**GOALS & OBJECTIVES FOR CARDIOTHORACIC SURGERY**

**PGY – 1**

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| **A. Medical Knowledge** | | |  | | | | | |
| **1.** | The resident should learn in-depth the fundamentals of basic science as they apply to the clinical practice of general surgery and, more specifically, to the practice of cardiac surgery, and non-cardiac thoracic surgery. *Examples include anatomy, physiology, pathophysiology, and presentation of diseases of the chest cavity; elements of wound healing; epidemiology of benign and malignant diseases, surgical nutrition, and management of fluid and electrolyte balance.*. | | | | | | | |
| **2.** | The resident should learn in-depth fundamentals of basic science as they apply to the evaluation of the patient with shock. *Examples include discriminating between hypovolemia, cardiogenic shock, and septic shock. The resident will also be able to describe the appropriate initial treatement of patients with each type of shock.* | | | | | | | |
| **3.** | The resident should learn in-depth fundamentals of basic science as they apply to the ventilator management. *Examples include but are not limited to interpretation of blood gasses, ventilator weaning, extubation parameters, and indications for reintubation.* | | | | | | | |
| **4.** | The resident should be able to efficiently utilize and interpret diagnostic laboratory testing. *Examples of appropriate tests include serum chemistries, arterial blood gas analysis, hematological profiles and coagulation tests.* | | | | | | | |
| **5.** | The resident should be able to efficiently utilize and interpret diagnostic radiological tests. *Examples of the types of studies include computed tomography, plain film radiographs, ultrasonography, arteriography and gastrointestinal studies such as esophagrams. Particular attention to findings such as effusion, atelectasis, pneumonia, pneumothorax, and position of tubes, lines, balloon pumps, etc is expected.* | | | | | | | |
| **6.** | The resident should learn in-depth the fundamentals of basic science as they apply to patients with pericardial tamponade. The resident will be able to describe the physiologic effect of the fluid in the pericardium and understand clinical signs and findings on echocardiogram which are indicative of tamponade, and the role for pericardiocentesis and surgical pericardial drainage. | | | | | | | |
| **7.** | The resident should be able to demonstrate preoperative assessment of patients with acute surgical diseases. *Examples include rapid assessment of comorbid conditions, assessment of operative risk, knowledge of anesthetic options for emergency procedures, and principles of stabilization*. | | | | | | | |
| **8.** | The resident should understand the appropriate use of antibiotics. *Examples include appropriate agents, timing, and duration of perioperative antibiotics.* | | | | | | | |
| **9.** | The resident should understand the role of anticoagulation after valve replacement, and understand the implication of the type of valve and the necessity of anticoagulation. In addition the resident will be able to understand the risk benefit balance when selecting a valve prosthesis for a patient and the role that age and comorbidities play into the selection of a valve prosthesis. | | | | | | | |
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| **B. Patient Care** | | | |  | | | | |
| **1.** | The resident should assume responsibility for all elective admissions to the service, including performing an accurate history and physical examination, writing admission orders, and reviewing appropriate diagnostic tests. The resident should perform advanced history and physical examination in the patient with acute cardiothoracic problems, | | | | | | | |
| **2.** | Under appropriate supervision, perform basic procedures such as:  *bronchoscopy on an intubated patient*  *esophagoscopy*  *central line placement*  *subcutaneous port placement for chemotherapy access*  *placement of pulmonary artery catheter*  *arterial line placement*  *chest tube placement*  *thoracentesis*  *thoracoscopy for pleurodeisis and/or pleural biopsies*  *routine wound closure*  *basic wound and drain care*  *removal of percutaneously placed intra-aortic balloon pump.* | | | | | | | |
| **3.** | The resident should assume responsibility for care of all patients on the hospital ward, including initial assessment, evaluation of daily progress, discharging patients, including dictating the discharge summary, writing prescriptions, and ensuring appropriate follow-up. | | | | | | | |
| **4.** | The resident must attend and participate in the ambulatory surgery clinics held each week for their service. *Activities will include examination and evaluation of new patients, perioperative and postoperative care of established patients, and surgical consultations under the supervision of attending surgeons.* | | | | | | | |
| **5.** | The resident should perform appropriate resuscitation in patients with acute surgical problems. | | | | | | | |
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| **C. Interpersonal and Communications Skills** | | | | | |  | | |
| 1. | The resident should communicate effectively with patients and their families across a broad range of socioeconomic and cultural backgrounds. This includes discussions regarding the patient’s disease processes (including complications), the expected courses, operative findings, and operative procedures with assistance from upper level residents and the attending surgeons; | | | | | | | |
