COURSE DESCRIPTION

This symposium is a comprehensive review of state-of-the-art echocardiography, cardiac CT, and MRI for a wide variety of cardiovascular disorders. We will emphasize new technologies and how to use imaging information for the care of your patients. Integration of Echo, CT, and MRI and their incremental value in clinical cardiology will be highlighted. An additional focus will be on the role of 2-D and 3-D echocardiography in guiding interventional therapies.

Unique to this course is live scanning of patients with various CV disorders. This session will emphasize the importance of comprehensive echocardiographic acquisition and management decision based on echocardiographic data.

Course Highlights:
- Imaging in echo, cardiac CT and MRI
- Strain imaging
- Congenital heart disease
- 3-D TEE
- Live scanning sessions
- Hands-on scanning opportunity

There will be ample time each afternoon for the participant to enjoy a multitude of summertime activities in this picturesque and relaxing environment.

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

This conference is specifically designed for adult and congenital cardiovascular specialists, internists, anesthesiologists, critical care physicians, surgeons, and sonographers interested in the clinical application of echocardiography, cardiac CT, and MRI.

COURSE LEARNING OBJECTIVES

Upon completion of this program, attendees should be able to:

- Describe applications of echocardiography, cardiac CT, and MRI to clinical decision-making
- Integrate Doppler, 2-D, 3-D echocardiography for management of patients with valvular heart disease
- Describe how to apply information from Doppler, 2-D, and strain imaging to management of patients with cardiomyopathy and heart failure patients including heart failure with preserved EF
- Integrate information from cardiac CT and MRI to compliment echocardiography evaluation of patients with valvular disease, cardiomyopathy, and heart failure
- Apply information from echo/Doppler, cardiac CT, and MRI to management of patients with congenital heart disease
- Describe how to critically appraise imaging data for use in case-based management
In support of improving patient care, Mayo Clinic College of Medicine and Science is 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 21.75 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 21.75 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.

Other Health Care Professionals
A certificate of attendance will be provided to other health care professionals for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.

Attendees should ensure in advance that their credentialing or licensing organization accepts AMA PRA Category 1 Credits™ from the sponsor of this activity.

LOCATION

There are few places as beautiful and picturesque as the Rocky Mountains in the summertime. Vail is a unique family vacation spot and is safe and beautiful, as well as healthy, with numerous activities available. No matter what the age differences, there are hiking trails that range from very easy to difficult, museums, evening concerts in the Gerald R. Ford Amphitheater, the Vail Nature Center, and fishing trips in which children can attend. Make sure you go up the gondola. The ride is beautiful and free in the evenings after the slopes close. Another nice summer drive is over Shrine Pass to Redcliff. This road is a little rough, but the wildflowers don't get much better anywhere. The wilderness around Vail goes unappreciated.

Vail offers visitors several types of outdoor sports and activities. The Vail Valley is crisscrossed by miles out mountain bike single-track that links the valley floor with the high alpine terrain above tree line. Those who are not traveling with their own bikes can rent them at the hotel or take one of their guided bike tours. Additional summertime outdoor activities include fly fishing, golfing, hiking, zip line, rafting, kayaking, hiking, jeep tours, and horseback riding at the 4-Eagle Ranch. The 4-Eagle Ranch offers a wide variety of fun family activities centered around a real Western Ranch, including horseback rides, cattle round-ups and Western nights with dinner and a Wild West show.
LODGING ACCOMMODATIONS

To secure your room at Vail Marriott, please call 877-622-3140 or 970-476-4444 and state that you will be attending Echo Summer 2018 program.

In addition, you can book your room on-line at: https://aws.passkey.com/go/ECHOSummer2018

The room rate is $189 single/double a night. Contact the Marriott to receive pricing on condominiums which are also available. When you make your reservation, please be sure to ask about any additional fees, early departure fees, or cancellation penalties. This is a busy time in Vail, and if you intend to extend your stay or arrive early to include a family vacation, we would recommend early registration to secure the room arrangements. Hotel reservations must be made on or before Wednesday, June 20, 2018. All reservation requests will require a credit card guarantee and require a one night deposit. All no-shows are considered guaranteed bookings and will be charged two nights’ room and tax. Any early departures will forfeit all remaining room night’s room and tax charges. If the reservation is canceled after June 20, 2018, the individual will forfeit the deposit equal to one night room and tax.

