Carolinas Medical Center
Family Medicine Residency

Curricular Goals and Objectives
for
CARDIOLOGY

GOALS:

1. The resident will have a thorough knowledge of normal and abnormal cardiovascular anatomy and physiology.
2. The resident will be able to evaluate a variety of cardiovascular disorders and know their appropriate management.
3. The resident will have a thorough knowledge of how to prevent cardiovascular disease
4. The resident will emphasize comprehensive and continuing care to individuals and families, with particular attention to behavioral and lifestyle factors that influence cardiovascular health.

OBJECTIVES:

Patient Care

1. The resident will assess an individual's risk for various cardiac disorders (e.g. coronary heart disease risk) and make appropriate recommendations regarding:

    - Specific disease screening (e.g. stress testing in asymptomatic adults, blood lipid monitoring).

    - Specific lifestyle modification (e.g. exercise, nutrition, smoking cessation).
2. The resident will perform pre-operative evaluation of patients with cardiac disorders (or at risk for cardiac disease), and manage them in the pre-and postoperative period.
3. The resident will perform cardiopulmonary resuscitation (basic and advanced).
4. The resident will develop a compassionate approach to the care of patients with cardiac disease.
5. The resident will demonstrate recognition of the psychosocial and economic impact of cardiovascular disease on the individual and family.

Medical Knowledge

1. By the end of PGY-3, the resident will
    - Identify by history the symptoms of chest pain, syncope, palpitations, dyspnea, edema and claudication.

- Perform a proper cardiovascular exam including appropriate use of maneuvers to differentiate types of heart sounds and murmurs and achieve proficiency as assessed by the attending.

- Interpret relevant blood chemistry results (e.g. cardiac enzymes).

- Interpret chest radiographs.

- Interpret EKGs (including 12-lead recordings and rhythm monitoring).

- Demonstrate proficiency in how to obtain and utilize results from:

  - stress testing (exercise and pharmacologic, with or without nuclear imaging.
  - echocardiography (transthoracic and transesophageal).
  - ambulatory electrocardiography (24-hour and event monitoring).
  - vascular Doppler and ultrasound examinations.
  - cardiac catheterization and coronary angiography.
  - invasive bedside cardiac hemodynamic monitoring.
  - carotid and peripheral vascular angiography.

2. The resident will demonstrate proficiency in assessment of various cardiovascular disorders and their appropriate management including:

   - Hypertension
   - Ischemic heart disease
     - stable angina
     - acute coronary syndromes
     - silent ischemia
   - Arrhythmias and conduction disorders
   - Heart failure (systolic and diastolic)
   - Valvular heart disease
   - Cardiomyopathies
   - Pericardial disease
   - Endocarditis
   - Myocarditis
   - Thromboembolic disorders (arterial and venous)
   - Peripheral vascular disease (aortic, carotid and extremity)
   - Congenital heart disease
   - Acute rheumatic fever
   - Drug-induced heart disorders
   - Syncope

- Dyslipidemias
- Miscellaneous cardiac disorders (e.g. Marfan syndrome)

3. The resident will demonstrate proficiency in cardiovascular pharmacology.
4. The resident will explain the role of revascularization vs. medical treatment for coronary heart disease.
5. The resident will know the various guideline recommendations related to prevention of cardiovascular diseases (e.g. National Cholesterol Education Program), as well as their strengths and limitations.

Interpersonal and Communication Skills

1. The resident will develop an awareness of the importance of physician and patient working as partners to promote optimal cardiovascular health.
2. The resident will communicate effectively a management plan for treatment of the following
    a. Dyslipidemia
    b. Hypertension
    c. Congestive heart failure
    d. CAD

Professionalism

1. The resident will demonstrate support of the individual and family through consultation, evaluation, treatment and rehabilitation.
2. The resident will recognize the importance of lifestyle factors on the development and exacerbation of cardiovascular disease.

