



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

General Information

Duration of rotation: Four weeks
Location to report on 1st day: Ross Heart Hospital Echocardiography Lab

Available Resources:

Textbooks:

1. Feigenbaum's Echocardiography.
2. The Echo Manual.
3. Textbook of Clinical Echocardiography.

Web-based:

1. The American Society of Echocardiography – www.asecho.org.
2. The American College of Cardiology – www.acc.org.
3. Electronic resources within the Prior Health Sciences Library.

Teaching Methods:

1. Wednesday Imaging Conference.
 - a. Didactic topics in echocardiography.
 - b. Case-based discussions.
2. Clinical teaching.
3. Individual performance, interpretation of studies.
4. Faculty mentorship.
5. Fellow-directed supplemental reading.

Overall Curriculum Goals During 39-Month Fellowship:

1. Instruction in basic principles of ultrasound.
2. Instruction in basic cardiovascular anatomy, physiology, pathophysiology.
3. Understanding of echocardiography within a clinical context.
4. Competency to perform and interpret a complete cardiovascular ultrasound in the following areas:
 - a. Transthoracic echocardiography (TTE)
 - b. Stress echocardiography (SE)
 - c. Transesophageal echocardiography (TEE)

First Year Fellow in Cardiovascular Medicine:

Overall Focus: Transthoracic echocardiography
Number of months: 2
Objectives:

1. Become familiar with operations of the echocardiography lab.
2. Learn basic physics of ultrasound.
3. Understand indications for ordering a TTE.
4. Learn standard format for a typical transthoracic TTE.
5. Practice scanning with sonographer supervision.
6. Develop TTE interpretation skills with staff guidance.

Mandatory Reading:

Introductory chapters in either textbook listed above, or equivalent.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the echo lab that allows for:
 - a. Time for each 1st and 2nd year fellow to perform TTEs with no other duties.
 - b. At least one fellow to be present in the reading room, pre-reading TTEs to be discussed and over-read with faculty.
2. Assist with lab administrators and sonographer staff with specific tasks (i.e. ordering of saline contrast and echo contrast studies, helping to decipher unexpected findings to determine whether it is safe to discharge an outpatient after their scan, calling services when orders for TTEs are ambiguous or inappropriate, etc.)
3. **Perform and interpret TTEs, providing preliminary interpretation with digital reporting system.**

Didactic Responsibilities:

Each first year fellow is required to present a didactic focusing on a specific topic that will be assigned by the chief fellow.

Second Year Fellow in Cardiovascular Medicine:

Overall Focus: Transthoracic echocardiography and introduction to stress and transesophageal echocardiography

Number of months: 2-4

Objectives:

1. Continued development of TTE-scanning and interpretation skills.
2. **Spend the majority of 1 full month in the stress echocardiography lab.**
3. If progressing well, begin to spend time in TEE and stress lab by later in second year.

Mandatory Reading:

1. Specialized, diagnosis-specific chapters in either textbook listed above.
2. American Society of Echocardiography guidelines and statements.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the echo lab that allows for:
 - a. Time for each 1st and 2nd year fellow to perform TTEs with no other duties.
 - b. At least one fellow to be present in the reading room, pre-reading TTEs to be discussed and over-read with faculty.
2. Assist with lab administrators and sonographer staff with specific tasks (i.e. ordering of saline contrast and echo contrast studies, helping to decipher unexpected findings to determine whether it is safe to discharge an outpatient after their scan, calling services when orders for TTEs are ambiguous or inappropriate, etc.)
3. **Perform and interpret TTEs, providing preliminary interpretation with digital reporting system.**
4. **Devote the majority of 1 month specifically to stress echocardiography.**
5. **Perform and interpret TTEs during later rotations during the year (pending adequate skill foundation in TTE).**

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: Stress and transesophageal echocardiography, with continued development of TTE interpretation skills; potential research, education and lab directorship.

Number of months: 2-6

Objectives:

1. Continued development of TTE-scanning and interpretation skills.
2. Majority of time spent focusing on procedural echocardiography (SE, TEE).

Mandatory Reading:

1. Specialized, diagnosis-specific chapters in either textbook listed above.
2. American Society of Echocardiography guidelines and statements.
3. Primary literature regarding utilization and technical features of echocardiography.

Clinical Responsibilities:

1. Develop daily schedule with other fellows in the echo lab that allows for:
 - c. Time for each fellow to perform TTEs with no other duties.
 - d. At least one fellow to be present in the reading room, pre-reading TTEs to be discussed and over-read with faculty.
2. Assist with lab administrators and sonographer staff with specific tasks (i.e. ordering of saline contrast and echo contrast studies, helping to decipher

unexpected findings to determine whether it is safe to discharge an outpatient after their scan, calling services when orders for TTEs are ambiguous or inappropriate, etc.)

3. **Perform and interpret TEEs and stress echocardiograms when assigned to a procedural day (3rd year is exempt from stress echocardiography during days when a 2nd year fellow is assigned to the stress lab).**
4. **Continue to spend non-procedural days performing and interpreting TTEs, providing preliminary interpretation with digital reporting system**

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 echocardiography lab attending staff based on the 6 core competencies and associated Milestones:

Competencies	Milestones
Patient Care	<ul style="list-style-type: none"> ▪ Demonstrates skill in performing and interpreting invasive procedures ▪ Demonstrates skill in performing and interpreting non-invasive procedures and/or testing
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
Practice-Based Learning and Improvement	<ul style="list-style-type: none"> ▪ Learns and improves via feedback
Professionalism	<ul style="list-style-type: none"> ▪ Has professional and respectful interactions with patients, caregivers and members of the interprofessional team ▪ Exhibits integrity and ethical behavior in professional conduct
Interpersonal and Communication Skills	<ul style="list-style-type: none"> ▪ Appropriate utilization and completion of health records