| 2. | The resident should communicate effectively with other team members including attending physicians, senior residents, midlevel providers, nurses and students. The resident must accurately portray critical clinical information in a timely professional manner and work effectively as a member of the cardiothoracic surgery service and the department of surgery; | | | | | | | |
| 3. | The resident should work effectively with physicians from other services, other health professionals such as nurses and therapists, and health related agencies to provide high-quality health care. The resident should clearly, accurately, and respectfully communicate with referring and consulting physicians, including residents in a timely professional manner; | | | | | | | |
| 4. | The resident must effectively document the practice activities by maintaining clear, concise, accurate, and timely medical records including (but not limited to) admission history and physical examination notes, consultation notes, progress notes, written and verbal orders, operative notes, and discharge summaries; | | | | | | | |
| 5. | The resident should counsel and educate patients and their families about the diseases that they or their family member are dealing with and the rationale for the recommended plan of care; | | | | | | | |
| 6. | The resident will ensure that all student notes are accurate, reflect a proper plan, and are countersigned by a physician each day. | | | | | | | |
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| **D. Practice-Based Learning and Improvement** | | | | | | | |  |
| 1. | The resident must identify strengths, deficiencies and limits in his / her fund of knowledge and clinical abilities through self-evaluation and set learning and improvement goals based on those deficiencies; | | | | | | | |
| 2. | The resident must identify and use appropriate learning activities to improve his / her knowledge in areas of knowledge and clinical deficiencies. In addition to individual study, it is expected that the resident will participate in all clinical (e.g., clinics and operating room) and didactic (e.g., conferences) activities specific to this service in order to improve his / her fund of knowledge and clinical abilities as they relate to the fundamentals of cardiovascular diseases and their medical and surgical management; | | | | | | | |
| 3. | The resident must incorporate formative evaluation feedback from his / her faculty and senior residents into his / her daily practice; | | | | | | | |
| 4. | The resident should be able to use information technology to locate high quality evidence from scientific studies related to their patient’s health problems. He / she should be able to analyze the literature for quality and relevance to their patient and be able to assimilate this information into clinical practice; | | | | | | | |
| 5. | The resident should be able to clearly and accurately educate their patients and families, medical students, residents, and other health professionals about the fundamentals of cardiovascular diseases and their medical and surgical management;; | | | | | | | |
| 6. | The resident must attend all service-specific conferences such as the multidisciplinary thoracic oncology conference, the cardiology / cardiac surgery conference, grand rounds & the departmental morbidity & mortality conference; | | | | | | | |
| 7. | The resident must utilize an evidence-based approach to patient care; | | | | | | | |
| 8. | The resident is expected to have an understanding of the anatomy, physiology, and pathophysiology for each case in which they participate, and will keep track of their operative cases, with the goal of exposure to a diverse and thorough spectrum of diseases during the rotation. | | | | | | | |
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| **E. Systems-Based Practice** | | | | | | |  | |
| 1. | The resident should be able to work effectively to provide high quality and seamless patient care throughout the health care delivery system including the outpatient clinic, emergency department, inpatient ward, operating room, post-anesthesia care unit, and intensive care unit; | | | | | | | |
| 2. | The resident should be able to coordinate high quality patient care throughout the health care delivery system by working effectively with consultants, other health care providers such as respiratory therapists, physical therapists, and nurse, discharge planning nurses, and social workers; | | | | | | | |
| 3. | The resident should incorporate considerations of cost awareness, risk benefit analysis, and evidence-based medicine into their clinical practice | | | | | | | |
| 4. | The resident should be an advocate for high quality patient care and work to identify ways to optimize care delivery systems; | | | | | | | |
| 5. | The resident should work effectively with risk managers, quality improvement professionals, and utilization review nurses to enhance patient safety, practice high quality and cost effective patient care; | | | | | | | |
| 6. | The resident should be familiar with the principles of quality improvement processes including root cause analysis and should participate in identifying system errors and implementing potential systems solutions where possible; | | | | | | | |
| 7. | The resident should work effectively with discharge planning, utilization review nurses, social workers, and home health care agencies to seamlessly and efficiently move the patient from an in hospital setting to a rehabilitation hospital, skilled nursing facility, or home with or without a home health care agency. | | | | | | | |
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| **F. Professionalism** | | | | |  | | | |
| **1.** | | The resident must be honest at all times; | | | | | | |
