

## **Anesthesia (Orthopaedic PGY-1)**

Length:	1 month of PGY-1 year (required for Designated Orthopaedic PGY-1)
Location:	The Queen's Medical Center
Primary Supervisor:	Mona Ghows, M.D.
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The Anesthesiology elective provides background theory (in both the basic and clinical sciences) and clinical procedural exposure to the breadth of the specialty. The rotation also provides certification in the skill of tracheal intubation.

### **Goals**

Upon completion of the Anesthesiology elective, a Resident will understand the principal concepts of regional and general anesthesia, and pain management, in the context of applicable anatomy and physiology. The Resident will be able to integrate pertinent principles into the management of surgical patients.

### **Objectives**

#### **Medical Knowledge**

1. Demonstrate understanding of the physiology and pharmacology of drugs commonly used in anesthesia. This comprises inhalational anesthetic agents, local anesthetics, narcotics, nonsteroidal anti-inflammatory agents, sedatives, neuromuscular blocking agents, vasoactive agents, sympathomimetics, and neuroleptics.
2. Acquire knowledge of metabolism, potential drug interactions, toxicities, and adverse reactions.
3. Demonstrate understanding of the various stages of anesthesia, including associated risks
4. Demonstrate knowledge of blood product and volume expander usage, including rationale, indications, contraindications, and potential adverse side effects.
5. Understand special considerations, including risks, in pregnant and pediatric patients.
6. Develop a firm understanding of anatomic and physiologic conditions that affect the delivery of safe anesthesia, such as coronary artery disease, neuromuscular disorders, traumatic injuries and emergent situations.

#### **Patient Care**

1. Acquire skills in management of the airway, becoming technically facile in the performance of orotracheal intubation, laryngeal mask airway, and mask ventilation.
2. Demonstrate the ability to manage fluid requirements during anesthesia.
3. Demonstrate understanding of intraoperative physiologic monitoring and management of intraoperative complications (including acid-base abnormalities, malignant hyperthermia, hemorrhagic conditions, hemodynamic or pulmonary instability)
4. Appropriately recognize limitations imposed by the operative procedure on the conduct of anesthesia management.
5. Recognize the limitations imposed by the anesthetic on the conduct of the operation.
6. Understand the potential benefits, risks, and limitations of regional anesthesia (including spinal, epidural, and limb blocks).

7. Must be able to perform a focused pre-anesthesia history and physical examination, and demonstrate skill in preoperative assessment, implications of concurrent diseases, and anesthesia risk determination.
8. Demonstrate skill in use of Anesthetic Systems and the pre-anesthetic checklist.

### **Systems-based Practice**

1. Become aware of efficient use of the operating room through appropriate scheduling.
2. Understand the multidisciplinary role of the Anesthesiologist, Surgeon, and the Operating Room Team in the provision of safe and high quality patient care.

### **Professionalism**

1. Interact with Anesthesiologists, Nurse Anesthetists, Surgeons, Nurses, and Operating Room personnel in a respectful and professional manner.
2. Interact with other surgical services as an Anesthesia provider in a respectful and professional manner.
3. Demonstrate sensitivity, respect, and adherence to ethical principles when interacting with patients and their families.

### **Practice-based Learning and Improvement**

1. Demonstrate ability to utilize scientific studies to provide high quality anesthetic care.
2. Appropriately utilize Hospital information technology systems to manage patient care, and to access on-line medical information to effect high quality care.
3. Facilitate the learning of medical and nursing students, and surgical technician students rotating in the Operating Rooms

### **Interpersonal and Communication Skills**

1. Demonstrate effective and sensitive information exchange with patients, their families, and Operating Room personnel.
2. Demonstrate ability for accurate and timely information exchange between other members of the healthcare team, both verbally and in writing, with appropriate use of the medical record.

## **Clinical Content**

The clinical activities will include:

1. Managing the airway in adults and children, including masking and endotracheal intubation.
2. Establishing vascular access.

3. Applying appropriate monitoring devices, including arterial lines and pulmonary artery catheters.
4. Inducing, maintaining, and emerging from general anesthesia:
  - a. gas analysis
  - b. exhalation gas analysis
  - c. hemodynamic analysis
5. Performing regional anesthesia: epidural, plexus, and local.
6. Managing patients pre- and post-anesthesia.

## Implementation

Clinical Exposure: Residents will be assigned to an Anesthesia Faculty Attending on a daily basis, and will be given a list of that tutor's cases the day prior. Residents will report between 6:30 a.m. and 7:00 a.m. to the preoperative holding area of the Hospital to interview the patient, do a physical examination, and chart review. After the exam and chart review, Residents will discuss the implication of their findings with the Attending. Together, they will formulate a plan and discuss it with the patient. The Resident will then write a preoperative assessment in the patient medical record.

Residents will also be required to set up the Anesthesia machine and check it, draw up the relevant drugs, and set up the monitoring equipment.

The Resident/Attending Team will induce anesthesia and monitor the patient intraoperatively. At the end of surgery, the Resident and the Attending will escort the patient to the PACU or to the ICU, write postoperative orders, and ensure that the patient is stable and comfortable.

Residents will maintain a copy of the preoperative evaluation, anesthetic record, and postoperative notes for the end-of-rotation evaluation by the Faculty. Residents will also formulate learning issues relevant to the case. These will be discussed with the Attending at the next meeting.

Additional Exposure: Residents may also have the opportunity to be exposed to Pediatric Anesthesiology at Kapiolani Medical Center for Women and Children under the supervision of Dr. Alan Britton. They will also have an opportunity to participate in ambulatory pain management clinics under the supervision of Dr. Jeffrey Wang.

## Required Readings

Longnecker and Murphy, 1997: *Introduction to Anesthesia, 9<sup>th</sup> Edition* (W.B. Saunders Company).

Stoelting and Miller, 1989: *Basics of Anesthesia, 4<sup>th</sup> Edition* (Churchill Livingstone).

Barash, Cullen & Stoelting, 1997: *Clinical Anesthesia, 3<sup>rd</sup> Edition* (Lippincott & Raven).

Barash, Cullen & Stoelting, 1997: *Clinical Anesthesia, 4<sup>rd</sup> Edition* (Lippincott Williams & Wilkins).

Peer-reviewed literature may also be required to supplement this.

Texts will be issued by the Surgical Residency Program for loan during a Resident's Anesthesia rotation. The Resident will receive a booklet, *Compendium of Regional Anesthesia* to keep. Videotapes are also available for checkout.

## Evaluation

Global Assessment and Focused Review.

## Other

PGY-1 Residents assigned to an elective rotation in Anesthesiology may be scheduled for General Surgery on-call duty **only** for night shifts (7pm - 7am) during weekdays, and day/night shifts on the weekends as long as it does not directly impact their elective "experience." They will reassign their patients back to the General Surgery Service following call.