

Neuroanesthesia Rotation Objectives

Two separate one-month rotations in neuroanesthesia will provide the Resident with a theoretical basis and clinical experience in the anesthetic management of adults undergoing surgical treatment of diseases of the CNS and Spine. This clinical experience is supplemented by a formal series of seminars in neuroanesthesia in the core curriculum and informal lectures within the O.R. setting and Interdisciplinary Neurodiscussion Rounds.

Guided independent study is also encouraged with the provision of a Manual of Neuroanesthesia and compilation of SNACC-recommended neurodiscussion peer-reviewed articles located in the Anesthesia Library at London Health Sciences Centre, University Campus.

Upon completion of the neuroanesthesia rotation, Residents should have demonstrated proficiency in caring for patients with neurologic disease in a compassionate manner. This includes the preoperative evaluation, intraoperative management, and postoperative care utilizing the most current medical/anesthetic knowledge pertinent to each case using online medical information; communicating with patients and working effectively with patient care team; demonstrating ethical practices and practice cost-effective yet quality health care. The clinical experience will provide exposure to a variety of basic and complex procedures in patients with neurologic disease, with graded independence and responsibility.

Objectives

At the completion of the neuroanesthesia rotation, the Resident should exhibit the following knowledge, skills and attitudes:

Medical Expert/Clinical Decision-Maker:

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective referral/consultation skills
- Recognize limitations of expertise and summon assistance when required.

Specific Requirements

- Demonstrate knowledge of basic sciences as applicable to neuroanesthesia, including neuroanatomy, neurophysiology and neuropharmacology.
- Demonstrate knowledge of medicine with particular reference to the neurologic system.
- Demonstrate knowledge of basic legal matters encountered in anesthetic practice including informed consent and patient confidentiality.

- Demonstrate Basic Understanding of the commonly performed neurosurgical procedures impact on anesthetic management.
- Demonstrate clinical knowledge and skills necessary for the practice of neuroanesthesia including:
 - Preoperative neuro-assessment (using Glasgow Coma Scale, Hunt-Hess Classification for SAH and basic neurological exam).
 - Intraoperative support including:
 - Special Positioning (sitting, prone, park-bench, lateral and knee-chest).
 - Understanding basic principles of neurophysiologic monitoring – EEG, Evoked potential (SSEP, BAEP), transcranial Doppler, cerebral oximetry, and intracranial pressure monitoring methods available.
 - 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 neuro patients in PACU, ICU and the Neuro-Observation Unit.
- Demonstrate competence in all technical procedures commonly employed in neuroanesthetic practice – including airway management (basic and difficult), cardiovascular and neuro-resuscitation, invasive monitoring (arterial line, central line and LP Drain placement).
- 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
 - Transphenoidal surgery
 - Stereotactic procedures
 - Awake craniotomy
 - Neuroradiologic procedures (embolization, thrombolytic and MRI)
 - Spine surgery

Communicator:

General Requirements

- Establish a therapeutic relationship with patients and their families in the limited time available.
- Obtain and collate relevant history from patients and families.
- Listen effectively.

Specific Requirements

- Demonstrate empathy, consideration and compassion in communicating with patients and families.
- Communicate effectively with medical/surgical colleagues, nurses, and paramedical personnel regarding the anesthetic management of the patient.
- Demonstrate appropriate written communication skills through accurate, legible, and complete documentation of the anesthetic record, patient chart and in consultation.
- Ensure adequate information has been provided to the patient prior to implementing the anesthetic plan and invasive procedures.
- Residents should demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families and professional associates.

Collaborator:

- Demonstrate ability to function in the clinical environment using the full abilities of all team members (surgical, nursing, ICU, etc.).
- Residents will develop their anesthetic plan for their patients in consultation and in concert with surgery, nursing and ICU (if necessary) for more complicated neurosurgical patients.
- When time permits, Residents are encouraged to attend multidisciplinary Neurosciences and Epilepsy Rounds. These experiences should permit the Resident to:
 - a. Understand and value the skills of other specialists and health care professionals.
 - b. Understand the limits of their knowledge and skills.
 - c. Be able to understand, accept and respect the opinions of others on the neuro team.
- Residents will function in the O.R. as a member of the neuro team and work in a positive, constructive manner.

Manager:

- Residents will demonstrate the ability to manage their operating room:
 - d. Ensuring necessary equipment, monitoring, and medications are available for each case.
 - b. Making preparations to deal with anticipated complications.

- c. All these activities should be conducted in an effective and efficient timely manner in order to avoid O.R. delays.
- Residents will begin to adopt a leadership role in the postoperative care of their patients by anticipating and arranging for either PACU, ICU or Neuro-Observation Unit care.
- Utilize personal resources effectively in order to balance patient care, continuing education and personal activities.
- Utilize information technology to optimize patient care and life long learning.

Health Advocate:

- Residents will begin to recognize the opportunities for anesthesiologist to advocate for resources for neurosurgical patients, emerging medical techs, and new health care practices.
- Provide direction to hospital administrators regarding compliance with national/international practice guidelines and equipment for the management of neurosurgical patients.

Scholar:

- Responsible for developing, implementing and regularly re-evaluating a personal continuing education strategy.
- Required to synthesize medical/anesthetic literature and critically appraise it using the principles of evidence-based medicine.
- Contribute to the development of new knowledge through facilitation/participation in ongoing departmental research activities.
- Required to prepare in advance for the O.R. cases scheduled through additional reading, patient chart review/assessment.

Professional:

- Demonstrate a commitment to executing, professional responsibilities with integrity, honesty and compassion.
- Demonstrate appropriate personal and interpersonal professional behaviors and boundaries.
- Residents should regularly review personal and professional performance.
- Recognize limits of personal skill and knowledge by appropriately consulting other physicians when caring for the patient.