FINAL PROGRAM
January 20–24, 2020
The Westin Hapuna Beach Resort
Kohala Coast, Big Island, HI

Course Director
Neil J. Weissman, MD, FASE
Past President, ASE
MedStar Health Research Institute
Washington, DC

Co-Director
James D. Thomas, MD, FASE
Past President, ASE
Northwestern Medicine
Chicago, IL

Jointly provided by ASE and the ASE Foundation, and held in cooperation with the Canadian Society of Echocardiography.
Welcome Message

On behalf of ASE, welcome to the Big Island! Whether you are a regular attendee or a first-time visitor, we are certain you will enjoy the experience and come away a better echocardiographer and clinician. Throughout this five-day meeting, you will learn state-of-the-art echocardiography and how it is applied to clinical decision-making. The international faculty for this meeting are world-class in terms of expertise and teaching prowess. We will start the day early and pack every morning with lectures, cases, and interactive sessions. Mid-afternoons will be free to enjoy the island with friends and family. On Monday through Thursday, we will reconvene in the late afternoon for workshops, cases, and a poster session, including a unique live demonstration of contrast perfusion on Tuesday. But rest assured, we will always finish in time to enjoy the spectacular Hawaiian sunset!

Of the many special events you won’t want to miss are the Welcome Reception on Monday evening featuring unique local cuisine, libations, and music, and Wednesday’s Science at Sunset Reception and Poster Session featuring original echo research. These events provide an opportunity to interact with faculty, colleagues, and exhibitors in a casual setting.

Echo Hawaii is much more than education, after all you are in Hawaii! The Big Island has something for everyone. Enjoy the waves at the world-class Hapuna Beach, or try snorkeling or scuba diving along the unique volcanic reefs. You may even want to head down the coast for surfing lessons irrespective of your level of experience. Explore the rain forest just 20 miles north of the Westin Hapuna Beach Resort.

For the more adventurous, take a walk on the wild side in Volcano National Park where you can hike right up to rivers of lava (with appropriate shoes of course). If you are astronomically inclined, be sure to tour the top of The Big Island’s 14,000-foot Mauna Kea volcano for an evening of unmatched stargazing. Not feeling so adventurous? You can always just lay on the beach or by the pool and be glad you’re not shoveling snow! The resort features 32 ocean front acres! On the Kohala Coast, there is sunshine almost all year round with an average temperature of 78 degrees in January. In addition, Echo Hawaii takes place during peak humpback whale watching season, something you won’t want to miss. You will also find dozens of excellent restaurants close-by for every budget and taste.

Enjoy your time and thank you for your participation at Echo Hawaii 2020!

Aloha!

Neil J. Weissman, MD, FASE
Course Director
Past President, ASE
MedStar Health Research Institute
Washington, DC

James D. Thomas, MD, FASE
Course Co-Director
Past President, ASE
Northwestern Medicine
Chicago, IL
**Invited Faculty**

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Position</th>
<th>Institution</th>
<th>Location</th>
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<tbody>
<tr>
<td>Bonita A. Anderson, MAppSc, DMU, AMS, ACS, FASE</td>
<td></td>
<td>Prince Charles Hospital</td>
<td>Queensland, Australia</td>
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<tr>
<td>Federico M. Asch, MD, FASE</td>
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<td>MedStar Health Research Institute</td>
<td>Washington, DC</td>
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<td>Harald Becher, MD</td>
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<td>University of Alberta</td>
<td>Alberta, Canada</td>
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<tr>
<td>Craig S. Broberg, MD</td>
<td></td>
<td>Oregon Health &amp; Science University</td>
<td>Portland, OR</td>
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<tr>
<td>Anthony N. DeMaria, MD, FASE</td>
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<td>Past President, ASE</td>
<td>University of California San Diego San Diego, CA</td>
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<tr>
<td>Rebecca T. Hahn, MD, FASE</td>
<td></td>
<td>Columbia University Medical Center</td>
<td>New York, NY</td>
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<td>James Hodovan, MS, RDCS (AE, PE), CVT</td>
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<td>Oregon Health &amp; Science University</td>
<td>Portland, OR</td>
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<td>Julie Humphries, MBBS, FRACP, FASE</td>
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<td>Genesis Care</td>
<td>Queensland, Australia</td>
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<td>Amer M. Johri, MD, FASE</td>
<td></td>
<td>Queen's University</td>
<td>Ontario, Canada</td>
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<tr>
<td>Jonathan R. Lindner, MD, FASE</td>
<td></td>
<td>Immediate Past President, ASE</td>
<td>Oregon Health &amp; Science University Portland, OR</td>
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<tr>
<td>Satoshi Nakatani, MD, PhD</td>
<td></td>
<td>President, Japanese Society of Echocardiography</td>
<td>Osaka University Osaka, Japan</td>
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<tr>
<td>Jae K. Oh, MD, FASE</td>
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<td>Mayo Clinic</td>
<td>Rochester, MN</td>
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<tr>
<td>April Peterson, RDCS</td>
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<td>Oregon Health &amp; Science University</td>
<td>Portland, OR</td>
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<td>Dermot Phelan, MD, PhD, FASE</td>
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<td>Sanger Heart &amp; Vascular Institute</td>
<td>Charlotte, NC</td>
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<td>Vera H. Rigolin, MD, FASE</td>
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<td>Northwestern Medicine Chicago, IL</td>
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<td>Anthony J. Sanfilippo, MD</td>
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<td>Kingston General Hospital</td>
<td>Ontario, Canada</td>
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<td>Gregory M. Scalia, MBBS, FASE</td>
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<td>Prince Charles Hospital</td>
<td>Queensland, Australia</td>
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<td>Madhav Swaminathan, MD, FASE</td>
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<td>President, ASE</td>
<td>Duke University Medical Center Durham, NC</td>
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<tr>
<td>Karen G. Zimmerman, BS, ACS, RDCS (AE, PE), RVT, FASE</td>
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<td>Past President, ASE</td>
<td>Henry Ford Health System Detroit, MI</td>
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Overview of Echo Hawaii