TRANSPORTATION

Vail is 2-2.5 hours from Denver and can be easily reached by van or limousine service. Private transportation is usually not necessary in Vail as a free bus transportation system is operated by Vail Associates throughout the Vail Valley and extends to the Beaver Creek area.

Special discounted transportation through Colorado Mountain Express has been arranged. To make your reservation, please call 800-525-6363 and ask for the special ECHO SUMMER 2018 rate. Pricing is located on our website.

WELCOME RECEPTION – MONDAY, JULY 23 – 6:00-7:00 P.M. – POOL PATIO

Attendees and their guest(s) are cordially invited to join the course faculty for the Welcome Reception on Monday, July 23, 2018 on the pool patio. This casual reception welcomes you to Vail, Colorado, officially opens the course, and offers you the perfect opportunity to make connections with existing and new colleagues.

Additional Western Family Night Event at 4-Eagle Ranch on Tuesday, July 24. Transportation will be provided and depart the front bell stand at 5:30 p.m., however, there is an additional cost for this event. See Tuesday schedule for full description. $50 for adults; $25 for ages 4-12; under 4 free.

EDUCATIONAL GRANTS

This activity is supported in part by unrestricted educational grants from various commercial firms. At the time of printing, a complete list of supporters was not available. Appropriate acknowledgement of support will be provided at the time of the activity.

FUTURE PROGRAMS

Next year’s course will be held at the Vail Marriott in Vail, Colorado July 22-25, 2019.
Course Directors

Fletcher A. Miller, Jr., M.D., FACC, FASE, FAHA
Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine and Internal Medicine; and Past Director, Cardiovascular Ultrasound Imaging and Hemodynamic Laboratory, Mayo Clinic, Rochester, MN

Grace Lin, M.D., FACC
Assistant Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine and Internal Medicine; Director, Heart Failure Clinic, Mayo Clinic, Rochester, MN

Crystal R. Bonnichsen, M.D.
Assistant Professor of Medicine, Mayo Clinic; Senior Associate Consultant, Department of Cardiovascular Medicine, Mayo Clinic, Rochester, MN

Frank Cetta, M.D., FACC, FASE
Professor of Pediatrics and Medicine, Mayo Clinic; Past Chair, Pediatric Cardiology Division; Consultant, Department of Cardiovascular Medicine and Pediatric Cardiology, Mayo Clinic, Rochester, MN

Eric E. Williamson, M.D.
Professor of Radiology, Mayo Clinic; Consultant, Department of Radiology; Chair, Division of Cardiovascular Radiology, Mayo Clinic, Rochester, MN

Mayo Faculty

Christopher P. Appleton, M.D., FACC, FASE
Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine, Mayo Clinic, Scottsdale, AZ

Daniel D. Borgeson, M.D., FACC
Assistant Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine and Internal Medicine; Director, Mayo School of Health Sciences Echocardiography Program, Mayo Clinic, Rochester, MN

Jonathan N. Johnson, M.D.
Associate Professor of Pediatrics, Mayo Clinic; Consultant, Division of Pediatric Cardiology; Chair, Pediatric Cardiology Division, Medical Director, Pediatric Heart Failure and Pediatric Heart Transplantation, Mayo Clinic, Rochester, MN

Rekha Mankad, M.D., FACC
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, Mayo Clinic, Rochester, MN
Daniel L. McCullough, RT(R), RDCS, FASE  Clinical Sonographer and Quality Improvement, Cardiovascular Ultrasound Imaging and Hemodynamic Laboratory, Mayo Clinic, Rochester, MN

