



Mayo Clinic Department of
Cardiovascular Medicine

ECHO/IMAGING NEW YORK

State-of-the-Art 2019



23.25 AMA
PRA CATEGORY 1
AND MOC POINTS
AVAILABLE

NEW YORK, NEW YORK
CROWN PLAZA TIMES SQUARE MANHATTAN
MARCH 22–24, 2019

FELLOW
SCHOLARSHIPS
AVAILABLE!

IN COLLABORATION WITH
AMERICAN SOCIETY OF ECHOCARDIOGRAPHY, COLUMBIA UNIVERSITY
MEDICAL CENTER, AND ASIAN-PACIFIC ASSOCIATION OF ECHOCARDIOGRAPHY



CVEDUCATION.MAYO.EDU

COURSE DESCRIPTION

The **21st Annual State-of-the-Art Echo Course** has been developed to review society guidelines for evaluation of cardiac structure, function, and hemodynamics which are essential for patient management and cardiac clinical trials. This course will familiarize attendees with recent technological advances in the field. Nationally renowned experts in echocardiography, valvular heart disease, and new imaging modalities will present the most up-to-date information, with hands-on demonstrations of basic and advanced Doppler offered on the first and second days. Didactic lectures will be combined with interesting case presentations.



COURSE LEARNING OBJECTIVES

Upon conclusion of this program, participants should be able to:

- Apply the ASE Guidelines document for quantification of chamber sizes and (systolic and diastolic) function using 2- and 3-dimensional echocardiography, as well as newer modalities such as strain imaging.
- Employ qualitative and quantitative measures to describe the severity of valvular heart disease and apply the current ASE guidelines.
- Apply the utility of echocardiography in (systolic and diastolic) heart failure diagnosis and therapy, including the new ASE/EACVI recommendations for HFpEF, pericardial diseases, and ventricular assist devices.
- Identify the utility of stress echocardiography for evaluation of coronary heart disease, dyspnea, and valvular heart disease.
- Recognize the utility of transesophageal and 3-D imaging in management decisions in the interventional lab, operating room, and intensive care unit.
- Identify the complementary use of other imaging modalities such as CT, MRI, and PET imaging.

- Recognize the echocardiographic presentation of special patient populations, including those with cancer, congenital heart disease, athletes with heart disease, and heart disease in pregnancy.

Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course.

TEACHING MATERIALS/SYLLABUS

Attendees will be provided a link to obtain course materials on the internet and are welcome to bring a laptop or iPad during the learning sessions.

INTENDED AUDIENCE

The course is intended for anesthesiologists, cardiologists, ED physicians, critical care physicians, fellows, sonographers, and medical professionals who are interested in a comprehensive review of echocardiography and an introduction to the newest advances in the field.

ACCREDITATION STATEMENT

In support of improving patient care, Mayo Clinic School of Continuous Professional Development is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team

Mayo Clinic College of Medicine and Science designates this live activity for a maximum of 23.25 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Successful completion of this CME activity, which includes participation in the evaluation component, enables



the participant to earn up to 23.25 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Participation information will be shared with ABIM through PARS.

EDUCATIONAL GRANTS

At the time of this printing, a complete listing of commercial supporters was not available. Appropriate acknowledgment will be given to all supporters at the time of the meeting.

Exhibits will be available for viewing at all scheduled breaks.

DATE AND LOCATION

The Echo/Imaging New York course will be held March 22-24, 2019. Course headquarters will be located at Crowne Plaza in the Acts Ballroom.

Crowne Plaza

1605 Broadway

New York, NY 10019

Phone: 212-977-4000



Registration – Broadway Ballroom Foyer

General Session – Broadway Ballroom Act I-III

Exhibits – Foyer

AIRPORT

The New York International Airports (JFK or LGA) are the recommended airports for arrival. The hotel is approximately 45 minutes to 1 hour from the Airport. *Travel arrangements are the sole responsibility of the individual registrant.*

LODGING ACCOMMODATIONS

Crowne Plaza Times Square is perfectly located in the heart of midtown Manhattan, situated directly on Broadway between 48th and 49th Streets at the doorstep to Times Square.

Discounted Housing Options can be found on our website:
<https://cveducation.mayo.edu/store/echo-imaging-new-york-state-of-the-art/looding>

Check-in: 3:00 p.m.

Check-out: 11:00 a.m.

Lodging arrangements are the sole responsibility of the individual registrant.

Mayo Clinic Department of Cardiovascular Medicine is not responsible for expenses incurred by an individual who is not confirmed and for whom space is not available at the meeting. Costs incurred by the registrant such as airline or hotel fees or penalties are the responsibility of the registrant.



FACULTY

Course Directors

Jae K. Oh, M.D., FACC, FAHA, FASE, FESC

Samsung Professor of CV Diseases; Co-Director, Integrated CV Imaging; Director, Echo Core Laboratory, Mayo Clinic, Rochester
President, Asian-Pacific Association of Echocardiography

Rebecca T. Hahn, M.D., FACC, FASE

Professor of Medicine; Director of Interventional Echocardiography;
Chief Scientific Officer of the Echo Core Lab, Cardiovascular Research
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Mayo Faculty

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Runqing Huang, Ph.D.

Principle Research Technologist, Division of Cardiovascular Ultrasound,
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Charles (Charlie) E. Luoma, RDCS, ACS

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Rekha Mankad, M.D., FACC, FASE

Assistant Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine; Director, Patient Education and Medical Editor for Global Business Solutions; Director, Cardio-Rheum Clinic; Director, Women's Heart Clinic, Mayo Clinic, Rochester, MN

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Jeremy J. Thaden, M.D.

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Brandon M. Wiley, M.D., MS, FACC

Assistant Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine, Mayo Clinic, Rochester, MN

Guest Faculty

Vratika Agarwal, M.D.

Instructor, Columbia University Medical Center, New York, NY

Gerard P. Aurigemma, M.D., FAHA, FACC, FASE

Professor of Medicine and Radiology, University of Massachusetts Medical School, Noninvasive Cardiology, UMass Memorial Medical Center, Worcester, MA

Linda D. Gillam, M.D., MPH, FACC, FAHA, FASE

Dorothy and Lloyd Huck Chair, Department of Cardiovascular Medicine; Medical Director, Cardiovascular Service Line, Morristown Medical Center/Atlantic Health System; Morristown New Jersey; Professor of Medicine, Sidney Kimmel Medical College, Thomas Jefferson University

Jong-Won Ha, M.D., Ph.D., FESC

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Omar Khalique, M.D., FACC, FASE, FSCCT

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Professor of Medicine, The University of Sydney, NSW, Australia

Philippe Pibarot, DVM, Ph.D., FACC, FESC

Professor of Medicine, Laval University; Director of the Canada Research; Chair in Valvular Heart Diseases, Quebec Heart Institute, Quebec, Canada

Michael H. Picard, M.D., FACC, FAHA, FASE

Professor, Harvard Medical School; Physician, Massachusetts General Hospital, Boston, MA; Editor in Chief, Journal of the American Society of Echocardiography

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James D. Thomas, M.D., FACC, FAHA, FESC, FASE

Director, Center for Heart Valve Disease; Director, Academic Affairs, Bluhm Cardiovascular Institute, Northwestern Memorial Hospital, Northwestern University Feinberg School of Medicine, Chicago, IL

FACULTY DISCLOSURE

As a provider accredited by ACCME, Mayo Clinic College of Medicine and Science (Mayo Clinic School of Continuous Professional Development) must ensure balance, independence, objectivity and scientific rigor in its educational activities. Course director(s), planning committee, faculty, and all others who are in a position to control the content of this educational activity are required to disclose all relevant financial relationships with any commercial interest related to the subject matter of the educational activity. Safeguards against commercial bias have been put in place. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of this information will be published in the course materials so those participants in the activity may formulate their own judgments regarding the presentation.

PROGRAM SCHEDULE

THURSDAY, MARCH 21, 2019	
6:00-7:00 p.m.	Early Registration Broadway Ballroom Foyer
FRIDAY, MARCH 22, 2019	
6:30 a.m.	Registration and Continental Breakfast
7:45 a.m.	Welcome Introduction, Course Objectives and Overview, Get to Know the Audience <i>Drs. Oh and Hahn</i>
FUNDAMENTALS OF ECHOCARDIOGRAPHY	
Moderator: <i>Dr. Jae K. Oh</i>	
8:00 a.m.	Echo Hemodynamics I: General Principles of Stroke Volume, Intracardiac Pressure, and Vascular Resistance <i>Dr. Jae K. Oh</i>
8:20 a.m.	Echo Hemodynamics II: General Principles of Echo Quantification of Valvular Regurgitation (Vena Contracta, Effective Regurgitant Orifice Area, and Regurgitant Volume) <i>Dr. Linda D. Gillam</i>
8:40 a.m.	Chamber Quantification Guidelines: Left/Right Heart Measurements of Size and Function <i>Dr. Gerard P. Aurigemma</i>
9:00 a.m.	Transesophageal Echo: The 28 Essential Views (And More) <i>Dr. Rebecca T. Hahn</i>
9:20 a.m.	Panel Discussion – <i>Drs. Gillam, Aurigemma, and Hahn; Dr. Oh, moderator</i>
9:40 a.m.	Refreshment Break – Visit Exhibits
VALVULAR HEART DISEASE I	
Moderator: <i>Dr. Rebecca T. Hahn</i>	
10:00 a.m.	Basic and Advanced Assessment of Aortic Stenosis: Timing of AVR By Imaging <i>Dr. Jae K. Oh</i>
10:20 a.m.	Low Gradient, Severe Aortic Stenosis <i>Dr. Philippe Pibarot</i>
10:40 a.m.	Pitfalls of Assessing Mitral Stenosis: Rheumatic vs Calcific <i>Dr. Sorin V. Pislaru</i>

11:00 a.m.	Strengths and Weaknesses of Mitral Regurgitation Quantification: Is There A Difference Between Primary and Secondary? <i>Dr. Hector I. Michelena</i>
11:20 a.m.	Right Heart Valve Assessment <i>Dr. Rebecca T. Hahn</i>
11:40 a.m.	Panel Discussion – Drs. Oh, Pibarot, Pislaru, and Michelena; <i>Dr. Hahn, moderator</i>
12:15 p.m.	Lunch Program – Broadway Ballroom Act I-III Chairs: <i>Drs. Rebecca T. Hahn and Jae K. Oh</i>
1:15 p.m.	Break
VALVULAR HEART DISEASE II Moderator: <i>Dr. Sorin V. Pislaru</i>	
1:30 p.m.	2017 Appropriate Use Criteria for Multimodality Imaging in Valvular Heart Disease <i>Dr. Omar Khalique</i>
1:50 p.m.	ASE Guidelines: Basic Assessment of Prosthetic Valve Function <i>Dr. Jeremy J. Thaden</i>
2:10 p.m.	Guidelines for the Evaluation of Native and Prosthetic Aortic Regurgitation <i>Dr. Philippe Pibarot</i>
2:30 p.m.	Can We Standardize the Definition of Structural Prosthetic Valve Dysfunction <i>Dr. Rebecca T. Hahn</i>
2:50 p.m.	Panel Discussion – Drs. Khalique, Thaden, Pibarot, and Hahn; <i>Dr. Pislaru, moderator</i>
3:10 p.m.	Refreshment Break – Visit Exhibits
ASE GUIDELINES REVIEW Moderator: <i>Dr. Hector I. Michelena</i>	
3:30 p.m.	Multimodality Imaging of Diseases of the Thoracic Aorta in Adults and Aortopathy <i>Dr. Hector I. Michelena</i>
3:50 p.m.	Contrast Echocardiography With Ultrasound Enhancing Agent <i>Dr. Linda D. Gillam</i>

4:10 p.m.	Echo for Cardio-Oncology <i>Dr. Kazuaki Negishi</i>
4:30 p.m.	Panel Discussion – <i>Drs. Michelena, Gillam, and Negishi; Dr. Michelena, moderator</i>
4:45 p.m.	Refreshment Break – Visit Exhibits
5:00 p.m.	CONCURRENT SESSIONS
<p>INTERESTING VHD CASES – ARE YOU AS GOOD AS THE EXPERTS?</p> <p>Moderator: <i>Dr. Oh</i></p> <p>Case Presenters: <i>Drs. Negishi, Gillam, Pislaru, Michelena, and Aurigemma</i></p> <p>Location: Main Ballroom</p>	<p>LEARNING LAB: ACQUISITION PROTOCOLS (BASIC AND ADVANCED)</p> <p>Basic: Guidelines for performing a comprehensive transthoracic echo exam in adults: Recommendations from the ASE</p> <p>Advanced: Valvular regurgitation quantification, strain imaging, and 3-D acquisition</p> <p>Live Scanning <i>Drs. Hahn, Khalique, Hamid, and Agarwal with Columbia and Mayo Sonographers</i></p> <p>Location: Room 405-406</p>
6:00 p.m.	Adjourn
SATURDAY, MARCH 23, 2019	
6:30 a.m.	Continental Breakfast – Visit Exhibits
IMAGING FOR INTERVENTIONAL PROCEDURES <i>Moderators: Drs. Jae K. Oh and Rebecca T. Hahn</i>	
7:20 a.m.	Transcatheter Valve Interventions: Overview of the Problem and Current Solutions <i>Dr. Mackram F. Eleid</i>
7:40 a.m.	Interventional Echocardiography I: What's New in Transcatheter Aortic Valve Replacement <i>Dr. Muhamed Saric</i>

8:00 a.m.	Interventional Echocardiography II: Edge-to-Edge Mitral Repair and TMVR <i>Dr. Jeremy J. Thaden</i>
8:20 a.m.	Interventional Echocardiography III: Transcatheter Tricuspid Valve Repair, Transcatheter Tricuspid Valve Replacement and Other New Therapies <i>Dr. Rebecca T. Hahn</i>
8:40 a.m.	The Role of Multimodality Imaging in Structural Heart Disease Interventions <i>Dr. Omar K. Khalique</i>
9:00 a.m.	Prosthetic Valve Thrombus or Pannus? <i>Dr. Sorin V. Pislaru</i>
9:20 a.m.	Panel Discussion – Drs. Eleid, Saric, Thaden, Hahn, Khalique and Pislaru; Dr. Oh, moderator
9:40 a.m.	Refreshment Break – Visit Exhibits
ECHOCARDIOGRAPHY FOR HEART FAILURE Moderator: <i>Dr. Jae K. Oh</i>	
10:00 a.m.	Strain Imaging: Technique and Clinical Applications <i>Dr. James D. Thomas</i>
10:20 a.m.	ASE Diastolic Function Guidelines <i>Dr. Gerard P. Aurigemma</i>
10:40 a.m.	Diastolic Function for Complex Situations <i>Dr. Jae K. Oh</i>
11:00 a.m.	Diastolic Exercise Test <i>Dr. Jong-Won Ha</i>
11:20 a.m.	HFpEF By Echo Diastolic Function and Strain Imaging <i>Dr. James D. Thomas</i>
11:40 a.m.	CT, MRI, PET for Heart Failure <i>Dr. John P. Bois</i>
12:00 p.m.	Panel Discussion – Drs. Thomas, Aurigemma, Ha, and Bois; Dr. Oh, moderator
12:20 p.m.	Break
12:30 p.m.	Lunch Program – Broadway Ballroom Act I-III

MYOCARDIAL AND PERICARDIAL DISEASES

Moderator: *Dr. Kyle W. Klarich*

1:40 p.m.

Hypertrophic Cardiomyopathy

Dr. Kyle W. Klarich

2:00 p.m.

Infiltrative Cardiomyopathy – Recognition By Echo

Dr. Rekha Mankad

2:20 p.m.

Constrictive Pericarditis

Dr. Jae K. Oh

2:40 p.m.

Evaluation of Cardiomyopathy and Sarcoidosis – Recognition By SPECT, CT, MR

Dr. John P. Bois

3:00 p.m.

Echocardiography for LVAD and Heart Transplantation

Dr. Michael H. Picard

3:20 p.m.

Panel Discussion – *Drs. Picard, Oh, and Bois;*
Dr. Klarich, moderator

3:40 p.m.

Refreshment Break – Visit Exhibits

CORONARY ARTERY DISEASE AND EXERCISE TEST

Moderator: *Dr. Rebecca T. Hahn*

4:00 p.m.

