UNIVERSITY OF NEBRASKA MEDICAL CENTER
IN-PATIENT SERVICE ROTATION/CONSULTATIVE SERVICE ROTATION

Director: Dr. Dan Anderson

OBJECTIVES

1. Acquire skills for bedside physical examination pertinent to the cardiovascular system.
2. Write, present, and dictate a concise and well-focused cardiology consultation.
3. Understand the fundamentals of ECG interpretation, arrhythmia identification and management.
4. Understand the indications, limitations, and application of echo, CMR, CT, nuclear, and other noninvasive imaging modalities as they apply to the evaluation of patients with a wide variety of cardiovascular disorders (ischemic heart disease, valvular disease, cardiomyopathy, peripheral vascular disease, cardiac rhythm disturbances, etc).
5. Understand indications, limitations, and complications of invasive diagnostic and therapeutic cardiac, endovascular and electrophysiologic modalities.
6. Perform a thorough cardiovascular evaluation for pre-operative clearance.
7. Identify and manage post-operative cardiovascular complications.
8. Implement recommendations for risk-factor modification.
9. Understand how to evaluate and manage patients with a variety of cardiovascular, peripheral vascular and electrophysiologic problems.

TEACHING STRATEGIES

1. The Cardiology Clinical In-patient Service will consist of a Cardiology teaching attending, clinical cardiology fellow, case manager, up to four medical residents and one medical student.
2. This is one of the busiest and most demanding clinical rotations because it incorporates virtually all aspects of hospital-based Cardiology practice, including primary patient care for cardiovascular patients, consultative cardiovascular care, preoperative evaluation and post-operative care, utilization of all available noninvasive and invasive diagnostic and therapeutic modalities, and primary and secondary prevention of heart and vascular diseases.
3. The scope of potential learning opportunities is extremely broad, and includes all of the challenges that can be brought to bear in the care of patients with acute and chronic ischemic heart disease, structural and valvular heart disease, cardiomyopathy, acute and chronic rhythm disorders, and acute and chronic peripheral arterial disease (critical limb ischemia, renovascular disease, acute and chronic mesenteric diseases, cerebrovascular disease, aneurysmal diseases).

4. In order to meet the demands of such a broad array of patients, teaching strategies incorporate all potential teaching opportunities, including:
   a. Structured attending rounds for at least 2 hours per day to allow detailed presentation of new patients, review of old patients, and a detailed, patient-oriented discussion and examination led by the attending.
   b. Patient management and care is oriented towards a team approach, and all members of the team will critically review and discuss the results of noninvasive and invasive diagnostic and therapeutic modalities.
   c. All patients will be seen and examined by the attending physician and at least one other member of the team, and salient points of the history and physical examination will be emphasized at the bedside.
   d. The cardiology fellow will gain experience as the team leader, under direct supervision of the attending. As such, the fellow will have considerable independence in patient evaluations, family meetings, working with nursing and ancillary staff, ordering noninvasive studies, requesting consultations from other medical and surgical services, and supervising and direct participation in teaching medical students and house staff.
   e. Participation in all required Cardiology conferences.
   f. Fellows are expected to review and implement appropriate guidelines for care and treatment of all heart failure problems.

**ATTENDING RESPONSIBILITIES**

1. The attending must see each patient.
2. Teach ECG and arrhythmia fundamentals.
3. Provide guidance on the indications, implications, complications, and limitations of noninvasive and invasive techniques.
4. Conduct daily rounds for the Clinical Service. To the extent possible, these rounds should focus on teaching and education, rather than "work rounds".
5. The attending is expected to make the Clinical Service activities a top priority. Other non-Clinical Service activities, such as cardiac cath lab and outpatient clinic activities should be kept to a minimum, to prevent interference with activities on the Clinical Service. The attending is
expected to make appropriate coverage arrangements for unanticipated absence.

6. One of the Clinical Service attendings will meet with the fellow at the beginning of the rotation to verbally review the goals, objectives and responsibilities for the upcoming month.

7. One of the Clinical Service attendings will meet with the fellow at the end of the monthly rotation to verbally review the fellow’s written evaluation and performance. The attending will also complete a formal evaluation of the fellow using New Innovations.

FELLOW RESPONSIBILITIES

1st Year Fellow
The fellow is responsible for integrating the team members and assigning responsibilities for patient care. 1st year fellow also make some decisions with regards to procedures performed and disposition of care.

2nd and 3rd Year Fellows
With each successive year of training the fellow is expected to assume a higher level of “management” of the service. That is, integrating information provided by the team members to deliver decisions for patient care. Incremental leadership of the team is expected. Teaching responsibilities are incremental as well.

PATIENT CARE

1. Distribute daily patient assignments among the residents and students on service. The fellow should work with these individuals to ensure that the responsibilities and patient assignments are not ambiguous, and that all patients are seen in a timely fashion.

2. Formulate a plan in conjunction with the residents and medical students that will be reviewed with the attending during rounds. Fellows are responsible for ensuring that accurate notes are written by the resident(s) and the student.