Echo Hawaii presents the latest information on established and emerging cardiovascular ultrasound technologies. Expert U.S. and international faculty discuss state-of-the-art technologies with a particular focus on how they can be effectively applied in the clinical setting. Case-based approaches are used to discuss new and established applications of echocardiography for diagnosis and guiding management in patients with a broad array of cardiovascular conditions. Topics include: advanced assessment of systolic and diastolic function including strain, 3D/4D imaging, adult congenital heart disease and contemporary approaches to valve disease, guidance of interventional procedures, contrast echocardiography, ischemic heart disease, and aortic pathology. When appropriate, multimodality imaging is also covered. Special sessions include workshops on echo quantification, contrast, 3D visualization, and strain.

Target Audience

This course is designed for adult cardiologists, physician assistants, critical care specialists, cardiovascular surgeons, cardiovascular anesthesiologists, fellows in training, cardiovascular sonographers, internists, veterinarians, and intensive care specialists with special interest in echocardiography.

Learning Objectives

Upon completion of this program, participants will be better able to:

• Integrate echocardiographic information in clinical decision making.
• Assess ventricular and valvular function using Doppler hemodynamics.
• Describe Doppler assessment of diastolic function/dysfunction.
• Explain new advances in the echocardiographic assessment of left and right ventricular function.
• Integrate echocardiographic assessment of cardiomyopathies and systemic diseases in patient management.
• Define clinical uses of TEE and 3D echocardiography.
• Recognize how echocardiography is used to help manage patients with ischemic heart disease.
• Recognize the role of echo contrast and be able to incorporate its use in the echo laboratory.
• Integrate echo information in the management of complex valvular heart disease.
• Explain the role of echocardiography in the perioperative and critical care environment.

Disclaimer

The information provided during this CME activity is for continuing education purposes only and is not meant to substitute for the independent medical judgment of a healthcare provider relative to diagnostic and treatment options of a specific patient’s condition.

Accreditation and Designation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Society of Echocardiography and the American Society of Echocardiography Foundation.

The American Society of Echocardiography is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

ASE designates this live activity for a maximum of 34.5 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 enables the participant to earn up to 34.5 MOC points in the American Board of Internal Medicine’s (ABIM) Maintenance of Certification (MOC) program and/or The American Board of Anesthesiology® (ABA) Maintenance of Certification in Anesthesiology Program® or MOCA®. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is ASE’s responsibility to submit participant completion information to ACCME for the purpose of granting ABA MOCA and/or ABIM MOC points.

Maintenance of Certification in Anesthesiology Program® and MOCA® are registered certification marks of the American Board of Anesthesiology®.

MOCA 2.0® is a trademark of the American Board of Anesthesiology®.
Daily breakdown of CME credits:

Monday, January 20, 2020 = 7.25 hours
Tuesday, January 21, 2020 = 7.5 hours
Wednesday, January 22, 2020 = 7.25 hours
Thursday, January 23, 2020 = 7.5 hours
Friday, January 24, 2020 = 5.0 hours

The ACCME and the European Board of Accreditation in Cardiology (EBAC) recognize each other’s accreditation systems as substantially equivalent. To obtain EBAC credit for participation in this activity, submit evidence of participation directly to EBAC (www.ebac-cme.org). The European Union of Medical Specialists (UEMS)-European Accreditation Council for Continuing Medical Education (EACCME) has an agreement of mutual recognition of continuing medical education (CME) credit with the American Medical Association (AMA). European physicians interested in converting AMA PRA Category 1 Credit™ into European CME credit (ECMEC) should contact the UEMS (www.uems.eu).

