



The Ohio State University Medical Center, Division of Cardiovascular Medicine
Cardiac Catheterization Lab:
Fellowship Training Guidelines and Clinical Responsibilities

General Information

Duration of rotation: 1 month
Location to report on 1st day: Ross Heart Hospital Catheterization Lab

Available Resources:

Textbooks:

1. Grossman's Cardiac Catheterization, Angiography and Intervention.
2. Kern's Cardiac Catheterization Handbook.

Web-based:

1. The Society for Cardiovascular Angiography and Interventions – www.scai.org.
2. The American College of Cardiology – www.acc.org.
3. Electronic resources within the Prior Health Sciences Library.

Teaching Methods:

1. Monday Catheterization Conference.
 - a. Didactic topics in coronary disease, vascular disease and cardiac catheterization.
 - b. Case-based discussions.
2. Clinical teaching.
3. Individual performance, interpretation of diagnostic angiograms and hemodynamic studies.
4. Faculty mentorship.
5. Fellow-directed supplemental reading.

Overall Curriculum Goals During 39-Month Fellowship:

1. Instruction in basic cardiovascular anatomy, physiology and pathophysiology.
2. Instruction in basic techniques and potential complications from arterial and venous access.
3. Understanding of catheterization, angiography and hemodynamics within a clinical context.
4. Understanding of percutaneous therapeutic techniques for cardiovascular disease.
5. Competency to perform and interpret a complete cardiac catheterization with the following adjunctive components:
 - a. Coronary angiography.
 - b. Right and left heart hemodynamics.
 - c. Determination of flow-limiting coronary lesions with intravascular ultrasound and fractional flow reserve.
 - d. Pericardiocentesis.
 - e. Placement of an intra-aortic balloon pump.
 - f. Placement of a temporary intravenous pacemaker.

First Year Fellow in Cardiovascular Medicine:

Overall Focus: Vascular access; basic coronary angiography and hemodynamics

Number of months: 3

Objectives:

1. Become familiar with operations of the cath lab.
2. Understand indications/contraindications for diagnostic and therapeutic cardiac catheterization.
3. Learn standard views obtained during coronary angiography.
4. Become proficient in vascular access and management of complications.
5. Perform and interpret coronary angiography and hemodynamic assessment.

Mandatory Reading:

Introductory chapters in either textbook listed above, or equivalent.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the cath lab that allows for:
 - a. Equal exposure to a variety of cases and clinical indications during the month, as appropriate. More senior fellows should focus on complex cases.
2. **Perform pre-cath evaluations, including:**
 - a. **A complete history and thorough physical examination.**
 - b. **Pertinent pre-cath laboratory testing.**
 - c. **Pre-cath non-invasive diagnostic testing.**
3. **Perform and interpret comprehensive catheterization studies, providing preliminary interpretation with the digital reporting system. These reports need to be discussed with the supervising attending in a timely manner before they can be finalized.**
4. **Perform post-cath assessment of each patient, monitoring for common complications.**

Didactic Responsibilities:

Each first year fellow is required to present a case-based conference. These topics will be assigned by the chief fellow and should focus on a specific theme, with a brief review of guidelines and primary literature.

Second Year Fellow in Cardiovascular Medicine:

Overall Focus: Continued development of catheterization technical skills; evaluation and management of patients with unstable coronary syndromes; incorporation of more advanced arterial access techniques and devices for hemodynamic support

Number of months: 1-4

Objectives:

1. Continued development of catheterization performance and interpretation skills.
2. **Participate in more complex diagnostic cases.**
3. **Assist in percutaneous interventional procedures when appropriate.**

Mandatory Reading:

1. Specialized, diagnosis-specific chapters in either textbook listed above.
2. ACC/AHA/SCAI guidelines and statements.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the cath lab that allows for:
 - a. Equal exposure to a variety of cases and clinical indications during the month, as appropriate. More senior fellows should focus on complex cases.
2. Perform pre-cath evaluations, including:
 - a. A complete history and thorough physical examination.
 - b. Pertinent pre-cath laboratory testing.
 - c. Pre-cath non-invasive diagnostic testing.
3. Perform and interpret comprehensive catheterization studies, providing preliminary interpretation with the digital reporting system. These reports need to be discussed with the supervising attending in a timely manner before they can be finalized.
4. Perform post-cath assessment of each patient, monitoring for common complications.
5. **Participation in more complex and/or unstable diagnostic catheterizations, assisting in interventions when appropriate.**
6. **Provide mentorship for junior fellows during their time in the cath lab.**

Didactic Responsibilities:

Each second year fellow is required to present a case-based conference. These topics will be assigned by the chief fellow and should focus on a specific theme, with a brief review of guidelines and primary literature.

Third Year Fellow in Cardiovascular Medicine:

Overall Focus: Continued development of catheterization skills and interventions; potential research, education and lab directorship.

Number of months: 0-6

Objectives:

1. Continued development of catheterization performance and interpretation skills.
2. **Begin to perform select percutaneous interventional procedures when appropriate.**

Mandatory Reading:

1. Specialized, diagnosis-specific chapters in either textbook listed above.
2. ACC/AHA/SCAI guidelines and statements.
3. Primary literature regarding utilization and technical features of cardiac catheterization.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the cath lab that allows for:
 - a. Equal exposure to a variety of cases and clinical indications during the month, as appropriate. More senior fellows should focus on complex cases.
2. Perform pre-cath evaluations, including:
 - a. A complete history and thorough physical examination.
 - b. Pertinent pre-cath laboratory testing.
 - c. Pre-cath non-invasive diagnostic testing.
3. Perform and interpret comprehensive catheterization studies, providing preliminary interpretation with the digital reporting system. These reports need to be discussed with the supervising attending in a timely manner before they can be finalized.
4. Perform post-cath assessment of each patient, monitoring for common complications.

5. Participation in more complex and/or unstable diagnostic catheterizations, assisting in interventions when appropriate.
6. **Perform select percutaneous interventional procedures when appropriate.**
7. **Provide mentorship for junior fellows during their time in the cath lab.**

Didactic Responsibilities:

Each third year fellow is required to present a case-based conference. These topics will be assigned by the chief fellow and should focus on a specific theme, with a brief review of guidelines and primary literature.

Evaluations:

Fellows will be assessed and evaluated by the catheterization lab attending staff based on the 6 core competencies and associated Milestones. Examples are listed below:

Competencies	Milestones
Patient Care	<ul style="list-style-type: none"> ▪ Manages patients with progressive responsibility and independence ▪ Manages patients with progressive responsibility and independence ▪ Demonstrates skill in performing and interpreting invasive procedures
Medical Knowledge	<ul style="list-style-type: none"> ▪ Possesses clinical knowledge ▪ Knowledge of diagnostic testing and procedures
Systems-Based Practice	<ul style="list-style-type: none"> ▪ Works effectively within an interprofessional team ▪ Transitions patients effectively within and across health delivery systems
Practice-Based Learning and Improvement	<ul style="list-style-type: none"> ▪ Learns and improves at the point of care
Professionalism	<ul style="list-style-type: none"> ▪ Has professional and respectful interactions with patients, caregivers and members of the interprofessional team
Interpersonal and Communication Skills	<ul style="list-style-type: none"> ▪ Communicates effectively in interprofessional teams