General Information.................................................................................................................................................. 2
Faculty Disclosure.................................................................................................................................................. 5
Agenda.................................................................................................................................................................. 8
Registration Rates and How to Register.................................................................................................................. 13
PROGRAM OBJECTIVES

This course will provide physicians and sonographers at all levels with practical knowledge and application of color flow Doppler, two-dimensional, transesophageal, 3D and stress echocardiographic techniques which can be utilized in everyday application as well as future applications of echocardiography. At the end of the course, each participant should have improved skills in the use of echocardiography techniques for the appropriate diagnosis and treatment of common cardiac conditions.

At the conclusion of this activity, participants will be able to:

1. Apply the recommendations for the echocardiographic evaluation of left ventricular function to their clinical practice.
2. Explain the role of echo in the treatment of heart failure.
3. Use strain imaging to assess cardiac function in various pathological states
4. Explore the extensive role of echo for the evaluation of diastolic function.
5. Assess patients with valvular disorders using the new ACC/AHA guidelines for valvular heart disease
6. Recognize different echocardiographic methods of assessment of Right Ventricular structure and function. Cite the strengths and weaknesses of these techniques including complementary technologies: CT and MRI.
7. Discuss the clinical classification of pulmonary hypertension, its implications for the patient and how echo can help in assessing its severity and guide management of patients with the condition.
8. Evaluate how 3D echo works and express limitations and potential applications as it relates to daily practice and patient management.
9. Assess the latest data on contrast safety and use contrast safely by knowing which patients need to monitored after contrast and how to monitor those patients.
10. Review of varying disease states that can be evaluated with stress echo.
11. Evaluate the role of echo in the diagnosis and treatment of patients with aortic stenosis.
12. Recognize the pathology and the basics of echocardiographic assessment of patients congenital tricuspid valve disease
13. Review the role of echo in surgical and percutaneous treatments of aortic stenosis and mitral regurgitation

PROGRAM DESCRIPTION

Principles of echocardiography will be reviewed and advances will be demonstrated through lectures and case studies. Participants will be exposed to all aspects of basic and advanced echocardiography.

Daily sessions will be devoted to state of the art lectures on advances in echocardiography and specific application to the following states:

- Heart Failure
- Interventional Cardiology
- Valvular Heart Disease
- Cardiac Surgery
The following aspects of echocardiography will be covered:

- 2D Echocardiography
- Spectral and Color Doppler
- Transesophageal Echocardiography
- 3D Echocardiography
- Stress Echocardiography
- Contrast Echocardiography
- Tissue Doppler, Strain/Strain Rate
- Congenital Heart Disease (Ebstein's Anomaly)

Case studies will be interspersed throughout each of the lectures to emphasize the importance and clinical utility of each technique discussed. The case studies will emphasize different topics in echocardiography that are seen in daily practice.

The Maintenance of Certification (MOC) Workshop will be an afternoon workshop on Saturday, September 17 and Sunday, September 18, 2016. This session requires separate registration. Included with this workshop, physicians will be provided access to an online module, titled American Society of Echocardiography (ASE) University III: Case-based Learning Volume 1 developed by the ASE, to complete following the workshop to be awarded 10 MOC points valid towards the American Board of Internal Medicine’s (ABIM) medical knowledge self-assessment requirements. This session highlights several key topics through a study of clinical patient scenarios provided and analyzed by field experts. Guided by faculty moderators, topics covered will include: new technology, artifacts, valvular heart disease, ventricular size and function, coronary artery disease, cardiomyopathies, congenital heart disease, Doppler, diastolic function, pericardial disease, stress echocardiography and cardiac masses.

TARGET AUDIENCE/PREREQUISITES

The target audience is cardiologists, cardiology fellows, anesthesiologists, surgeons, sonographers and nurses who have a need for echo expertise. A minimum of three months experience in echocardiography and knowledge of basic transesophageal anatomy and physiology of the heart is required.

CONFERENCE LOCATION

The program will be held at the 3rd floor Conference Center located in the Feinberg Pavilion of Northwestern Memorial Hospital, 251 E. Huron Street, Chicago, Illinois. Directions and parking information are available at www.nm.org. Discounted parking is available at the Huron-St. Clair garage, located at 222 E. Huron Street or at the Erie-Ontario garage, located at 321 E. Erie Street. Please see the registration table for parking validation.