ARDMS, CCI, and Sonography Canada recognize ASE’s certificates and have agreed to honor the credit hours toward their registry requirements for sonographers.

All or a portion of this educational activity may meet the CME requirement for IAC Echocardiography accreditation.

This activity is eligible for Section 1 credits in the Royal College of Physicians and Surgeons of Canada’s Maintenance of Certification (MOC) Program. Participants must log into MAINPORT to claim this activity.

Physician Assistants may claim credit for completing this activity. NCCPA accepts AMA PRA Category 1 Credits™ from organizations accredited by ACCME or a recognized state medical society.

Disclosure

ASE is committed to ensuring that its educational mission and all educational programs are not influenced by the special interests of any corporation or individual, and its mandate is to retain only those speakers whose financial interests can be effectively resolved to maintain the goals and educational integrity of the program. While a monetary or professional affiliation with a corporation does not necessarily influence a speaker’s presentation, the Essential Areas and Policies of the ACCME require that any relationships that could possibly conflict with the educational value of the program be resolved prior to the educational session and disclosed to the audience. In accordance with these policies, ASE implemented mechanisms prior to the planning and implementation of this CME activity to identify and resolve conflicts of interest for all individuals in a position to control content. Disclosure information is referenced and can be found on page 14 of this program.

Commercial Support Disclosure Statement

Educational Grants: This activity is supported in part by unrestricted educational grants from GE Healthcare, Lantheus Medical Imaging, Inc., and Medtronic.

In-Kind Donations: This activity is supported in part by in-kind donations from GE Healthcare, Oregon Health & Science University, and Philips.

How to Obtain Credit

To claim your CME for Echo Hawaii, please follow the steps below using your Mozilla Firefox, Google Chrome, or Safari browser. Internet Explorer will not work. The deadline to claim credit is February 28, 2020.

ASE Members:

1. Go to ASEcho.org and log in to the Member Portal with your username (email) and password.
2. Click on Education then ASEUniversity (This will take you directly to your ASEUniversity member profile).
3. Proceed to the instructions below under “To Claim Credit.”

Nonmembers:

1. Go to ASEUniversity.org.
2. Log into your existing account using the red “Log In” button on the top right or create account.
3. Click on “My Account” on the top right.
4. Proceed to the instructions below under “To Claim Credit.”

To Claim Credit:

1. Click “Add Access Code” on the left sidebar and select “Click here to redeem it.”
2. Enter the code “Hawaii2020” and click the “Redeem Code” button.
3. Once verified, click “CE Information” tab and “Take Exam” button to claim your CME credit. CME credits are not earned until the entire evaluation has been completed.
4. Remember to enter your ABIM, ABA, ARDMS, or CCI number and birthdate if you choose to have credits for this meeting submitted to your associated board. There is a space for this information on the first page of the evaluation.
5. Once you have completed the evaluation, your certificate will be available for immediate download and can also be found under “My Account” in the “My Transcripts” section.
Program Information
Attendee Information & Regulations

Registration Location and Hours
The ASE Registration desk is located outside the Hapuna Ballroom. ASE staff will be happy to renew your ASE membership or discuss the wide variety of educational products that are available for a 20% discount during the course. The Registration desk will be staffed during the following hours:

Sunday, January 19, 2020 .......................... 4:00 – 6:00 PM
Monday, January 20, 2020, through Friday, January 24, 2020, the registration desk will be open during all session hours.

Food Functions
ASE will provide breakfast and coffee breaks for registered attendees in the Hau/Lehua room from 6:30 AM until the start of the session each morning.

Please join us for a Welcome Reception on Monday evening from 6:30 – 7:30 PM in the Courtyard outside of Hapuna Ballroom and enjoy unique local cuisine, refreshments, and music. ASE will also hold a Science at Sunset Reception on Wednesday, January 22 at 5:00 PM featuring original echo research.

Please refer to the program schedule for the times of the daily coffee breaks. The Westin Hapuna Beach Resort offers guests a variety of dining options. Please see page 7 for more details.

Internet Access
Attendees of the course receive complimentary internet in their guest rooms at the Westin Hapuna Beach Resort and Mauna Kea hotels. There is WiFi access in the meeting room.

Safety
Audience seating is on a first-come, first-served basis. According to fire code, a session must be closed if the room fills to capacity. Inappropriate behavior or undesirable conduct, including, but not limited to, verbal or physical abuse, whether threatened or performed, will not be permitted or tolerated. You must wear your name badge at all times when attending the session or events.

Photography/AV Policy
No person may record any portion of the 30th Annual Echo Hawaii, either by video, still or digital photography, audio or any other recording or reproduction mechanism. This includes recording of presentations and supporting audio visual materials and of poster presentations and supporting poster materials.