| **2.** | | The resident should place the needs of the patient above all the needs or desires of him/herself. | | | | | | |
| **3.** | | The resident should maintain high ethical behavior in all professional activities. | | | | | | |
| **4.** | | The resident should remain compliant with all required training designated by the institution. | | | | | | |
| **5.** | | The resident must demonstrate a commitment to the continuity of patient care through carrying out professional responsibilities or through assuring that those responsibilities are fully and accurately conveyed to others acting in his/her stead. | | | | | | |
| **6.** | | The resident must understand the institutional policy on duty hours and remain compliant with all duty hour regulations. | | | | | | |
| **7.** | | The resident should be properly and professionally attired at all times while engaged in patient care. | | | | | | |
| **8.** | | The resident should be properly and professionally groomed at all times when engaged in patient care. | | | | | | |
| **9.** | | The resident should demonstrate sensitivity to issues of age, race, gender, and religion with patients, families, and members of the health care team. | | | | | | |
| **10.** | | The resident should at all time treat patients, families, and all members of the health care team with respect, compassion, and integrity. | | | | | | |
| **11.** | | The resident should reliably be present in pre-arranged places at pre-arranged times except when actively engaged in the treatment of a medical or surgical emergency. The resident must notify the appropriate supervisor if he or she will be unable to be present. | | | | | | |
| **12.** | | The resident must attend the mandatory conferences. | | | | | | |
| **13.** | | The resident should serve as a role model and guide for the medical students on the service in terms of professionalism. | | | | | | |

**PGY – 3**

**In general the goals and objectives for the PGY3 resident on the cardiothoracic surgery service include the list of goals and obectives listed above for the PGY1 residents as a foundation with the addition of the following:**

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| **A. Medical Knowledge** | | | |  | | | | | |
| 1. | | The resident should understand advanced basic science principles as applied to cardiac, esophageal, and pulmonary physiology. *Examples include the pathophysiology of atherosclerosis, pathophysiology and natural history of pulmonary malignancy, pulmonary function abnormalities in chronic obstructive pulmonary disease, manometric abnormalities in esophageal disease, progression of different stages of empyema and frequency/death rates of thoracic malignancies.* | | | | | | | |
| 2. | | The resident should demonstrate an understanding of the different types of mediastinal masses and the implication of location (i.e. anterior, middle, or posterior mediastinum) and age in the evaluation of a patient with a mediastinal tumor | | | | | | | |
| 3. | | The resident should be able to discuss risk factors for thoracic malignancies and for development of coronary arterial occlusive disease, and understand the importance of lifestyle modification not only for long term risk reduction, but also for decreasing perioperative risk. | | | | | | | |
| 4. | | The resident should be familiar with diagnostic tests available to detect and categorize cardiac disease. *Examples include the treadmill exercise test, dipyridamole thallium scintigraphy, adenosine echocardiography, MUGA scan, CT angiography, catheter-based coronary angiography, echocardiography (both TTE and TEE- with an understanding of the limitations and benefits of each)*. | | | | | | | |
| 5. | | The resident should be able to perform advanced assessment of indications and risk/benefit for all interventions in patients with cardiovascular disease. *Examples include optimal medical management, endovascular procedure and coronary bypass.* | | | | | | | |
| 6. | | The resident should understand the stepwise evaluation and management of the patient with an asymptomatic lung lesion, and the role for observation, biopsy, and/or PET scan. | | | | | | | |
| 7. | | The resident should understand predicted changes in pulmonary function after lung resection and be able to determine whether a lung lesion is resectable on the basis of baseline pulmonary function tests. | | | | | | | |
| 8. | | The resident should be familiar with valvular heart disease, including natural history, presentation, diagnosis, available therapeutic options, and postoperative management. | | | | | | | |
| 9. | | The resident should be familiar with the evaluation and management options for patients with esophageal disease, including functional disorders, traumatic injuries (perforation and caustic injuries), benign strictures, and neoplasms. | | | | | | | |
| 10. | | The resident should be able to explain the cardiopulmonary bypass circuit and its components. | | | | | | | |
| 11. | | The resident should demonstrate understanding of superficial and deep sternal wound infection, common pathogens, risk factors for developing deep sternal wound infection, and appropriate preventative measures to reduce the risk of deep sternal wound infection. | | | | | | | |
| 12. | | The resident will discuss the evaluation and management of aortic dissection with a demonstration of the importance of differentiating an ascending aortic dissection from a descending aortic dissection. The resident will also be able to describe the management of aortic dissection, and understand the mechanism of possible complications related to dissection such as stroke related to arch dissection, myocardial infarction, pericardial tamponade, and other distal malperfusion leading to spinal ischemia, visceral ischemia, and/or limb ischemia. | | | | | | | |
