# CORE COMPETENCY GOALS AND OBJECTIVES OF THE CARDIOTHORACIC SURGERY ROTATION AT THE HINES VETERANS ADMINISTRATION HOSPITAL

**Program Leadership**

Program Director – Anthony Perez-Tamayo, MD, PhD

Associate Program Director – Zaid Abdelsattar, MD, MS

Program Coordinator – Ann Fehrman

**Overall Goals & Objectives**

The Loyola University Thoracic Surgery Residency Program aims to provide its residents with the highest quality training in order to prepare them to become safe, effective, independent and successful thoracic and cardiovascular surgeons. This is accomplished by:

1. Training the resident to provide competent, comprehensive and high quality medical and surgical care to the thoracic and cardiovascular patient.

2. Cultivating the knowledge, skillset and attitudes required to demonstrate competency in patient care, medical knowledge, practice-based learning, interpersonal communication skills, professionalism, and systems-based practice.

3. Fostering high quality medical and surgical care in an environment that recognizes limitations in duty hours, while minimizing resident fatigue and maximizing resident education.

4. Providing a professional and collegial environment that facilitates multidisciplinary collaboration, paving the way for professional development and clinical excellence.

5. Following an academic curriculum in a rich learning environment that enables the resident to obtain certification by the American Board of Thoracic Surgery.

6. Assisting the resident in transitioning into practice, whether in academic or private thoracic and cardiovascular surgery positions.

**Cardiothoracic Surgery Service**

Provided below are the specific educational objectives, and clinical skill acquisition goals for residents within the Loyola University Thoracic Surgery Residency Program while on Hines VA Cardiothoracic Rotations. The program is under the auspices of the Residency Review Committee for Thoracic Surgery of the Accreditation Council for Graduate Medical Education (ACGME), and supported by faculty and staff within the Department of Cardiovascular and Thoracic Surgery.

Thoracic Surgery Residents rotating on Hines Cardiothoracic Surgery will be expected to work toward meeting the Loyola University Thoracic Surgery Residency Program's goals and objectives.

Residents will be evaluated in the ACGME core competencies of:

1. Patient care

2. Medical knowledge

3. Practice-based learning and improvement

4. Interpersonal and communication skills

5. Professionalism

6. Systems-based practice

These assessments will be based on the measures defined for each of the competencies within the respective levels of training. At each progressive level of training, the resident is expected to have achieved the goals and objectives of the previous level of training outlined as below.

Deficiencies noted by direct observation by faculty will be periodically discussed during the rotation. If necessary, a plan of appropriate action will be formulated to meet the requirements by the end of the rotation.

Expectations unique to the Cardiothoracic Surgery service relate to the special nature of the practice in patients with cardiothoracic disease.

The following are general and specific goals and objectives of the training rotation, organized by clinical core competency, as outlined by the ACGME. Specific goals and objectives for the second year level are summarized at the end of each core competency section as appropriate. The list is not meant to be exhaustive.

**Patient Care:**

1. The *second year resident* should develop the surgical skills required to perform (with graduated autonomy) the core general thoracic surgical procedures of pulmonary resection, advanced endoscopy and bronchoscopy, mediastinal resections and staging, esophageal resections and procedures for benign esophageal disease, chest wall resections and reconstructions, diaphragm procedures, tracheal operations and multidisciplinary patient management skills.
2. The *Second year Resident* should demonstrate skills required to perform the core cardiovascular surgery procedures such as aortic surgery, redo sternotomy, aortic valve repair and valve sparing root replacement, aortic arch surgery, multivalve surgery, hypertrophic cardiomyopathy, basic congenital cardiac surgery, heart and lung procurement, heart implantations and ventricular assist device placement under supervision.

Measures for assessing ***patient care competencies*** include:

1. Global evaluation plus core surgical skills assessment [New innovations].

2. Clinical research through chart review of defined reconstructive procedures related to patient outcome.

3. Direct observation within:

a. Specialty journal clubs.

b. Departmental and division Morbidity and Mortality conferences.

c. Specialty case based clinical conferences.

