Scientific Sessions

American Heart Association.

Daily News

SATURDAY | NOV. 11, 2023

Inside

Preconference symposia opens #AHA23

Second-Century Priorities Early Career General Session kicked off Scientific Sessions 2023 Friday. It featured AHA CEO Nancy Brown; AHA President Joseph C. Wu, MD, PhD, FAHA; AHA Past President Michelle A. Albert, MD, MPH, FAHA; Past President Mitchell S.V. Elkind, MD, MS, FAHA; Janice Y. Chyou, MD, FAHA, cardiologist; Seema Mital, MD, FAHA, cardiologist; and Joshua Beckman, MD, FAHA, neurosurgeon. Photos clockwise from upper left: Dr. Albert, Dr. Wu, Nancy Brown, Lunch with Legends and audience pictures. Additional pre-conference symposia on Friday included Congenital Heart Disease and Pediatric Cardiology, Heart/Kidney, Precision Medicine, QCOR at Sessions and State-of the-Art in Cardiovascular Care.

Q&A:

With Larry R. Jackson, II, MD, MHSc

Disparity detective work

Pinpointing disparities by intention for better outcomes

UPCOMING SESSION

Eliminating Health Inequity in Cardiovascular Disease
Saturday, Nov. 11
1:30-2:45 p.m.

What will it take to eliminate disparities in cardiovascular disease and stroke mortality care? The first step is to admit they exist, said Larry R. Jackson, II, MD, MHSc, associate professor of medicine at Duke University School of Medicine in Durham, North Carolina. Dr. Jackson is the speaker at Saturday's session, Eliminating Health Inequity in Cardiovascular Disease.

The U.S. saw the largest decrease in life expectancy during the COVID-19 pandemic, with Black and Hispanic people affected the most. Since the 1980s, there has also been widening disparities in cardiovascular disease mortality, stroke mortality and maternal mortality in rural counties versus urban counties.

The next step in eliminating health disparities, according to Dr. Jackson, should be to gain a better understanding of what continues to drive disparities in cardiovascular disease. In advance of his session, Dr. Jackson shared his thoughts with Scientific Sessions *Daily News* on the work that is still required

Q Racial and ethnic disparities in cardiovascular disease have been long-standing and persistent. Where do we stand today?

Dr. Jackson: We are disseminating the message better that these differences exist. The reason I don't frame them as "disparities" is because we don't know — in most instances — what's driving those differences. What I mean by that

See **DISPARITIES**, page 6

Today at Sessions

Welcome to Scientific Sessions 2023 in Philadelphia where you will find the best in cardiovascular science and medicine.

Please join the conversation happening online by following #AHA23.

Featured Science

Innovations in EP Care
9:45-11 a.m.

- Multinational Survey on the Safety of the Post-Approval Clinical Use of Pulsed Field Ablation in 10,000+ Patients (MANIFEST-10K)
- Randomized, Controlled Study of the Efficacy and Safety of Etripamil Nasal Spray for the Acute Reduction of Rapid Ventricular Rate in Patients With Symptomatic Atrial Fibrillation (ReVeRA-201)
- Arrhythmic Risk in Biventricular Pacing Compared to Left Bundle Branch Area Pacing: Results From International Collaborative LBBA Study (I-CLAS)
- Effect of Empagliflozin on Ventricular Arrhythmias in Patients with Type 2 Diabetes Treated with an Implantable Cardioverter-Defibrillator (EMPA-ICD)

Check the Mobile Meeting Guide app for updates.

Coronary Revascularization: Lessons From Impactful Clinical Trials
1:30-2:45 p.m.

- Left Anterior Descending Non-Culprit Lesion Location and Clinical Outcomes In Patients With St-segment Elevation Myocardial Infarction and Multivessel Disease: Results From the Complete Trial
- Resource Use and Cost Comparisons of a Novel Precision Medicine Evaluation Strategy for Suspected Coronary Artery Disease Versus Usual Testing: Results From the PRECISE Randomized Trial (PRECISE)
- PCI or CABG Versus Medical Therapy in the ISCHEMIA Trial: A Post Hoc Analysis (ISCHEMIA)
- Impact of Cardiac Arrest Before Randomization on the Efficacy of ECLS in Patients With Infarct-Related Cardiogenic Shock. A Sub-Analysis of the Prospective ECLS-Shock Trial (ECLS-SHOCK)

Late-Breaking Science

Obesity — Novel Therapeutics and Implications for Population Health
NOTE: LBS.01 is part of the Opening General Session
8:30-9:15 a.m.

- Semaglutide and Cardiovascular Outcomes in Patients With Overweight or Obesity Who Do Not Have Diabetes (SELECT)

Hot Topics in Management of Coronary Artery Disease/ Acute Coronary Syndrome
9:45-11 a.m.

- Restrictive versus Liberal Blood Transfusion in Patients With Myocardial Infarction and Anemia: Results of the MINT Trial (MINT)
- Percutaneous Coronary Intervention for Stable Angina (ORBITA-2): A Randomized, Placebo-Controlled Trial (ORBITA-2)
- DAPA-MI - A Registry-Based Randomized Trial of Dapagliflozin in Patients With Acute Myocardial Infarction Without Diabetes (DAPA-MI)

Heart Failure — VADS, Kids and Money
1:30-2:45 p.m.

- Avoidance of Aspirin with Left Ventricular Assist Devices in Advanced Heart Failure: Primary Results of the International, Double-Blind, Placebo-Controlled ARIES HM3 Clinical Trial (ARIES HeartMate 3)
- The TEAMMATE Trial: Everolimus to Prevent Rejection in Children After Cardiac Transplantation (TEAMMATE)
- Integrating Cost Into Shared Decision-Making for Heart Failure With Reduced Ejection Fraction: A Trial Providing Out-of-Pocket Costs for Heart Failure Medications During Clinical Encounters

Using Drugs, Diet and Delivery to Optimize Hypertension Outcomes
3:15-4:30 p.m.

