

Title of Clerkship: **Cardiovascular (Catheterization, Electrophysiology) Laboratory**

Elective Year(s): M4

Department: Internal Medicine

Type of Elective: Clinical  Non-Clinical/Research  Basic Science

Clerkship Site: UTMC

Course Number: MEDI 773

Blocks Available: All

Number of Students/Block: 1

Faculty: Various Cardiology Faculty

Elective Description/Requirements: The student will have exposure to invasive diagnostic and/or therapeutic procedures performed in the cardiac catheterization lab, electrophysiology lab as well as the performance of transesophageal echocardiography.

Length of Clerkship: 2 weeks

Links to Core Competencies: Educational Course Objectives:

#### Medical Knowledge Skills & Abilities

- MK-5, PC-1, PC-2  
PC-3, PC-4, PC-7 Develop a thoughtful and systematic approach to correlating various patient presentations referred for invasive cardiac testing.
- MK-4, MK-5, PC-7  
PC-7 Explain the indications, contraindications and interpretation of right heart catheterization and invasive hemodynamics; coronary angiography; electrophysiology studies, pacemaker placement and implantable cardioverter defibrillators.
- PC-7 Discuss ECG and stress findings in correlation with coronary angiographic or invasive electrophysiological findings.
- PC-7, PC-8 Differentiate the indications, contraindications and procedural elements involved in transesophageal echocardiography (TEE).
- PC-7, PC-8 Describe additional invasive cardiovascular diagnostic testing and therapeutic modalities including intravascular ultrasound (IVUS), fractional flow reserve (FFR) measurement, percutaneous coronary interventions and structural heart interventions.
- PC-7, PC-8 Describe other invasive diagnostic and/or therapeutic peripheral arterial and venous modalities including the indications and contraindications for placement of inferior vena cava filters and/or retrieval.

#### Practice Based Learning & Improvement

- MK-5, PC-7, PC-8  
PBL-2 Analyze the interpretation of invasive testing based on textbook study, current literature review and feedback from faculty and fellows.
- PC-7, PC-8, PBL-2  
PBL-4, PBL-5 Assess scientific evidence for patient care with careful review of current evidence based guidelines for ordering and interpretation of invasive tests.
- PC-7, PC-8, PC-10  
PBL-4 Utilize available information technology to obtain and manage information including obtaining and storing ECG data and digital images, electronic reporting systems and electronic medical records.
- PC-7, PC-8 Review the basis of comparative effectiveness testing in cardiovascular diagnostic imaging and apply its principles to patient care.

#### Interpersonal & Communication Skills

- IPC-1, IPC-2, IPC-3  
IPC-4 Communicate clearly with the cardiac catheterization laboratory staff including cath lab staff, technicians, etc. and assist in providing efficient and optimal care for patients undergoing invasive procedures.
- IPC-1, IPC-2, IPC-3  
IPC-4, PBL-6 Communicate clearly with patients and families. This may include obtaining pretest history and physical exams, explanation of risks and benefits to testing and informed consent, and monitoring of symptoms, hemodynamic and ECG findings during testing.
- IPC-1, IPC-2, IPC-3  
IPC-4 Communicate clearly with fellows and faculty in the Cath Lab elective, informing them in advance of the start of the rotation of any expected absences, clinics, didactics or conferences.
- IPC-1, IPC-2, IPC-3  
IPC-4 Participate in interpretation of tests daily with students, fellows and/or faculty to create a learning environment that is effective for the students, the resident and the fellows on the rotation.

#### Patient Care

- PB-1, PB-2, PB-3  
PB-4, PB-5, PB-6  
PB-7, PB-8  
PC-9 Demonstrate appropriate humanistic and ethical concerns for the patient.
- PC-9 Employ appropriate measures to prevent potential complications.
- SBP-1, SBP-2, SBP-3 Apply knowledge gained during the rotation to assist in diagnosing and caring for patients with cardiovascular disease, avoiding inappropriate testing and attempting to provide cost-effective and guideline-based therapy.
- PB-6 Be available to residents, fellows and Cardiac Laboratory staff when needed to maintain optimal and efficient patient care.

#### System-Based Practice

- SBP-5 Describe the multidisciplinary resources necessary to care optimally for cardiac and vascular patients.
- SBP-5 Collaborate with other members of the healthcare team to assure comprehensive ambulatory patient care.
- SBP-1 Describe the business aspects of practice management in a variety of settings.

#### Professionalism

- PB-1, PB-2, PB-3  
PB-4, PB-5, PB-6  
PB-7, PB-8 Demonstrate integrity and honesty. The student is expected to be reliable, punctual and available for all required duties. They are to act sensitively to cultural, age, gender and disability issues while following institutional policies.

Instructional Methods: Direct Observation and Interaction with Faculty and Fellows  
Self-Directed Learning

- Evaluation Methods:
1. Interpretation of ECGs and interactions with fellows and faculty.
  2. Pre and post-test invasive hemodynamic interpretation, understanding of invasive cardiovascular testing and therapy geared toward the appropriate learning level
  3. Topic paper
    - a. Student will identify a learning issue and/or case report during their experience and write a 3-5 page (double spaced) review of the issue and the current literature review with references.
  4. Attendance and participation in the cardiovascular conferences
    - a. Wednesday 7 am cath lab conference - weekly (DH-2310 )
    - b. Tuesday 7 AM didactics – weekly (HEB 105)
    - c. Thursday EP Conference - Third Thursday 7 am (DH-2310)
    - d. Wednesday noon ECG/NUC conference – weekly (DH-2310)
  5. Documentation of observation of procedures in the EP lab, TEE and cardiac catheterization lab.

Prerequisites: Successful completion of the third year Internal Medicine Clerkship  
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Special Requirements: