



**ACGME International**

**Advanced Specialty Program Requirements for  
Graduate Medical Education in  
Thoracic Surgery**

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**Int. Introduction**

*Background and Intent: Programs must achieve and maintain Foundational Accreditation according to the ACGME-I Foundational Requirements prior to receiving Advanced Specialty Accreditation. The Advanced Specialty Requirements noted below complement the ACGME-I Foundational Requirements. For each section, the Advanced Specialty Requirements should be considered together with the Foundational Requirements.*

**Int. I. Definition and Scope of the Specialty**

Thoracic surgery encompasses the pre-operative, operative, peri-operative, and critical care of patients with pathologic conditions within the chest. This includes the surgical care of coronary artery disease; diseases of the trachea, lungs, esophagus, and chest wall; abnormalities of the great vessels and heart valves; congenital anomalies of the chest and heart; tumors of the mediastinum; diseases of the diaphragm; and management of chest injuries.

**Int. II. Duration of Education**

Int. II.A. The educational program in thoracic surgery must be 72 or 84 months in length.

**I. Institution**

**I.A. Sponsoring Institution**

I.A.1. The Sponsoring Institution must ensure an administrative and academic structure that provides for educational and financial resources dedicated to the needs of the program, such as the appointment of teaching faculty and residents, support for program planning and evaluation, the assurance of sufficient ancillary personnel, and the provision for patient safety and the alleviation of resident fatigue. The Sponsoring Institution must:

I.A.1.a) demonstrate commitment to education in thoracic surgery in its support of the residency program;

I.A.1.b) provide at least 25 percent salary support for the program director; and,

I.A.1.c) provide and document faculty development in education and teaching for the program director and the faculty members.

I.A.2. The Sponsoring Institution and program should provide support for residents' attendance at local and international professional meetings.

## **I.B. Participating Sites**

See International Foundational Requirements, Section I.B.

## **II. Program Personnel and Resources**

### **II.A. Program Director**

II.A.1. The program director must document:

II.A.1.a) formal faculty development activities, such as participation at local and international workshops and other activities related to education that improve the faculty members' teaching and evaluation skills or allow for development of new skills in their specialty to improve patient care, and scholarly activities;

II.A.1.b) faculty engagement in the education and scholarly productivity of thoracic surgery residents, as well as participation in medical student education; and,

II.A.1.c) policies and procedures governing pre-hospital and post-hospital involvement of the residents.

II.A.2. Because of the small resident cohort in a program, the program director must ensure the content of residents' evaluations of faculty members does not adversely affect resident progression in the educational program.

### **II.B. Faculty**

II.B.1. The faculty must:

II.B.1.a) include one designated cardiothoracic faculty member responsible for coordinating multidisciplinary clinical conferences and organizing instruction and research in general thoracic surgery; and,

II.B.1.b) include qualified thoracic surgeons and other faculty members in related disciplines who direct conferences.

### **II.C. Other Program Personnel**

See International Foundational Requirements, Section II.C.

### **II.D. Resources**

II.D.1. The institution and the program must provide access to information services that include:

II.D.1.a) the electronic retrieval of patient information;

- II.D.1.b) a comprehensive database for thoracic, adult cardiac, and congenital cardiac disease; and,
- II.D.1.c) an on-site library or electronic access to appropriate texts and journals.
- II.D.2. The Sponsoring Institution must provide access to a learning resources laboratory for resident education and remediation.
- II.D.3. The program should have access to clinical databases for thoracic, adult cardiac, and congenital cardiac disease.

### **III. Resident Appointment**

#### **III.A. Eligibility Criteria**

See International Foundational Requirements, Section III.A.

#### **III.B. Number of Residents**

- III.B.1. A minimum of one thoracic surgery resident should be appointed in each year of the educational program to provide sufficient peer interaction.

#### **III.C. Resident Transfers**

See International Foundational Requirements, Section III.C.

#### **III.D. Appointment of Fellows and Other Learners**

See International Foundational Requirements, Section III.D.

### **IV. Specialty-Specific Educational Program**

#### **IV.A. ACGME-I Competencies**

- IV.A.1. The program must integrate the following ACGME-I Competencies into the curriculum.

##### **IV.A.1.a) Professionalism**

- IV.A.1.a).(1) Residents must demonstrate a commitment to professionalism and an adherence to ethical principles. Residents must demonstrate:

- IV.A.1.a).(1).(a) compassion, integrity, and respect for others;

- IV.A.1.a).(1).(b) responsiveness to patient needs that supersedes self-interest;

- IV.A.1.a).(1).(c) respect for patient privacy and autonomy;