Stress Echo: Basics and Interpretation Tips

Dr. Michael H. Picard

4:20 p.m.

Valvular Stress Testing

Dr. Nadira Hamid

4:40 p.m.

MI Complications – Case Illustrations

Dr. Brandon M. Wiley

5:00 p.m.

Panel Discussion – *Drs. Picard, Hamid, and Wiley; Dr. Hahn,*
moderator

5:15 p.m.

Contrast and Stress Echocardiography/Imaging

Drs. Ha, Klarich, Bois, Thomas, and Picard

6:15 p.m.

Adjourn



SUNDAY, MARCH 24, 2019

7:00 a.m.	Continental Breakfast – Visit Exhibits
7:30 a.m.	Interesting Cases Presentations <i>Drs. Jae K. Oh and Rebecca T. Hahn</i>
CONGENITAL HEART DISEASES Moderator: <i>Dr. Heidi M. Connolly</i>	
8:30 a.m.	Echo Evaluation of Pregnant Patients With Heart Disease <i>Dr. Heidi M. Connolly</i>
8:50 a.m.	Echocardiographic Approach to Congenital Heart Disease I: Evaluating the Unoperated Adult <i>Dr. William R. Miranda</i>
9:10 a.m.	Approach to Congenital Heart Disease II: Evaluating the Postoperative Adult <i>Dr. Heidi M. Connolly</i>
9:30 a.m.	Multimodality Imaging in CHD <i>Dr. William R. Miranda</i>
9:50 a.m.	Panel Discussion – Drs. Miranda and Khalique; Dr. Connolly, moderator
10:10 a.m.	Refreshment Break – Visit Exhibits
POINT-OF-CARE ULTRASOUND (POCUS) and POTPOURRI Moderator: <i>Dr. Rebecca T. Hahn</i>	
10:30 a.m.	Point-of-Care Echocardiography <i>Dr. Brandon M. Wiley</i>
10:50 a.m.	Cardiac Mass <i>Dr. Kyle W. Klarich</i>
11:10 a.m.	Cardiac Manifestations of Systemic Illnesses <i>Dr. Rekha Mankad</i>
11:30 a.m.	Tamponade, Pericardiocentesis, and Effusive CP <i>Dr. Jae K. Oh</i>
11:50 a.m.	Panel Discussion – Drs. Wiley, Klarich, Mankad, and Oh; Dr. Hahn, moderator
12:10 p.m.	Adjourn

REGISTRATION AND FEES

Before Friday, February 22, 2019:

- \$975** Course Registration (MD, PhD, DO, PharmD)
- \$880** Course Registration (ASE/AAE Physician Membership)
- \$550** Course Registration (Sonographers, RN)
- \$500** Course Registration (ASE/AAE Sonographer Membership)
- \$250** Course Registration (Fellows)

Scholarships Available at a reduced registration fee of \$250. Application on our Website at cveducation.mayo.edu – must be submitted by

Friday, February 1, 2019.

After Friday, February 22, 2019:

- \$1075** Course Registration (MD, PhD, DO, PharmD)
- \$980** Course Registration (ASE/AAE Physician Membership)
- \$650** Course Registration (Sonographers, RN)
- \$600** Course Registration (ASE/AAE Sonographer Membership)

Registration is only available on-line.

[CVEDUCATION.MAYO.EDU](https://cveducation.mayo.edu)

Mayo Clinic Department of Cardiovascular Medicine implemented an online conference registration system in January 2012. If this is your first time using the online system, you will need to create a profile. The attendee's email address is required upon registration. A letter of confirmation and receipt will be forwarded to this email address upon receipt of submitted registration and payment. Present this letter when checking in at the meeting registration desk.

The registration fee includes tuition, electronic course syllabus, continental breakfasts, break refreshments, and lunch.

For additional information, contact:

Cardiovascular Continuing Education
200 First Street SW – Gonda 6-138
Rochester, MN 55905

E-mail: cvcme@mayo.edu

Phone: 800-283-6296

Website: <https://cveducation.mayo.edu>

CANCELLATION POLICY

Visit the website for cancellation policy. **[CVEDUCATION.MAYO.EDU](https://cveducation.mayo.edu)**

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