

Rotation: Non-Invasive Cardiology: Trans-Esophageal Echocardiography- Echo-2

Rotation Director: Dr. Mary Corretti

Faculty: Drs. Lima, McCarthy, Strahan, Post and Wu

Rotation Hours: Mon - Fri, 8am to 7 pm; weekends off.

A. Echocardiography: Patient Care

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Take a pertinent medical history and perform a careful and accurate physical examination with a cardiology focus for the optimal performance of an echocardiographic study.	DPC, AR, IL	AE
2.	Learn the proper techniques of performing echocardiographic procedures, including transthoracic, transesophageal, and stress echocardiography.	DPC, DSP, EC	AE, DSP
3.	Know the common medications along with potential reactions and side effects of these medications given for echocardiographic procedures.	DPC, DSP, EC	AE
4.	Perform all aspects of echocardiographic procedures, including two-dimensional, color flow Doppler, pulse and continuous wave Doppler, tissue Doppler, contrast and stress echocardiography.	DPC, DSP, EC	AE, DSP
5.	Perform all procedures with emphasis on patient comfort and safety.	DPC, DSP	AE, DSP
6.	Recognize and manage complications associated with echocardiographic procedures.	DPC, AR, EC	AE
7.	Produce accurate reports of the findings of an echocardiographic exam.	DPC, DSP	AE

B. Echocardiography: Medical Knowledge

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Understand the indications, contra-indications, potential complications, and benefits for performing transthoracic, transesophageal, and stress echos.	DPC, AR, EC	AE
2.	Learn the methods and technical aspects of two-dimensional echo, color flow Doppler, pulse and continuous wave Doppler, tissue Doppler, contrast and stress echocardiography.	DPC, DSP, EC	AE, DSP
3.	Master the echo evaluation of valvular heart disease, cardiac systolic and diastolic function, pericardial disease, cardiomyopathies, and diseases of the aorta.	DPC, DSP, EC	AE, DSP
4.	Learn the echocardiographic evaluation of congenital heart disease, infective endocarditis, cardiac masses and tumors.	DPC, DSP, EC	AE, DSP
5.	Echocardiographic evaluation of post-surgical cardiac patients including, valvular repair/replacement, aorta repair, ventricular assist devices, pacemakers, and cardiac defibrillators.	DPC, DSP, EC	AE, DSP
6.	Access and critically evaluate current medical information and scientific evidence relevant to echocardiography.	DPC, AR, EC	AE

C. Echocardiography: Interpersonal Skills and Communication

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Communicate effectively with patients and families in a stressful critical care environment.	DPC	AE, ECR
2.	Communicate effectively with physician colleagues and members of other health care professions to assure timely, comprehensive patient care.	DPC	AE, PR, ECR
3.	Communicate effectively with colleagues when reporting pertinent findings of echocardiographic studies.	DPC, EC	AE, PR, ECR

D. Echocardiography: Professionalism

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Interact professionally toward patients, families, colleagues, and all members of the health care team.	DPC	AE, PR, ECR
2.	Interacting with patients and families in a professionally appropriate manner.	DPC, PC	AE, ECR
3.	Acceptance of professional responsibility as the primary care physician for patients under his/her care.	DPC, PC	AE, ECR
4.	Appreciation of the social context of illness.	DPC	AE, ECR
5.	Effective utilization of ethics knowledge and consultants. This includes guidelines for CPR and DNR and end of life cardiac care.	DPC, EI	AE, PR, ECR

E. Echocardiography: Practice-Based Learning and Improvement

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Identify and acknowledge gaps in personal knowledge and skills in performing and interpreting echocardiographic studies.	DPC, EC, ECR	AE
2.	Develop real-time strategies for filling knowledge gaps that will benefit patients in the echo lab, coronary care units, or other intensive care units.	DPC	AE
3.	Commitment to professional scholarship, including systematic and critical perusal of relevant print and electronic literature, with emphasis on integration of basic science with clinical medicine, and evaluation of information in light of the principles of evidence-based medicine.	DPC, FS	AE

F. Echocardiography: Systems-Based Practice

	Principal Educational Goals	Learning Activities	Evaluation Methods
1.	Understand and utilize the multidisciplinary resources necessary to perform echocardiographic studies optimally on acutely ill cardiac patients.	DPC, PC	AE
2.	Collaborate with other members of the health care team to assure comprehensive care.	DPC, PC	AE
3.	Use evidence-based, cost-conscious strategies in the appropriate performance of echocardiographic studies.	DPC	AE

4.	Knowing when to ask for help and advice from senior fellows and attending physicians.	DPC	AE, PR
5.	Effective professional collaboration with residents, other fellows, and faculty consultants from other disciplines such as Radiology and Surgery.	DPC, PC	AE, ECR
6.	Learning by performance of echocardiographic studies, attending teaching conferences and other educational activities.	DPC, AR	AE
7.	Effective collaboration with other members of the health care team, including residents, medical students, nurses, clinical pharmacists, occupational therapists, physical therapists, nutrition specialists, patient educators, speech pathologists, respiratory therapists, enterostomy nurses, social workers, case managers, discharge planners, and providers of home health services.	DPC, PC	AE, ECR
8.	Effective utilization of ethics consultants, including knowing when and how to request consultation, and how best to utilize the advice provided.	DPC, PC	AE
9.	Consideration of the cost-effectiveness of diagnostic and treatment strategies.	DPC, ACS	AE
10.	Ability to lead team, including nurses, echo technicians, and stress ECG technicians.	DPC, ACS	AE, ECR
11.	Willingness and ability to teach medical students and residents.	DPC	AE, PR

Objectives and expectations while on this rotation

- To train Clinical Cardiology fellows to perform trans-esophageal echocardiograms.
- To sharpen skills and training in Echocardiography in general, with the aim of producing a specialist who is independent and could run an Echocardiographic Laboratory on his/her own.

Competencies

- To master techniques of conscious sedation
- To master the performance of trans-esophageal echocardiograms.
- To develop an in depth knowledge of 3D imaging of the heart by planar ultrasound

Content and methods

- Fellows will be given hands-on performance of TEEs under direct attending supervision.
- Exposure to TEEs performed in the Operating Room by Anesthesiology Attendings
- Review of all Intra-Operative Echocardiograms with Cardiology and Anesthesiology Attendings.

Supervision:

- Direct supervision of fellows with exposure to 3 full time Academic Cardiologists and 2 part time seasoned Echocardiographers who perform and supervise studies in the laboratory.
- Typically a load of 50 studies per month will be added to ones experience with the goal of performing at least 100 studies during fellowship and hopefully 200 studies for those who aim to direct a laboratory in the future.

Evaluation Process: *(fellows will be evaluated on each rotation using a competency-based system on E-Value).*

- The attending will also evaluate the fellow based on completion of the goals stated above. Fellows are expected to demonstrate familiarity and increasing understanding with each topic in the curriculum.

- It is expected that the fellow will be able to demonstrate substantial mastery of the stated rotation objectives and activities, and an in-depth knowledge the subject matter by the end of the required number of months in this rotation.