ACCREDITATION

The Northwestern University Feinberg School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.
DESIGNATION

The Northwestern University Feinberg School of Medicine designates this live activity for a maximum of 23.25 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

REFUNDS

$50 shall be retained to cover administrative expenses should you cancel your registration for any reason. In order to refund the balance, we must receive WRITTEN Notice of withdrawal by August 17, 2016. No refunds will be issued thereafter.

HOTEL

Rooms have been reserved at the Hyatt Chicago Magnificent Mile, located at 633 N. St. Clair Street at a reduced rate of $249 single/double, plus tax. Please contact the hotel at 888-591-1234 or https://resweb.passkey.com/go/EchoNorthwestern2016 and mention ECHO NORTHWESTERN to reserve your room. Reservations made after August 17, 2016 or after the room block has filled, are subject to availability at regular hotel rates.

SPECIAL NEEDS

The Feinberg School of Medicine fully intends to comply with the legal requirements of the American with Disabilities Act. If any participant of this conference is in need of accommodation please indicate those needs on the registration form or submit written requests to the Office of CME at least one month prior to the conference date.
FACULTY DISCLOSURE

Northwestern University Feinberg School of Medicine requires course directors, speakers, instructors, planners and other individuals who are in a position to control the content of this activity to disclose any real or apparent conflict of interest they may have as related to the content of this activity. All identified conflicts of interest are thoroughly vetted by NUFSM for fair balance, scientific objectivity of studies mentioned in the materials or used as the basis for content, and appropriateness of patient care recommendations. The faculty disclosures and the discussion of off-label usage will be indicated in the course syllabus.

PROGRAM DIRECTORS

Kameswari Maganti, MD, FASE
Associate Professor of Medicine

David J. Mehlman, MD, FASE
Associate Professor of Medicine

Issam Mikati, MD, FASE
Associate Medical Director, Echocardiography Laboratory
Professor of Medicine- Cardiology and Radiology

Vera H. Rigolin, MD, FASE
Medical Director, Echocardiography Laboratory
Associate Medical Director, Program for Women's Cardiovascular Health
Professor of Medicine

James Thomas, MD
Director, Center for Heart Valve Disease
Professor of Medicine

GUEST FACULTY

Saroja Bharati, MD
The Heart Institute for Children
Maurice Lev Congenital Heart and Conduction System Center
Professor of Pathology
Rush Medical College
Chicago, Illinois

Michael Picard, MD
Director of Echocardiography Lab
Massachusetts General Hospital
Boston, Massachusetts
NORTHWESTERN UNIVERSITY FEINBERG SCHOOL OF MEDICINE FACULTY

Nausheen Akhter, MD
Assistant Professor of Medicine

Robert O. Bonow, MD
Director, Center for Cardiovascular Innovations
Goldberg Distinguished Professor of Medicine

Charles Davidson, MD
Clinical Chief, Cardiology
Medical Director of Blum Cardiovascular Institute
Professor of Medicine

R. Andrew de Freitas, MD
Director, Adult Congenital Heart Disease
Assistant Professor of Medicine and Pediatrics

Stephen R. Devries, MD, FASE
Associate Professor of Medicine

Micah Eimer, MD, FASE
Health System Clinician

Benjamin H. Freed, MD
Assistant Professor of Medicine

Joshua Herborn, MD
Assistant Professor of Medicine

Marla Mendelson, MD
Director, Heart Disease and Pregnancy Program
Associate Professor of Medicine and Pediatrics

Jyothy J. Puthumana, MD
Assistant Professor of Medicine

Mark J. Ricciardi, MD
Medical Director, Cardiac Catheterization Laboratory
Associate Professor of Medicine

Sanjiv J. Shah, MD
Director, Heart Failure with Preserved Ejection Fraction Program
Associate Professor of Medicine
Robert A. Silverberg, MD
Associate Professor of Medicine

Patricia Vassallo, MD, FASE
Assistant Professor of Medicine

Clyde Yancy, MD, MSc
Associate Director Clinical Programs
Vice Dean, Diversity & Inclusion
Magerstadt Professor of Medicine - Cardiology and Medical Social Sciences
Chief, Division of Cardiology
AGENDA

Saturday, September 17th, 2016

7:30-8:00 AM  Registration and Breakfast

Session I  Valvular heart disease
Moderator: James Thomas, MD

8:00-8:20 AM  2D and 3D anatomy of the mitral valve
Vera Rigolin, MD

8:20-8:40 AM  Echo quantification of valvular regurgitation
James Thomas, MD

8:40-9:00 AM  Percutaneous options for mitral valve disease
Mark Ricciardi, MD

9:00-9:45 AM  Imaging guidance for percutaneous mitral valve procedures
TBD

9:45-10:15 AM  Refreshment break and exhibits

10:15-11:00 AM  Tricuspid valve- No longer forgotten
TBD

11:00- 12:00 PM  Cases with panel discussion and Audience Q&A
Joshua Herborn, MD
Jyothy Puthumana, MD
Vera Rigolin, MD