Systems-Based Practice

1. The resident will define the role of cardiac rehabilitation and how to select and supervise patients undergoing such programs.
2. The resident will demonstrate proficiency in performing pre-participation sports screenings with particular attention paid to the AHA recommended screening elements and further evaluation/disqualification criteria.

Practice-Based Learning and Improvement

1. The resident will demonstrate proficiency in utilizing up to date evidence in the treatment of the following:
    - Hypertension
    - CAD
    - Dyslipidemia
    - Congestive heart failure

METHODS:

1. ACLS course: Residents will become certified in advanced cardiopulmonary resuscitation before beginning residency.
2. Cardiology month: All second year residents spend one month at Mercy with Sanger Heart and Vascular Institute's cardiologists in both the inpatient and outpatient setting. The resident will round with the cardiologist assessing patients with various heart conditions as well as do individual cardiology consults to be discussed with the cardiologist. Specific skills are emphasized and learned such as interpretation of ECG's, how to decide when and which stress test to order (i.e. exercise vs. chemical induced stress test and whether to add imaging), how to perform and interpret exercise stress tests, treating dysrhythmias and conduction disturbances, use of external temporary pacemakers, management of acute myocardial infarction, postinfarction care and complications, congestive heart failure, and hypertensive emergencies/urgencies. Residents should also plan on spending time with cardiologists with specific areas of expertise as available (E.P., CHF, etc.). Finally residents would be expected to attend cardiac rehabilitation and learn the fundamentals associated with its use.
    a. Specific procedures to do/see during month
        i. ECG interpretation with cardiologist to cosign
        ii. Exercise echo
        iii. Dobutamine stress echo
        iv. Adenosine myoview
        v. Pacemaker placement (temporary or permanent)
        vi. EP study
        vii. Cardiac Catheterization (with stent placement)
        viii. Electrocardioversion
        ix. Swan-Ganz catheter placement
        x. Cardiac rehabilitation
3. Cardiology elective: Third year residents may also do an elective, particularly if they plan to practice in communities without readily available consultation resources. This elective may focus on both inpatient and outpatient management of various cardiology conditions. It may also include a focus on the primary and secondary prevention of cardiovascular disease.
4. Longitudinal Experience: Residents will obtain substantial additional cardiology experience throughout the three years of their experience in the family medicine center, on their family medicine service and internal medicine rotations. It would be a reasonable goal during this time to accomplish proficiency in ECG interpretation (e.g. faculty expected to go through ECG's during rounds) and cardiopulmonary resuscitation.
5. Longitudinal cardiology didactic sessions: Given by cardiologists and family medicine faculty on various cardiac disorders throughout residency. Handouts, journal articles, and other readings specific to cardiology would be encouraged and may be taken from the list below.

EVALUATION/ASSESSMENT:

1. ACLS certification: Residents must attain certification in ACLS prior to beginning residency.
2. Cardiology rotation: Residents will successfully perform those skills mentioned above to the satisfaction of their cardiology attending. Feedback and evaluations will be put on Med Hub as well as discussed with the resident.
3. Longitudinal experience: Residents must successfully interpret EKG's, care for patients with predominantly cardiac conditions to the satisfaction of their attendings on the specific rotation as well as in the family medicine center.

MILESTONES ASSESSED

MK2: Applies critical thinking skills in patient care
C3: Develops relationships and effectively communicates with physicians, other health professionals, and healthcare teams

RESOURCES/REFERENCES:

1. Dubin D. Rapid Interpretation of EKG's 6th ed. Cover, 2000
2. http://ecg.bidmc.harvard.edu/maven/mavenmain.asp
3. Heger JW, Niemann JT, Criley JM. Cardiology for the House Officer 4th ed. Williams & Wilkins, 1998.
4. Braunwald E, ed. Heart Disease: A Textbook of Cardiovascular Medicine 6th ed. Philadelphia: Saunders, 2001.
5. Cardiovascular medicine websites: http://www.clinicalevidence.org
6. American College of Cardiology: http://www.acc.org