FUNDAMENTALS OF ECHOCARDIOGRAPHY

MONDAY, May 6, 2013

INTRODUCTION TO ECHOCARDIOGRAPHY AND TEE
Moderator: NJ Skubas

7:45 - 8:45 am  How Echo Works: The physics behind the image - S Edelman
At the conclusion of this lecture, the participant should be able to:
1. Describe the principles and properties of a 2D ultrasound beam
2. Explain ultrasound imaging principles
3. Verbalize how an echo image is generated from a 2D ultrasound beam
4. Explain the Doppler principle
5. Use Doppler ultrasound to assess blood flow velocity
6. Recognize the use of Doppler ultrasound in hemodynamic calculations

8:45 - 9:15 am  Probe Gymnastics: The TEE imaging planes - GS Hartman
At the conclusion of this lecture, the participant should be able to:
1. Explain the technical aspects of probe insertion
2. Name the anatomic considerations impacting probe insertion and manipulation
3. Correlate standard probe positions and normal cardiac anatomy
4. Correlate standard probe positions and the “SCA 20” views
5. Describe standard scan plane nomenclature

ANATOMIC IMAGING AND HEMODYNAMIC CALCULATIONS – SMALL GROUP INTERACTIVE SESSIONS
Moderator: D Shook

9:45 am – 12:00 pm  Session I
1:45 – 3:15 pm  Session II
3:45 – 5:15 pm  Session III

1. Left Ventricle - MJ London; JS Shanewise
2. Mitral Valve - KE Glas; CA Troianos
3. Aortic Valve and Aorta - S Garwood; MA Taylor
4. Right Ventricle, Tricuspid & Pulmonic Valves M Fitzgerald; NJ Skubas
5. Appendages, Coronary Sinus and Atrial Septum - J Fox; J Leff
6. Basic Doppler and Intracardiac Pressures - TM Burch; A Nicoara
7. Knobology & Image Optimization - A Thompson; LB Heller
The purpose of this workshop is to enhance the participants understanding of the normal cardiac anatomy and TEE scan planes. The audience will be divided into multiple subgroups and distributed to work-stations to view and discuss TEE scan planes, correlate those scan planes with normal and abnormal anatomy and be introduced to quantitative Doppler analysis. This framework will afford opportunities for group participation and extensive interaction with the faculty facilitators. The participants will be divided into 6 groups and rotate evenly through all stations across both parts 1 and 2 of the workshop.

At the conclusion of this lecture, the participant should be able to:
1. Recognize and identify cardiac and vascular structures in the “SCA 20” views
2. Identify different views required for complete imaging of different cardiac structures
3. Explain how the probe is manipulated to obtain these views
4. Utilize basic measurements during the routine echocardiographic exam

LUNCH SESSION: WHAT’S MISSING?
Moderator: GS Hartman

12:30 – 1:00 pm Artifact or pitfall? - KP Grichnik
At the conclusion of this lecture, the participant should be able to:
1. Recognize the embryological basis of many common anatomic variants
2. Classify the anatomic pitfalls by location in the heart
3. Differentiate anatomic pitfalls from true pathological findings

1:00 – 1:30 pm Practical Examples of Image Optimization - AG Every
At the conclusion of this lecture, the participant should be able to:
1. Describe probe manipulations necessary to optimize an image
2. Describe the use of modalities such as gain, compensation, and focus to optimize an image
3. Describe the optimal use of color flow Doppler to recognize anatomic and pathological findings

PHYSICS AND CALCULATIONS
Moderator: NJ Skubas

7:00 – 8:00 pm Real-life Hemodynamic Assessment - GS Hartman; NJ Skubas
At the conclusion of this lecture, the participant should be able to:
1. Describe the various 2D and Doppler ultrasound methods used for hemodynamic assessment
2. Describe how a 3D ultrasound image is generated
3. Verbalize the use of Doppler in hemodynamic calculations
4. Calculate intracardiac pressures using Doppler ultrasound
5. Calculate valvular pressure gradients using Doppler ultrasound

8:00 – 9:00 pm Advanced Physics: Becoming an expert - S Edelman
At the conclusion of this lecture, the participant should be able to:
1. Utilize advanced principles and properties of ultrasound to optimally analyze cardiac anatomy
2. Describe how artifacts are created through the comprehension of 2D ultrasound principles
3. Verbalize why pulsed wave Doppler modalities are used to assess diastolic function of the heart
4. Differentiate the use of various Doppler modalities for hemodynamic calculations
5. Explain the use of M-mode Doppler for specific pathological assessments
TUESDAY, May 7, 2013

VENTRICLES AND VALVES – I
Moderator: D Shook

7:30 – 8:00 am  Left Ventricular Evaluation: Walls and cavities - MJ London
At the conclusion of this lecture, the participant should be able to:
1. Describe the normal anatomy and physiology of the left ventricle as assessed by 2D ultrasound
2. Describe anatomic left ventricle pathology as assessed by 2D ultrasound and Doppler
3. Describe systolic left ventricle pathology as assessed by 2D ultrasound and Doppler

8:00 – 8:30 am  Left Ventricular Diastolic Function I - Relaxing is Easy - A Thompson
At the conclusion of this lecture, the participant should be able to:
1. Explain the importance of diastolic function assessment in the perioperative setting
2. Define diastolic physiology by 2D and Doppler echocardiography using LA measurements
3. Determine the degree of diastolic dysfunction using echocardiographic modalities

8:30 – 9:00 am  Aortic Valve Disease: Evaluation of stenosis - MA Taylor
At the conclusion of this lecture, the participant should be able to:
1. Describe the mechanisms and causes of aortic stenosis
2. Recognize the 2D TEE findings of aortic stenosis
3. Assess and quantify aortic stenosis

9:00 – 9:30 am  Aortic Valve Disease: Evaluation of Insufficiency - LB Heller
At the conclusion of this lecture, the participant should be able to:
1. Review the structural anatomy of the normal aortic valve
2. Describe the mechanisms and causes of aortic regurgitation
3. Recognize the 2D TEE findings of aortic regurgitation
4. Assess and quantify aortic regurgitation

VENTRICLES AND VALVES - II
Moderator: D Shook

10:00 – 10:30 am  Diastolic Function II - A Comprehensive Approach - NJ Skubas
At the conclusion of this lecture, the participant should be able to:
1. Differentiate left ventricular systolic function from diastolic function
2. Assess diastolic dysfunction with various echocardiographic techniques
3. Recognize the advantages and limitations of each technique

10:30 – 11:00 am  Aortic Diseases: Dilation and dissections - MA Taylor
At the conclusion of this lecture, the participant should be able to:
1. Describe the echocardiographic characteristics and classification of aneurysms and dissections
2. Describe the echocardiographic characteristics and significance of intramural hematomas and penetrating ulcers
3. Compare the diagnostic utility of various imaging modes, including TEE and TTE, in the evaluation of suspected aortic dissection
11:00 - 11:30 am  Surface Scanning of the Heart and Aorta - KE Glas
At the conclusion of this lecture, the participant will be able to:
1. Recite the indications for epiaortic and epicardial imaging; describe the relevant imaging planes
2. Describe the available windows for Doppler interrogation during epicardial imaging
3. Illustrate how epiaortic and epicardial echocardiography are utilized to guide cardiovascular surgical decision making

11:30 – 12:00 pm  Moving from Hardware to Software: Assessment of devices - KP Grichnik
At the conclusion of this lecture, the participant will be able to:
1. List the various hardware devices that can be found in the heart by chamber.
2. Name the appropriate imaging modalities used to assess each device.
3. Distinguish normal position and function of a device from abnormal position or function

LUNCH SESSION: EDUCATION AND PRACTICE OF ECHOCARDIOGRAPHY
Moderator: CA Trojanos

12:30 – 1:00 pm  Navigating the NBE Exam: A tailored approach - JS Shanewise
At the conclusion of this lecture, the participant should be able to:
1. Recite the guidelines for training and certification in perioperative TEE including prerequisite medical knowledge and training, echocardiographic knowledge and skills, training components and duration, training environment and supervision, and equivalence requirements for post graduate physicians already in practice
2. Identify the process for obtaining certification and re-certification including case-log, training documentation and lab requirements
3. Verbalize the role of CME credits in this process

1:00 – 1:30 pm  Echo Service 101: Build, maintain, and bill - CA Trojanos
At the conclusion of this lecture, the participant should be able to:
1. Recite the principles involved in the establishment, operation and quality maintenance of an intraoperative echocardiography service.
2. List the physical requirements for data storage and archival, report generation and billing and collection strategies.

VENTRICLES AND VALVES - III
Moderator: NJ Skubas

2:00 – 2:30 pm  Everything about Mitral Regurgitation - KE Glas
At the conclusion of this lecture, the participant should be able to:
1. Review the structural anatomy of the normal mitral valve
2. Describe the mechanisms and causes of mitral regurgitation
3. Recognize the 2D TEE findings of mitral regurgitation
4. Assess and quantify mitral regurgitation

2:30 – 3:00 pm  Everything about Mitral Stenosis - LB Heller
At the conclusion of this lecture, the participant should be able to:
1. Describe the mechanisms and causes of mitral stenosis
2. Recognize the 2D TEE findings of mitral stenosis
3. Assess and quantify mitral stenosis

3:00 – 3:30 pm Evaluation of the Right Heart: RV and Septum - TM Burch
At the conclusion of this lecture, the participant should be able to:
1. Identify normal and abnormal right ventricular systolic function
2. Develop pertinent TEE views for RV function assessment
3. Perform qualitative assessment of right ventricular systolic function
4. Describe the concept of ventricular interdependence