**Medical Knowledge:**

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. The level appropriate expectations follow. This list is meant to be a starting point for the Thoracic Surgery Resident and is not meant to preclude additional reading or independent study nor limitation of time within the operating room, general care wards, or the outpatient clinic.

1. The *second year resident* should be able to present and discuss, at weekly conferences, the advantages and disadvantages of various surgical procedures and must be familiar with the limitations of these procedures as it applies to the patient’s voiced expectations.

2. The *second year resident* should understand and be ready to describe the relevant surgical approaches for re-operative and complex general thoracic surgical procedures.

3. The *second year resident* should be familiar with different procedures available to address general thoracic problems that require operation, e.g., knowing when minimally invasive surgical procedures are appropriate and/or alternate thoracic incisions are preferred.

4. The *second year resident* should be able to provide accurate patient assessment, delineate treatment alternatives, and determine appropriate indications for surgical procedures.

5. The *second year resident* should understand and be ready to demonstrate the relevant surgical approaches for cardiovascular surgical procedures.

6. The *second year resident* should prepare and understand the proper use of the instrumentation systems for the core cardiovascular surgical procedures.

7. The *second year resident* should read and understand the published literature regarding the long-term results as well as the prevention and management of complications associated with specific cardiovascular patient diagnoses.

8. The *second year resident* should be able to present and discuss, at weekly conferences, the advantages and disadvantages of various surgical procedures and must be familiar with the limitations of these procedures as it applies to the patient’s voiced expectations.

9. The *Second year Resident* should understand and be ready to demonstrate the relevant surgical approaches for re operative cardiovascular surgical procedures.

10. The *Second year Resident* should be familiar with different procedures available to address cardiovascular problems that require operation, e.g., knowing when percutaneous procedures are feasible or preferred, or minimally invasive surgical procedures are appropriate.

Measures for assessing ***medical knowledge competency*** include:

1. Global evaluation plus surgical skills assessment [New innovations].
2. In service training exam (TSITE)
3. TSDA weekly quizzes
4. Annual mock oral examinations
5. Direct observation within:

a. Specialty journal clubs.

b. Departmental and division Morbidity and Mortality conferences.

c. Specialty case based clinical conferences.

**Practice Based Learning**

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 life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:

1) Identify strengths, deficiencies, and limits in one’s knowledge and expertise. The resident is expected to work with faculty and the program leadership to identify deficiencies and knowledge using the in-service training exam, and TSDA curriculum quizzes, clinical conferences, and daily clinical practice

2) Set learning and improvement goals. The resident is expected to work with faculty to improve comprehension or performance as measured by the in service and TSDA weekly exams, and to seek regular feedback on technical and clinical skills

3) Identify and perform appropriate learning activities. The resident is expected to:

Complete weekly TSDA reading/viewing assignments, and read such extra sources as may be assigned for clinical conferences or to address deficiencies. Avail themselves of opportunities to work on technical skills in animal labs

4) Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement. The resident is expected to:

1. Attend and review results of Quality Improvement (QI) conferences
2. Bring to the attention of faculty observations for possible QI projects

5) Incorporate formative evaluation feedback into daily practice

6) Locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems. The resident is expected to:

1. Discuss alternative treatment strategies with an attending prior to a procedure, supporting decision making with relevant literature
2. Be prepared to exercise this skill in Clinical Decision Making and Mortality and Morbidity Conferences
3. Read published material and listen to presentations critically
4. Demonstrate understanding of the essential steps of the research process by preparing and submitting a manuscript for publication in a peer-reviewed journal or give a presentation at Grand Rounds which meets the satisfaction of his/her teachers. Either an oral or a written presentation is appropriate

7) Demonstrate research prowess by:

1. Defining an analyzable problem or scientific question
2. Assembling an appropriate literature review
3. Synthesizing and analyzing available data
4. Formulating an informed and insightful discussion
5. Composing a properly constructed, critically reviewed list of literature citations
6. Show an understanding of the appropriate application of statistical tests to the problem
7. Demonstrate an understanding of the appropriate application of other commonly used statistical tests such as univariate analysis, multivariate analysis, analysis of variance, and the use of T-tests for paired data and multiple comparisons. (Residents should know the limitations, deficiencies and proper applications of these commonly used statistical tests)
8. Show evidence of ability to critically analyze major clinical research papers in the thoracic literature which guide practice
9. Apply knowledge of the scientific method to design and execute at least one formal analysis to solve a problem related to thoracic surgery