| 13. | | The resident will demonstrate understanding of the indications and benefits for placement of permanent pacemakers and/or defibrillators. | | | | | | | |
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| **B. Patient Care** | | |  | | | | | | |
| 1. | | The resident should function as a member of the cardiothoracic team and assume responsibility for all care on his or her assigned patients. This must include admission responsibilities; daily evaluation of progress and detection of new problems as well as preoperative assessment. | | | | | | | |
| 2. | | The resident should be able to demonstrate ability to manage thoracic and cardiovascular surgery patients in the critical care setting including management of patients who may or may not require surgical intervention such as those with endocarditis, pleural effusion, empyema, thoracic trauma, and esophageal motility disorders. | | | | | | | |
| 3. | | Under appropriate direct supervision, the resident should be able to perform more advanced procedures such as:  *Open and video-assisted decortication*  *Mediastinotomy and mediastinoscopy*  *Pulmonary wedge resection*  *Thoracotomy with lobectomy*  *Thoracotomy for lung biopsy*  *Thymectomy*  *Chest wall resection*  *Awake bronchoscopy* | | | | | | | |
| 4. | | The resident should have a level of comfort and familiarity with the following procedures to be able to guide a first year resident through the following procedures with the faculty member providing guidance as needed:  *bronchoscopy on an intubated patient*  *esophagoscopy*  *central line placement*  *subcutaneous port placement for chemotherapy access*  *placement of pulmonary artery catheter*  *arterial line placement*  *chest tube placement*  *thoracentesis*  *thoracoscopy for pleurodeisis and/or pleural biopsies*  *removal of percutaneously placed intra-aortic balloon pump.* | | | | | | | |
| 5. | | The resident will be able to demonstrate appropriate management of common postoperative arrythmias in the cardiac and thoracic surgical patients. Arrythmias include but are not limited to atrial fibrillaton, atrial flutter, multifocal atrial tachycardia, sinus tachycardia, etc. Similarly, the resident will be able to discuss the role for pacing the cardiac surgical patient via temporary pacing wires in the perioperative period. | | | | | | | |
| 6. | | The resident will be able to discuss the indications and rationale for (and implement, if necessary) open cardiac massage, and bedside re-exploration in the acute setting for the cardiac surgical patient who undergoes arrest. | | | | | | | |
| 7. | | The resident will understand the indications and contraindications of placement of the intra-aortic balloon pump, with a demonstration of the benefits of the balloon pump on coronary and cerebral perfusion, and an understanding of the timing of the balloon pump inflation and deflation. | | | | | | | |
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| **C. Interpersonal and Communications Skills** | | | | | |  | | |
| 1. | The resident should communicate effectively with patients and their families across a broad range of socioeconomic and cultural backgrounds. This includes discussions regarding the patient’s disease processes (including complications), the expected courses, operative findings, and operative procedures with assistance from the attending surgeons as needed; | | | | | | | |
| 2. | The resident should communicate effectively with other team members including attending physicians, junior residents, midlevel providers, nurses and students. The resident must accurately portray critical clinical information in a timely professional manner and work effectively as a member of the cardiothoracic surgery service and the department of surgery; | | | | | | | |
| 3. | The resident should work effectively with physicians from other services, other health professionals such as nurses and therapists, and health related agencies to provide high-quality health care. The resident should clearly, accurately, and respectfully communicate with referring and consulting physicians, including residents in a timely professional manner; | | | | | | | |
| 4. | The resident must effectively document practice activities by maintaining clear, concise, accurate, and timely medical records including (but not limited to) admission history and physical examination notes, consultation notes, progress notes, written and verbal orders, operative notes, and discharge summaries; | | | | | | | |
| 5. | The resident should counsel and educate patients and their families about the diseases that they or their family member are dealing with and the rationale for the recommended plan of care; | | | | | | | |
| 6. | The resident will ensure that all student notes are accurate, reflect a proper plan, and are countersigned by a physician each day. | | | | | | | |
| 7. | The resident will serve as a team leader to coordinate daily rounds and delegate patient care tasks, orders, responsibilities, and clinical coverage of operations; | | | | | | | |
| 8. | The resident will serve as the administrative chief for the service to work with the attending surgeons, midlevel providers and other residents to organize call schedules to insure high quality seamless patient care in times of resident vacation or leave; | | | | | | | |
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| **D. Practice-Based Learning and Improvement** | | | | | | | |  |
| 1. | The resident must identify strengths, deficiencies and limits in his / her fund of knowledge and clinical abilities through self-evaluation and set learning and improvement goals based on those deficiencies; | | | | | | | |