3:30 – 4:00 pm Evaluation of the Right Heart: TV/RA and PV - KP Grichnik
At the conclusion of this lecture, the participant should be able to:
1. Review the structural anatomy of the normal tricuspid and pulmonic valves
2. Describe the most common mechanisms for tricuspid/pulmonic regurgitation and stenosis
3. Recognize the 2D TEE findings of tricuspid and pulmonic valvular disease
4. Assess and quantify tricuspid valvular disease

4:30 – 5:00 pm Prosthetic Valves Evaluation Made Easy - J Leff
At the conclusion of this lecture, the participant should be able to:
1. Identify different types of prosthetic valves and their unique echocardiographic findings
2. Describe the advantages and indications for each of the prosthetic valve options
3. Recite the echocardiographic criteria for diagnosis of abnormal prosthetic valve function

5:00 – 5:30 pm Pericardial Diseases: Tamponade and constriction - EG Avery
At the conclusion of this lecture, the participant should be able to:
1. Identify pericardial tamponade utilizing 2D ultrasound and Doppler imaging
2. Describe pericardial constriction utilizing 2D ultrasound and Doppler imaging
3. Compare and contrast the findings of tamponade and constriction
4. Describe the differences in assessment tamponade and constriction using right sided versus left sided assessments

5:30 – 6:00 pm TEE During a Typical Cardiac Surgical Case - MJ London
At the conclusion of this lecture, the participant should be able to:
1. Defend the use of TEE for a typical cardiac surgical case
2. State the importance of incidental findings with routine use
3. Verbalize the morbidity and potential mortality risks and benefits from routine TEE use
4. Describe how TEE can be used instead of a PA catheter

FUNDAMENTAL REVIEW
Moderators: NJ Skubas

7:30 – 9:00 pm Review of the posted cases/images/movies - TM Burch, JA Fox, J Leff
At the conclusion of this lecture, the participant should be able to:
1. Recognize one pertinent point from each lecture presented in the first two days of the course
2. Utilize information presented in the first two days of the course in clinical practice
WEDNESDAY, May 8, 2013

PORCINE HEART WET LAB: DISSECTION WITH ECHOCARDIOGRAPHIC AND SURGICAL CORRELATION

Moderators: M Swaminathan

7:30 – 8:00 am Overview of Cardiac Anatomy – D Shook

At the conclusion of this lecture, the participant should be able to:
1. Explain the gross external anatomy of the heart
2. Recite the external landmarks for cardiac anatomy
3. Describe the anatomic features and nomenclature of individual chambers
4. List the location of developmental anatomic remnants
5. Name the location, orientation and underlying structure of different cardiac valves
6. List the anatomic relationship of the coronary circulation and conduction system to the cardiac valve structure

8:00 – 11:00 am Wet Lab Heart Dissection with 2D/3D TEE and Surgical Correlation – D Shook, M Maxwell

This is a hands-on dissection lab in which participants have the opportunity to watch a prosection of the heart and then perform a similar dissection on their own. Correlations of cardiac anatomy, valvular three dimensional orientation, external and internal anatomical landmarks, and their TEE scan planes correlates will be illustrated.

At the conclusion of this lab, the participant should be able to:
1. Identify surface porcine heart anatomy
2. Dissect a porcine heart
3. Identify internal porcine heart anatomy
4. Explain the correlation of anatomical to echocardiographic sections
5. Describe the 3-dimensional aspects of the heart and great vessels
6. Correlate probe scan planes to anatomical windows into the heart

AFTERNOON WORKSHOP

FUNDAMENTALS OF 3D ECHOCARDIOGRAPHY AND TISSUE DOPPLER/STRAIN/SPECKLE

This program will focus on the fundamental principles of 3D echocardiography, tissue Doppler, strain, and speckle imaging. The program will include didactics and interactive case discussions to review the role of new and innovative imaging techniques in perioperative decision-making. Upon completion of this course, the participant will have a better understanding of how to incorporate innovative imaging into their daily practice.

After attending the 3D echocardiography, tissue Doppler, strain, and speckle imaging educational activity the participant should be able to:
1. Recognize and acquire routine 3D echocardiographic images;
2. Perform basic manipulation of 3D datasets
3. Recognize and acquire images for tissue Doppler analysis
4. Describe strain and speckle imaging
5. Incorporate these modalities in clinical decision-making

PART I: 3D ECHOCARDIOGRAPHY
Moderator: D Shook

1:00 - 1:20 pm  Live 3D Imaging - GS Hartman
At the conclusion of this lecture, the participant should be able to:
1. Explain the concept of 3D echocardiography
2. Distinguish 3D reconstruction from real-time 3D echocardiography
3. Recite the advantages, disadvantages and limitations of 3D echocardiography