Taking photos of, or recording the content of, presentation slides is also prohibited and is considered intellectual piracy. Attendees who ignore this policy will be asked to leave the educational session and are at risk of losing their name badge and attendance privileges. Photographs taken for the purpose of sharing on social media is allowed, but should avoid showing presentation slides. Please use #EchoHawaii when posting on social media.

ASE reserves the rights to all recordings or reproductions at ASE meetings. Please be aware that during the 30th Annual Echo Hawaii, attendees, vendors, guests and exhibitors may be photographed or videotaped by ASE staff capturing the event. Some of these photographs or videos may be displayed by ASE in future publications or other materials. By virtue of your attendance, you agree to allow ASE to use photographs of you in its promotional materials.

Child Care Services
Guests of The Westin Hapuna and Mauna Kea Club can take advantage of child care services through the Westin Family Kid’s Club. Please note, Kids Club is open to children 5 to 12 years of age and all services will be offered at The Westin Hapuna (Wellness Center, South Tower on Level 4). Reservations are required 24 hours in advance. For more information or to make reservations, call 808-880-3335.

Half Day: $62.50/child; Morning option: 9:00 AM – 12:00 PM; Afternoon option: 1:00 – 4:00 PM. Both options include a snack.

Full Day: $125/child (includes snacks and lunch); Meals will be provided at Naupaka Beach Grill

Activities include: games, puzzles, Lego wall, reading, and other club room activities; cave and tide pools exploration, bamboo fishing, ukulele lessons, Hawaiian crafts, and more. For childcare hours outside of those listed above, we recommend contacting Malihini Keiki Care. Please visit MKCare.com for more information on their services.

*Disclaimer: The Westin Family Kid’s Club and Malihini Keiki Care have been recommended to ASE by The Westin Hapuna Beach Resort. This is a service between the parent(s) and the Westin Family Kid’s Club/Malihini Keiki Care. ASE is not responsible for childcare costs, staff, or activities provided.

Mobile Device Use
We encourage you to use your mobile device to download the ASE Courses app. It gives you access to the entire meeting program at your fingertips. You can also use the app to ask questions during the sessions you attend. Search “ASE Courses” in the Google Play and Apple Stores to download. Please remember to turn your mobile device to silent or vibrate mode.

Download the ASE Live Courses app for Echo Hawaii information at your fingertips
The Big Island, Hawaii
You will have some free time to enjoy the many sights and activities available on the Big Island such as snorkeling, whale watching, visiting the Volcano National Park, or driving to the summit of the tallest mountain in the world when measured from its oceanic base, Mauna Kea. Nestled amidst the bluffs above the white sands of the sunny Kohala Coast on the Big Island, the Westin Hapuna and Mauna Kea Beach Hotels offer the perfect spot to unplug, unwind, and explore the ocean with family and friends. Visit the concierge at either hotel for a full list of amenities and island offerings.

Westin Hapuna and Mauna Kea Beach Hotels
The Westin Hapuna Beach and Mauna Kea Beach Hotels are happy to extend these complimentary services for all ASE attendees:

- Complimentary turndown service.
- Complimentary self-parking for registered attendees with a room reservation at either Westin Hapuna or Mauna Kea.
- Complimentary access to the state-of-the-art fitness center.

Westin Hapuna Beach Resort Dining Options

- Ikena Landing: Overlooking Hapuna Beach and the blue Pacific, this casual open-air restaurant offers a thoughtful mix of healthy, creative items along with familiar favorites at the daily breakfast buffet and an extensive a la carte menu. Open daily 6:30 – 10:30 AM. Casual Attire.
- Meridia: Mediterranean-inspired cuisine is created with locally sourced ingredients and infused with the island’s rich bounty. Serving dinner. Reservations required. Smart Resort Casual Attire.
- Naupaka Beach Grill: Providing a casual setting within steps of the beach and family pool for salads, sandwiches, and pupus. Serving lunch and dinner. Resort Attire.
- Piko: This centrally located barista bar features 100% Kona coffee, morning lattes, refreshing libations, light snacks, and fresh grab-and-go options. Serving breakfast, lunch, and dinner. Resort Casual Attire.

Mauna Kea Beach Hotel Dining Options

- Copper Bar: Designed to embrace its storied past while launching modern traditions for a dynamic future, it’s one of Kohala Coast’s favorite dining and gathering places. Tapas and entrees crafted with local ingredients, and handmade cocktails perfectly paired with enduring panoramic views at lunch, dinner and anytime in between. Nightly music with hula from 5:30 – 8:30 PM is a Mauna Kea tradition. Casual Resort Attire.
- Hau Tree: Step off the beach and into the open-air, Hau Tree restaurant & bar for a casual dining menu which includes sandwiches, wraps, hamburgers, salads, ice cream, our famous Ovaltine Froth, or a cooling Fredrico cocktail. Sit-down lunches and relaxed dinners are also offered, along with a gazebo-style bar perfectly situated for enjoying cocktails while anticipating the sunset’s elusive green flash. Casual Resort Attire.