3. Complete a thorough history and physical examination, create a reasonable differential diagnosis, and develop a care plan that is cost-effective.

4. Discuss the care plan and progress on each patient during attending rounds.

5. Respond appropriately to nursing staff in dealing with issues related to patient care.

6. Recognize the need to address psychosocial and financial issues, and enlist the support of appropriate hospital resources.
7. Obtain consultations from other medical and surgical services when indicated.

8. The fellow should meet with the cardiology fellows who were on-call the previous night to identify new admissions and establish early care plans (need for stress tests, urgent cardiac catheterization, etc). The fellow should not hesitate to discuss these issues with the Clinical Service attending, even before formal rounds.

9. The fellow is responsible for ensuring the efficient and effective operation of the Clinical Service, under the supervision of the attending physician. The fellow is expected to be available from 7am to 5pm to respond to the clinical needs of the patients on the Service.

MEDICAL KNOWLEDGE

1. The knowledge base for management of the Inpatient Service is huge. The fellow is expected to demonstrate understanding of the pathophysiologic basis for diseases including:
   a. acute coronary syndromes
   b. acute myocardial infarction
   c. chronic ischemic heart disease
   d. acute and chronic heart failure
   e. atrial and ventricular tachyarrhythmias
   f. cardiogenic shock

In addition, fellows are expected to master the approach to the diseases listed above with respect to:
   a. pharmacologic treatment
   b. noninvasive evaluation (ECG, echo, nuclear, CT, MR, etc)
   c. invasive EP evaluation and device treatment
   d. cardiac catheterization, angiography, and intervention
   e. cardiovascular surgery, including CABG, valve replacement, valve repair, and surgical approaches to arrhythmia

Fellows must master the principles of:
   a. risk assessment and risk factor modification
   b. cardiovascular pharmacology

Fellows should acquire and begin to develop the knowledge base for other sophisticated cardiac and vascular disease, including:
   a. peripheral arterial disease
   b. stroke
   c. pericardial disease
   d. acute and chronic aortic diseases
   e. non-atherosclerotic cardiac and vascular diseases
   f. complex arrhythmia diagnosis and treatment
Study and implement ACC/AHA guidelines as they relate to patients on the Inpatient Service.

PRACTICE-BASED LEARNING

1. Give a formal Case Management presentation following your service month to the Cardiology department.
2. Participate in daily rounds with the Clinical Service team.
3. Attend all mandatory cardiology conferences, including monthly Cardiology Grand Rounds and weekly conferences. Fellows are welcome to participate in any and all other conferences, to the extent that these conferences do not interfere with patient care and Clinical Service rounds.

INTERPERSONAL & COMMUNICATION SKILLS

1. Daily communication with the patient and family (more frequently if needed) to keep them apprised of patient progress.
2. Interact with the house staff, nursing staff, and attending physician to strengthen the “team” approach, and to identify and resolve any problems that arise.
3. Urgent matters require immediate communication between the fellow and attending to ensure timely medical care and decision making.

SYSTEM-BASED PRACTICE

1. Fellows are expected to utilize a broad approach to expanding their educational goals, and while excellent resources are readily available among the teaching faculty, fellows are expected to review, study, master, and implement ACC/AHA guidelines in many areas, including:
   a. acute MI, acute coronary syndromes
   b. congestive heart failure
   c. valvular heart disease
   d. atrial fibrillation
   e. cardiac catheterization and intervention
   f. cardiac surgery
   g. pacemakers and implantable devices
   h. risk factor modification

2. Web-based resources proved high-quality information that is readily available on demand, and are accessible via all hospital computers. These resources include EPOCRATES, UpToDate, MDConsult, and PubMed.
PROFESSIONALISM

1. Always maintain a positive and professional attitude towards the patient, family, and referring physician.
2. Maintain regular and professional interaction with the nursing staff and attending physician. It is important to try to incorporate the nursing staff into important decision-making, since nurses often have the most insight into the patient’s needs.
3. Special attention needs to be paid to patients and their families when dealing with end-of-life issues. It is important to ensure that patients are treated with compassion, respect, and honor, and that they and their families do not feel abandoned. Many hospital resources are available, and patients and families should be encouraged to use them.

EVALUATIONS

1. Each fellow is to be evaluated on a monthly basis at the end of the Clinical Service rotation, as follows (360° Evaluation):
   a. A formal evaluation will be completed by the Clinical Service attending(s) using New Innovations, and the content of the evaluation will be reviewed verbally with the fellow. **Any negative evaluations must be discussed face to face with the fellow and the Program Director must be notified.** Fellows will also be evaluated on a monthly basis by the Rounding Nurses and the Medical residents rotating on the Cardiology service.

2. The Clinical Service fellow(s) will complete a written evaluation of the Clinical Service attending(s) each month using New Innovations. This evaluation will be reviewed on an annual basis with the Program Director and Chief of Cardiology.