8) Use information technology to optimize learning. The resident is expected to be able to conduct electronic literature searches, and to distribute electronic format papers to team members for clinical purposes and for such conferences as Journal Club

9) Participate in the education of patients, families, students, residents and other health professionals. The resident is expected to explain the risks and benefits of procedures to patients and family, and obtain informed consent under direct faculty observation, and seek feedback on performance.

10) Demonstrate the ability to practice lifelong learning, analyze personal practice outcomes, and use information technology to optimize patient care.

The level appropriate expectations specific to cardiothoracic surgery are:

1. The *second year resident*, through critical analysis of peer review papers discussed at Journal Clubs and clinical based conference presentations, will simulate best practices and recommendations into their own

2. The *second year resident* should develop the ability to be a primary clinical research investigator including project organization, data acquisition, and preparation for presentation/publication

3. The *second year resident* should teach general surgery rotating residents and assist with organization of weekly conference presentations.

Measures for assessing ***practice based learning*** include:

1. Global evaluation plus surgical skills assessment [New innovations].
2. In service training exam (TSITE)
3. TSDA weekly quizzes
4. Annual mock oral examinations
5. Direct observation within:

a. Specialty journal clubs.

b. Departmental and division Morbidity and Mortality conferences.

c. Specialty case based clinical conferences.

**Interpersonal and Communication Skills**

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 are expected to:

1. Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
2. Explain the risks and benefits of procedures to patients and family, and obtain informed consent under direct faculty observation, and seek feedback on performance
3. Develop empathetic skills recognizing the life threatening and chronic nature of thoracic diseases and be able to communicate clearly and effectively these issues to the patient and family members
4. Communicate effectively with physicians, other health professionals, and health related agencies
5. Demonstrate the ability to engage colleagues from other relevant disciplines, through daily interaction, and weekly conferences, to provide an integrative approach to diagnostic and therapeutic intervention
6. Develop positive collaborative interactions with other team members including ancillary personnel to optimize patient care
7. Lead Multi-disciplinary ICU rounds each morning under direct faculty supervision.
8. Receive and execute effective hand offs of responsibility with each change of shift
9. Receive and execute effective hand offs with the floor team in order to round with the attending on weekends
10. Work effectively as a member or leader of a health care team or other professional group
11. Lead the conduct of a case, coordinating with nursing, anesthesia, and perfusion staff under direct faculty observation
12. Lead the conduct of resuscitation and other emergency care under direct faculty supervision
13. Act in a consultative role to other physicians and health professionals
14. Conduct history and physicals, review laboratory and imaging studies promptly, and synthesize this data into a differential diagnosis, and treatment plan with a faculty member in a prompt and effective fashion
15. Determine specific questions and objectives for which the consult has been requested.
16. Maintain comprehensive, timely, and legible medical records, if applicable.
17. Gain facility in the use of the VA EMR systems
18. Forward all documentation for review and co-signature of the attending using the VA EMR system.

Measures for assessing ***interpersonal and communication skills*** include:

1. The global evaluation tool [New innovations].

2. Direct observation within:

a. Specialty journal clubs.

b. Departmental and division Morbidity and Mortality conferences.

c. Specialty case based clinical conferences.

**Professionalism**

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. The resident is expected to demonstrate:

1. The residentshould demonstrate a commitment to carrying out professional responsibilities through integrity, compassion, and respect

2. The residentshould demonstrate responsiveness to patient needs including being sensitive and responsive to the patient’s age, cultural beliefs, disabilities, and expectations

3. The residentshould demonstrate commitment to excellence and ongoing professional development

4. The residentshould demonstrate appropriate ethical principles with respect to patient confidentiality, informed consent, and business practices.

