleagues when he/she is not available.	88	3				
	G.52	Foster the physician/patient relationship and keep all information in confidence.	88	3				
	G.53	Demonstrate appropriate ethical insight.	88	3				
	G.54	Remain calm, confident and efficient when performing under stress.	88	3			*	
	G.55	Demonstrate a commitment to their patients and profession through ethical practice by exhibiting honesty, integrity, commitment, compassion, respect and altruism	90	3				
	G.56	Appropriately manage conflicts of interest	90	3				