- Manta: Begin your day in our open-air bay-view restaurant, home to a legendary breakfast buffet with made-to-order waffles and omelets, tropical fruits and juices, whole-grain cereals and tasty pastries. As the Big Island of Hawaii sun sets, the ambience changes as the Bar & Lounge come to life and chefs prepare culinary delights in Manta’s exhibition kitchen. With live, local music and an award-winning wine list a visit to Manta will enhance any evening. Resort Attire (Breakfast: Casual Resort Attire).
- Number 3: The clubhouse Number 3 restaurant offers casual island cuisine in a relaxed atmosphere adjacent to the first tee. Golfers, families, or anyone seeking a delicious lunch can enjoy everything from grass-fed burgers, fish tacos, and classic Crab Louis to cold beer on tap, frosty fruit smoothies, and signature Mauna Kea cocktails. Casual Resort Attire.

Don’t forget to ask about the Clambake and Mauna Kea Luau (both require reservations), which promise an evening of wonderful food and entertainment.

Networking and Social Opportunities

Sunrise Yoga Sessions: Get your body moving and keep your energy levels up, all while taking in a breathtaking Hawaiian sunrise! ASE attendees are invited to try sunrise yoga sessions on Tuesday and Thursday from 6:00 – 6:45 AM. Reserve your space at the ASE Registration Desk.

Welcome Reception: ASE cordially invites you and your guests to the 30th Annual Echo Hawaii Welcome Reception on Monday evening, January 20, 2020, from 6:30 – 7:30 PM in the hotel courtyard, featuring Hawaiian hors d’oeuvres, beverages, and local music. This casual reception welcomes you to paradise and offers you the perfect opportunity to meet faculty, friends, and colleagues.

Science at Sunset Reception and Poster Session: Attendees are invited to this year’s poster presentation of original research on Wednesday evening, January 22, 2020, from 5:00 – 6:00 PM, featuring hors d’oeuvres and beverages. Posters will be displayed in the meeting area on the balcony overlooking the Pacific Ocean. This reception gives the presenters the opportunity to briefly present the key findings of their work and allows for open discussion. Please refer to pages 10–11 for the Echo Hawaii 2020 poster finalists.
# Schedule of Events

## Sunday, January 19, 2020

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<tr>
<th>Time</th>
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<tr>
<td>4:00 – 6:00 PM</td>
<td>Registration</td>
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## Monday, January 20, 2020

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<tr>
<td>6:30 AM</td>
<td>Registration, Breakfast, and Visit Exhibits</td>
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<td>Outside Hapuna Ballroom and Hau/Lehua Room</td>
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**LV/RV Function, Strain, and Contrast**

- **Hapuna Ballroom**
  - **Moderator:** J. Thomas
  - **Welcome and Course Orientation**
    - J. Thomas, N. Weissman
  - **Welcome from ASE President**
    - M. Swaminathan
  - **Physiology of Systole: What Are We Really Trying to Measure?**
    - A. Sanfilippo
  - **Assessment of Systolic Function: Do I Really Need to Use 3D?**
    - V. Rigolin
  - **Introduction to Strain Imaging: How Does Global Longitudinal Strain Add to Ejection Fraction**
    - G. Scalia
  - **When Do We Need Contrast? How Can It Be Implemented?**
    - A. DeMaria
  - **Cases in Systolic Function: Assessing the Subtleties**
    - A. DeMaria, V. Rigolin, A. Sanfilippo, G. Scalia
  - **Panel with Audience Response**

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<th>Time</th>
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<tr>
<td>9:00 AM</td>
<td>Refreshment Break and Visit Exhibits</td>
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## Tuesday, January 21, 2020

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**Coronary Artery Disease and Advanced Mechanics**

- **Hapuna Ballroom**
  - **Moderator:** J. Lindner
  - **A Potpourri of Fascinating Cases to Learn From**
    - H. Becher, A. DeMaria, J. Lindner, S. Nakatani
  - **Stress Echo: Improving Your Batting Average With Contrast and Other Tips**
    - H. Becher
  - **Chest Pain in the Emergency Room: Which Test for Which Patient?**
    - J. Lindner
  - **Complications of Myocardial Infarction: Echo Has the Answer!**
    - G. Scalia
  - **Echo Beyond 2020: Advanced Applications of Contrast: Perfusion and Therapeutics**
    - J. Lindner
  - **Cases in Coronary Artery Disease: Tips from the Experts**
    - H. Becher, J. Lindner, G. Scalia
  - **Panel with Audience Response**

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<th>Time</th>
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<tr>
<td>11:00 AM</td>
<td>Assessment of Atrial Function: What is the Answer?</td>
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## Wednesday, January 22, 2020

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<td>6:30 AM</td>
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**Valvular Disease & the Heart Team**

