

Anesthesiology

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General Description

Elective Rotation

This elective rotation in clinical anesthesia is a two (2) week experience including perioperative assessment and optimization, monitoring techniques, management in acute medical care including resuscitation, acute pain, and application of basic science to clinical problems. Many students electing this rotation will be in their fourth year of osteopathic medical school; some will be in their third year. A post-rotation examination is **not** required.

Recommended Textbooks

Lawrence, Peter F. **Essentials of Surgical Specialties**, 3rd Ed., 2007. Lippincott, Williams and Wilkins.
- Chapter 1: Anesthesiology, pp 1-50

Other Suggested Textbooks

Brunicaudi FC, et al. **Schwartz's Principles of Surgery**, 9th Ed. The McGraw-Hill Companies, 2010.
- Chapter 47: Anesthesia of Surgical Patient (Available electronically on *Access Surgery* through DMU Library portal.)

Doherty, Gerard M (ed.), **Current Diagnosis and Treatment: Surgery**, 13e. The McGraw-Hill Companies, 2010.
- Chapter 11: Anesthesia (Available electronically on *Access Surgery* through DMU Library portal.)

Morgan GE, Jr., Mikhail MS and Murray MJ. **Clinical Anesthesiology, 4e**, McGraw-Hill Companies, 2006. (Available on *Access Medicine* through DMU Library portal.)

Pre- request for Elective

Basic textbook knowledge and skills lab experience with endotracheal oral intubation before asking to intubate a patient.
Basic textbook knowledge and skills lab experience with intravenous catheter insertion before asking to attempt skill on patient.

Student Responsibility

It is required that the student meet with their preceptor at the beginning of the rotation to discuss the learning objectives outlined in this document. Students should also seek and receive preceptor feedback midway through the rotation.

Because of the short duration of this rotation, students must be professionally assertive, attentive, and ***well prepared***. These characteristics are imperative for the student to get the most out of this rotation. Student must develop a trusting relationship with the attending before asking to attempt skills on a patient. In order for the student to prepare for this rotation it is highly recommended that you refer to the recommended textbooks that are listed above to acquire relevant information needed to fulfill the listed competencies and objectives of this rotation.

Purpose

The overall goal of this rotation is to provide the student with a basic understanding of immediate perioperative patient management. You may or may not be permitted to attempt endotracheal intubation; however, your grade is not dependent on performance of this skill. You may also be permitted to perform intravenous access and you may wish to take advantage of this rotation to gain valuable advice regarding your access skills. The single most important technical skill you can learn is the ability to deliver effective bag-mask ventilation.

At the completion of this rotation, the student should have reinforced certain broad goals, including:

- **Basic understanding of immediate perioperative patient management.**
- **Learn the ability to deliver effective bag-mask ventilation.**

- **Basic knowledge and skill exposure to oral endotracheal intubation and LMA insertion.**
- **Basic knowledge and skill exposure to peripheral intravenous catheter insertion.**

Students are expected to assist in the management of preoperative, perioperative and postoperative patient care under supervision. The student should also develop fundamental psychomotor skills by performing routine basic procedures under direct supervision.

We recognize that two weeks is an insufficient amount of time to cover a comprehensive list of objectives in any area of practice. Clearly, subjects addressed in any clinical rotation are dependent on the numbers of patients and kinds of disease entities presenting to a particular service. Nevertheless, certain minimum content **must** be addressed, either by clinical exposure or by didactic materials so that students are prepared for Board examinations and other testing. Broad goals listed above are a minimum; objectives for rotations not specifically listed in these guidelines should include the Affective Objectives listed below. The College depends on the supervising physician to establish more specific objectives dealing with the scope of the particular specialty. Therefore, the following sections contain relatively broad, basic objectives for which students are responsible.