Vuyisile T. Nkomo, M.D., MPH, FACC  Associate Professor of Medicine, Mayo Clinic; Consultant, Department of Cardiovascular Medicine; Co-Director, Valvular Heart Disease Clinic, Mayo Clinic, Rochester, MN

Sabrina D. Phillips, M.D., FACC, FASE  Senior Associate Consultant, Mayo Clinic; Consultant, Department of Cardiovascular Medicine, Mayo Clinic, Jacksonville, FL

Sorin V. Pislaru, M.D., Ph.D., FACC, FASE  Professor of Medicine, Mayo Clinic; Co-Director, Cardiovascular Ultrasound Imaging and Hemodynamic Laboratory; Consultant, Department of Cardiovascular Medicine, Mayo Clinic, Rochester, MN

Ron A. Roth, RDCS  Clinical Sonographer, Cardiovascular Ultrasound Imaging and Hemodynamic Laboratory, Mayo Clinic, Rochester, MN

Phillip M. Young, M.D.  Associate Professor of Radiology, Chair, Division of Body MRI, Mayo Clinic; Consultant, Department of Radiology, Mayo Clinic, Rochester, MN

Guest Faculty
Jerry H. Greenberg, M.D., FACC  The Medical Center of Aurora, Aurora, CO and Vail Valley Medical Center, Vail, CO

Thomas Ryan, M.D., FACC, FASE  Professor of Medicine; Director, The Ohio State University Heart Center; John G. and Jeanne Bonnet McCoy Chair in Cardiovascular Medicine, Davis Heart & Lung Research Institute, Columbus, OH

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

All sessions will be held at Vail Marriott, 715 W. Lionshead Circle, Vail, CO 81657. Meeting room is in the Grand Ballroom on the lower level. Meeting site telephone: 970-476-4444/FAX: 970-476-1647.

Views expressed in this program are those of the individual speaker and do not necessarily reflect views of the Mayo Clinic.

SUNDAY, JULY 22, 2018

5:00-6:00 p.m. Registration – Grand Ballroom Foyer, Lower Level

MONDAY, JULY 23, 2018

6:30 a.m. Registration – Continental Breakfast

7:15 a.m. Welcome and Introduction
          *Drs. Grace Lin and Fletcher A. Miller, Jr.*

ISCHEMIC HEART DISEASE AND DISEASES OF THE AORTA
*Dr. Crystal R. Bonnichsen,* presiding

7:30 a.m. CT for Evaluation for Acute Chest Pain
          *Dr. Phillip M. Young*

Cases in Ischemic Heart Disease and Diseases of the Aorta
8:00 a.m. Case 1 – Stress Echo – *Dr. Ryan*
8:15 a.m. Case 2 – Stress Echo – *Dr. Ryan*
8:30 a.m. Case 3 – Stress Echo – *Dr. Ryan*
8:45 a.m. Case 4 – Aortic Dissection – *Dr. Young*
9:00 a.m. Case 5 – Loeys-Dietz Syndrome – *Dr. Bonnichsen*
9:15 a.m. Case 6 – Chest Pain in the ER (Triple Rule Out With Coronary Findings) – *Dr. Young*

9:30 a.m. Refreshment Break

CONGENITAL HEART DISEASE
*Dr. Frank Cetta,* presiding

Cases in Congenital Heart Disease
10:00 a.m. Case 7 – Adult With ASD – *Dr. Bonnichsen*
10:15 a.m. Case 8 – Coarct (Peds) – *Dr. Johnson*
10:30 a.m. Case 9 – TET With PR – *Dr. Phillips*
10:45 a.m. Case 10 – Eisenmenger – *Dr. Cetta*
11:00 a.m. Case 11 – AS With Pregnancy – *Dr. Phillips*
11:15 a.m. Case 12 – Anomalous Pulmonary Veins – *Dr. Johnson*

11:30 a.m. Rapid Fire Case Presentations – Test Your Skills
          *All Faculty*

12:00 p.m. Afternoon Free – See You at the Afternoon Workshop!

CONCURRENT WORKSHOPS
SONOGRAPHER HANDS-ON WORKSHOP - Foyer
3:00 p.m. Sonographer Workshop – Hands-on Opportunity for Sonographers in the Foyer
   Mr. Ron A. Roth and Mr. Daniel L. McCullough

3:30 p.m. Hemodynamic Workshop (Main Ballroom)
   Dr. Fletcher A. Miller, Jr.

5:30 p.m. Adjourn

6:00-7:00 p.m. Welcome Reception – Pool Patio
   Attendees and their guests invited.

TUESDAY, JULY 24, 2018

7:00 a.m. Continental Breakfast

HEART FAILURE AND INTRODUCTION TO MULTIMODALITY IMAGING
   Dr. Grace Lin, presiding

7:30 a.m. Introduction to Multimodality Imaging – Which Test for Which Patient
   Dr. Eric E. Williamson

Note for Faculty: 10 minute case including 1 ARS question followed by 5 minutes of Teaching
Points and Question/Answer during entire course.

Cases in Heart Failure
8:00 a.m. Case 1 – Dilated CM – Dr. Borgeson
8:15 a.m. Case 2 – Restrictive CM – Dr. Appleton
8:30 a.m. Case 3 – Eosinophilic Endocardial Disease – Dr. Miller
8:45 a.m. Case 4 – AL Amyloid – Dr. Lin
9:00 a.m. Case 5 – Congenitally Corrected TGA with Heart Failure – Dr. Bonnichsen
9:15 a.m. Case 6 – TTR Amyloid – Dr. Borgeson

9:30 a.m. Refreshment Break – Visit Exhibits

SYSTOLIC AND DIASTOLIC HEART FAILURE: ECHO/CT/MRI
   Dr. Fletcher A. Miller, presiding

10:00 a.m. Echo Assessment of Diastole
   Dr. Fletcher A. Miller, Jr.

Cases in Heart Failure
10:30 a.m. Case 7 – HCM Obstructive – Dr. Appleton
10:45 a.m. Case 8 – Constriction - Hemodynamics – Dr. Miller
11:00 a.m. Case 9 – Constriction – Pericardial Thickening – Dr. Williamson
11:15 a.m. Case 10 – Midventricular HCM – Dr. Lin
11:30 a.m. Case 11 – Shones with Restrictive Physiology – Dr. Phillips

11:45 a.m. Rapid Fire Case Presentations – Test Your Skills
   All Faculty

12:15 p.m. Afternoon Free – See You at the Afternoon Workshop!

4:00 p.m. WORKSHOP
Hemodynamic Workshop.  Live Case Demonstration of Strain Imaging and Diastolic Function.

Dr. Thomas Ryan and Mr. Daniel L. McCullough and Mr. Ron A. Roth

5:00 p.m.  Adjourn

5:30 p.m.  Transportation will depart the front of the hotel.

SOCIAL EVENT – Western Family Night at 4-Eagle Ranch
This event is available for an additional cost. Reservations need to be made when registering for the course. $50 for adults; $25 for ages 4-12; under 4 free.

6:00-8:30 p.m. - Western Family Night – Complimentary Transportation Provided

A wonderful evening for families and children. Cost includes:
Steak, grilled chicken, and BBQ Buffet Dinner
Live and kid friendly musical entertainment
Horse drawn wagon ride
Lawn Games: Volleyball, horseshoes, and steelhead roping
4-Eagle Trading Company: Gifts, jewelry, hats, antiques, home accents and more
Kid friendly games
Campfire and Marshmallows
Pony rides and trail rides an additional cost. Note – these end at 7:00 p.m.
WEDNESDAY, JULY 25, 2018

