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FOUNDATIONS

AIRWAY

Knows:
- Demonstrates an understanding of the indications for intubation.
- Demonstrates an understanding for the predictors of difficult intubation and ventilation.
- Demonstrates an understanding of different oxygen delivery systems.

Does:
- Demonstrates bag-mask ventilation with appropriate adjuncts.
- Demonstrates direct laryngoscopy and supraglottic device insertion.
- Demonstrates surgical airway techniques.

PHARMACOLOGY

Knows:
- Demonstrates an understanding of basic pharmacology.
- Demonstrates an understanding of Volatile Anesthetics.
- Demonstrates an understanding of the different intravenous anesthetics.
- Demonstrates an understanding of neuromuscular blockade.
- Demonstrates an understanding of local anesthetic mechanism of action and adverse neurologic and cardiovascular effects.
- Demonstrates an understanding of the different local anesthetic classes
- Demonstrates an understanding of local anesthetic toxicity.
- Demonstrates an understanding of appropriate choices of IV fluid for maintenance and for resuscitation.
- Demonstrates an understanding of rationale colloid administration.
- Demonstrates an understanding of guidelines for rational administration blood products and blood product derivatives.
- Demonstrates an understanding of complications related to blood product administration.

Does:

PHYSIOLOGY

Knows:
- Demonstrates an understanding of relevant cardiovascular anatomy and physiology.
- Demonstrates an understanding of relevant respiratory anatomy and physiology.
- Demonstrates an understanding of renal, hepatic, pancreas and adrenal anatomy and physiology.
- Demonstrates an understanding of the physiology of the autonomic nervous system.
COMMON UNCOMPLICATED ANESTHETICS PRACTICE

Knows:
- Demonstrates an understanding of how to take an appropriate and complete preoperative history.
- Demonstrate an understanding of the principles of anesthetics practice: preoperative assessment, induction and maintenance of anesthesia and post-operative care.
- Demonstrates an understanding of surgical considerations including fluid management, blood transfusions, temperature, positioning, and post-operative disposition.

Does:
- Demonstrates airway and cardio-respiratory physical examination applicable to preoperative patients.
- Demonstrates proper technique with peripheral intravenous access.
- Demonstrates intra-arterial needle via radial artery for sampling.
- Demonstrates an anesthetic plan for uncomplicated elective cases, including immediate postoperative care.
- Demonstrates comprehensive anesthesia care of uncomplicated OR cases in the clinical setting.
- Demonstrates comprehensive anesthesia care of uncomplicated OR cases in the patient simulator.

OBSTETRICS

Knows:
- Demonstrates an understanding of the risks, benefits, and complications of labour analgesia.

Does:
- Demonstrates the ability to describe labour analgesia options to parturient and gain valid consent.
- Demonstrates the management and performance of labor epidural analgesia.
- Demonstrates ability to select the most appropriate labor analgesia option.
- Demonstrates management of neuraxial complications including nerve damage, epidural hematoma, and postdural puncture headache.

PAIN

Knows:
- Demonstrates an understanding of nerve conduction physiology.
- Demonstrates an understanding of spinal cord anatomy.
- Demonstrates an understanding of the contraindications to central neuraxial anesthesia.
- Demonstrates an understanding of the risks and benefits of central neuraxial anesthesia.
- Demonstrates an understanding of the pharmacology for agents used in neuraxial blocks.
- Demonstrates understanding the influences of pharmacokinetics and pharmacodynamics of spinal/epidural anesthesia.

Does:
- Demonstrates management of lumbar epidural and spinal anesthesia.
Core

PERIOPERATIVE MEDICINE

Knows:
- Demonstrates an understanding of common comorbidities and explains the medical management of common chronic respiratory, cardiac and kidney diseases.
- Demonstrates an understanding of complications and concerns related to cancer on medical status.
- Demonstrates an understanding of anesthetic considerations for major highly prevalent co-existing diseases.
- Demonstrates an understanding of surgical procedures on patient comorbidities.
- Demonstrates an understanding of appropriate and relevant laboratory tests and investigations for perioperative outcomes.