Panel: TBD
  Mark Ricciardi, MD
  James Thomas, MD

12:00-1:00 PM  Lunch and exhibits

Session II  Valvular heart disease continued
Moderator: Vera Rigolin, MD

1:00-1:20 PM  Diagnostic challenges and therapeutic options for aortic valve disease in 2016
Robert Bonow, MD

1:20-1:40 PM  I have a patient with severe aortic stenosis-TAVR or SAVR?
Charles Davidson, MD

1:40-2:10 PM  Imaging guidance for TAVR: Do we still need TEE?
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:10-3:00 PM</td>
<td>Prosthetic valves: Show and tell</td>
</tr>
<tr>
<td></td>
<td>David Mehlman, MD</td>
</tr>
<tr>
<td>3:00-3:30 PM</td>
<td>Refreshment break and exhibits</td>
</tr>
<tr>
<td></td>
<td><strong>Session III</strong> Breakout workshops</td>
</tr>
<tr>
<td>3:30-5:30 PM</td>
<td>ASE MOC case-based workshop for physicians</td>
</tr>
<tr>
<td></td>
<td>Micah Eimer, MD</td>
</tr>
<tr>
<td></td>
<td>Andrew deFreitas, MD</td>
</tr>
<tr>
<td></td>
<td>Kameswari Maganti, MD</td>
</tr>
<tr>
<td></td>
<td>David Mehlman, MD</td>
</tr>
<tr>
<td></td>
<td>Issam Mikati, MD</td>
</tr>
<tr>
<td>3:30-5:30 PM</td>
<td>Rapid fire learning through fascinating cases</td>
</tr>
<tr>
<td></td>
<td>Northwestern Medicine faculty and staff</td>
</tr>
<tr>
<td>5:30-6:30 PM</td>
<td>Echo lab tour</td>
</tr>
</tbody>
</table>

**Sunday, September 18, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30-8:00 AM</td>
<td>Registration and breakfast</td>
</tr>
<tr>
<td></td>
<td><strong>Session IV:</strong> Congenital heart disease: Tricuspid valve disorders</td>
</tr>
<tr>
<td></td>
<td>Moderator: Andrew deFreitas, MD</td>
</tr>
<tr>
<td>8:00-8:25 AM</td>
<td>Anatomy of the tricuspid valve</td>
</tr>
<tr>
<td></td>
<td>Saroja Bharati, MD</td>
</tr>
<tr>
<td>8:25-8:40 AM</td>
<td>My patient with Ebstein’s anomaly</td>
</tr>
<tr>
<td></td>
<td>Marla Mendelson, MD</td>
</tr>
<tr>
<td>8:40-9:10 AM</td>
<td>Imaging in Ebstein’s anomaly</td>
</tr>
<tr>
<td></td>
<td>Andrew deFreitas, MD</td>
</tr>
<tr>
<td>9:10-9:40 AM</td>
<td>Surgical correction of Ebstein’s anomaly</td>
</tr>
<tr>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td>9:40-10:00 AM</td>
<td>Panel discussion</td>
</tr>
<tr>
<td>10:00-10:15 AM</td>
<td>Refreshment break and exhibits</td>
</tr>
<tr>
<td>10:15-10:30 AM</td>
<td>My favorite tricuspid valve cases</td>
</tr>
<tr>
<td></td>
<td>TBD</td>
</tr>
</tbody>
</table>
Session V: The right ventricle and pulmonary hypertension
Moderator: David Mehlman, MD

10:30-11:00 AM Anatomy and function of the right ventricle using echo with illustrative cases
Mohamed Saric, MD

11:00-11:20 AM Echo highlights in pulmonary hypertension
Sanjiv Shah, MD

11:20-11:40 AM How CT and MR complement echo for evaluation of pulmonary hypertension
Benjamin Freed, MD

11:40-12:00 PM Pulmonary emboli
David Mehlman, MD

12:00-1:00 PM Lunch and exhibits

Session VI: Stress echo and beyond
Moderator: Kameswari Maganti, MD

1:00-1:20 PM Case based approach to echo contrast
Patricia Vassallo, MD

1:20-1:50 PM Stress echo in 2016
Michael Picard, MD

1:50-2:10 PM Identifying the source of embolism: What can we learn from the new ASE guidelines?
Mohamed Saric, MD