Measures for assessing ***professionalism competency*** include:

1. The global assessment [New innovations].

2. Patient complaints and testimonials

3. Direct observation within:

a. Specialty journal clubs.

b. Departmental and division Morbidity and Mortality conferences.

c. Specialty case based clinical conferences.

**Systems Based Practice**

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. The overarching goals and objectives in this core competency are to:

1. Work effectively in various health care delivery settings and systems relevant to their clinical specialty

2. Coordinate patient care within the health care system relevant to their clinical specialty

3. Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate

4. Advocate for quality patient care and optimal patient care systems

5. Work in inter-professional teams to enhance patient safety and improve patient care quality

6. Participate in identifying system errors and implementing potential systems solutions.

7. Practice cost-effective care without compromising quality, promote disease prevention, demonstrate risk-benefit analysis, and know how different practice systems operate to deliver care.

Specifically:

1. *Second year residents* provide appropriate triage of patients with cardiothoracic surgery emergencies

2. The *second year resident* should be able to incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate

3. The *second year resident* should develop a method for evaluation of patients with complex diagnoses and learn how to organize a clinical practice

Measures for evaluating ***systems-based practice*** include:

1. Global assessment [New innovations].

2. Compliance with institutionally directed and mandated educational modules.

**Evaluation**

1. Faculty will evaluate residents at the end of the rotation, in writing, based upon ACGME core competencies and their application to Thoracic Surgery as outlined above.
2. Operative skill performance will be evaluated during the conduct of an operation Graduated autonomy will be given to the resident as they progress through the rotation. Feedback will be provided verbally during the rotation and in writing at the end of the operation as noted above
3. Residents will also have the opportunity to evaluate faculty at the end of the rotation, in writing, based on their teaching and education efforts as well as the overall experience during the rotation
4. The program will be evaluated annually. Questions or comments can be directed to the Residency Coordinator or to the Program Leadership
5. Written evaluations will be completed in [New Innovations]

**Academic and Research Involvement**

Research and academic publication is a requirement for the successful training program. Residents are encouraged to formulate a research plan as early as their match notification. The residency program leadership and coordinator can facilitate communication with faculty members who have matching interest. The resident will be assigned a faculty mentor and will meet on a monthly basis with the residents to assist and advise them on their research project and assess their projects.

**Rounds and Conferences**

Daily rounds and patient care responsibilities will be assigned specific to the individual service. In general for the Adult Services, daily rounds will include the General Care Wards and the Intensive Care Unit at the Hines VA Medical Center.

Our residents are required to participate in

1. Weekly TSDA Curriculum Conference
2. Weekly Departmental Conference, including specialized conferences such as:
   1. Monthly Journal Club
   2. Monthly Mortality and Morbidity Conference
   3. Monthly Clinical Decision Making Conference
   4. Weekly multidisciplinary tumor board at Loyola University Medical Center and/or Hines VA Hospital
   5. Congenital Anatomy Human Specimen Lab
   6. Grand Rounds
3. Resident Teaching Conference
4. Cardiac Surgery Conference
5. Thoracic Surgery Practice Management Improvement and Quality Improvement Conference
6. Additional rotation specific didactic conferences
7. Residents are required to attend the Outpatient Clinic for their respective service at least one day per week at Loyola University Medical Center and/or Hines VA Hospital

**Operative Case Criteria**

The operative experience requirement of the American Board of Thoracic Surgery for a 2 year program include a minimum annual average of 125 major operations performed by each resident for a total of 250 major cases. In addition, the resident must meet the minimums for index cases performed as primary surgeon for major cases, minor cases and other requirements.

These requirements, as set forth by the American Board of Thoracic Surgery, are shown in the table below.

The program faculty will meet with the residents to discuss their progression in their operative volume and distribution of index cases to ensure completeness.





**Milestones**

This section presents milestones designed for programs to use in semi-annual review of resident performance and reporting to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident moves from entry into residency through graduation.

For each period, review and reporting will involve selecting milestone levels that best describe a resident’s current performance and attributes. Milestones are arranged into numbered levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert. These levels do not correspond with post-graduate year of education.

Selection of a level implies that the resident substantially demonstrates the milestones in that level, as well as those in lower levels.