Does:
- Demonstrates a comprehensive preoperative assessment and optimization.
- Demonstrates ability to appropriately consult health care professionals for perioperative care.
- Demonstrates comprehensive preoperative investigation and optimization and postoperative follow-up of patients with multiple and/or complex medical comorbidities.

COMPLEX SURGERY AND CLINICAL PHARMACOLOGY

Knows:
- Demonstrates an understanding of anesthesia implications of patients with rare diseases (Pheochromocytoma, Carcinoid Syndrome, Myopathy)
- Demonstrates an understanding of anesthesia implications of patients with Major end Organ Disease (Cardiac, Respiratory, Hepatic, Renal, Pancreatic)

Does:
- Demonstrates appropriate perioperative plan for patients with multiple and/or complex medical comorbidities.
- Demonstrates a comprehensive anesthesia assessment for high risk surgery.
- Demonstrates perioperative management of complex surgery cases.
OBSTETRIC ANESTHESIA

Knows:
- Demonstrates an understanding of the physiologic changes of pregnancy.
- Demonstrates an understanding of the diagnosis and treatment for common pregnancy related diseases.
- Demonstrates an understanding of fetal and placental physiology
- Demonstrates an understanding of maternal-fetal management conflicts.
- Demonstrates an understanding of anesthesia and analgesia choices with consideration of fetal well being
- Demonstrates an understanding of NRP protocols and drug choices for neonatal resuscitation.
- Demonstrates an understanding and management of analgesia and anesthesia in the parturient with significant cardiorespiratory and neurological comorbidities

Does:
- Demonstrates the management of epidural analgesia complications.
- Demonstrates a comprehensive management plan for anesthesia of the high risk pregnancy consultation.
- Demonstrates anesthesia management for operative delivery of a newborn.
- Demonstrate anesthesia management for peripartum maternal complications including ante and postpartum hemorrhage.
- Demonstrates the management of high risk parturient, for delivery of the newborn.
- Demonstrates management of the high risk parturient for non-obstetric surgery.
- Demonstrates crisis resource management required to resuscitate a neonate and provide anesthesia to the mother.

PAIN

Knows:
- Demonstrates an understanding of basic principles related to pathophysiology and pharmacology of pain.
- Demonstrates an understanding of the principles of acute peri-operative pain management.
- Demonstrates an understanding of the principles of acute-on-chronic perioperative pain management.
- Demonstrates understanding of effects of neuraxial block on systems intraoperatively and postoperatively.

Does:
- Demonstrates management of acute peri-operative pain management.
- Demonstrates teaching of acute peri-operative pain management.
- Demonstrates the management of chronic outpatient pain.
- Demonstrates management of acute-on-chronic peri-operative pain management.
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PEDIATRICS

Knows:
- Demonstrates an understanding of the differences in anatomy, physiology and pharmacology between the adult and the child.
- Demonstrates an understanding of neonatal anatomy, physiology.
- Demonstrates an understanding of the anesthesia considerations for the neonate.
- Demonstrates understanding of the differences in presentation of critically ill children as compared to critically ill adults.
- Demonstrates an understanding of issues related to pediatric consent, abuse, and child protection.
- Demonstrates an understanding of neonatal anatomy, physiology and pharmacology.