1:20 - 1:40 pm  Gated/Color Imaging - F Mahmood
At the conclusion of this lecture, the participant should be able to:
1. Explain the concept of 3D gating
2. Recite how to use 3D Color Imaging

1:40 - 2:00 pm  The Basic 3D Exam - M Swaminathan
At the conclusion of this lecture, the participant should be able to:
1. Describe the components of a standard 3D exam
2. Verbalize the appropriate sequence for a standard 3D exam

2:00 - 2:30 pm  Basic Cropping and Multiplane Reconstruction - MA Pernetz
At the conclusion of this lecture, the participant should be able to:
1. Distinguish the common cropping planes for 3D echocardiography
2. Describe how and why a multiplane reconstruction is done

2:30 -3:00 pm  Basic Measurements - SK Shernan
At the conclusion of this lecture, the participant should be able to:
1. List the basic measurements made in a 3D echocardiography exam
2. Compare the basic measurements in 3D to a 2D echocardiography exam

3:00 - 3:30 pm  Cases (ASD, MV, AV) - D Shook
At the conclusion of this lecture, the participant should be able to:
1. Recognize normal cardiac anatomy as seen in 3D echocardiography through case examples
2. Identify pathological anatomy as seen in 3D echocardiography through case examples

3:30 - 4:00 pm  Coffee Break with Exhibitors

PART II: TISSUE DOPPLER/STRAIN/SPECKLE
Moderator: NJ Skubas

4:00 - 4:20 PM  Tissue Doppler Imaging - A Nicoara
At the conclusion of this lecture, the participant should be able to:
1. Describe the current limitations of imaging modalities to determine myocardial structure and function
2. State why and how Tissue Doppler imaging is used
4:20 - 4:40 PM  Strain - NJ Skubas
At the conclusion of this lecture, the participant should be able to:
   1. Define the rationale for strain assessment in a complete echocardiographic assessment
   2. Describe the method for using Strain in a complete echocardiographic assessment

4:40 - 5:00 PM  Speckle - A Mahajan
At the conclusion of this lecture, the participant should be able to:
   1. Define the rationale for strain assessment in a complete echocardiographic assessment
   2. Describe the method for using Strain in a complete echocardiographic assessment

EVENING WORKSHOP
ADVANCED HANDS-ON IMAGING WORKSHOP
Moderator: D Shook

This program will focus on the advance application of 3D echocardiography, tissue Doppler, strain and speckle imaging. The program will include didactics and hands-on teaching of advanced dataset image analysis in clinical scenarios. The teaching groups will be smaller to allow more interactive discussion. Upon completion of this course, the participant will have a better understanding of how to use image analysis software to better understand ventricular function and valvular pathophysiology.

After attending this workshop the participant should be able to:
   1. Utilize image analysis programs to assist with clinical decision-making
   2. Incorporate these modalities into their clinical practice

6:00 - 7:00 pm  Session I
7:00 – 8:00 pm  Session II
8:00 – 9:00 pm  Session III

3D MV Cases and LV Cases - B Bollen; SK Shernan
At the conclusion of this hands-on session, the participant should be able to:
   1. Verbalize the process to acquire an excellent 3D echocardiography image for MV Assessment
   2. State the process to acquire an excellent 3D echocardiography image for LV Assessment
   3. Recognize normal and abnormal MV anatomy in 3D echocardiography
   4. Recognize normal and abnormal LV anatomy in 3D echocardiography

3D MV Cases and AV Cases - F Mahmood; A Nicoara
At the conclusion of this hands-on session, the participant should be able to:
   1. Verbalize the process to acquire an excellent 3D echocardiography image for MV Assessment
   2. State the process to acquire an excellent 3D echocardiography image for AV Assessment
   3. Recognize normal and abnormal MV anatomy in 3D echocardiography
   4. Recognize normal and abnormal AV anatomy in 3D echocardiography

DTI/Strain/Speckle - A Mahajan; NJ Skubas
At the conclusion of this hands-on session, the participant should be able to:
   1. Verbalize the process for performing Tissue Doppler Imaging
   2. State the process for performing Strain assessment
   3. State the process to accomplish Speckle assessment
   4. Recognize normal and abnormal Tissue Doppler Imaging
5. Recognize normal and abnormal Speckle and Strain patterns

APPLIED ECHOCARDIOGRAPHY

THURSDAY, May 9, 2013

MITRAL VALVE DISEASE
 Moderator: B Bollen

7:30 – 7:50 am Evaluating the Diseased Mitral Valve: Types of MR - F Mahmood
At the conclusion of this lecture, the participant should be able to:
1. Describe the unique anatomy of the mitral valve annulus, the aortic root/anterior mitral annulus interaction and cardiac cycle changes
2. Define the language used to describe the mitral valve: including: billowing, prolapsed, and flail mitral leaflets, Myxomatous and Barlow’s disease and the segments: A1,A2,A3,P1,P2,P3
3. Measure the mitral valve annulus including annular height/commissural diameter ratios, annular folding, hinge points, and leaflet dimensions
4. Describe the location of pathology by leaflet, torn chordae, perforations
5. Describe the LA and LV geometric changes that occur due to mitral regurgitation

