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DEPARTMENT OF SURGERY  
DEPARTMENT OF CARDIAC SURGERY

**SECTION OF THORACIC SURGERY**  
**SECTION OF ADULT CARDIAC SURGERY**

CARDIOTHORACIC SURGERY ROTATION (VACT)

Ann Arbor Veteran's Administration Hospital

House Officer I

Curriculum/Rotation Goals and Objectives for  
Surgery Residents

# VA Cardiothoracic Service (VACT)

## House Officer I

**Goal:** The goal of the HO I VACT rotation is to expand the resident's overall knowledge and operative experience in cardiothoracic surgery, and to provide more concentrated exposure in clinical conditions related to the following types of operations: ischemic and valvular coronary disease, diseases of the great vessels, mediastinal, pulmonary and esophageal disease.

### Learning Objectives:

#### Patient Care:

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather essential and accurate information about their patients, especially regarding ischemic heart disease, structural heart disease, thoracic malignancies, esophageal, mediastinal and pleural disease
3. Suggest diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
4. Counsel and educate patients and their families, under the guidance and direction of advanced practice providers (APPs), senior residents, fellows and faculty
5. Use information technology effectively to support patient care decisions and patient education
6. Assist and/or perform portions of cardiothoracic operations, with attention to coronary artery bypass grafting, cardiac valve repair and replacement, aortic surgery, pulmonary and esophageal resection and upper endoscopy
7. Demonstrate basic competency in airway and foregut endoscopy
8. Collaborate with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the cardiothoracic surgical patient which includes interactions with cardiology, pulmonary medicine, gastroenterology, oncology, dietitians, and advanced practice providers from the clinic and inpatient service

#### Medical Knowledge:

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

##### 1. Ischemic Heart Disease

- a. Explain the anatomy and physiology of coronary circulation
- b. Describe the evaluation of patients referred for coronary revascularization
- c. Explain the pathophysiology and clinical presentation of patients with acute coronary syndrome
- d. Describe the natural history of ischemic coronary disease
- e. Explain the management of patients diagnosed with acute coronary syndrome
- f. List the common treatment options for ischemic heart disease
- g. List the intra-operative risks of operative coronary revascularization
- h. Demonstrate safe and effective post-operative management of patients recovering from operative coronary revascularization
- i. Explain common post-operative complications, both short and long term for patients undergoing coronary revascularization
- j. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) of such complications including the "red flags"

that may indicate a need for reoperation or urgent re-intervention

## **2. Valvular Heart Disease**

- a. Explain the anatomy and physiology of atrioventricular and semilunar valve function
- b. Describe the evaluation of patients referred for cardiac valve operations
- c. Explain the pathophysiology and clinical presentation of patients with atrioventricular valve disease
- d. Explain the pathophysiology and clinical presentation of patients with semilunar valve disease
- e. List the common treatment options for cardiac valve intervention
- f. Demonstrate safe and effective post-operative management of patients recovering from operative valve repair or replacement
- g. Explain common post-operative complications, both short and long term for patients undergoing cardiac valve surgery
- h. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) of such complications including the "red flags" that may indicate a need for reoperation or urgent re-intervention

## **3. Aortic Disease**

- a. Explain the anatomy and physiology of the aorta
- b. Describe the evaluation of patients referred for aortic surgery
- c. Explain the pathophysiology and clinical presentation of patients with aortic aneurysm
- d. Explain the pathophysiology and clinical presentation of patients with aortic dissection
- e. List the common treatment options for aortic intervention
- f. Demonstrate safe and effective post-operative management of patients recovering from aortic operations
- g. Explain common post-operative complications, both short and long term for patients undergoing aortic surgery
- h. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) of such complications including the "red flags" that may indicate a need for reoperation or urgent re-intervention

## **4. Esophageal Cancer**

- a. Demonstrate understanding of foregut anatomy and relationship between the esophagus and other mediastinal structures
- b. Elaborate the algorithm for diagnosis and staging of esophageal cancer
- c. Explain options for multidisciplinary management of esophageal cancer
- d. Explain the basic technique of open and minimal access esophagectomy
- e. List the intra-operative risks of esophagectomy
- f. Demonstrate safe and effective post-operative management following esophagectomy, especially the recognition of post-operative "red flags" that indicate the need for reoperation

## **5. Lung cancer**

- a. Demonstrate understanding of pulmonary anatomy
- b. Elaborate the algorithm for diagnosis and staging of lung cancer
- c. Explain options for multidisciplinary management of lung cancer
- d. Explain the basic technique of open and minimal access pulmonary resection
- e. List the intra-operative risks of lung resections
- f. Demonstrate safe and effective post-operative management following pulmonary resection, especially the recognition of post-operative "red flags" that indicate the need for reoperation

## **6. Mediastinal Diseases and Benign Esophageal Disorders**

- a. Demonstrate understanding of the etiologies underlying esophageal dysmotility disorders (e.g. esophageal diverticulum, achalasia)
- b. Describe the pathophysiology of mediastinitis arising from esophageal injury or perforation
- c. Recite the differential diagnosis and options for operative management of mediastinal masses
- d. Explain options for operative and non-operative management of esophageal perforation
- e. Demonstrate competency in thoracotomy and median sternotomy
- f. Demonstrate safe and effective post-operative management following operations for esophageal dysmotility disorders
- g. Demonstrate safe and effective post-operative management following resection of a mediastinal mass

## 7. Endoscopy

- a. Demonstrate understanding of the indications for airway and upper GI endoscopy in the perioperative care of patients undergoing thoracic operations
- b. Explain options for diagnosis and management of anastomotic leak following esophagectomy and esophageal reconstruction
- c. Explain and demonstrate the basic technique of bronchoscopy and upper GI endoscopy
- d. Demonstrate safe and effective procedural and post-procedural management following endoscopy

## 8. Pleural diseases

- a. Demonstrate understanding of the etiologies underlying pleural processes including effusion, hemothorax and pneumothorax
- b. Explain options for diagnosis and management of acute and chronic pleural effusions
- c. Explain and demonstrate the basic technique of diagnostic and therapeutic pleural interventions (including but not limited to thoracentesis, tube thoracostomy, tunneled pleural catheter placement)
- d. Demonstrate safe and effective post-operative management following pleural intervention, especially the recognition of whether further more extensive operation is indicated

## Systems-Based Practice:

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

1. Explain the role of systems in delivering optimal health care, including how "system problems" contribute to quality problems
2. Explain how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
3. Explain how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
4. Practice cost-effective health care and resource allocation that does not compromise quality of care
5. Advocate for quality patient care and assist patients in dealing with system complexities
6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance
7. Explain key differences between the Veteran's Administration Health System and other systems familiar to the resident

## Practice-Based Learning and Improvement:

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

1. Analyze patient care experience and perform practice-based improvement activities using a systematic methodology (discussed in QI curriculum)
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
3. Conduct an effective literature search about a given cardiothoracic surgery topic
4. Obtain and use information about their own population of patients and the larger population from which their patients are drawn, including knowledge of national and statewide collaborative databases and reporting platforms
5. Describe/design a systematic approach to evaluate the results of one's own practice
6. Use information technology to manage information, access on-line medical information, and support their own education

## **Professionalism:**

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the VA patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of thoracic surgery care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

## **Interpersonal and Communication Skills:**

By the end of the VA Cardiothoracic Surgery rotation, the HO I resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of a health care team or other professional group
4. Demonstrate the ability to interview and evaluate VA patients with cardiothoracic disease