Does:
- Demonstrates the assessment of the child including common syndromes and comorbidities, learning difficulties and anxiety.
- Demonstrates airway management in pediatric patients.
- Demonstrates the management of intravenous and inhalational inductions in children.
- Demonstrates anesthesia consultation with parents.
- Demonstrates ability to recognize the signs and symptoms present in a critically ill child.
- Demonstrates the management of the healthy child for pediatric surgery at primary care hospitals. (hernia repairs, hydrocele, circumcision, tonsillectomy, adenoidectomy, myringotomy, long bone fractures, strabismus, dental, radiology).
- Demonstrates the management of the child for emergency surgery at primary care hospitals (appendectomy, bleeding tonsillectomy and foreign body in the airway).
- Demonstrates the management of common pediatric crises (delirium, laryngospasm, severe acute pain, the uncooperative patient and post-extubation stridor).
- Demonstrates the management of common neonatal surgery (pyloromyotomy, inguinal hernia repair, laparotomy, omphalocele, gastroschisis and congenital diaphragmatic hernia).
- Demonstrates the initial management of the critically ill child (epiglottitis, burns, head injury, sepsis and the cyanotic newborn).

THORACIC

Knows:
- Demonstrates understanding the indications and contraindications of one lung ventilation (OLV).
- Demonstrates understanding of intraoperative complications related to pulmonary resection.
- Demonstrates an understanding of complications for pneumonectomy.
- Demonstrates an understanding of the pathophysiologic effects of a mediastinal mass.

Does:
- Demonstrates a complete and comprehensive preoperative assessment of the patient for lung resection
- Demonstrates a complete and comprehensive preoperative assessment for a patient with
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- Demonstrates the management of thoracic epidural anesthesia.
- Demonstrates management of lung isolation techniques.
- Demonstrates management of hypoxemia and complications under OLV
- Demonstrates fiberoptic bronchoscopy (FOB) skills and its application to tracheobronchial tree.
- Demonstrates management of anesthesia for mediastinoscopy
- Demonstrates the management of intraoperative complications from mediastinoscopy.
- Demonstrates management of pulmonary or esophageal resection (VATS/thoracotomy).
- Demonstrates lung isolation for critically ill patients (difficult AW, hemoptysis, broncho-pleural fistula)
- Demonstrates management of anesthesia for mediastinal mass resection.

AIRWAY

**Does:**
- Demonstrates the management of the anticipated difficult airway.
- Demonstrates advanced indirect airway management including airway topicalization for awake techniques.
- Demonstrates extubation strategies for difficult airways.
- Demonstrates management of the unanticipated difficult airway.
- Demonstrates crisis resource management during emergency airway management.
- Demonstrates management of shared airway and laser laryngoscopy.

VASCULAR

**Knows:**
- Demonstrates an understanding of the assessment for the patient with vasculopathy.
- Demonstrates an understanding of CSF drainage aorta surgery.
- Demonstrates an understanding of the complications related to central venous access.
- Demonstrates understanding of basic anatomy of spinal cord; vascular supply of spinal cord
- Demonstrates understanding relevant basic anatomy of branches of the aortic arch, major vessels in the skull with particular emphasis on the circle of Willis

**Does:**
- Demonstrates the perioperative management of a patient for peripheral vascular surgery.
- Demonstrates perioperative management of patient for carotid artery surgery.
- Demonstrates perioperative management of the patient undergoing aortic surgery.
- Demonstrates central venous access via internal jugular and/or femoral vein using dynamic ultrasound technique.
- Demonstrates intra- arterial catheter via radial and/or femoral arteries for monitoring and sampling.
- Demonstrates intra- arterial catheter via brachial artery.
- Demonstrates central venous access via subclavian and femoral veins using dynamic ultrasound
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**CARDIAC**

**Knows:**
- Demonstrates an understanding of the assessment for the adult with cardiac disease.
- Demonstrates an understanding of anesthetic considerations of coronary artery disease and valvular disease including relevant pharmacotherapy.
- Demonstrates an understanding of the physiology of the patient with cardiac disease at induction of anesthesia and weaning from bypass.
- Demonstrates an understanding of the cardiopulmonary bypass machine.