7:50 – 8:10 am Is this fibroelastic deficiency or myxomatous degeneration? Why is it important? - M Maxwell
At the conclusion of this lecture, the participant should be able to:
1. Describe why it is important to identify the cause of mitral regurgitation
2. Differentiate fibroelastic deficiency from myxomatous degeneration
3. State the surgical decision making for repair of MR in patients with fibroelastic deficiency vs. myxomatous degeneration

8:10 – 8:30 am Quantification of MR: Techniques and pitfalls - KP Grichnik
At the conclusion of this lecture, the participant should be able to:
1. Describe the need for and the limits of MR quantification
2. Distinguish the qualitative and quantitative aspects of MR quantification
3. List the methods to qualitatively assess MR
4. Describe the use of Doppler to quantify MR
5. Describe the use of PISA to quantify MR

8:30 – 8:50 am Evaluating the Diseased Mitral Valve: Approach to mitral stenosis - R Sneicinski
At the conclusion of this lecture, the participant should be able to:
1. Describe the etiologies for mitral stenosis
2. State the anatomic pathological findings in 2D ultrasound
3. Describe the LA and LV geometric changes due to mitral stenosis
4. State the prognosis for mitral stenosis with and without surgery
5. Verbalize the assessment for the type and severity of mitral stenosis

8:50 – 9:10 am Using 3D TEE to Characterize Mitral Valve Disease: A practical approach - SK Shernan
At the conclusion of this lecture, the participant should be able to:
1. Describe the advantages and disadvantages of using 3D versus 2D echocardiography to assess the mitral valve
2. State a normal assessment strategy for 3D evaluation of the mitral valve
3. Characterize normal and abnormal mitral valve annular and leaflet anatomy using 3D echocardiography
4. Assess LA and LV structural changes in MV disease, using 3D echocardiography

9:10 – 9:30 am  Panel Discussion and audience Q & A
At the conclusion of this discussion, the participant should be able to:
1. Recite how the mitral valve is qualitatively and quantitatively assessed using 2D and 3D techniques
2. Recognize specific MV pathology in 2D and 3D echocardiography assessments using case examples

CLINICAL DILEMMAS & INTERVENTIONS IN MITRAL VALVE DISEASE: DECISION MAKING
Moderator: B Bollen

10:00 – 10:20 am  Should ischemic MR be fixed? What else does the surgeon need to know? - CA Troianos
At the conclusion of this discussion, the participant should be able to:
1. Discuss the rationale for repair or replacement of a MV with regurgitation due to ischemia
2. State the TEE-obtained information needed by the surgeon to determine a surgical plan

10:20 – 10:40 am  Assessing suitability for repair in ischemic MR - M Maxwell
At the conclusion of this lecture, the participant should be able to:
1. Describe a surgical decision making process for MV repair
2. State a rational surgical approach for the treatment of ischemic MR

10:40 – 11:00 am  Mitral Annuloplasty: Why are there so many rings? - F Mahmood
At the conclusion of this lecture, the participant should be able to:
1. Describe the evolution of mitral valve rings over time
2. List the indications for the commonly used annuloplasty rings

11:00 – 11:20 am  Post Mitral Replacement Issues: When echo matters - M Swaminathan
At the conclusion of this lecture, the participant should be able to:
1. Describe the intraoperatively detectable complications of MV repair or replacement
2. State the role of TEE for the detection of MV repair and replacement complications

11:20 – 11:40 am  Percutaneous Mitral Repair: Expanding indications - S Kar
At the conclusion of this lecture, the participant should be able to:
1. Define the rationale for percutaneous MV repair
2. Explain how a percutaneous MV repair is done
3. State the echocardiographic monitoring needed for percutaneous MV repair

11:40 – 12:15 pm  Panel Discussion and Audience Q&A
At the conclusion of this discussion, the participant should be able to:
1. Discuss the types of mitral valve diseases that require repair
2. List the surgical rationale and approaches to MV disease
3. State the role of TEE in treatment of MV disease

LUNCH SESSION
Moderator: CA Troianos

1:00 – 1:30 pm The Adult with Congenital Heart Disease: Coming to an OR near you - TM Burch
At the conclusion of this lecture, the participant should be able to:
1. List congenital conditions that an adult may present with that are unrepaired
2. List congenital conditions that an adult may present with that have been previously repaired
3. State the TEE findings for unrepaired and repaired congenital heart disease in adults
4. Explain the complications of adult congenital heart disease repairs and the role of TEE