- Effects of Dietary Sodium on Systolic Blood Pressure in Middle-Aged Individuals: A Randomized Order Cross-Over Trial (CARDIA-SSBP)
- Long-Term Blood Pressure Control After Physician Optimized Postpartum Blood Pressure Self-Management: The POP-HT Randomized Clinical Trial (POP-HT)
- Sustained Blood Pressure Reduction With the RNA Interference Therapeutic Zilebesiran: Primary Results From KARDIA-1, a Phase 2 Study in Patients With Hypertension (KARDIA-1)
- Effectiveness of Blood Pressure-Lowering Intervention on Risk of Total Dementia Among Patients With Hypertension: A Cluster-Randomized Effectiveness Trial (CRHCP)

TCT at #AHA23

Scan the QR code for TCT at Scientific Sessions 2023 programming

Claiming CE credits for #AHA23

#AHA23 attendees can receive up to 24 Continuing Education credits. CE credit claiming is limited to participation during the event Nov. 10-13, 2023. Complete the credit claim process within 30 days to avoid credit expirations. If you need assistance after the meeting, contact 1-877-340-9899 8 a.m.-6 p.m. CST, Monday-Friday, or email Intelligo.help@intelligohub.org.

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Stop by one of the two Resource Hubs for more information on CE credits, certification and more.

Grand Hall, Level 2

Broad Street Entrance, Level 1

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NOVARTIS

Today's Main Events

9:45-11 a.m. | 114/Nutter Theater
Annual Dr. Nanette K. Wenger Research Goes Red® Award for Best Scientific Article on Cardiovascular Disease and Stroke in Women
Zainab Mahmoud, MD, MSc
Racial Disparities in Specific Cardiovascular Outcomes

9:45-11 a.m. | Main Event II
Valve-tastic! What's the Latest and Greatest in Lifetime Management, Imaging, Science and Technology in Valvular Heart Disease

1:30-2:45 p.m. | Main Event II
Eliminating Health Inequity in Cardiovascular Disease

3:15-4:30 p.m. | 114/Nutter Theater
Distinguished Scientist Lecture
Elizabeth M. McNally, MD, PhD, FAHA
Cardiovascular Genetics From Diagnosis to Therapy

3:15-4:30 p.m. | Main Event II
Cardiac Arrest on the Athletic Field: A Team Approach

Looking to TAVI's future

More patients may benefit from transcatheter aortic valve implantation

For patients diagnosed with aortic stenosis, relief of symptoms and longer survival are two important goals of therapy. So what are the best strategies for achieving that? That discussion will take center stage during Saturday's session, Valve-tastic! What's the Latest and Greatest in Lifetime Management, Imaging, Science and Technology in Valvular Heart Disease.


Sitges

An expert panel will provide a high-level overview of cutting-edge developments in valvular heart disease, examining lifetime management issues, new multimodality imaging insights, what's hot in basic and translational science and what's next in technology and clinical trials.

Marta Sitges, MD, director of the Cardiovascular Institute at the University of Barcelona in Spain, is among the panelists who will discuss the pros and cons of transcatheter aortic valve implantation (TAVI) in patients with the potential for longer life expectancy.

"Currently, we have two options to treat aortic stenosis — open heart surgery or TAVI," Dr. Sitges said. "We must take the best option for each patient. There are pros and cons.

"I tell my patients, we are changing the course of the disease of aortic stenosis when we do an intervention, a disease which will kill you if it's not treated. But that's not curing the disease. That's changing, dramatically, the outcome of the disease. Patients often ask if we have something that will dissolve the calcification of the valve, but we don't have that. Maybe in the future we will. For now, replacing the diseased valve by TAVI or SAVR is a good approach."

Dr. Sitges reminds her colleagues that TAVI was developed as an alternative when surgery wasn't possible — specifically for high-risk patients, such as older people. However, as TAVI technology and safety have improved, it may be worth considering in younger patients as well.


O'Gara

It's about "lifetime management," she said. "I don't think there's a one size fits all. It depends on each patient."

Fellow panelist Patrick T. O'Gara, MD, FAHA, cardiologist at Brigham and Women's Hospital in Boston, will expand on challenging issues in lifetime management and underscore the importance of "a highly functional multidisciplinary team," when weighing treatment choices.

"Helping patients understand the limitations of TAVI is important especially given the very high expectations for its use," Dr. O'Gara said.

Additionally, the session will include a look at results of recently reported TAVI studies and information from the STS cardiac surgery database.

"Decisions that may eventually lead to multiple aortic valve interventions over the lifetime need to be reached very carefully," Dr. O'Gara said. "For the attendees, it will also be important to consider more effective ways to screen for aortic stenosis in the communities we serve and facilitate referral for evaluation." •

UPCOMING SESSION

Valve-tastic! What's the Latest and Greatest in Lifetime Management, Imaging, Science and Technology in Valvular Heart Disease
Saturday, Nov. 11
9:45-11 a.m.
Main Event II

Today's Industry Events

Industry events provide a unique opportunity for companies in the field of cardiology to share their latest advances in cardiovascular practices, services and technologies.

Saturday, Nov. 11

See the Mobile Meeting Guide App for more details.

TIME	LOCATION	SUPPORTER	TITLE
9:30-10:15 a.m.	Learning Studio I	Cardiovascular-Kidney-Metabolic Syndrome	Interdisciplinary Management for Patients With Cardiovascular-Kidney-Metabolic Syndrome: Interactive Case Discussions
	Learning Studio II	Pfizer Inc.	Evaluating Clinical Findings to Support Early Diagnosis and Treatment of Transthyretin Cardiac Amyloidosis* **Also known as transthyretin amyloid cardiomyopathy (ATTR-CM)*
11:15 a.m.-Noon	Learning Studio I	Janssen Pharmaceuticals, Inc.	Expert Perspectives on the Treatment of DVT/PE and Reduction in the Risk of Recurrent DVT/PE, with a Focus on High-Risk Patient Populations
	Learning Studio II	Novo Nordisk	Battling Obesity: Cardiology HCPs Unite in the Fight Against Weight-Related Comorbidities
11:15-11:45 a.m.	Heart Theater	Foresee Pharmaceuticals	A New Therapeutic Paradigm for the Treatment of Pulmonary Hypertension Associated With Interstitial Lung Disease (PH_ILD) Windward Phase 2 Study
12:30-1:15 p.m.	Learning Studio I	CSL Behring, LLC	Spotlight on Cholesterol Efflux: Uncovering Potential Cardioprotective Benefits in the 90-Day High-Risk Period Post AMI
	Learning Studio II	Novartis Pharmaceuticals Corporation	Building on LEQVIO® (inclisiran) Data in an Expanded Patient Population
12:15-1 p.m.	Heart Theater	Kiniksa Pharmaceuticals	Recurrent Pericarditis Case Study Discussion With Q&A
1:30-2:15 p.m.	Learning Studio I	Boehringer Ingelheim and Eli Lilly & Company	Guideline-Directed Medical Therapy and the Role of SGLT2is
	Learning Studio II	Amgen Inc.	The Unmet Need in ASCVD: Why Lipid Awareness and Education Is So Important
3:15-4 p.m.	Learning Studio I	Medtronic	Turning Point in Hypertension Care: A Shared Decision-Making Approach

Council Challenges

Compete as a council member (or cheer on your team) at the Council Challenges.