- **Hapuna Ballroom**
  - **Moderator:** N. Weissman
  - **A Potpourri of Fascinating Cases to Learn From**
    - R. Hahn, V. Rigolin, G. Scalia
  - **Quantification of Stenosis: Avoid These Pitfalls**
    - V. Rigolin
  - **TAVR 2020: Where Have We Come From and Where Are We Going?**
    - G. Scalia, K. Zimmerman

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## Thursday, January 23, 2020

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<tr>
<td>8:40 AM</td>
<td>Valvular Regurgitation: How Can We Be More Accurate? A. Sanfilippo</td>
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<tr>
<td>9:00 AM</td>
<td>Starting an Interventional Echo Program: Training, Technique, and Economics F. Asch</td>
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<tr>
<td>9:20 AM</td>
<td>Sitting in with the Heart Valve Team: Cases to Learn From F. Asch, V. Rigolin, A. Sanfilippo, G. Scalia, K. Zimmerman</td>
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<tr>
<td>9:40 AM</td>
<td>Panel with Audience Response</td>
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<tr>
<td>10:00 AM</td>
<td>Refreshment Break and Visit Exhibits Hau/Lehua Room</td>
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<tr>
<td>10:20 AM</td>
<td>3D Assessment of the Cardiac Valves: Learn the Views and the Anatomy R. Hahn</td>
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<tr>
<td>11:00 AM</td>
<td>Crazy Things in the Cath Lab: Plugs, Valve in Valve, Occluders G. Scalia</td>
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<tr>
<td>11:20 AM</td>
<td>Echo Beyond 2020: The Brave New World of Percutaneous Treatment of the Tricuspid Valve R. Hahn</td>
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<tr>
<td>11:40 AM</td>
<td>Sitting in with the Heart Valve Team: Mitral and Tricuspid Cases F. Asch, R. Hahn, G. Scalia, J. Thomas</td>
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<td>12:00 PM</td>
<td>Panel with Audience Response</td>
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## Perioperative and Critical Care Echo

### Session

- **Moderator:** J. Thomas

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>7:00 AM</td>
<td>A Potpourri of Fascinating Cases to Learn From D. Phelan, C. Broberg, A. Johri, M. Swaminathan</td>
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<tr>
<td>8:00 AM</td>
<td>A Systematic Approach to Multi-Valve Disease J. Thomas</td>
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<td>8:20 AM</td>
<td>A Practical Approach to Prosthetic Valves V. Rigolin</td>
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<tr>
<td>8:40 AM</td>
<td>Exercise Echo and Strain to Time Intervention in Valvular Heart Disease J. Oh</td>
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<tr>
<td>9:00 AM</td>
<td>Use of Echo to Manage Endocarditis D. Phelan</td>
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<td>9:20 AM</td>
<td>Sitting in with the Heart Valve Team: One Last Hurrah J. Oh, D. Phelan, V. Rigolin, J. Thomas</td>
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<td>10:00 AM</td>
<td>Refreshment Break and Visit Exhibits Hau/Lehua Room</td>
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## Friday, January 24, 2020

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>7:00 AM</td>
<td>A Potpourri of Fascinating Cases to Learn From B. Anderson, F. Asch, J. Oh, N. Weissman</td>
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<tr>
<td>8:00 AM</td>
<td>Cardio-Oncology: An Integrative Approach H. Becher</td>
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<td>8:20 AM</td>
<td>Multimodality Assessment of Cardiac Masses B. Anderson, J. Humphries</td>
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<td>8:40 AM</td>
<td>Amyloidosis: Diagnosis and (Finally) Treatment D. Phelan</td>
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<tr>
<td>9:00 AM</td>
<td>Diseases of the Aorta: How to Deal with Different Multi-Modality Measurements F. Asch</td>
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<td>9:20 AM</td>
<td>Puzzling Cases to Learn From: Read with the Experts B. Anderson, F. Asch, H. Becher, J. Humphries, D. Phelan</td>
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<tr>
<td>10:20 AM</td>
<td>ECMO, VADs, and Transplant: How is Echo Used? M. Swaminathan</td>
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<tr>
<td>10:40 AM</td>
<td>Carcinoid and Other Valvulopathies C. Broberg</td>
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<tr>
<td>11:00 AM</td>
<td>Pericardial Disease: Never Miss Constriction Again J. Oh</td>
</tr>
<tr>
<td>11:20 AM</td>
<td>Think Quick: Make the Diagnosis with Just One Clip B. Anderson</td>
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<tr>
<td>11:40 AM</td>
<td>Panel with Audience Response</td>
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<tr>
<td>12:00 PM</td>
<td>Mai Tai Finale and Aloha Until 2021 J. Thomas, N. Weissman</td>
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Science at Sunset
Reception and Poster Presentations
Wednesday, January 22, 2020
5:00 – 6:00 PM
Located in The Westin Hapuna Breezeway