AORTIC VALVE DISEASE: CLINICAL DECISION-MAKING
Moderator: CA Troianos

1:30 – 1:50 pm Percutaneous AVR: Current state-of-the-art - S Kar
At the conclusion of this lecture, the participant should be able to:
1. Discuss the evolution of percutaneous AVR including the indications and technique
2. Describe the role of TEE in percutaneous AVR including assessment and detection of complications

1:50 – 2:10 pm Unexpected AS during CABG: Is TAVR a reasonable option for my patient? - RM Savage
At the conclusion of this lecture, the participant should be able to:
1. Determine the long term implications of unrepaired AS with a concomitant CABG
2. State the rationale for an open versus closed (TAVR) approach for the treatment of AS as discovered incidentally

2:10 - 2:30 pm Sizing an Aortic Valve for Intervention: What is important? How does TEE stack up? - R Sniecinski
At the conclusion of this lecture, the participant should be able to:
1. Describe the various imaging modalities used to size an AV for surgical repair/replacement
2. State the information that is important to gain from each imaging modality for AV sizing
3. Compare TEE to other imaging modalities for AV sizing

2:30 – 2:50 pm When is Co-existing MR important in a Patient Undergoing an AVR? - A Lerner
At the conclusion of this lecture, the participant should be able to:
1. Describe the long term implications of unrepaired MR in a patient who has undergone an AVR
2. List the situations in which the MV regurgitation should not be repaired
3. State the risks and benefits for concomitant MVR and AVR

2:50 - 3:10 pm Gradients Across a Prosthetic Valve: Pitfalls in assessment of a newly-seated prosthesis - A Mahajan
At the conclusion of this lecture, the participant should be able to:
1. Define the immediate and long term risk of introducing a gradient from LV to Aorta with AVR
2. Describe how gradients across AVR are assessed in the intraoperative setting

3:10 – 3:30 pm Panel Discussion and Audience Q&A
At the conclusion of this discussion, the participant should be able to:
1. Discuss the various approaches to AV disease in the expected and unexpected settings
2. Define the additional complication of MV disease with AV disease
3. State the role of TEE in treatment the decision making process before and after surgical repair/replacement of the AV

ULTRASOUND FOR THE CRITICALLY ILL PATIENT PART 1: WHAT YOU SHOULD KNOW

Co-sponsored by the Society of Critical Care Anesthesiologists
Moderator: RM Savage

3:50 – 4:10 pm Current Guidelines and Recommendations for Echocardiography in Non-cardiology settings – CA Clark
At the conclusion of this lecture, the participant should be able to:
1. Define the role for echocardiography used in non-cardiac operative settings
2. State the current guidelines and rationale for use of echocardiography in non-cardiac surgery settings

4:10 – 4:30 pm Transthoracic Echo in Perioperative Medicine: Views and techniques - D Oxorn
At the conclusion of this lecture, the participant should be able to:
1. State the views used by transthoracic imaging to evaluate cardiac anatomy and function
2. Recognize normal and abnormal cardiac anatomy with transthoracic imaging

4:30 – 4:50 pm Indications for Transthoracic Echocardiography in the ER and ICU: What information can I derive? – CA Clark
At the conclusion of this lecture, the participant should be able to:
1. List the indications for transthoracic imaging in the ER and ICU
2. List the critical information gained from use of transthoracic imaging in the ER and ICU for clinical decision making

4:50 – 5:10 pm Ultrasound in Trauma: Are you fast and curious? - F Lopez
At the conclusion of this lecture, the participant should be able to:
1. Describe the FAST exam using ultrasound
2. List the critical information gained in the FAST exam for trauma decision making

5:10 – 5:30 pm Ultrasound for Pulmonary and Pleural Pathology: Why and how? - S Shofer
At the conclusion of this lecture, the participant should be able to:
1. Describe how the lungs and pleura are imaged with ultrasound
2. List the critical information gained in pulmonary ultrasound that impacts clinical care

TTE HANDS-ON WORKSHOP
Moderator: D Shook

7:00 – 9:00 pm Transthoracic Echo for the Critically Ill Patient

Faculty: D Shook, NJ Skubas, M Swaminathan, R Sniecinski, SK Shernan, RM Savage, A Lerner, F Mahmood, D Oxorn, P Panzica, CA Trojanos, MA Pernetz, CA Clark, F Lopez, S Shofer

At the conclusion of this self-paced hands-on workshop, the participant should be able to:
1. Correlate TEE images to Transthoracic Echocardiography images
2. Differentiate arterial and venous vascular structures in the neck
3. Describe ultrasound knobs for gain, color flow Doppler, pulsed wave Doppler and continuous wave Doppler
4. Identify cardiac anatomy using transthoracic imaging
5. Identify the lung using ultrasound