The Council Challenge
Saturday, Nov. 11
3:15-4:30 p.m.
Heart Theater

The Early Career Council Challenge
Sunday, Nov. 12
3:30-4:45 p.m.
Membership Lounge

Register to compete at council.challenge@heart.org.

Sudden impact

Turning the spotlight on cardiac arrest among young athletes

Heart-stopping moments in athletics are usually spurred by incredible performances — but some moments occur as cardiovascular events for athletes.

Sudden cardiac arrest (SCA) is the leading cause of death in young athletes, said Rakesh Gopinathannair, MD, MA, FAHA, a cardiac electrophysiologist in Overland Park, Kansas.

Dr. Gopinathannair, cardiac EP lab director at the Kansas City Heart Rhythm Institute, EP medical director at Research Medical Center in Kansas City and professor of medicine at the University of Missouri-Columbia, is co-chair of Saturday afternoon's session, Cardiac Arrest on the Athletic Field: A Team Approach.

Accurate incidence of SCA varies — based on different studies — but ranges from one in 50,000 (college athletes) to one in 80,000 (high school athletes). SCA in competitive athletes is 2.5 to 3.6 times higher than non-athletes in the same age bracket. Nearly 75% of SCA in athletes occur in football, basketball and soccer players, and the culprit includes a mix of common and uncommon reasons, Dr. Gopinathannair said.

"Studies report that 36% of SCA in athletes was a result of hypertrophic cardiomyopathy (HCM)," Dr. Gopinathannair said. "Other major causes include autopsy-negative sudden unexplained death, arrhythmogenic right ventricular cardiomyopathy (ARVC), congenital coronary artery anomalies, Long QT syndrome (LQTS), Wolff-Parkinson-White syndrome, Marfan syndrome and myocarditis. The percentage of predisposing conditions can vary by geography."

Despite knowing the causes of SCA in sports — and what we don't know about the health of the individual athletes — Dr. Gopinathannair said the debate over pre-participation screening centers on whether it should be done at all and to what extent. Answers to both vary across the globe. The method for detecting


Gopinathannair

See CARDIAC ARREST, page 12

UPCOMING SESSION

Cardiac Arrest on the Athletic Field: A Team Approach
Saturday, Nov. 11
3:15-4:30 p.m.

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DISPARITIES

continued from page 1

is, at their core, disparities are being driven by something that is typically, fundamentally unjust, and almost always links back to social, structural and environmental determinants. So, I hesitate to use the word "disparities" until I understand the root cause.

Q What do you believe is the medical community's role in moving health equity and social justice forward?

Dr. Jackson: We must continue research into health disparities, specifically understanding why a particular disparity exists. For example, while Black individuals cluster a higher burden of risk factors associated with atrial fibrillation, numerous studies have demonstrated a low incidence and prevalence of atrial fibrillation in Black individuals. This is called the atrial fibrillation paradox. Likewise, we know Black individuals with atrial fibrillation have lower utilization of oral anticoagulation for stroke reduction and rhythm control strategies such as AFib ablation. More research is needed to understand why the atrial fibrillation paradox exists and why Black individuals have a lower utilization of stroke reduction and rhythm control strategies for atrial fibrillation.

Q What research innovations and data-driven interventions exist to eliminate health disparities?

Dr. Jackson: In terms of research innovations, very little has been done. There have been a few recent studies, such as the one from Kevin Thomas, MD, and his VIVID trial. The objective of VIVID was to assess the effectiveness of a video decision support tool for Black patients eligible for an implantable cardioverter-defibrillator. There's also Paul Wang, MD, at Stanford, and his intervention-based aid regarding oral anticoagulation in stroke patients with AFib. These are good examples and the most contemporary of interventions aimed at addressing racial and ethnic disparities in cardiovascular disease.

Q How do we successfully diversify the health care workforce?

Dr. Jackson: Health care diversity is very important as it is associated with many beneficial aspects, including better care for diverse populations, better problem-solving given diversity of thought, opinions and ideas, better recruitment and retention, specifically of historically marginalized populations, and overall better results in patient care in an increasingly diverse population. Diversifying the health care workforce requires support from the highest levels and leadership, including local governments and health systems. There must be an intentional approach with the creation of systems and policies that support diversity and inclusion within health care systems.

