

Peri-operative and Acute Care Medicine Clerkship

Student Guide for the Anesthesiology Week

Anesthesiology Week
<p><u>Anesthesiology Sites:</u></p> <ol style="list-style-type: none">1. Pre-operative Evaluations and Testing Center (PETC)2. Anesthesia Consult Pager3. Post-Anesthesia Care Unit (PACU)4. Acute Pain Service5. Regional Anesthesiology6. Electro-convulsive Shock Therapy (ECT)7. Main Operating Room8. Main OR Cardiac Surgery9. Main OR Thoracic Surgery10. OR Pediatric Surgery11. Obstetric Anesthesiology12. Outpatient Surgical Center (OPSC)

On behalf of the Anesthesiology and Emergency Medicine Departments, we welcome you to the Peri-operative and Acute Care Medicine Clerkship. This is a two-week rotation that will introduce you to essential skills and concepts within the environment of the operating rooms, pre-operative and post-operative setting, and the emergency department. We are confident that this will be a unique experience in which you will learn concepts and procedures that you will use throughout your medical careers.

The rotation is divided into two one-week sessions—the first taking place predominantly with the Anesthesiology Department, and the second with the Emergency Medicine Department. Below, please find an overview of the Anesthesiology Week.

Clerkship Goals and Objectives:

Goals

- I. The student will learn pre-anesthetic patient evaluation and risk stratification.
 - A. The medical student will understand how patient co-morbidities can affect the anesthetic plan.
 - B. The medical student will be able to understand potential anesthetic options for a given surgical procedure.
 - C. The medical student will be able to plan an anesthetic for a basic surgical procedure.
 - D. The student will understand risk stratification of a patient undergoing anesthesia.
- II. The medical student will understand postoperative care and management and some of the most common postoperative complications and their potential etiologies.
- III. The student will learn management of the airway and use of equipment to ensure airway patency.
- IV. The student will spend time learning the technical skills of how to perform intravenous access.
- V. The student will learn about local anesthetics and regional / neuraxial anesthesia options.
- VI. The student will learn about different options for pain management including oral, intravenous, epidural, and regional as discussed above.
- VII. The medical student will be able to list and understand the basic ASA-required patient monitors.
- VIII. The students will be exposed to crisis resource management and team training.
- IX. The medical student will understand basic pharmacologic principles regarding the utilization of intravenous induction agents, neuromuscular blockers, local anesthetics, volatile anesthetic agents, and vasoactive medications.
- X. The student will learn to perform major resuscitative and life-saving procedures
- XI. The student will learn and perform bedside diagnostic tests including blood pressure measurement, pulse oximetry, finger stick glucose, ECG, intravenous fluid resuscitation, peak flow, cardiac monitoring and oxygen supplementation, among others.
- XII. The student will learn and perform simple therapeutic procedures in the acute care setting including arterial and venous cannulation, basic wound care and suturing, joint immobilization and naso-gastrick access, among others.
- XIII. The student will learn basic principles and procedures for injury care.
- XIV. The student will learn basic radiographic interpretation skills of plain films and CT scans.
- XV. The student will have exposure to basic bedside diagnostic and procedural ultrasonography.
- XVI. The student will have exposure to pre-hospital emergency care with EMS.

Objectives

- I. Perform and observe airway management including mask ventilation, laryngeal mask airway placement, and endotracheal intubation in both simulation and patients.
- II. Intravenous access - Perform peripheral intravenous catheter placement on patients, as well as central venous access in simulation.
- III. Students will complete interactive high fidelity simulation sessions to learn basic skills and patient management
 - A. Students will perform simulation in various shock scenarios.
 - B. Students will participate in team training and crisis resource management.
 - C. The students will complete interactive simulation sessions in cardiac and trauma resuscitation
- IV. The students will perform specific bedside diagnostic procedures on patients in the Emergency Department setting while being observed by faculty and housestaff.
- V. Medical students will practice doctor-patient communication skills with patients receiving acute medical care
- VI. The students will complete skill passport prior to completion of the rotation.
- VII. Medical students will participate in an un-graded oral examination in order to practice verbal articulation skills and demonstrate mastery of knowledge.
- VIII. All students will complete a Student Case Report that will be presented the final Friday of the Clerkship.
- IX. All students will take a test on the final Friday of the Clerkship.