P1-01: Importance of 3D Stress Electro-Echocardiography Spiroergometry Couch in an Ambulant Non-Invasive Cardiac Investigation of Ischemic Heart Disease
Jan Claessens, MD, Maria Claessens, RDMS
Medical Centre, Kloppend Hart Antwerpen-Essen-Schilde, Antwerp, Belgium
Presented by: Jan Claessens, MD, Maria Claessens, RDMS

P1-02: Sex Differences in Ventricular-Vascular Interactions Associated with Aerobic Capacity
Peter M. Mittermaier¹, Garth R. Lester¹, Michael E. Bodner, PhD¹, Anita T. Cote, PhD¹,²
¹Trinity Western University, Langley, BC, Canada; ²University of British Columbia, Vancouver, BC, Canada
Presented By: Anita Cote, PhD

P1-03: Echocardiographic Assessment of Vorinostat Therapy for Hypoxia Induced Pulmonary Hypertension in Neonatal Calves
Tanya J. Applegate, DVM, MS¹, Greta M. Krasiur, DVM, MS²,³, June A. Boon, MS¹, Hui Zhang, MD, PhD⁴, Timothy N. Holt, DVM⁴, Benjamin A. Abrams, MD⁴, Daniel L. Gustafson, PhD⁴, Karsten Bartels, MD, PhD⁴, Franklyn B. Garry, DVM, MS⁴, Kurt R. Stenmark, MD⁴, R. Dale Brown, PhD⁴
¹Colorado State University College of Veterinary Medicine and Biomedical Sciences, Clinical Sciences, Fort Collins, Colorado, USA; ²South Dakota State University, Veterinary and Biomedical Sciences, Brookings, South Dakota, USA; ³University of Colorado Denver - Anschutz Medical Campus, Pediatrics, Aurora, Colorado, USA; ⁴University of Colorado Denver - Anschutz Medical Campus, Anesthesiology, Aurora, Colorado, USA;
²Colorado State University College of Veterinary Medicine and Biomedical Sciences, Flint Animal Cancer Center, Fort Collins, Colorado, USA
Presented By: Tanya J. Applegate, DVM, MS

P1-04: Stress Echocardiography and Target Heart Rates: What’s the Real Goal?
Merrill Stewart, MD, Sangeeta Shah, MD
Ochsner Heart and Vascular Institute, Ochsner Clinical School, The University of Queensland School of Medicine, New Orleans, Louisiana, USA
Presented By: Merrill Stewart, MD

P1-06: Clinical Characteristics of Mid-Ventricular Hypertrophy with or without Significant Obstruction
Ik sung Cho, MD, Hoyoun Won, MD, PhD, Seung Yong Shin, MD, PhD, Wang-Soo Lee, MD, PhD, Kwang Je Lee, MD, PhD, Sang-Wook Kim, MD, PhD, Tae Ho Kim, MD, PhD, Chee Jeong Kim, MD, PhD
Division of Cardiology, Heart Research Institute, College of Medicine, Chung-Ang University, Seoul, Korea, Republic of
Presented By: Ik sung Cho, MD

P1-07: Contrast Echocardiography, Does Timing Matter?
Joseph Prano, DO, MPH¹, Sunilkumar Rao, DO², Kamran Shaikh, MD³
¹Ascension Genesys, Grand Blanc, Michigan, USA; ²Ascension Genesys, Grand Blanc, Michigan, USA; ³Ascension Seton Medical Center, Austin, Texas, USA
Presented By: Joseph Prano, DO, MPH

P1-08: Pilot Study: Surveying Satisfaction and Retention Trends for Cardiovascular Sonographers
Ashley Cox, MS, RVT, RDCS
Oregon Institute of Technology, Klamath Falls, Oregon, USA
Presented By: Ashley Cox, MS, RVT, RDCS

P1-09: Carotid Plaque Tissue Composition is Associated with Intraplaque Neovascularization in Patients with Acute Coronary Syndrome
Laura E. Mantella, MSc¹, Kayla N. Colledanchise, MSc¹, Steven B. Feinstein, MD², Marie-France Hétu, PhD³, Amer M. Johri, MSc, MD⁴,³
¹Department of Biomedical and Molecular Sciences, Queen’s University, Kingston, ON, Canada; ²Department of Medicine, Rush University Medical Center, Chicago, IL, USA; ³Department of Medicine, Cardiovascular Imaging Network at Queen’s (CINQ), Queen’s University, Kingston Health Sciences Centre, Kingston, ON, Canada
Presented By: Laura E. Mantella, MSc

