I. Educational Purpose.

The management of patients with cardiac disease is an essential part of training in Internal Medicine. The Cardiology consult rotation bridges both the VA and University Hospital and intended to provide our residents a broad experience in managing all acute and chronic cardiac problems requiring consultation. This will allow residents to refine history and physical exam skills, to develop experience in the selection of diagnostic tests, and to learn the management of a wide variety of disease. It also affords the opportunity to work with interventional cardiologists and electro-physiologists as well as non-invasive cardiologists. Given the specificity of this rotation, residents need to be able to recognize, diagnose and begin the initial management of the basic disorders of the cardiovascular system. They will also need to appreciate the relative physiology and to be cognizant of the issues of preventive medicine as they relate to Cardiology.

The Cardiology Faculty include:

- Luna Bhatta, MD  Clinical Assistant Professor of Medicine
- Robert Carhart Jr., MD  Clinical Associate Professor of Medicine; Fellowship Director
- Timothy Ford, MD  Assistant Professor of Medicine, Division Chief
- Hani Kozman, MD  Assistant Professor of Medicine
- Kan Liu, MD, PhD  Associate Professor of Medicine
- Debanik Chaudhuri, MD  Assistant Professor of Medicine
- Avneet Singh, MD  Assistant Professor of Medicine
- Tamas Szombathy, MD  Assistant Professor of Medicine
- Daniel Villarreal, MD  Professor of Medicine

II. Learning Venue

A. Rotation Description. Cardiology consult rotation generally involves a large team of learners; including the following: one attending, one fellow, one or more senior residents, one or more interns, and often one or more fourth year students. In general, the team will consult for and manage in hospital patients until their services are no longer needed. Ideally, most patients will be initially evaluated by either the intern or resident who then presents to the fellow or attending; however, throughout all phases of care the attending will be actively involved in decision making and teaching.

Residents at all level of training will perform the same duties; however, the PGY2 and 3 level residents will be expected to teach, follow more patients, and show leadership in practice based learning. The senior resident should also show mastery of the core topics by presenting these topics to the consult group. All residents will be expected to do additional reading specific to the caseload they are following.

B. Teaching Methods.

Every day, rounds will begin at approximately 8:30 am in the Coronary Care Unit with the fellow and attending of the cardiology in-service team for teaching purposes. Generally, afterwards the attending of the consult service will round on the consult patients. There will be a variety of conferences that the consult team will be attending including:

- Invasive Cardiology Conference
- Echocardiography Conference
The primary learning process during this rotation comes from direct patient care. This involves being involved at the initial evaluation until the consult service “signs-off.” It is an opportunity for residents to improve their skill at doing histories and physicals and develop management plans for the cardiac aspects of their patients.

**Expected Reading.** Any general internal medicine text can be used as an initial reading source. The entire array of available electronic and online medical textbooks (such as Harrison’s, M.D. Consult. Up-To-Date, etc.) are commonly used references and are available to all computers with internet access. The main Cardiology textbook that should be read is Braunwald, *Heart Disease*, which is available in the medicine library.

C. **Mix of Diseases.**
   1. **Arrhythmias**
      1. Atrial (flutter, fibrillation, etc)
      2. Conduction abnormalities
      3. Pacemaker management
      4. Ventricular
   2. **Congenital Heart Disease**
   3. **Congestive Heart Failure**
      1. Acute pulmonary edema
      2. Chronic congestive heart failure
      3. Diastolic
      4. Systolic
   4. **Coronary Artery Disease**
      1. Angina pectoris, chronic stable
      2. Angina Pectoris, unstable
      3. Myocardial infarction, complicated
      4. Myocardial infarction, uncomplicated
      5. Myocardial infarction follow up
      6. Postoperative care (CABG, PTCA and stents)
   5. **Endocarditis**
   6. **Hypertension**
      1. Chronic stable hypertension
      2. Hypertensive crisis
      3. Secondary Hypertension
   7. **Myocardial disease**
      1. Cardiomyopathy
      2. Myocarditis
   8. **Pericardial Disease**
      1. Acute pericarditis
      2. Pericardial Tamponade
   9. **Preoperative evaluation of the cardiac patient**
 10. **Vascular Disease**
      1. Aneurysm (atherosclerotic, mycotic)
      2. Aortic Disease
      3. Arterial insufficiency
      4. Chronic venous stasis
5. Deep Venous Thrombosis
6. Aortic Dissection
7. Valvular heart disease
11. Patients with chest pain of unknown etiology
12. Pulmonary hypertension
13. Obesity, Diabetes, dyslipidemias, hypertension