**Level 1:** The resident demonstrates milestones expected of an incoming resident.

**Level 2:** The resident is advancing and demonstrates additional milestones, but is not yet performing at a mid-residency level.

**Level 3:** The resident continues to advance and demonstrate additional milestones, consistently including the majority of milestones targeted for residency.

**Level 4:** The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency. This level is designed as the graduation target.

**Level 5:** The resident has advanced beyond performance targets set for residency and is demonstrating “aspirational” goals which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

Level 4 is designed as the graduation target and does not represent a graduation requirement. Making decisions about readiness for graduation is the purview of the residency program director. Study of milestone performance data will be required before the ACGME and its partners will be able to determine whether milestones in the first four levels appropriately represent the developmental framework, and whether milestone data are of sufficient quality to be used for high-stakes decisions.

Some milestone descriptions include statements about performing independently. These activities must conform to ACGME supervision guidelines, as well as institutional and program policies. For example, a resident who performs a procedure independently must, at a minimum, be supervised through oversight.















**SUMMARY**

In summary, the Loyola University Thoracic Surgery Residency Program will ensure the trainees progress appropriately and meet and/or exceed the core competency requirements, milestones and operative experiences over the 2 year training period.

Year One

1. Obtain working knowledge of chest anatomy and physiology of all of the standard general thoracic diagnoses, i.e., lung cancer, esophageal cancer, hiatal hernia, chest wall tumors, pleural disease, etc…

2. Perform thoracotomy and chest closure

3. Initiate exploration and dissection of the chest or abdomen

4. Understand staging procedures and studies

5. Perform simple general thoracic procedures, e.g., wedge resection, antireflux procedures, mediastinal mass resections

6. Insertion of VATS camera and laparoscopic camera

7. Care for general thoracic patients who underwent surgery

8. Perform basic consultations and preoperative evaluation of general thoracic patients

9. Obtain understanding of indications and timing of surgical intervention for general thoracic surgical diseases

10. Understanding staging and oncologic physiology

11. Obtain ability to interpret CXR, CT, PET, MRI and angiographic imaging

12. Interpret pulmonary function data from PFTs and VQ scans

13. Learn principles of straightforward lobectomy and esophagectomy

Year Two

1. Understand complex postoperative problems and their management

2. Perform complex surgical procedures, e.g. completion pneumonectomy, redo thoracotomy, esophagectomy, sleeve lobectomy, colon or jejunal interpositions, and tracheal resection and reconstruction

3. Participate in lung transplant in adults

4. Work through difficult decisions in thoracic surgery

**Summary (Cardiac Surgery)**

Year One

1. Obtain working knowledge of cardiac anatomy and physiology
2. Obtain understanding of indications and timing of surgical intervention for acquired heart defects.
3. Obtain ability to interpret angiography, CT, echocardiography, MRI and nuclear imaging
4. Interpret hemodynamic data from cardiac catheterization
5. Perform sternotomy and chest closure.
6. Cannulation in adults with acquired heart disease.
7. Understand cardiopulmonary bypass techniques.
8. Assist with and develop independent skills for coronary artery bypass grafting, valve replacement, atrial septal defects and simple aneurysms.
9. Assist with and develop independent skills for TAVR
10. Central and peripheral cannulation techniques for ECMO.
11. Care for the post cardiac surgery adult in the ICU and on the floor
12. Perform basic consultations and preoperative evaluation of adults with acquired heart disease.

Year Two

* 1. Perform complex cardiac surgery including valve repair, multiple valve replacement, and aneurysm repair
  2. Perform heart procurement in adults.
  3. Perform redo sternotomy in a safe and well thought of fashion
  4. Perform TAVR
  5. Understand the conduct of circulatory arrest.
  6. Learn placement of ventricular assist devices in adults.
  7. Assist with and develop independent skills to perform more complex procedures including aortic root replacement, complex valve repairs, multi-valve surgery, endocarditis surgery, thoracoabdominal aneurysm repair, heart implantation, and ventricular assist devices.
  8. Perform complex emergency consultations and preoperative evaluations of patients with heart disease.