- IV.A.1.a).(1).(d) accountability to patients, society, and the profession;
- IV.A.1.a).(1).(e) sensitivity and responsiveness to a diverse patient population, including to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation; and,
- IV.A.1.a).(1).(f) high standards of ethical behavior; continuity of care (pre-operative, operative, and post-operative); sensitivity to age, gender, culture, and other differences; and honesty, dependability, and commitment.
- IV.A.1.b) Patient Care and Procedural Skills
- IV.A.1.b).(1) Residents must provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents must demonstrate competence in:
- IV.A.1.b).(1).(a) developing and executing patient care plans, using information technology, and evaluating diagnostic studies;
- IV.A.1.b).(1).(b) providing pre-operative management, including the selection and timing of operative intervention and the selection of appropriate operative procedures;
- IV.A.1.b).(1).(c) providing post-operative management of thoracic and cardiovascular patients;
- IV.A.1.b).(1).(d) providing critical care of patients with thoracic and cardiovascular surgical disorders, including trauma patients, whether or not operative intervention is required;
- IV.A.1.b).(1).(e) correlating the pathologic and diagnostic aspects of cardiothoracic disorders, demonstrating skill in diagnostic procedures (e.g., bronchoscopy and esophagoscopy), and interpreting appropriate imaging studies (e.g., ultrasound, computed tomography, roentgenographic, radionuclide, cardiac catheterization, pulmonary function, and esophageal function studies);

- IV.A.1.b).(1).(f) executing core procedures including the lungs, pleura, and chest wall; esophagus, mediastinum, and diaphragm; thoracic aorta and great vessels; congenital heart anomalies; valvular heart diseases; endovascular stents; and myocardial revascularization; and,
- IV.A.1.b).(1).(g) providing outpatient care, including:
- IV.A.1.b).(1).(g).(i) examining a patient pre-operatively, consulting with the attending surgeon regarding operative care, and participating in the surgery and post-operative care; and,
- IV.A.1.b).(1).(g).(ii) seeing a patient personally in an outpatient setting and consulting with the attending surgeon regarding the follow-up care rendered to the patient in the doctor's office.

IV.A.1.c) Medical Knowledge

IV.A.1.c).(1) Residents must demonstrate knowledge of established and evolving biomedical clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents must demonstrate knowledge of:

- IV.A.1.c).(1).(a) current medical information, and their ability to critically evaluate scientific information;
- IV.A.1.c).(1).(b) coronary artery disease; diseases of the trachea, lungs, esophagus, and chest wall; abnormalities of the great vessels and heart valves; congenital anomalies of the chest and heart; tumors of the mediastinum; diseases of the diaphragm; and management of chest injuries; and,
- IV.A.1.c).(1).(c) the use of cardiac and respiratory support devices.

IV.A.1.d) Practice-based Learning and Improvement

IV.A.1.d).(1) Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to meet the following goals:

- IV.A.1.d).(1).(a) identify and perform appropriate learning activities;

- IV.A.1.d).(1).(b) identify strengths, deficiencies, and limits in one's knowledge and expertise;
- IV.A.1.d).(1).(c) incorporate formative evaluation feedback into daily practice;
- IV.A.1.d).(1).(d) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems;
- IV.A.1.d).(1).(e) participate in the education of patients, patients' families, students, other residents, and other health professionals;
- IV.A.1.d).(1).(f) practice lifelong learning, analyze personal practice outcomes, and use information technology to optimize patient care;
- IV.A.1.d).(1).(g) set learning and improvement goals;
- IV.A.1.d).(1).(h) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; and,
- IV.A.1.d).(1).(i) use information technology to optimize learning.

IV.A.1.e) Interpersonal and Communication Skills

- IV.A.1.e).(1) Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Residents must:
- IV.A.1.e).(1).(a) communicate effectively with patients, patients' families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;
  - IV.A.1.e).(1).(b) communicate effectively with physicians, other health professionals, and health-related agencies;
  - IV.A.1.e).(1).(c) work effectively as a member or leader of a health care team or other professional group;
  - IV.A.1.e).(1).(d) act in a consultative role to other physicians and health professionals; and,
  - IV.A.1.e).(1).(e) maintain comprehensive, timely, and legible medical records, if applicable.

IV.A.1.f) Systems-based Practice

- IV.A.1.f).(1) Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents must:
- IV.A.1.f).(1).(a) work effectively in various health care delivery settings and systems relevant to their clinical specialty;
- IV.A.1.f).(1).(b) coordinate patient care within the health care system relevant to their clinical specialty;
- IV.A.1.f).(1).(c) incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;
- IV.A.1.f).(1).(d) advocate for quality patient care and optimal patient care systems;
- IV.A.1.f).(1).(e) work in interprofessional teams to enhance patient safety and improve patient care quality;
- IV.A.1.f).(1).(f) participate in identifying system errors and implementing potential systems solutions; and,
- IV.A.1.f).(1).(g) practice cost-effective care without compromising quality, promote disease prevention, demonstrate risk-benefit analysis, and know how different practice systems operate to deliver care.

**IV.B. Regularly Scheduled Educational Activities**

- IV.B.1. The core curriculum must include a didactic program that is based on the core knowledge content of thoracic surgery, including:
- IV.B.1.a) the surgical care of coronary artery disease;
- IV.B.1.b) diseases of the trachea, lungs, esophagus, and chest wall;
- IV.B.1.c) abnormalities of the great vessels and heart valves;
- IV.B.1.d) congenital anomalies of the chest and heart;
- IV.B.1.e) tumors of the mediastinum;
- IV.B.1.f) diseases of the diaphragm; and,
- IV.B.1.g) management of chest injuries.