**Does:**
- Demonstrates perioperative management of the patient with stable cardiovascular disease for diagnostic cardiac catheterization.
- Demonstrates the management of the patient for cardioversion or ablation.
- Demonstrates placement and interpretation of a pulmonary artery catheter.
- Demonstrates management for common cardiac anesthesia emergencies including re-bleeding.
- Demonstrates management of common complications such as massive hemorrhage, coagulopathy, protamine reaction, arrhythmias and low cardiac output.
- Demonstrates perioperative management of the patient with unstable cardiovascular disease and/or high risk cardiac catheterizations.

**REGIONAL**

**Knows:**
- Demonstrates an understanding of the contraindications to peripheral nerve blocks
- Demonstrates an understanding of the pharmacology of adjuvants including epinephrine, bicarbonate, opioids, alpha-agonists, NMDA antagonists.
- Demonstrates an understanding of nerve stimulation.
- Demonstrates an understanding of ultrasound physics, probe selection and equipment to optimize nerve image acquisition.
- Demonstrates an understanding of brachial plexus and lumbar plexus anatomy.
- Demonstrates an understanding of the risks and benefits of regional blocks in all anatomic regions.

**Does:**
- Demonstrates the management of common peripheral single shot nerve blocks using nerve stimulation.
- Demonstrates the management of common single shot peripheral nerve blocks using out of plane and in-plane ultrasound techniques (brachial plexus, femoral nerve, popliteal, ankle).
- Demonstrates the management of peripheral nerve block catheter techniques.
- Demonstrate the management of peripheral nerve block complications.
Knows:
- Demonstrates the understanding of the effects of IV and inhaled anesthetic agents on cerebral physiology.
- Demonstrates understanding of anti-convulsant pharmacology.
- Demonstrates understanding relevant brain anatomy including supra and infratentorial structures.
- Demonstrates understanding anatomy and purpose of the blood-brain barrier.
- Demonstrates understanding of CPP principles and cerebral metabolic rate
- Demonstrates understanding the principles of ICP management.
- Demonstrates understanding in principles of management of elevated ICP and cerebral vasospasm.
- Demonstrates understanding and interpretation of SSEPs and MEPs on anesthetized patients.
- Demonstrates understanding signs of venous air embolus.
- Demonstrates understanding risk factors and anesthetic considerations for autonomic hyperreflexia;
- Demonstrates understanding of evidence to manage patients with acute spinal cord injury in the immediate perioperative period.
- Demonstrates understanding of the relevant physiology of the hypothalamic/pituitary axis and role of hormones; defines the relevant anatomy of hypothalamus and pituitary (anterior and posterior)
- Demonstrates understanding of the clinical implications of a relative deficiency or excess of hormones controlled by the HPA (cortisol/ACTH, GH, THRH/TSH, ADH)
- Demonstrates understanding complications associated with different surgical approaches to pituitary resection.

Does:
- Demonstrates a complete neurological assessment
- Demonstrates principles of neuroprotection.
- Demonstrates management of raised ICP perioperatively.
- Demonstrates management of venous air embolus
- Demonstrates anesthesia management for patients being monitored with SSEP and MEP;
- Demonstrates management of venous air embolus
- Demonstrates ability to manage an unstable C-spine.
- Demonstrates perioperative management of spinal cord injury and disease.
- Demonstrates management of anesthetic complications in patients with high level spinal cord injury
- Demonstrates management of an awake craniotomy
- Demonstrates management of CVA managed by interventional radiology.
- Demonstrates management strategies for cerebral hyperperfusion.
- Demonstrates comprehensive management of intraop aneurysm surgery.
- Demonstrates perioperative management of pituitary resection including hormone correction pre- and postoperatively.
Transition to Practice

- Demonstrates teaching and supervision of comprehensive anesthesia care for common uncomplicated surgical cases.
- Demonstrates evidence-based anesthesia care of common surgery cases.
- Demonstrates the management of conflicting medical and/or surgical considerations perioperatively.
- Demonstrates the management of intraoperative and postoperative complications.