FRIDAY, May 10, 2013

DILEMMAS WITH THE RIGHT HEART
Moderator: M Swaminathan

7:30 – 7:50 am Tricuspid Regurgitation: Not all jets are the same. Lessons in evaluation of TR - F Mahmood
At the conclusion of this lecture, the participant should be able to:
   1. Explain the mechanisms for the generation of tricuspid regurgitation
   2. Evaluate the importance of TR in the context of a patient’s overall cardiac condition

7:50 – 8:10 am Accurate Echo Assessment of RV Dysfunction: Are we there yet? - NJ Skubas
At the conclusion of this lecture, the participant should be able to:
   1. Discuss the complex anatomy and physiology of the right ventricle
   2. List the reasons that RV dysfunction occurs perioperatively

8:10 – 8:30 am The PFO Dilemma: How to assess and what to do about it? - D Oxorn
At the conclusion of this lecture, the participant should be able to:
   1. Discuss the embryological basis of a PFO
   2. List the indications for closure of a PFO

8:30 – 8:50 am Tricuspid Valve Surgery with VAD Implantation: When and why? - M Maxwell
At the conclusion of this lecture, the participant should be able to:
   1. Explain the mechanism for TR in the setting of a VAD surgery
   2. Describe the need, risks and benefits for TR repair in the setting of VAD surgery

8:50 – 9:10 am Percutaneous Interventions and the Right Heart: Using echo as a guide - S Kar
At the conclusion of this lecture, the participant should be able to:
   1. List the percutaneous cardiac interventions that influence right heart function
   2. Describe how echocardiography is used as to detect right heart dysfunction

9:10 – 9:30 am Panel Discussion and Audience Q&A
At the conclusion of this lecture, the participant should be able to:
   1. Discuss the importance of the Right Heart to perioperative cardiac recovery
   2. List the reasons that RV dysfunction occurs in a variety of cardiac surgical settings
   3. Name strategies to prevent or ameliorate right heart dysfunction

HEART FAILURE SYMPOSIUM
Moderator: R Sniecinski
10:00 – 10:20 am  Assessment of a Newly Transplanted Heart: What should I be looking for?
   - A Cheung
   At the conclusion of this lecture, the participant should be able to:
     1. Discuss the importance echocardiography for evaluation of a cardiac transplant
     2. List the major abnormalities of function in a newly transplanted heart
     3. State how echocardiography can guide therapeutic interventions in cardiac transplantation

10:20 - 10:40 am  Is Intraoperative TEE Assessment of a Failing Heart Before Heart Transplantation Really Necessary? - R Sniecinski
   At the conclusion of this lecture, the participant should be able to:
     1. Discuss the importance echocardiography prior to cardiac transplant
     2. List the abnormalities detected by echocardiography prior to transplant that influence perioperative outcome

10:40 – 11:00 am  How Can 3D TEE Help with Assessment of Cardiac Function? A Case Based Study
   - F Mahmood
   At the conclusion of this lecture, the participant should be able to:
     1. Compare and contrast 3D and 2D echocardiography for the assessment of cardiac function
     2. Evaluate cardiac function using 3D echocardiography

11:00 – 11:20 am  How TEE Can Help with Critical Information in Implantable VADs - D Oxorn
   At the conclusion of this lecture, the participant should be able to:
     1. Describe the role for TEE during VAD implantation
     2. List the abnormalities detected by echocardiography with VAD surgery that influence perioperative outcome

11:20 – 11:40 am  Aortic Regurgitation and Heart Failure: When should the aortic valve be fixed?
   - A Lerner
   At the conclusion of this lecture, the participant should be able to:
     1. Describe the influence of aortic valve regurgitation in heart failure
     2. List the conditions that require aortic valve repair/replacement to treat heart failure

11:40 – 12:00 pm  Diastolic Heart Failure: When the numbers matter - M Swaminathan
   At the conclusion of this lecture, the participant should be able to:
     1. Describe the importance of diastolic heart failure
     2. Recognize the role of echocardiography to guide assessment and interventions for diastolic heart failure

12:00 – 12:20 pm  Percutaneous VADs: Does TEE have a role? - S Kar
   At the conclusion of this lecture, the participant should be able to:
     1. Describe the role for TEE during percutaneous VAD implantation
     2. List the abnormalities detected by echocardiography with percutaneous VAD implantation that influence perioperative outcome

12:20 – 12:40 pm  Panel Discussion and audience Q&A
LUNCH SESSION
Moderator: KP Grichnik

12:45 – 1:30 pm  Sixth Annual Arthur E. Weyman, MD Lecture - J Kisslo

AORTIC SURGERY: DECISION-MAKING IN COMPLEX CASES
Moderator: CA Troianos

1:30 – 1:50 pm  Surgical Options in Ascending Aortic Surgery - M Maxwell
At the conclusion of this lecture, the participant should be able to:
   1. List the surgical concerns when evaluating ascending aortic surgery
   2. Name the surgical approaches to ascending aortic surgery