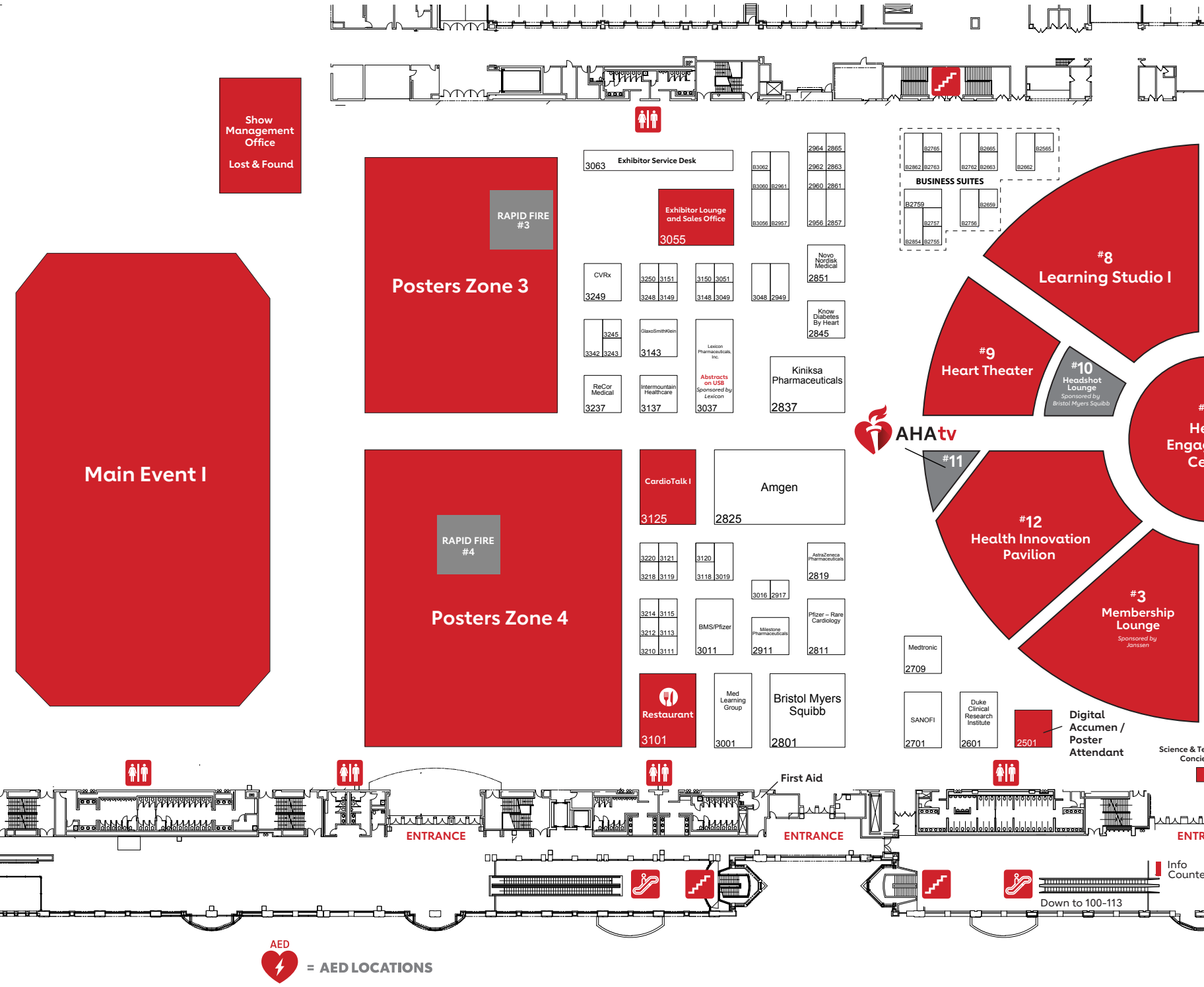
Q Do you have a personal story to share?

Dr. Jackson: Equity is a family affair. My mother and sisters are all involved in education, specifically geared toward improving literacy in underrepresented racial and ethnic groups. My dad was a civil rights attorney, working to diversify the number of lawyers in multiple communities where we grew up in Florida. So, it's always been a part of our family. •

#AHA23 Exhibitors

Abbott . . . . . Health Innovation Pavilion
Accurant Biotech. 1442
ADInstruments 3111
Adult Congenital Heart Association 3121
Agepha Pharma FZ-LLC. 1545
AliveCor . . . . . 2625, Health Innovation Pavilion
Alnylam Pharmaceuticals 715, 1025
Amarin Pharma, Inc.. 1311
American Academy of Dental Sleep Medicine 951
American Academy of Sleep Medicine. 949
American College of Cardiology. 925
American College of Physicians / Annals of Internal Medicine 1052
American Regent 3048
Amgen 2825
Anumana 1337
Arrowhead Pharmaceuticals 703
Asklepios BioPharmaceutical (AskBio) 3220
Association of Black Cardiologists 1050
AstraZeneca Pharmaceuticals. 2819, 911
AtriCure 818
Bayer 1519
Biobeat 2023. . . . . Health Innovation Pavilion
BMS/Janssen Alliance. 1017
BMS/Pfizer 3011
BodiMetrics . . . . . Health Innovation Pavilion
Boehringer Ingelheim/Lilly Commercial. 1615
Bridgebio 941
Bristol Myers Squibb. 2801
Cardiac CT Training with Dr. Matthew Budoff 959
Cardio Flow Design Inc. 3210
CB Innovations . . . . . Health Innovation Pavilion
CL Laboratory, LLC. 3214
Cleerly . . . . . .1738, Health Innovation Pavilion
CSL Behring. 1211
CVRx. 3249
Cytokinetics. 1101
Daiichi Sankyo, Inc. 1329
Doximity 1612
Duke Clinical Research Institute 2601
Edwards Lifesciences 1013
Eli Lilly and Company 1000
Elsevier, Inc. 1232
Esperion Therapeutics 1429
Family Heart Foundation. 814
FDA Center for Tobacco Products 1209
Foresee Pharmaceuticals 3113
FUJIFILM VisualSonics. 3019
Getting to the Heart of Stroke 1225
Heart Failure Society of America. 1345
HeartLung.AI . . . . . Health Innovation Pavilion
Humacyte, Inc. 709
Hypertrophic Cardiomyopathy Association 1001
Intellia Therapeutics . . . . . Health Innovation Pavilion
InterAmerican Heart Foundation 957
Interamerican Society of Cardiology 953
Intermountain Health 3137
Ionis Pharmaceuticals, Inc. 815
IonOptix. 1118
JAMA Network 1133
Janssen Pharmaceuticals, Inc.. 1435
Janssen Scientific Affairs. 1117
The Japanese Circulation Society 3016
Kaneka 3049
Kiniksa Pharmaceuticals 2837
Know Diabetes By Heart 2845
Lexicon Pharmaceuticals, Inc. 3037
Mayo Clinic 1235
Med Learning Group 3001
Medtronic 2709
Merck & Co., Inc. 1601
Metabolic Endocrine Education Foundation 1056
Midmark Corp. 1130
Milestone Pharmaceuticals 2911
Moor Instruments 1021
Nanion Technologies 3115
The National Heart, Lung, and Blood Institute 1114
Nightingale Health Plc. 1325
NIKOMED USA, Inc.. 3243
Novartis Pharmaceuticals Corporation 1201, 1401
Novo Nordisk, Inc. 1413, 1632
Novo Nordisk Medical Affairs 2851
Omron Healthcare, Inc. 3119
The Permanente Medical Group 3051
Pfizer – Rare Cardiology. 2811
physIQ 1630
PPD, part of Thermo Fisher Scientific 1644
Precigen Exemplar 1641
PulseOn 3120
QT Medical Inc. 1642
Rajant Health, Inc. 1533
Recor Medical 3237
Regeneron Pharmaceuticals, Inc. 3342
Samsung HeartWise. 2628
SANOFI 2701
scPharmaceuticals 1343
SeeMedX 931
Shanghai Model Organisms Center 937
Silence Therapeutics plc. 808
SomaLogic 2917
St. Luke's University Health Network. 1649
Tempus 1424
TIMI Study Group 1310
Toku, Inc. . . . . Health Innovation Pavilion
United Biologics 1748
VectorBuilder, Inc. 1531
Wolters Kluwer. 1125
World Heart Federation 1048
ZOLL Medical Corp. 1801

