Orientation to the Perioperative TEE Rotation
Beth Israel Deaconess Medical Center, Division of Cardiac Anesthesia

Welcome to the Perioperative TEE rotation! Over the next month you will be introduced to the basic principles of TEE. The objectives of the rotation are to give you the ability to perform and interpret a basic TEE examination. Our goal is to provide you with all of the resources necessary to make the most of your opportunity. It is expected that you will actively participate in your own education. Please do not hesitate to contact any one of us if you have any questions, concerns, or suggestions for improvement.

Objectives

By the end of the rotation, it is expected that the resident will familiar with the following:

1. The indications for TEE
2. Contradictions to placing a TEE probe
3. Safe placement of the TEE probe
4. Proper handling of the TEE probe
5. Basic ultrasound machine operation
6. Basic principles of ultrasound, image optimization, and recognition of common artifacts
7. The 20 basic views that compose the basic TEE exam
8. The identification of all major cardiac chambers, valves, and vessels on TEE
9. The ability to recognize significant regional and global ventricular dysfunction
10. The ability to recognize significant valvular regurgitation and stenosis
11. The ability to diagnose other causes of significant hemodynamic instability such as pericardial tamponade, aortic dissection, and pulmonary thromboembolism
12. The method for downloading images for review and presentation

Patient Population

TEEs are performed by our staff on all cardiac cases. In addition, we also perform TEEs in a significant number of non cardiac surgical patients undergoing vascular, thoracic, orthopedic, neurosurgical, transplant, hepatic, and tumor resection procedures. We also perform studies in perioperative patients in our ICUs. Research TEEs are currently being performed on thoracic and vascular patients enrolled in the approved studies.

You are expected to try to participate in as many of these studies as possible. Even if you do not perform a study, observation or review of all studies are critical to your experience. Non-research TEEs tend to be more comprehensive and therefore should take priority if there are several concurrent studies being performed.

Echo Machines
At the present time we have the following echo machines:

1. Siemens Sequoia – capable of 3D reconstruction (2)
2. Philips IE-33 - capable of performing real-time 3D TEE (2).
3. Philips 5500 (2)
4. GE Laptop TEE (1)

Preparing for the Day

You should look through the operating room schedule and identify all TEEs for the day. Rotators are expected to be familiar with the history of the patient and findings on previous echocardiograms. An attempt must be made to meet with all patients in the holding area. Please obtain a history of gastroesophageal disease which may contraindicate the placement of a TEE probe. Generally, the resident is expected to place an OG tube after intubation followed by the TEE probe. Always allow the anesthesia team caring for the patient access to the patient; i.e. do not interfere with their care of the patient. The anesthesia attending will direct you as to the timing for all interventions and study.

The TEE resident is expected to set up all echo machines before 7 am. Set up includes entering the patient’s name, date of birth, medical record number and other details into the echo machine as well as ensuring that there is a working EKG input into the machine. You will receive instruction on how this is done. It is absolutely critical that this information be entered accurately or the study will not be correctly stored in our archiving system. Certain cases may require a particular type of TEE machine; e.g. a mitral valve repair generally requires a 3D TEE. Please check with the appropriate attending for the case to establish which machine should be in the room.

Once the study has been completed, please try to enter the report on the ENCOR system. Only attendings and fellows have access to the system and they will log you in. Filling out these reports is educational since it is a comprehensive checklist ensuring completeness of your study.

ICU TEE

Most TEEs in the ICUs will be covered by the cardiology service. Occasionally, in the immediate post-operative phase, we might perform TEEs on unstable patients.
**TEE Reading Sessions**

Most of the teaching on this rotation occurs in real time in the operating room during performance of the TEE. However, review of all of the day’s studies with an echo attending is extremely valuable in your process of calibrating your evaluation skills as well as broadening your exposure. There are two echo reading stations available for review. They are located in the Echo office on CC-4 and in Dr. Panzica’s office on CC-5. These sessions are generally in the afternoon and the review will be conducted by either the echo attending covering the PACU or one of attendings doing cardiac cases that day.

**Didactics**

There are cardiac anesthesia division lectures almost every Wednesday at 4:00pm in the anesthesia library. Your attendance at these lectures is mandatory. There are also quarterly, Harvard wide TEE conferences held here at the BIDMC, at the Brigham, or at the Massachusetts General Hospital. Your attendance is also mandatory if the conference occurs during your TEE rotation month. You may be asked to give a lecture or present an interesting case at one of these sessions. You will be provided a mentor and an outline.

**Expectations**

You will be held responsible for knowing the material presented in this document. Furthermore, your participation, enthusiasm, attendance, and performance will be evaluated. Should you not meet these expectations after attempts at remediation, your rotation may be terminated before completion.

**Educational Materials**

The Division of Cardiac Anesthesia will provide you with a complimentary copy of “Transesophageal Echocardiography” edited by Perrino and Reeves. You should pick up your copy by contacting Marcia Rich in CC-470 (x 42670) a month or so ahead of your start.

It is expected that you will review this textbook in its entirety during your month so as to reinforce your experience. As possible, echo attendings will review chapters or topics with you on a weekly basis.

The following publications are recommended for your personal library as important reference materials:


4. Lang RM, Bierig M, Devereux RB et al. Recommendations for chamber quantification: a report from the American Society of Echocardiography's Guidelines and Standards Committee and the Chamber Quantification Writing Group, developed in conjunction with the European Association of Echocardiography, a branch of the European Society of Cardiology. J Am Soc Echocardiogr 2005;18:1440-63.


ABL 7/08