P1-10: Artificial Intelligence-Based Assessment of Indices of Right Ventricular Function
Andaleeb A. Ahmed, MD, MPH¹, Ruma Bose, MD,² Rachel Liu, MD,³ Andew Maslow, MD,⁴ Vidisha Manvah,⁵ Yannick Berabeau⁶, Robina Matyal, MD⁷, Feroze Mahmood, MD⁸, Kamal Khabbaz, MD⁹
¹Lahey Hospital and Medical Center, Burlington, MA, USA; ²Beth Israel Deaconess Medical Center, Boston, MA, USA; ³Peking University People’s Hospital, Beijing, China; ⁴Rhode Island Hospital, Providence, RI, USA; ⁵Northwood High School, Irvine, CA, USA
Presented By: Chi Andaleeb A. Ahmed MD, MPH
P1-11: Impact of the Severity of Valvular Regurgitation on Stroke in Infective Endocarditis
Tomoki Hattori, MD, Ruka Yoshida, MD, Hiroko Ishigami, Kohei Inukai, MD, Hidenori Morisaki, MD, Miku Hirose, MD, Takumi Hayashi, MD, Shimpei Kuno, MD, Satoya Yoshida, MD, Yuki Matsuwaki, MD, Masaki Takenaka, MD, Mayuko Maeda, MD, Yutaka Aoyama, MD, PhD, Yasuhiro Ogura, MD, PhD, Hirohiko Suzuki, MD PhD, Kazumasa Unno, MD, PhD, Yukihiko Yoshida, MD, PhD
Department of Cardiology, Japanese Red Cross Society Nagoya Daini Hospital, Nagoya, Japan
Presented By: Tomoki Hattori, MD

P1-12: Marathon Improved Central Blood Pressure, Augmentation Index, and Endothelial Progenitor Cells
Jae Hyoong Park, MD, PhD, Do-sun Lim, MD, PhD
Korea University, Anam Hospital, Seoul, Korea, Republic of
Presented By: Jae Hyoong Park, MD, PhD

P1-13: Mitral Valve Prosthesis Time Velocity Index Ratio Following Bioprosthetic Mitral Valve-Valve Placement
Katherine Lau, MBBS1,2, Mohsen Habibian, MD1,2, Karen Koitka, MBBS1,2, Aaron Lin, MBChB1,2, Darren Walters, MBBS, MPhil1,2, Gregory Scalia, MBBS, MMedSc1, David Platts, MBBS MD1,2, Darryl Burstow, MBBS1,2
1Department of Cardiology, The Prince Charles Hospital, Brisbane, Australia; 2University of Queensland, Brisbane, Australia
Presented By: Katherine Lau, MBBS

P1-14: Left Atrial Function – A Comparative Study of Bicuspid and Tricuspid Aortic Stenosis
Johan O. Wedin, MD1, Ola Vedin, MD, PhD2, Elisabeth Ståhle, MD, PhD1, Karl-Henrik Grinnemo, MD, PhD1
1Department of Surgical Sciences, Cardiothoracic Surgery, Uppsala University Hospital, Uppsala, Sweden; 2Department of Medical Sciences, Cardiology and Clinical Physiology, Uppsala University Hospital, Uppsala, Sweden
Presented By: Johan O. Wedin, MD

P1-15: Characteristics of Left Atrial Mechanical Function According to Various Intra-Cardiac Structures
Chi Young Shim, MD, PhD1, Iksung Cho, MD1, Jiwon Seo, MD1, Jah-Yeon Choi, MD, PhD2, Geu-Ru Hong, MD, PhD1, Jong-Won Ha, MD, PhD1
1Division of Cardiology, Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, Korea, Republic of; 2Division of Cardiology, Korea University Guro Hospital, Seoul, Korea, Republic of
Presented By: Chi Young Shim, MD, PhD

P1-16: The Use of Artificial Intelligence to Assess Left Ventricular Volumes and Function on POCUS
Nathaniel Moulson, MD1, Nathan Van Woudenberg, BASc, MEng2, Mohammad Hossein BASc, MASc3, Andrea Fung, BSc3, Shane Balthazaar, BSc(Kin), RDSc3, Hary Girgis, MD, PhD1, Christina Luong, MD1, Kenneth Gin, MD1, John Joe, MD1, Michael Tsang, MD1, Parvathy Nair, MD1, Purang Abolmaesumi, PhD3, Teresa Tsang, MD1
1University of British Columbia, Division of Cardiology, Vancouver, Canada; 2University of British Columbia, Department of Electrical and Computer Engineering, Vancouver, Canada; 3University of British Columbia, Department of Medicine, Vancouver, Canada
Presented By: Nathaniel Moulson, MD
Exhibit Location and Hours

Exhibits are located in the Hau/Lehua Room during the dates and hours listed below.

Monday, January 20 ............................................. 6:30 AM – 12:00 PM
Tuesday, January 21 ............................................ 6:30 AM – 12:00 PM
Wednesday, January 22 ........................................ 6:30 AM – 12:00 PM
Thursday, January 23 ............................................ 6:30 AM – 12:00 PM
Friday, January 24 ............................................... 6:30 AM – 10:20 AM

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