Science & Technology Hall



Science & Technology Hall Hours

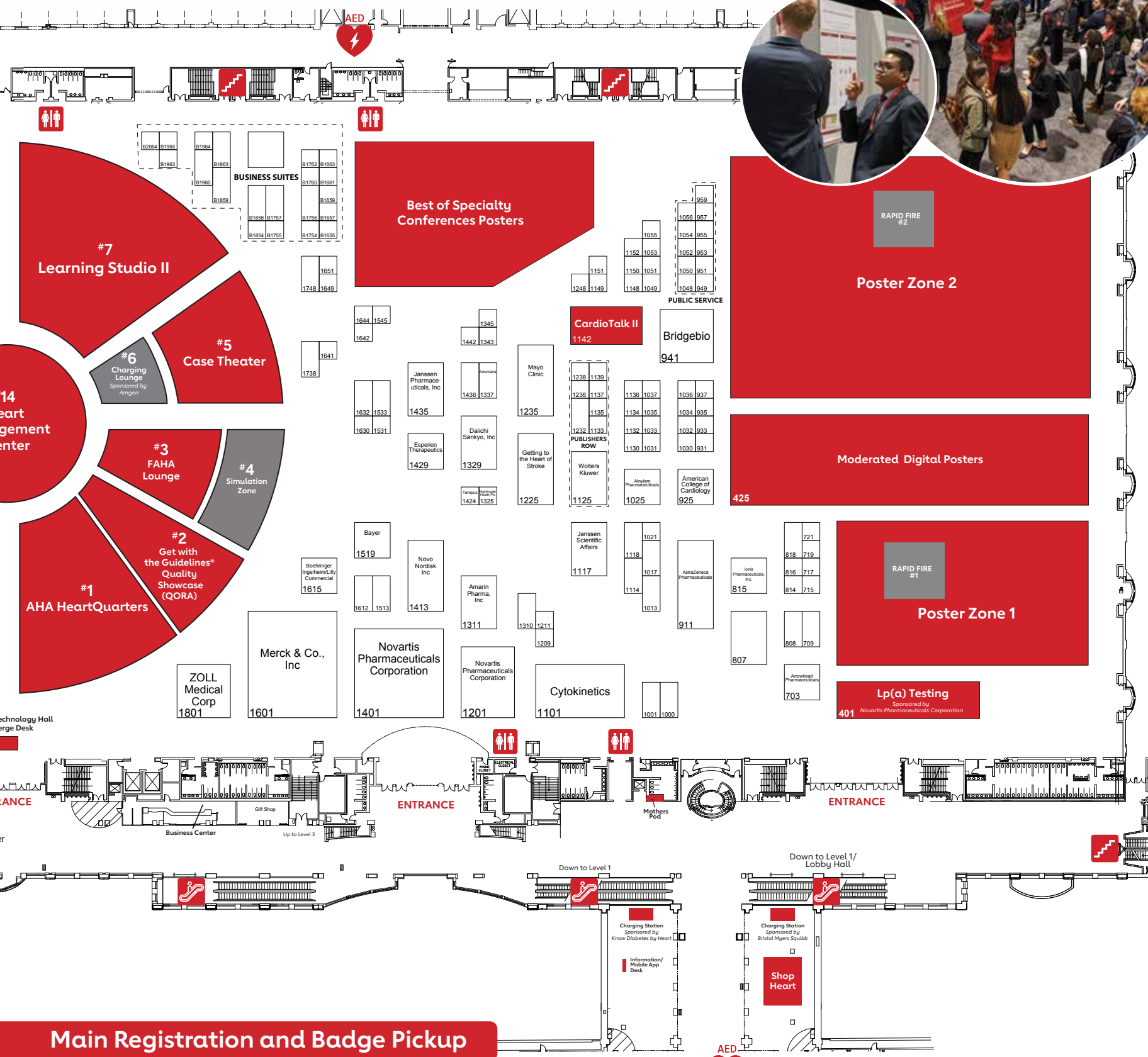
Saturday, Nov. 11
9 a.m.-4:30 p.m.

Sunday, Nov. 12
9 a.m.-5 p.m.

Monday, Nov. 13
9 a.m.-3 p.m.

Be sure to visit the Posters

Four zones group the posters by subject matter, plus a fifth zone dedicated to Best of Specialty Conferences posters. Rapid-Fire Forums, located in each poster area, provide attendees original science presentations and interactions with abstract authors. Check the mobile meeting app for the schedule of the moderated digital posters.



Main Registration and Badge Pickup

Grand Hall, Level 2

Saturday, Nov. 11: 6:30 a.m.-6:30 p.m.
Sunday, Nov. 12: 7 a.m.-5 p.m.
Monday, Nov. 13: 7 a.m.-3 p.m.

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MEETING ROOMS AND GRAND HALL

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CARDIAC ARREST

continued from page 5

these conditions is also debated. For example, a significant concern with ECG screening is the high percentage of false positive tests resulting in additional testing and unnecessary sports restriction. However, revised international criteria for ECG diagnosis have reduced the false positive rates, with one study showing only a 3% false positive rate.

