

**University of Massachusetts Medical School
Anesthesiology Residency Program**

**Thoracic Anesthesia Rotation CA-2/Required
Goals and Objectives**

The thoracic anesthesia rotation is a dedicated one-month rotation for CA-2 residents. As thoracic cases are performed on both the Memorial and University campuses, resident assignments will vary from day to day, based upon the location of the cases most appropriate for the Thoracic resident. The majority of cases involving same-day admit patients will be done on the Memorial campus, while the inpatient service makes up the majority of cases done on the University campus.

GOAL

The main overall goal of this rotation is to provide the resident a broad understanding of the subspecialty of anesthesia for thoracic surgery

OBJECTIVES

A resident shall achieve this goal by attaining basic knowledge and skill in the following areas of anesthetic management:

I. Medical Knowledge

At the conclusion of the rotation, the resident should be able to:

- Describe the normal anatomy and physiology of the lung, including lung mechanics, control of ventilation, and V/Q matching including determinants of shunt and dead space
- Describe indications, contraindications and/or interpretation of the following: tests for assessing pulmonary function, including routine pulmonary function tests; flow-volume loops; DLCO; arterial blood gases; and tests to estimate extent of lung resection that can be tolerated
- Discuss and explain the rationale of induction and maintenance of anesthesia techniques for thoracic surgery
- Describe the indications for lung isolation
- Explain the sequential steps in establishing one-lung ventilation
- Discuss physiological changes related to one-lung ventilation, particularly shunting
- Describe the pathophysiology of obstructive lung disease, restrictive lung disease, and carcinoma of the lung and discuss the anesthetic implications for thoracic surgery, both via VATS and open thoracic surgery.
- List the indications and potential complications of arterial catheterization, bronchoscopy, double lumen endotracheal tube placement, thoracic and lumbar epidural catheters and techniques of intercostal nerve block

- List criteria for the post-operative extubation of the thoracic surgery patient
- List common postoperative problems and their treatment for the thoracic surgery patient
- Describe the management of post-operative ventilation of the thoracic surgery patient, particularly with respect to post-pneumonectomy patients

II. Patient Care

At the conclusion of the rotation, the resident should be able to:

- Perform an appropriate pre-anesthetic evaluation pertinent to the patient presenting for thoracic surgery
- Formulate an appropriate anesthetic plan for each case with attention to the appropriate use of intra-operative monitoring
- Conduct safe anesthetics for non-complex thoracic surgical cases including bronchoscopy and mediastinoscopy, with minimal guidance
- Conduct a safe anesthetic for more complex thoracic surgery, including lobectomy and video-assisted thoracoscopic surgery (VATS) with moderate faculty guidance
- Formulate an appropriate plan for post-operative pain management with specific attention to the control of post-thoracotomy pain
- Develop a plan for post-operative extubation or post-operative mechanical ventilation for thoracic surgical patients
- Recognize and manage intra-operative hypoxemia in thoracic surgical patients with particular emphasis on those patients undergoing one-lung ventilation
- Discuss the common complications and risks of various thoracic surgical procedures
- Insert, manage and interpret the results of arterial catheterization
- Insert and manage thoracic and lumbar epidural catheters for post-thoracotomy analgesia with assistance
- Insert, position and manage double lumen endotracheal tubes (DLT's) and, if pertinent, bronchial blockers (BB's)
- Demonstrate a basic skill in the use of fiber-optic bronchoscopy to insert and confirm positioning of DLT's and, where pertinent, BB's, with assistance.

III. Practice-based Learning and Improvement

At the conclusion of the rotation, the resident should demonstrate an awareness of:

- both surgical and anesthetic factors in the development of intra-operative and/or post-operative complications

- different anesthetic methodologies which could have been employed to potentially effect a more positive anesthetic experience
- gaps in knowledge, and develop and implement a plan to correct same

IV. Interpersonal and Communication Skills

At the conclusion of the rotation, it will be expected that the resident will demonstrate:

- an ability to gather all relevant preoperative data, utilizing and communicating with consultants effectively
- an understanding of the various stages of the surgical procedure and the normal expectations for each, with the ability to observe, act and communicate effectively with the surgical team
- an ability to discuss the planned procedure and analgesic options with a patient clearly and in a readily understandable manner
- effective communication skills, as well as caring and respectful behavior, when interacting with patients and their families
- effective transfer of all relevant information to patient care providers post-operatively, in either the PACU or intensive care unit.

V. Professionalism

At the conclusion of the rotation, it is expected that the resident will:

- demonstrate an awareness of each patient's circumstance, both physical and emotional, and treat them accordingly
- effectively communicate with consultants, as well as with surgical and peri-operative support team members
- demonstrate a commitment to learning and a willingness to accept constructive feedback

VI. Systems-based Practice

At the conclusion of their training, the resident should demonstrate:

- an understanding of the similarities and differences between the two campus systems (private vs. academic)
- an ability to discuss the different aspects of both, with the development of ideas to effect positive change at such sites

In addition to the development of the case-based competencies noted above, residents are expected to develop familiarity with a standard curriculum of didactics, literature, quality assurance and research areas pertinent to thoracic anesthesia as contained in the Thoracic Anesthesia Reading Packet.