| 2. | The resident must identify and use appropriate learning activities to improve his / her knowledge in areas of knowledge and clinical deficiencies. In addition to individual study, it is expected that the resident will participate in all clinical (e.g., clinics and operating room) and didactic (e.g., conferences) activities specific to this service in order to improve his / her fund of knowledge and clinical abilities as they relate to the fundamentals of cardiovascular diseases and their medical and surgical management; | | | | | | | |
| 3. | The resident must incorporate formative evaluation feedback from his / her faculty into his / her daily practice; | | | | | | | |
| 4. | The resident should be able to use information technology to locate high quality evidence from scientific studies related to their patient’s health problems. He / she should be able to analyze the literature for quality and relevance to their patient and be able to assimilate this information into clinical practice; | | | | | | | |
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| 6. | The resident must attend all service-specific conferences such as the multidisciplinary thoracic oncology conference, the cardiology / cardiac surgery conference, grand rounds & the departmental morbidity & mortality conference; | | | | | | | |
| 7. | The resident must utilize an evidence-based approach to patient care; | | | | | | | |
| 8. | The resident is expected to have an understanding of the anatomy, physiology, and pathophysiology for each case in which they participate, and will keep track of their operative cases, with the goal of exposure to a diverse and thorough spectrum of diseases during the rotation. | | | | | | | |
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| **E. Systems-Based Practice** | | | | | | |  | |
| 1. | The resident should be able to work effectively to provide high quality and seamless patient care throughout the health care delivery system including the outpatient clinic, emergency department, inpatient ward, operating room, post-anesthesia care unit, and intensive care unit; | | | | | | | |
| 2. | The resident should be able to coordinate high quality patient care throughout the health care delivery system by working effectively with consultants, other health care providers such as respiratory therapists, physical therapists, and nurse, discharge planning nurses, and social workers; | | | | | | | |
| 3. | The resident should incorporate considerations of cost awareness, risk benefit analysis, and evidence-based medicine into their clinical practice | | | | | | | |
| 4. | The resident should be an advocate for high quality patient care and work to identify ways to optimize care delivery systems; | | | | | | | |
| 5. | The resident should work effectively with risk managers, quality improvement professionals, and utilization review nurses to enhance patient safety, practice high quality and cost effective patient care; | | | | | | | |
| 6. | The resident should be familiar with the principles of quality improvement processes including root cause analysis and should participate in identifying system errors and implementing potential systems solutions where possible; | | | | | | | |
| 7. | The resident should work effectively with discharge planning, utilization review nurses, social workers, and home health care agencies to seamlessly and efficiently move the patient from an in hospital setting to a rehabilitation hospital, skilled nursing facility, or home with or without a home health care agency. | | | | | | | |
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| **F. Professionalism** | | | | |  | | | |
| **1.** | | The resident must be honest at all times; | | | | | | |
| **2.** | | The resident should place the needs of the patient above all the needs or desires of him/herself. | | | | | | |
| **3.** | | The resident should maintain high ethical behavior in all professional activities. | | | | | | |
| **4.** | | The resident should remain compliant with all required training designated by the institution. | | | | | | |
| **5.** | | The resident must demonstrate a commitment to the continuity of patient care through carrying out professional responsibilities or through assuring that those responsibilities are fully and accurately conveyed to others acting in his/her stead. | | | | | | |
| **6.** | | The resident must understand the institutional policy on duty hours and remain compliant with all duty hour regulations. | | | | | | |
| **7.** | | The resident should be properly and professionally attired at all times while engaged in patient care. | | | | | | |
| **8.** | | The resident should be properly and professionally groomed at all times when engaged in patient care. | | | | | | |
| **9.** | | The resident should demonstrate sensitivity to issues of age, race, gender, and religion with patients, families, and members of the health care team. | | | | | | |
| **10.** | | The resident should at all time treat patients, families, and all members of the health care team with respect, compassion, and integrity. | | | | | | |
| **11.** | | The resident should reliably be present in pre-arranged places at pre-arranged times except when actively engaged in the treatment of a medical or surgical emergency. The resident must notify the appropriate supervisor if he or she will be unable to be present. | | | | | | |
| **12.** | | The resident must attend the mandatory conferences. | | | | | | |
| **13.** | | The resident should serve as a role model and guide for the medical students on the service in terms of professionalism. | | | | | | |