"There are significant barriers for population-wide, pre-participation screening, and the presence of an emergency action plan is extremely important for saving lives of athletes having SCA during sporting activity," Dr. Gopinathannair said. "The effectiveness of CPR and AED use in treating SCA is well established.

"Close to 50% of SCA during athletics was caused by either pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF), which can be corrected with prompt defibrillation, with approximately 75% surviving when defibrillation was performed within three minutes of the arrest. This compares to 47% when defibrillation was initiated greater than three minutes following the arrest. Despite this, overall CPR/AED utilization remains low among general population, with only 6% of bystanders using an AED. Therefore, more work needs to be done to raise awareness regarding SCA and to increase access to AEDs in sporting venues."

The session also will include a discussion about the difference between "athlete's heart" and cardiomyopathy as well as the role of myocardial inflammation on SCD during athletic participation. Intensive endurance training can cause a distinct pattern of functional and structural changes of the cardiovascular system, including heart muscle thickening and ECG changes. This results in the so-called "athlete's heart."

"There is some overlap between athlete's heart and mild forms of HCM, the most common genetic disorder of the cardiovascular system," Dr. Gopinathannair said. "There is great interest in distinguishing between these conditions. Echocardiography or cardiac MRI is usually the method of choice. The athlete's heart shows mild increase in wall thickness of the left ventricle and a moderately dilated left ventricle."

By contrast, HCM is commonly characterized by asymmetric left ventricular thickening and a reduced LV-diameter. So it is important to differentiate these conditions to correctly identify athletes who are at risk for SCA and to avoid unnecessary sporting restrictions on those who are not predisposed to SCA, Dr. Gopinathannair said.

"Myocarditis, or inflammation of the heart muscle, can result in life-threatening ventricular arrhythmias, and is one of the causes of SCA in athletes," he said. "This has come to the forefront during the COVID-19 pandemic. However, there are significant challenges in accurate diagnosis of myocarditis as a cause for SCA."

One of the highlights of the session will include athletes who survived SCD sharing their perspectives on life after death and experiences with attempting to return to sports.

In his example, Dr. Gopinathannair treated an 18-year-old male athlete who would experience near passing out episodes when running up a hill. On two occasions, he nearly passed out with more aggressive exercise. The athlete's baseline ECG and echo were normal. A treadmill test recorded multiple premature ventricular beats (PVCs) at around three minutes followed by polymorphic (bidirectional) ventricular tachycardia that reproduced severe dizziness.

"These were consistent with catecholaminergic polymorphic ventricular tachycardia (CPVT)," Dr. Gopinathannair said. "Given the life-threatening nature of the condition, unfortunately he had to be restricted from athletics and was started on a beta-blocker and eventually on flecainide. He had breakthrough episodes and eventually underwent left cardiac sympathetic denervation and has done well since then." •

All in the family

Distinguished Scientist lecture sheds light on the work of genetics and heart disease

Typically, the phrase, "it's a family affair" is an endearing sentiment and signals pride. But for cardiologist Elizabeth McNally, MD, PhD, FAHA, the combination of families and heart disease can be a cautionary signal.

Dr. McNally will share her expertise and her inspiration for shedding light on cardiovascular genetics during the Distinguished Scientist Lecture. She is an Elizabeth J. Ward professor of cardiology and director of the Center for Genetic Medicine at Northwestern University's Feinberg School of Medicine in Chicago.

A physician scientist who is interested in defining genetic causes of cardiovascular disorders, Dr. McNally's research and clinical work have focused on the study of genetic diseases that cause cardiomyopathies and arrhythmias.

More than 20 years ago, Dr. McNally started one of the first broad-based cardiovascular genetics programs in the nation. She also works closely with patients who have neuromuscular diseases, such as muscular dystrophies, since many of these genetic disorders also cause cardiomyopathy and arrhythmias.

"Over the last 20 years, genetic testing has become available so that we now can readily determine the genetic causes, and we use this genetic information in the management of patients to improve outcomes," Dr. McNally said. "One of the most important parts of genetic testing is working with family members so that we can identify people early in their disease course and offer interventions that slow the progression of disease."

Her work has led to the discovery of genetic signals that are being used to drive the development of new treatments.

"We have started to see the first gene-directed therapies come to patients, and there are many more in development or in clinical trials. It's very exciting to see these advances and to know the future is bright for genetically mediated cardiovascular diseases."


McNally

Dr. McNally said her inspiration came from her first research experience. In looking at how these genetic disorders affect young people and run in families, she followed the clues, but didn't yet have the genetic tools to make diagnoses in her early career.

"When I started graduate school, my advisor was Leslie Leinwand, PhD, and she was at the forefront of human molecular genetics," she said. "We were collecting DNA samples from patients, but we did not yet have the technology to be able to really examine the genetic material.

"I did my postdoctoral work with Louis Kunkel, PhD, who discovered the genetic cause of Duchenne Muscular Dystrophy. When I worked with him, we discovered multiple new genes that cause different forms of muscular dystrophy and cardiomyopathy. Now when I see patients in clinic, I can simply order these tests, and the results tell people what gene change caused their disease and how we will use this information to better manage their health care."

Today, Dr. McNally's work is geared toward a better understanding of how the genetic changes cause what we see in patients. From an experimental perspective, she said, it's not always straightforward. The field has long relied on building animal models of genetic diseases, typically using mouse models because researchers can manipulate the mouse genome. Although the mouse models are highly useful for understanding physiological defects, many of the models have different outcomes in different mouse strains.

"We exploited differences in mouse models on different strain backgrounds, and we mapped and identified genetic modifiers that change the course of disease," Dr. McNally said. "These modifiers are now driving pathways for therapies."

Over the last decade, the use of human cells to better model cardiac diseases has greatly advanced. Using patient-derived cells to build patient-specific models of their own diseases, she said, is ideal, especially when testing gene editing.

Ultimately, Dr. McNally wants to underscore the fact that genetic diagnosis is key for diagnosing and treating cardiac diseases such as cardiomyopathies, heart failure and arrhythmias. However, how the gene change expresses itself in each person varies considerably.

"In genetic terms, we call this 'variable expressivity,' and this matters clinically because it means the genetic information is just one piece of the puzzle when evaluating a patient and family," Dr. McNally said. "From a research perspective, this variability is what we are defining by finding genetic modifiers, and these modifiers teach us even more about the pathways underlying disease."