14. Skills

1. Diagnosis and management of angina, unstable angina and acute MI (Acute Coronary Syndromes)
2. Diagnosis and management of acute and chronic CHF
3. Diagnosis and management of acute and chronic atrial fibrillation/flutter
4. Diagnosis and management of life threatening ventricular and atrial arrhythmias as outlined in the ACLS protocol
5. Diagnosis and management of patients with chest pain of unknown etiology
6. Evaluation of markers of myocardial injury
7. Indications for angioplasty, stenting, CABG and medical therapy in patients with CAD
8. Recognition of infarct patterns on a surface 12 lead EKG
9. Interpretation of PA catheter waveforms
10. Post-MI evaluation, risk stratification and management
11. Indications for noninvasive and invasive cardiac evaluation
12. Complications of cardiac catheterization and PTCA

III. Educational Contents - Recommended reading includes:

**CAD, MI, Unstable Angina and Chest Pain**


ACC/AHA Guidelines for the management of Non-STEMI. JACC 2016, 64, e139. JACC


Current Concepts: ST-Segment Elevation in Conditions Other Than Acute Myocardial Infarction


**Infective endocarditis**
Infective endocarditis. Moreillon, Y. Que The Lancet, Volume 363, Issue 9403, Pages 139-149 P.
Pericarditis


Myocarditis


Cardiomyopathies

Reference- Harrison’s Textbook of Internal Medicine

Restrictive Cardiomyopathy


Hypertrophic Obstructive Cardiomyopathy


Valvular Disorders


Novel approaches to cardiac valve repair: from structure to function: Part II. Circulation. 109(9):1064-72, 2004 Mar 9 Yacoub MH. Cohn LH.

Hypertension

Harrison’s Textbook of Internal Medicine


Endothelial Dysfunction:


Arrhythmias - Ventricular Tachycardias


Supraventricular Tachycardias

Pre-operative Evaluation Before Non-cardiac Surgery

Atrial Fibrillation
ACC/AHA Guidelines for the management of atrial fibrillation. JACC 2014, 64, e1.


Implantable Cardioverter-Defibrillator

Syncope


Heart Failure
ACC/AHA Guidelines for the management of CHF. JACC 2013, 62, e147.


ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult [ACC/AHA]. Acc.org


IV. Evaluations.

All residents are evaluated by their peers, junior and senior, fellow and attendings. This is done using E-Value, our on-line electronic evaluation process which mirrors ABIM's recommended resident issue evaluation. The use of our on-line evaluation system allows a more timely process of evaluation but is never intended to replace personal feedback that would come from learners at all levels. In addition, this allows us to track progress for residents and to give more specific feedback on areas of performance.

V. Rotation Specific Competencies. – link to learning objectives document

A. Patient Care. Cardiology consultation rotation allows residents to evaluate and manage patients from a consultant's role.

B. Medical Knowledge. Residents will be expected to utilized their medical knowledge in their initial evaluation and apply their knowledge to the management of the patient.

C. Professionalism. The inpatient cardiology service requires a commitment to professionalism while providing care to terminally ill patients. Providing the best care for those patients requires that their overall quality of life be considered which often leads to end of life issues.

D. Interpersonal Communication Skills. Residents will need to be able to work with not only standard inpatient interactions with nurses, aides, pharmacists, etc, but also echocardiography technicians, coronary catheterization team, and electrophysiology team.

E. Practice-Based Learning. Due to the consultants role being more peripheral in nature, often presents an opportunity for difficult questions or previously unencountered clinical situations to arise. This affords the residents an opportunity to pursue practice-based learning.

F. System-Based Practice. The inpatient cardiology service offers training in care for patients in an ICU setting. Also the multidisciplinary nature of this specialty affords residents the opportunity to work closely with community physicians, social workers, case managers and other specialist.

Reviewed and Revised by: Dr. Ford and Dr. Carhart
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