Competencies

Osteopathic Philosophy and Osteopathic Manipulative Medicine

OBJECTIVES: Osteopathic Philosophy and Osteopathic Manipulative Medicine

1. Demonstrate the ability to perform and record an osteopathic structural examination on a surgical patient and document such using acceptable osteopathic terminology.
2. Demonstrate the application of the osteopathic philosophy into the pre- and post-operative care of the surgical patient.
3. Demonstrate an understanding of palpatory findings which are found in common conditions encountered in a surgical practice.
4. Demonstrate ability to assess inspiratory and expiratory rib cage motion prior to induction and mechanical ventilation.
5. Demonstrate ability to assess neck preoperative and postoperative.

Interpersonal and Communication Skills

OBJECTIVES: Interpersonal and Communication Skills

1. Communicates effectively with attending, resident, team members and other health care professionals.
2. Documentation in medical records is legible.
3. Communicates appropriately and professionally to patient and family members.
4. Demonstrates ability to develop and execute patient care plans appropriate for level of training and follows the SOAP/problem oriented format.

Professionalism

OBJECTIVES: Professionalism

1. Demonstrates a commitment to continuity of patient care.
2. Displays a sense of responsibility and respect to patients, families, staff and peers.
3. Demonstrates cultural sensitivity.
4. Maintains a professional appearance, well-groomed, appropriately dressed.
5. Punctual in attendance, prompt and available when called upon.
6. Motivated to learn, shows appropriate assertiveness, flexibility, adaptability toward education.
7. Demonstrates appropriate attitude, cooperative, receptive to feedback.
8. Introduce self to those who you are working with, the patient, attending, resident, other physicians, nurses, staff, etc.

Practice-Based Learning

OBJECTIVES: Practice-Based Learning

1. Demonstrates motivation and a desire to learn.
2. Demonstrates the ability to learn from practice.
3. Critiques personal practice outcomes appropriate to level of training.
4. Demonstrates recognition of the importance of lifelong learning in medical/surgical practice.

5. Seeks and responds to feedback.

Systems-Based Practice

OBJECTIVES: Systems-Based Practice

1. Know where to go for help—personal and professional.
2. Attends all required orientations presented by the facility and completes needed paperwork for rotation.
3. Follows policy and procedures set forth by the health care facility and departments within that facility.
4. Follows the policies for a medical student at the surgery rotation facility.
5. Report to appropriate institutional authority when absent following Clinical Affairs guidelines.

Patient Care

1. Communicates effectively with attending, resident, team members and other health care professionals.
2. Documentation in medical records is legible.
3. Communicates appropriately and professionally to patient and family members.
4. Demonstrates ability to develop and execute patient care plans appropriate for level of training and follows the SOAP/problem oriented format.
5. Describe how to assess a patient's airway.
6. Demonstrate bag and mask ventilation while patient is under anesthesia.
7. Demonstrate aseptic IV insertion (**goal: 20 attempts with a success rate of at least 50%**) and appropriate management.
8. Demonstrate patient safety concerns regarding body alignment, padding bony prominence and environmental safety perioperative.
9. Demonstrate endotracheal oral intubation. (**goal: 5 attempts**)
10. Demonstrate LMA placement. (**goal: 5 attempts**)

Medical Knowledge

Pre-operative/Pre-anesthetic Assessment- Students should be able to define, describe and discuss:

1. Through history, physical, and laboratory results identify disease states which impact anesthetic care.
 - CVS: CAD, HTN, Valvular Heart Disease
 - Resp: difficult airways, COPD, reactive airway disease, URI
 - GI: reflux, end stage liver disease, morbid obesity
 - Endocrine: DM adrenocortico insufficiency
 - Hematological: anemia, coagulopathy
 - Musculoskeletal: arthritis
 - Drug abuse
2. Understand what general factors help determine the anesthetic plan:
 - Disease state and severity
 - Planned surgery, patient position in OR
 - Patient age, anesthetic preference
 - Post operative analgesia management
3. Normal monitoring parameters
4. ASA status (5)
5. Potential complications/outcomes
 - Pulmonary aspiration
6. Vascular access and preoperative IV fluid
 - Peripheral
 - Central Line
7. Pre-operative medications- know the most frequently used:
 - Sedative
 - Narcotic
 - Anticholinergics

Operative Anesthetic Techniques- Students should be able to define, describe and discuss:

1. General Anesthesia
 - Preoperative evaluation
 - Evaluate airway- oral vs nasal, awake vs anesthetized
 - Equipment
 - Laryngoscope with light
 - Endotracheal tubes of appropriate size
 - Malleable stylet
 - Oxygen supply
 - Functioning suction catheter
 - Functioning IV
 - Appropriate anesthetic drugs
 - Head position
 - " Sniffing" position
 - Cricoid pressure needed?
 - Induction
 - Intravenous induction agents
 - Airway management
 - Mask
 - Endotracheal intubation
 - Maintenance- list the most common and know the pharmacology and physiologic response:
 - Inhalation agents
 - Muscle relaxants
 - Intraoperative fluid and electrolyte therapy
 - Airway Maintenance
 - Emergency drugs
 - Ephedrine
 - Atropine
 - Phenylephrine
 - Emergence- what drugs are used to reverse the effects of drugs used in anesthesia:
 - Reversal agents
 - Extubation
2. Regional Anesthesia- understand the difference between the two listed:
 - Spinal Anesthesia
 - Epidural Anesthesia
3. Nerve Blocks and Local Infiltration Anesthesia
 - Nerve block
 - Local anesthesia- know the differences in local anesthetic drugs pharmacology and physiologic response:
4. Anesthetic Supplements
 - Opioids
 - Narcotic Antagonists

Monitoring the Anesthetized Patient- Students should be able to define, describe and discuss:

1. Basic Intraoperative Monitoring
 - Oxygenation
 - Ventilation
 - Circulation
 - Temperature
2. Additional and Optional Monitors
 - Neuromuscular blockade
 - Respiratory gases
 - Urine output
3. Specialized and Intensive Monitoring
 - Invasive Hemodynamic Monitoring
 - Arterial blood pressure monitoring
 - Central venous pressure
 - Central Nervous System Monitoring

Postoperative Recovery- Students should be able to define, describe and discuss:

1. Purpose of the PACU
2. Discharge criteria
3. Complications- know the most common complications in anesthesia and why:
 - Pulmonary
 - Circulatory
 - Renal dysfunction
 - Bleeding
 - Hypothermia
 - Pain

Management of Postoperative Pain- Students should be able to define, describe and discuss:

1. Why treat postoperative pain
2. Psychological interventions
3. Systemic Opioid
4. PAC (Patient controlled analgesia)
5. Epidural and Spinal Analgesia
6. NSAIDs (Nonsteroidal Anti-inflammatory drugs) IV and oral
7. Oral Narcotics
8. Combination pain control (NSAID, Gabapentin, Benzodiazepines) "pain control cocktails"
9. Collaboration with the pain management team

Implementation

Course objectives are to be accomplished in a College affiliated hospital or clinical facility, under supervision. Basic objectives **must** be covered during the rotation to assure adequate student preparation for Board examinations and other evaluations such as post-rotation examinations. The use of diverse methods appropriate to the individual and the clinical site are encouraged, but patient-centered teaching is optimal.

Didactic methods to achieve required objectives include:

- reading assignments
- lectures
- computer-assisted programs (if available)
- student attendance at/participation in formal clinical presentations by medical faculty

Clinically oriented teaching methods may include:

- assignment of limited co-management responsibilities under supervision
- participation in clinic visits, daily patient rounds and conferences
- supervised and critiqued clinical work-ups of patients admitted to the service
- assigned, case-oriented reading case presentations

Three levels of achievement are identified:

- familiarity with a variety of medical procedures through observation and assisting
- proficiency in clinical procedures through actual supervised performance
- awareness of the availability of various medical procedures and their use

At the beginning of the rotation, the physician/mentor should review expectations/guidelines of performance with the student. On the last day of service, the supervising physician should review the student's performance with the student and have the student sign the evaluation form before submission. A student's signature simply indicates that the student has received a grade directly from the attending; it does not indicate agreement with the grade. Evaluations of students must be completed within two weeks of completion of the rotation.

Assignments

The rotation director or preceptor may direct specific and general reading assignments from texts and current literature. Supplemental readings from current periodical literature are recommended.