Although cardiology has improved in the uptake of genetic testing in cardiology, there's more to do, she said.

"There are some guideline recommendations to use genetic testing, and we are seeing these increase," she said. "However, many cardiologists are not comfortable ordering and interpreting these tests because they have not been trained how to do this. The genetic data is teaching us new ways to subclassify disorders and better understand and predict clinical course, so I see a future for genetic cardiologists."

Dr. McNally recommends cardiologists talk with their patients who have a family history of particular diseases, such heart failure, arrhythmias, aortic diseases and hypercholesterolemia, and encourage them to see a genetic cardiologist about whether genetic testing makes sense. •

UPCOMING SESSION

Distinguished Scientist Lecture | Elizabeth M. McNally
Cardiovascular Genetics From Diagnosis to Therapy
Saturday, Nov. 11
3:15-4:30 p.m.
114/Nutter Theater

Opening Session

Saturday, Nov. 11
8-9:15 a.m.
Main Event I

Welcome
Joseph C. Wu, MD, PhD, FAHA

Chair Opening Remarks
Amit Khera, MSc, FACC, FAHA, FASPC

Awards Presentation
Joseph C. Wu, MD, PhD, FAHA

Distinguished Scientist Recognition
Patrick T. Ellinor, MD, PhD, FAHA
Carlos M. Ferrario, MD, FAHA
Judith S. Hochman, MD, FAHA
Deepak Srivastava, MD, FAHA
Jeffrey I. Weitz, MD, FAHA
Cornelia M. Weyand, MD, PhD, FAHA

Joseph A. Vita Award
Pradeep Natarajan, MD, MMSc, FAHA

Nanette K. Wenger Award
Zainab Mahmoud, MD, MSc

Late-Breaking Science Session
LBS.01 | Obesity — Novel Therapeutics and Implications for Population Health

The American Heart Association selects six Distinguished Scientists for 2023

Patrick Ellinor, MD, PhD, FAHA
Acting Chief of Cardiology, Massachusetts General Hospital Director, Cardiovascular Disease Initiative, Broad Institute of MIT and Harvard

Dr. Ellinor grew up in Cincinnati and graduated from the University of Cincinnati with a degree in biology. He then attended Stanford University for medical and graduate school, where his doctoral work focused on the structure and function of calcium channels. From there, he moved to Boston for medical residency at Brigham and Women's Hospital, followed by fellowship training in cardiology and cardiac electrophysiology at Massachusetts General Hospital (MGH). In 2001, he joined the faculty at MGH and split time between research and the clinical care of patients with arrhythmias.

In 2016, Dr. Ellinor became the director of the Demoulas Center for Cardiac Arrhythmias at MGH. He's also professor of medicine at Harvard Medical School. He's a member at the Broad Institute of MIT and Harvard and director of the Cardiovascular Research Initiative. In 2022, he became the acting chief of cardiology and co-director of the Corrigan-Minehan Heart Center at MGH.

Dr. Ellinor has always been intrigued with human genetics, so his research lab began with a focus on trying to identify the genetic basis of early-onset atrial fibrillation. This work in turn led to the establishment of the AFGen Consortium, an international group of investigators studying the genetics of atrial fibrillation. In the ensuing years, they have led large-scale genetic analyses for atrial fibrillation and many other cardiovascular diseases. His lab is now largely based at the Broad Institute and has expanded to a wide range of topics that includes cardiovascular disease mechanisms, single-cell sequencing, the application of machine learning to cardiac data and the development of new therapies for cardiovascular diseases.

Outside of work, Dr. Ellinor enjoys spending time with his family, their cute, but rather clueless dog, reading, sailing and working as a part-time contractor around the house. •

Carlos M. Ferrario, MD, FAHA, FAPS, FACC
Professor Emeritus, Department of Surgery, Atrium Health Baptist Hospital, Wake Forest School of Medicine Winston-Salem, North Carolina

Dr. Ferrario is professor emeritus (surgery) and founder of the Hypertension and Vascular Research Center, Atrium Health Wake Forest School of Medicine. He received worldwide recognition for his groundbreaking contribution to identifying angiotensin-(1-7) and the importance of angiotensin converting enzyme 2 in regulating cardiac function and blood pressure control. Dr. Ferrario and collaborators' seminal research on Ang-(1-7) included the identification of the enzymes generating Ang-(1-7) from angiotensin I and the first in-vivo identification of ACE2 as the enzyme converting Ang II into Ang-(1-7). Dr. Ferrario's contribution to Ang-(1-7) cemented the rationale for developing Ang-(1-7) as a therapeutic target based on his original demonstration that low levels of Ang-(1-7) expression in primary hypertension were reversed by medicating patients with inhibitors of ACE. Dr. Ferrario's and colleagues' research contributions have surpassed the field of cardiovascular disease as Ang-(1-7) acts as a negative inhibitor of autoimmune diseases, liver cirrhosis, Type 2 diabetes, toxemia of pregnancy and cancer.

Multiple international awards attest to Dr. Ferrario's scientific achievements, including the 2009 Novartis Award for Hypertension Research from the AHA Council on Hypertension. He has authored or co-authored 516 peer-reviewed manuscripts and 78 chapters in books and has published five books.

Dr. Ferrario credits his love for science on his past relationship with Cleveland Clinic's Irvine H. Page, MD, who pioneered the study of hypertension, promoted the development of hypertensive drugs and raised national awareness about hypertension and atherosclerosis.

Under Dr. Page's tutelage, Dr. Ferrario established a premier program in the neurobiology of hypertension at the Cleveland Clinic, serving as chair of the newly created Department of Brain and Vascular Research (1984-1992) and member of the Foundation's Board of Governors (1985-1990). He joined the Wake Forest School of Medicine as chair of the Hypertension Center in 1992. •

Judith S. Hochman, MD, MA, FAHA, FACC
Senior Associate Dean for Clinical Sciences
Founding Co-Director, Clinical and Translational Science Institute
NYU Grossman School of Medicine/NYU Langone Health

Dr. Hochman is senior associate dean for clinical sciences, founding co-director of the NYU Clinical and Translational Science Institute, Harold Snyder Family Professor, associate director of the Division of Cardiology and director of the Cardiovascular Clinical Research Center at NYU Langone Health/NYU Grossman School of Medicine.