2:10-2:30 PM Echo imaging of the thoracic aorta
Jyothy Puthumana, MD

2:30-2:50 PM Echo for assessing the cancer patient during treatment
Nausheen Akhter, MD

2:50-3:10 PM Echo for assessing the cancer survivor
Vera Rigolin, MD

3:10-3:30 PM Point of care echo: Who, where, when?
Michael Picard, MD

3:30-3:45 PM Audience Q&A

3:45-4:00 PM Refreshment break and exhibits
Session VII  Breakout workshops

4:00-6:00 PM  ASE MOC case-based workshop for physicians
Andrew deFreitas, MD
Micah Eimer, MD
Kameswari Maganti, MD
David Mehlman, MD
Issam Mikati, MD

4:00-6:00 PM  Rapid fire learning through fascinating cases
Northwestern Medicine faculty and staff

Monday, September 19, 2016

7:00-7:30 AM  Registration and breakfast

Session VIII  Heart failure
Moderator: Issam Mikati, MD

8:00-8:20 AM  Systolic function: What is old and what is new?
Issam Mikati, MD

8:20-8:40 AM  Demystifying diastology in 2016
Michael Picard, MD

8:40-9:00 AM  What is strain and how do I use it?
Mohamed Saric, MD

9:00-9:30 AM  Heart failure cases:
Michael Picard, MD
Mohamed Saric, MD

9:30-10:00 AM  Refreshment break & exhibits

10:00-10:20 AM  Cardiac assist devices: What are they and how are they imaged?
Issam Mikati, MD

10:20-10:50 AM  Constrictive pericarditis
Stephen Devries, MD

10:50-11:10 AM  My favorite heart failure patients who went to the OR
Robert Silverberg, MD

11:10-12:00 AM  Panel Discussion
Panel: Michael Picard, MD  Case Presenters:  Stephen Devries, MD
Mohamed Saric, MD  Issam Mikati, MD
Clyde Yancy, MD, MSc  Robert Silverberg, MD
12:00-1:00 PM  Lunch and exhibits

**Session IX:**  **Echo in systemic disease**  
Moderator: David Mehlman, MD

1:00-1:20 PM  Echo in patients with liver and kidney disease  
Kameswari Maganti, MD

1:20-1:40 PM  Cardiac dysfunction in collagen vascular disorders  
Sanjiv Shah, MD

1:40-2:00 PM  Infiltrative disorders  
Benjamin Freed, MD

2:00-2:30 PM  Cases with panel discussion and Audience Q&A

Case Presenters:  
Benjamin Freed, MD  
Kameswari Maganti, MD  
Sanjiv Shah, MD

**Session X:**  **Echo in non-valvular structural heart disease**  
Moderator: James Thomas, MD

2:30-2:45 PM  Alcohol septal ablation  
Kameswari Maganti, MD

2:45-3:00 PM  Left atrial appendage closure  
Jyothy Puthumana, MD

3:00-3:30 PM  Refreshment break and exhibits

**Session XI:**  **Breakout workshops**

3:30-5:00 PM  Rapid fire learning through fascinating cases  
Northwestern Medicine faculty and staff
ECHO NORTHWESTERN 2016
September 17-19, 2016
REGISTRATION

Please check one below:

☐ Physicians $675
☐ ASE Member Physicians $540
☐ Technologists $550
☐ ASE Member Technologists $440
☐ Resident, Fellows, Nurses $440
☐ ASE Maintenance of Certification Course $200

* Must register in advance in order to participate in certification workshop

How to Register:
On-Line: Go to cme.northwestern.edu/conferences
Or Mail with check to:
Northwestern University- Office of CME
240 E. Huron, Suite 1-200
Chicago, IL 60611
Phone: 312-503-8533

Please make your check payable to Northwestern University.

PLEASE TYPE OR PRINT

☐ MD
☐ DO
☐ RDCS
☐ Other

Last Name___________________________________________

First Name________________________________________________

Address ________________________________________________________________________________

______________________________________________________________________________

City State Zip

Daytime Phone __________________ Fax__________________________

E-mail (required)________________________________________

(Your registration confirmation will be e-mailed.)

Specialty ____________________________

Are you a Northwestern University Feinberg School of Medicine Alumni? Yes No

Please indicate any special needs

______________________________________________________________________________

______________________________________________________________________________