Components of grade	Percentage of grade
At the end of the two-week rotation, all students will take a computer-based test of 51 questions. Test material will be taken from the group and individual sessions and will be extrapolated from the list of course goals and objectives.	30
Complete both the Anesthesiology and Emergency Medicine Passports.	20
Medical students must participate in a Student Case Report project that will be presented and graded on Friday of their second week. The grade will be based on the following: Was a clinical question asked? Was a clinical question answered? Did the student put sufficient effort into project?	20
Grade will be based on faculty evaluations.	20
Students must participate in all individual and group sessions. Absences must have legitimate excuses. All students must also complete an end-of-course evaluation of both clerkship and involved faculty within two weeks of course completion.	10

Acute Care Clerkship Website

<http://www.healthsystem.virginia.edu/internet/acute>

Individual Sessions

There will be a total of seven Individual Clinical Sessions which will involve a variety of different educational rotations. The focus will be placed on the following principles:

- Pre-operative evaluation, patient optimization, and risk reduction prior to surgery
- Post-operative issues and patient management
- Airway Management
- Pain Management
- Physiology, specifically cardiac and respiratory
- Pharmacology, specifically induction agents, inhalational anesthetics, neuromuscular blockers, opioids and non-opioid pain management, vaso-active agents, and local anesthetics

Individual Sessions:

Pre-operative Evaluation: One session of *either*, Pre-operative Evaluations and Testing Center (PETC) or 1311, where you will directly perform pre-operative evaluation and understand risk-modification of patients. In addition to the two mentioned rotations, you will see patients and perform focused history and physicals prior to performing anesthesia in both the Main OR and at the Outpatient Surgical Center (OPSC).

PETC: You will spend time in the Pre-operative Evaluations and Testing Center (PETC) working with an anesthesia resident or PETC nurse. Focus will be on **preoperative work-up and anesthesia risk stratification**.

Anesthesia Consult Pager: You will spend half of a day with the anesthesia consult resident and will be seeing patients for emergency or urgent surgeries. You will be learning about **pre-operative assessment**.

Post-operative Care: The student will spend one session in the Post Anesthesia Care Unit

PACU: One half day will be spent in the Post Anesthesia Care Unit (PACU), paired with an anesthesia resident. Here, you will focus your attention on **post-anesthesia recovery**. In addition, stress will be placed on **pain management, airway management, fluid management, postoperative surgical concerns, and crisis intervention**. **Pharmacology and physiology** will also be relevant to this experience.

Pain Management: Half of a day will be spent with either the Acute Pain Service (APS) or the Regional Anesthesiology Service.

Acute Pain Service: You will spend the afternoon with the anesthesia Acute Pain Service (APS) and will observe epidural placement for **peri-operative pain control**. Emphasis will be placed on neuraxial procedures, **local anesthetics**, and the **physiologic changes** of neuraxial anesthesia.

Regional Anesthesiology: You will spend half a day with the anesthesiology regional service and will observe peripheral nerve blocks and pain management techniques. You will experience the use of ultrasound for nerve visualization and nerve blocks. Stress will be placed on ultrasound techniques, **local anesthetics** and their mechanisms of action.

Airway Management:

Electroconvulsive Shock Therapy: Students will spend the morning paired with an anesthesia attending performing Electroconvulsive Shock Therapy (ECT). Focus will include **pre-operative assessment of patients and airway management** (patients are generally hand-ventilated for the duration of the procedure) as well as **basic physiologic** (autonomic nervous system) and **pharmacologic** (induction drugs, paralytics) concepts.

AND

Anesthesia Consult Pager: The student will spend half the day with the anesthesia consult resident and will learn about emergency **airway management** *outside* of the operating rooms.

In addition, airway management will be encountered in the Main OR, GU OR, and the Outpatient Surgical Center (OPSC).

Physiology: Physiology principles will be incorporated during all rotations in the Operating Rooms (including the main hospital and OPSC) as well as during Obstetric anesthesia. The sub-specialties of anesthesia lend themselves well to physiology lessons as outlined below:

Main OR Cardiac Surgery: The student will spend half the day working with an anesthesia resident in the cardiac operating room. The focus will be on cardiac and respiratory physiology as well as cardiac pharmacology. Students will be exposed to trans-esophageal echocardiography, invasive monitoring, and cardiac pharmacology.

Main OR Thoracic Surgery: The student will spend half the day working with an anesthesia resident in the thoracic operating room. The focus will be on respiratory and cardiac physiology. Students will be exposed to arterial access monitoring, large bore intravenous access, double lumen endotracheal intubation, and one-lung ventilation.

Pediatric Surgery: The student will spend half the day working with an anesthesia resident in the pediatric operating rooms. Focus will be placed on physiologic and anatomic differences between adult and pediatric patients. Fluid management, airway management, and intravenous access will be other points of focus.

OB Anesthesiology: The medical student will spend half a day with the anesthesiology resident on obstetrics. They will learn about the physiologic changes of pregnancy. They will also discuss pain management during labor. They will observe epidural placement, management, cesarean sections, and tubal ligations.

Pharmacology:

Main OR: The medical student will spend half the day paired with a resident in the operating room. During this time, particular focus will be placed on choice of induction agent, inhalational anesthetics, neuromuscular blockers, pain medications, and vasoactive medications. Pharmacokinetics and pharmacodynamics will be discussed.

OPSC: The medical student will spend half the day paired with a resident in the operating room. There will be focus on choices of medications, particularly in the ambulatory patient. Pharmacokinetics and pharmacodynamics will be discussed. Induction agents, inhalational anesthetics, neuromuscular blockers, pain medications, and vasoactive medications will be specifically discussed and used.

Directions to various sites: Please see website