7:00 a.m. Continental Breakfast

VALVULAR HEART DISEASE
Dr. Fletcher A. Miller, Jr., presiding

7:30 a.m. Imaging for TAVR
Dr. Sorin V. Pislaru

Cases in Valvular Heart Disease - I
8:00 a.m. Case 1 – Aortic Stenosis (Normal EF; Normal SV; High Gradient) – Dr. Mankad
8:15 a.m. Case 2 – Mitral Regurgitation (Organic) – Dr. Nkomo
8:30 a.m. Case 3 – Aortic Regurgitation – Dr. Miller
8:45 a.m. Case 4 – Aortic Stenosis (Normal EF; Low SV; Low Gradient) – Dr. Nkomo
9:00 a.m. Case 5 – Mitral Regurgitation (Functional) – Dr. Pislaru
9:15 a.m. Case 6 – TR – Dr. Phillips

9:30 a.m. Refreshment Break – Visit Exhibits

Cases in Valvular Heart Disease - II
10:00 a.m. Case 7 – Congenital PS – Dr. Cetta
10:15 a.m. Case 8 – MitraClip – Dr. Pislaru
10:30 a.m. Case 9 – Aortic Prosthesis (Severe Mismatch) – Dr. Miller
10:45 a.m. Case 10 – Bioprosthetic Valve Thrombosis – Dr. Pislaru
11:00 a.m. Case 11 – Mitral Prosthesis (With Regurgitation; Perileak Plug) – Dr. Mankad
11:15 a.m. Case 12 – TAVR – Dr. Nkomo

11:30 a.m. Rapid Fire Case Presentations – Test Your Skills
All Faculty

12:00 p.m. Afternoon Free – See You at the Afternoon Workshop!

LIVE CASE SCANNING WORKSHOP
3:00 p.m. Live Case Demonstrations
Drs. Fletcher A. Miller, Jr. and Jerry Greenberg and Mr. Ron A. Roth and Mr. Daniel L. McCullough

5:00 p.m. Adjourn
THURSDAY, JULY 26, 2018

7:00 a.m. Continental Breakfast

3-D ECHO AND CASE COMPETITION
Dr. Grace Lin, presiding

7:30 a.m. 3-D Echo Tips and Tricks
Dr. Sorin V. Pislaru

8:00 a.m. Echo for Mechanical Complications of Myocardial Infarction
Dr. Rekha Mankad

8:30 a.m. Echo for Cardiac Masses
Dr. Grace Lin

9:00 a.m. Refreshment Break – Visit Exhibits

9:15 a.m. The Gura Imaging Cup Case Competition (each faculty one 10 minute case)
Drs. Bonnichsen, Borgeson, Cetta, Johnson, Lin, Mankad, Miller, Nkomo, Phillips, Ryan, and Young

11:45 a.m. Adjourn
Registration

Registration Fee:
Course Registration (MD, PhD, DO) $775.00
Course Registration (Fellows, Sonographers, RN) $555.00

After Monday, June 25, 2018:
Course Registration (MD, PhD, DO) $875.00
Course Registration (Fellows, Sonographers, RN) $655.00

Social Event - Tuesday, July 24, 2018
Adults (13 and over) $50.00
Children (4-12) $25.00
Children (4 and under) Free

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, on-line electronic course syllabus, continental breakfasts, break refreshments, and reception.

Although it is not Department of Cardiovascular Medicine policy to limit the number of registrants for a course, conference room facilities may necessitate closing of enrollment; therefore, early registration is advised. Enrollment for this program is limited.

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 or 507-266-6703
Website: cveducation.mayo.edu

CANCELLATION POLICY

If you cancel your participation in this course, your registration fee, less a $75 administrative fee, will be refunded when written notification is received by Department of Cardiovascular Medicine before Friday, July 6, 2018, (cvcme@mayo.edu or fax#: 507-266-7403). No refunds will be made on or after Friday, July 6, 2018. Canceled registrations are non-transferable.
Department of Cardiovascular Medicine reserves the right to cancel or postpone any course due to unforeseen circumstances. In the unlikely event Department of Cardiovascular Medicine must cancel or postpone this course, Department of Cardiovascular Medicine will refund the registration fee, but is not responsible for any related costs, charges, or expenses to participants, including fees assessed by airline/travel/lodging agencies.