## **IV.C. Clinical Experiences**

- IV.C.1. The curriculum must document at least six years of clinical thoracic surgery education under the authority and direction of the thoracic surgery program director.
- IV.C.2. Residents must have documented operative experience showing they:
- IV.C.2.a) participated in the diagnosis, pre-operative planning, and selection of the operation for the patient;
  - IV.C.2.b) performed those technical manipulations that constituted the essential parts of the patient's operation;
  - IV.C.2.c) were substantially involved in post-operative care; and,
  - IV.C.2.d) were supervised by responsible faculty/teaching staff members.
- IV.C.3. At least 24 months of the program must include education in core surgical education, including pre- and post-operative evaluation and care.
- IV.C.3.a) Programs that are 72 months in length must have a maximum of 36 months of core surgical education.
  - IV.C.3.b) Programs that are 84 months in length must have a maximum of 42 months of core surgical education.
- IV.C.4. The sequencing of the thoracic surgery educational components must be integrated throughout the program to provide a cohesive, progressive, and longitudinal educational experience.
- IV.C.5. Thoracic surgery must encompass the operative, peri-operative, and critical care of patients with pathologic conditions within the chest, including the surgical care of:
- IV.C.5.a) coronary artery disease;
  - IV.C.5.b) diseases of the trachea, lungs, esophagus, and chest wall;
  - IV.C.5.c) abnormalities of the great vessels and heart valves;
  - IV.C.5.d) congenital anomalies of the chest and heart;
  - IV.C.5.e) tumors of the mediastinum;
  - IV.C.5.f) diseases of the diaphragm; and,
  - IV.C.5.g) management of chest injuries.
- IV.C.6. Residents should, under supervision of the members of the thoracic surgery faculty:

- IV.C.6.a) provide pre-operative management, including the selection and timing of operative intervention and the selection of appropriate operative procedures;
- IV.C.6.b) provide post-operative management of thoracic and cardiovascular patients;
- IV.C.6.c) provide critical care of patients with thoracic and cardiovascular surgical disorders, including trauma patients, whether or not operative intervention is required; and,
- IV.C.6.d) correlate the pathologic and diagnostic aspects of cardiothoracic disorders, demonstrating skill in diagnostic procedures (such as bronchoscopy and esophagoscopy), and interpreting appropriate imaging studies (such as ultrasound, computed tomography, roentgenographic, radionuclide, cardiac catheterization, pulmonary function, and esophageal function studies).
- IV.C.7. Residents must have a minimum operative experience that includes:
  - IV.C.7.a) annually, a minimum of 125 major cases;
  - IV.C.7.b) an adequate volume of operative cases, distribution of categories, and complexity of procedures to ensure each resident a balanced and equivalent clinical education;
  - IV.C.7.c) categories of procedures, including the lungs, pleura, and chest wall; esophagus, mediastinum, and diaphragm; thoracic aorta and great vessels; congenital heart anomalies; valvular heart diseases; and myocardial revascularization;
  - IV.C.7.d) additional educational experiences, such as cardiac pacemaker implantation, mediastinoscopy, pleuroscopy, and flexible and rigid esophagoscopy and bronchoscopy; endoscopic ultrasound, endoscopic approaches to thoracic and esophageal diseases; and multidisciplinary approaches to the treatment of thoracic malignancy; and,
  - IV.C.7.e) experience in endovascular stents.
- IV.C.8. Residents must have outpatient responsibilities that include:
  - IV.C.8.a) opportunities to examine patients pre-operatively, to consult with the attending surgeon regarding operative care, and to participate in the surgery and post-operative care; and,
  - IV.C.8.b) seeing their surgical patients in an outpatient setting and, as a minimum in some cases only, consulting with the attending surgeon regarding the follow-up care rendered to the patient in the doctor's office.

- IV.C.9. The remainder of the curriculum must include education in oncology, transplantation, basic and advanced laparoscopic surgery, surgical critical care and trauma management, thoracic surgery, and adult and congenital cardiac surgery.
- IV.C.10. Residents must have assignments to non-surgical areas, such as cardiac catheterization and esophageal or pulmonary function labs.
- IV.C.10.a) Programs that are 72 months in length must have a maximum of three months in non-surgical areas.
- IV.C.10.b) Programs that are 84 months in length must have a maximum of four months in non-surgical areas.
- IV.C.10.c) This experience should not occur in the chief year.
- IV.C.11. Residents' last year in the educational program must comprise chief resident responsibility on the thoracic surgery service at the primary clinical site.
- IV.C.11.a) During this year, residents must assume senior responsibility for the pre-, intra-, and post-operative care of patients with thoracic and cardiovascular disease.
- IV.C.12. A chief thoracic surgery resident and a fellow (advanced learner) must not have primary responsibility for the same patients.

**IV.D. Scholarly Activity**

See International Foundational Requirements, Section IV.D.

**V. Evaluation**

See International Foundational Requirements, Section V.

**VI. The Learning and Working Environment**

See International Foundational Requirements, Section VI.