Dr. Hochman received her MA in cellular and developmental biology from Harvard and her MD from Harvard Medical School. She was a coronary care unit director for 20 years and developed an experimental model that demonstrated reduced adverse global left ventricular remodeling by late reperfusion post myocardial infarction. As study chair, she developed and led NHLBI-funded international trials testing the role of revascularization for patients with ischemic heart disease, from cardiogenic shock to stable coronary disease: SHOCK, OAT, ISCHEMIA. These trials led to new/revised recommendations regarding the role of revascularization in practice guidelines. She was the first to test a pharmacologic agent in a randomized controlled trial in cardiogenic shock and was among the first to study sex differences in acute coronary syndrome and to design and launch randomized trials on COVID-19.

Dr. Hochman has served on the NHLBI Board of External Experts, American College of Cardiology/American Heart Association Task Force on Practice Guidelines, the AHA Strategic Advisory Coordinating Committee and the FDA Cardiovascular and Renal Drugs Advisory Committee. She was the inaugural director of the AHA-funded Soter Center for Women's Cardiovascular Research, where she led a team of investigators conducting synergistic basic, clinical and population science projects. She has authored over 400 publications and served on many editorial boards.

She is the recipient of the 2008 AHA Women in Cardiology Mentoring Award; 2014 AHA Clinical Research Prize; ACC 2016 Distinguished 23-112 Scientist Award (Clinical Domain); AHA 2018 Council on Clinical Cardiology James B. Herrick Award for Outstanding Achievement in Clinical Cardiology; and 2023 Distinguished Achievement Award. She was also the European Society of Cardiology 2020 Rene Laennec Lecturer. •

Deepak Srivastava, MD, FAHA
President and Senior Investigator, Gladstone Institutes
Professor, University of California San Francisco

Dr. Srivastava is the president of the Gladstone Institutes, director of the Roddenberry Stem Cell Center at Gladstone and a professor of pediatrics and of biochemistry and biophysics at the University of California, San Francisco (UCSF) Medical Center. He holds the Robert W. and Linda Mahley Distinguished Professorship.

He received his BS from Rice University, MD from the University of Texas and trained in pediatrics at UCSF and in pediatric cardiology at the Children's Hospital of Harvard Medical School. Before joining Gladstone in 2005, Dr. Srivastava was a professor in the Departments of Pediatrics and Molecular Biology at the University of Texas Southwestern Medical Center in Dallas.

Dr. Srivastava's laboratory discovered genetic bases for cardiac septal and valve defects and revealed complex signaling, transcriptional and translational networks that regulate progenitor cells to adopt a cardiac cell fate and subsequently fashion a functioning heart. He has leveraged this knowledge to understand disease mechanisms using induced pluripotent stem cells, leading to new therapeutic candidates for heart disease. His laboratory also used developmental gene networks to reprogram resident cardiac fibroblasts directly into cardiomyocyte-like cells for regenerative purposes in the setting of heart failure.

Dr. Srivastava has founded two biotechnology companies to translate his work toward clinical trials, served as president of the International Society for Stem Cell Research and is a member of the American Academy of Arts and Sciences and the National Academy of Medicine. •

Jeffrey I. Weitz, OC, MD, FAHA, FRCPC, FACP, FRSC, FACC, FESC, FCAHS
Professor of Medicine and Biochemistry and Biomedical Sciences, McMaster University
Executive Director, Thrombosis and Atherosclerosis Research Institute

Dr. Weitz is a professor of medicine and biochemistry and biomedical sciences at McMaster University, executive director of the Thrombosis and Atherosclerosis Research Institute and past president of the International Society on Thrombosis and Haemostasis. Board-certified in internal medicine, hematology and medical oncology, Dr. Weitz focuses his clinical practice on patients with thrombotic disorders. His research spans the spectrum from basic studies in the biochemistry of blood coagulation and fibrinolysis to animal models of thrombosis and on to clinical trials of antithrombotic therapy.

The breadth of his work is highlighted by his over 650 publications in journals as diverse as the *Journal of Clinical Investigation, Journal of Biological Chemistry, Biochemistry, Circulation, Blood, Annals of Internal Medicine, New England Journal of Medicine* and *Lancet*. He also has written 76 book chapters.

The recipient of numerous awards, Dr. Weitz is an officer of the Order of Canada, a Fellow of the American Heart Association, the Royal Society of Canada and the Canadian Academy of Health Sciences. •

Cornelia M. Weyand, MD, PhD, FAHA
Professor of Medicine and Immunology, Mayo Clinic
Professor Emerita, Stanford University

Dr. Weyand is a professor of medicine and immunology at the Mayo Clinic College of Medicine and Science and the Mayo Alix School of Medicine. She holds joint appointments in the Departments of Immunology and Cardiology and leads the Program in Immunity and Inflammation, a translational program bridging basic immunology to disease.

Dr. Weyand earned her MD in Germany, followed by a fellowship at the German Cancer Research Center and a residency at Hannover Medical School in Germany. She subsequently completed a fellowship in immunology at Stanford University. Dr. Weyand joined the Mayo Clinic in 1990, became a professor of medicine and immunology in 1998 and the Barbara Woodward Lips Professor of Medicine & Immunology in 2000.

From 2004 to 2009, she was the David Lowance Professor of Medicine at Emory University, where she served as the director of the Lowance Center for Human Immunology and the Division of Rheumatology. In 2009, she returned to Stanford University, where she became the chief of rheumatology and immunology and the director of the Center for Translational Medicine. Dr. Weyand remains a faculty member at Stanford University as professor emerita.

Dr. Weyand is an elected member of the American Society for Clinical Investigation and the American Association of Physicians. She was named a Notable Woman in Science and Medicine by the Helmholtz Association. The National Institutes of Health have continuously supported her research program since 1993. She has presented 44 named lectureships and given more than 400 presentations. Her research team has published more than 450 manuscripts. Her current H-index is 138, documenting her wide-reaching impact in the scientific community.

Dr. Weyand's contributions to science have followed the arc of how immune responses deviate from host protection to tissue damage. Her primary focus has been on autoimmune diseases; specifically, atherosclerotic disease and the vasculitides. •