1:50 – 2:10 pm  Evaluating the Diseased Aortic Root: How TEE can help - A Cheung
At the conclusion of this lecture, the participant should be able to:
   1. Describe the role for TEE in evaluation of the diseased aortic root
   2. List the abnormalities detected by echocardiography in the aortic root that influence perioperative outcome

2:10 - 2:30 pm  Echo for TEVAR: How useful is TEE? - M Swaminathan
At the conclusion of this lecture, the participant should be able to:
   1. Describe the role for TEE in evaluation in TEAVR
   2. List the abnormalities detected by echocardiography in TEVAR influence perioperative outcome

2:30 – 2:50 pm  Aortic Dissections: Not as easy as you may think – P Panzica
At the conclusion of this lecture, the participant should be able to:
   1. Describe how aortic dissections occur and the common anatomical findings of dissections
   2. List the abnormalities detected by echocardiography in aortic dissections influence perioperative outcome

2:50 – 3:10 pm  Aortic Atherosclerosis: Does epiaortic scanning help with outcomes? - R Sniecinski
At the conclusion of this lecture, the participant should be able to:
   1. State the perioperative complications that occur due to aortic atherosclerosis
   2. Describe the role of echocardiography in influencing perioperative outcomes.

3:10 – 3:30 pm  Panel Discussion and Audience Q & A
At the conclusion of this lecture, the participant should be able to:
   1. State the influences of various types of AV and aortic root disease in perioperative outcomes
   2. Defend the use of echocardiography to guide decision making

3:30-3:50 pm  Coffee Break

ULTRASOUND FOR THE CRITICALLY ILL PATIENT PART 2: CLINICAL APPLICATIONS
Co-sponsored by the Society of Critical Care Anesthesiologists
Moderator: NJ Skubas

3:50 – 4:10 pm  TEE in the ER and ICU: When can echo help? - F Lopez
At the conclusion of this lecture, the participant should be able to:

1. Describe the role for TEE in the evaluation thoracic trauma and critical injuries in the ER
2. Describe the role for TEE in the evaluation cardiothoracic dysfunction in the surgical and medical ICU settings
3. List the abnormalities detected by echocardiography in the ER and ICU settings that can change therapy and influence outcomes

At the conclusion of this lecture, the participant should be able to:

1. Describe the evolution of using surface ultrasound to facilitate vascular access
2. List the benefits and risks of using surface ultrasound to facilitate vascular access

4:30 – 4:50 pm TTE in Code Blue - R Savage
At the conclusion of this lecture, the participant should be able to:

1. Describe the use of transthoracic echocardiography in the cardiac arrest and severe hemodynamic instability settings
2. List the benefits and limitations of using transthoracic echocardiography to diagnosis etiologies and guide therapies for cardiac arrest and severe hemodynamic instability

4:50 - 5:10 pm Simplified TEE for hemodynamic assessment: Do I really need all the bells and whistles? - P Panzica
At the conclusion of this lecture, the participant should be able to:

1. List the key elements necessary to evaluate hemodynamic status in an efficient manner
2. Describe a simplified TEE exam sequence for hemodynamic assessment

5:10 – 5:30 pm Panel Discussion and Audience Q&A
At the conclusion of this lecture, the participant should be able to:

1. List the roles for ultrasound and echocardiography in the evaluation of critically ill and injured patients
2. Recognize common anatomic and hemodynamic abnormalities as assessed by ultrasound and echocardiography in critically ill and injured patients

COMPLEX CASES: THE JUDICIOUS USE OF ECHO
Moderator: F Mahmood

7:00 – 9:00 pm Complex cases - F Mahmood; A Lerner; P Panzica
At the conclusion of this case discussion, the participant should be able to:

1. List the role of echocardiography and ultrasound for complex case evaluation
2. Recognize and diagnose complex cardiothoracic anatomic and hemodynamic perturbations with echocardiography and ultrasound
SATURDAY, May 11, 2013

PUTTING IT ALL TOGETHER: THE MOCK EXAM FOR THE TEE BOARDS
Moderators: F Mahmood; P Panzica; A Lerner

7:30 – 10:00 am Mock Exam – A Lerner, F Mahmood, P Panzica
At the conclusion of this session, the participant should be able to:
1. Take a test and be successfully graded on a broad range of echocardiographic knowledge in a simulated testing environment
2. Determine individual areas of relative strength and weakness in preparation for the standardized echocardiography competency examinations
3. Compare individual testing knowledge relative to the aggregate results of the other participants taking the mock examination

10:00 – 10:30 am Break

10:30 am – 12:30 pm Exam Review
At the conclusion of this review, the participant should be able to:
1. Assess common and uncommon echocardiographic findings to guide clinical care
2. Assess echocardiographically, the results of surgical interventions in cardiac disease
3. Effectively communicate echocardiographic findings to colleagues as a consultant