The Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease

FACING OFF AGAINST CARDIOVASCULAR DISEASE

Personalized Prevention
The staff members and fellows of the Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease include:

**TOP ROW** Hamied Al Faddagh, MD; Dominique Ashen, PhD, CRNP; Michael J. Blaha, MD, MPH; Roger S. Blumenthal, MD; Kathy Byrne, CRNP; Miguel Cainzos-Achirica, MD, MPH; Rhanderson Cardoso, MD

**SECOND ROW** Zeina Dardari, MS; Dorothy Davis, RN, MSN; Ramzi Dudum, MD, MPH; Roberta Florido, MD, MHS; Gary Gerstenblith, MD, JD; Ty Gluckman, MD; Eliseo Guallar, MD

**THIRD ROW** Amir Heravi, MD; Steven Jones, MD; Thorsten Leucker, MD, PhD; Cathy Handy Marshall, MD, MPH; Seth S. Martin, MD, MHS; Francoise Marvel, MD; Lena Mathews, MD

**FOURTH ROW** J. Bill McEvoy, MBCh, MHS; Erin D. Michos, MD, MHS; Khurram Nasir, MD, MPH; Chiadi Ndumele, MD, PhD, MHS; Olufunmilayo Obisesan, MD, MPH; Oluseye Ogunmoroti, MD, MPH; Albert Osei, MD, MPH

**FIFTH ROW** Vince Pallazoa, MD; Wendy S. Post, MD, MS; Tanuja Rajan, MD; Elizabeth Ratchford, MD; Aparna Sajja, MD; Sudipa Sarkar, MD; Vasanth Sathiyakumar, MD

**SIXTH ROW** Garima Sharma, MD; Erin Spaulding, BSN, RN; Peter Toth, MD; Iftekahar Uddin, MD; Seamus Whelton, MD, MPH; Di Zhao, PhD
Looking back, it seems 2019 will be remembered as the year when several important national guidelines pertaining to Preventive Cardiology were published — and these documents featured research generated by Ciccarone Center faculty serving as key co-authors. Once again, we are making a major impact on a national level, influencing the care of millions of patients.

Dr. Chiadi Ndumele (right) and I were co-authors of the AHA/ACC/Multisociety Guideline on Cholesterol Management, as well as a separate AHA/ACC special report on cardiovascular disease (CVD) risk assessment.

Drs. Erin Michos and Bill McEvoy were co-authors of the 2019 ACC/AHA Comprehensive Guideline on the Prevention of CVD, for which I served as co-chair. The pioneering work in cardiovascular risk assessment and personalized shared decision-making by Drs. Michos, McEvoy, Khurram Nasir, Michael Blaha, and Seth Martin was featured in these national guidelines.

Research conducted by Drs. Martin, Steve Jones, Blaha, and Vasanth Sathiyakumar on more accurate measurements of LDL-cholesterol (LDL-C) was featured in the U.S. Cholesterol Guideline. Because the Martin/Hopkins method of LDL-C estimation is especially useful in persons who have elevated triglycerides or low LDL-C values, it is increasingly used by leading clinical laboratories throughout the world.

Our Director of Hopkins Cardiovascular Research, Dr. Wendy Post, along with Dr. Kathy Wu, have led several large studies demonstrating that people living with HIV have a significantly increased risk for CVD due to immune system activation and a heightened inflammatory response. Suppression of the virus reduces, but does not eliminate, this systemic inflammation. Our recent guidelines support more aggressive risk factor management in persons with HIV and other inflammatory disorders, such as lupus and rheumatoid arthritis.

Dr. Post also leads the cardiovascular working group of the Multicenter AIDS Cohort Study (MACS) and is the principal investigator for the Hopkins Field Center for the NIH-funded Multi-Ethnic Study of Atherosclerosis (MESA), which is now in its 20th year. Ciccarone Center faculty have co-authored many important clinical research papers from MESA that are featured in the new national guidelines. Dr. Post was also an author of an AHA statement about CVD in people living with HIV and completed the 2019 Hopkins Medicine Leadership Development Program.

Dr. Michos, the Associate Director of the Ciccarone Center, is now the Director of Women’s Cardiovascular Health at Hopkins. She will work closely in this role with the newest faculty member of the Ciccarone Center, Dr. Garima Sharma, and with Dorothy Davis, MSN, RN, to establish outstanding outpatient care, specializing in cardiovascular diseases that primarily affect women.

Dr. Michos’s excellent mentoring was recognized at the Department of Medicine retreat, where she received the prestigious David M. Levine Excellence in Mentoring Award. She is also participating as the only cardiologist in the writing group for the KDIGO international guidelines on diabetes management in kidney disease.

Dr. Thorsten Leucker is now the Director of Vascular Biology Research in the Ciccarone Center. He also works closely with Drs. Martin, Jones, Kathy Byrne, CRNP (right), and Dorothy Davis, MSN, RN, in our expanding Advanced Lipid Disorders Clinic, which is directed by Dr. Martin. Drs. Leucker, Gary Gerstenblith, Blaha, Jones, and Steven Schulman are studying the role of a PCSK9 inhibitor, a potent cholesterol-lowering agent, in patients who have had a recent heart attack.

One of Dr. Leucker’s special research interests is the role of PCSK9 in arterial endothelial cells, which help regulate cardiac blood flow, and his research suggests that PCSK9 may be important in atherosclerosis development and progression. He has an AHA and a Johns Hopkins School of Medicine career development award to investigate PCSK9 and its associations with vascular inflammation and atherosclerosis development. Cardiology Fellow
Dr. Marios Arvanitis (right), genetic counselor Emily Brown, MGC, as well as Drs. Leucker and Jones received a prestigious 2019 Hopkins Discovery Award for their “multi-omics” project seeking to elucidate protective mechanisms against atherosclerosis.

Dr. Elizabeth Ratchford, Director of Vascular Medicine, was a co-author on the ACC Expert Consensus Pathway on Tobacco Cessation. Dr. Blaha is the principal investigator of a large award from the FDA and NIH, entitled AHA Tobacco Regulation and Addiction Center (ATRAC). He has led the Ciccarone work on the dangers of electronic cigarettes and other tobacco products.

Dr. Rhanderson Cardoso is our current Pollin Cardiovascular Disease Prevention Fellow, made possible by Irene Pollin’s (right) transformational $10 million gift to expand our clinical research and educational initiatives. He is obtaining master’s degree-level training at the Bloomberg School of Public Health. Our group has benefited from our collaborations with the Welch Center for Prevention, Epidemiology, and Clinical Research faculty, such as Drs. Elizabeth Selvin, Joe Coresh, Eliseo Guallar, Kuni Matsushita, Di Zhao, and Larry Appel.

Drs. Francoise Marvel and Seth Martin lead our work on digital and mobile health innovations to improve patient safety, outcomes, and healthcare efficiency. Together with lead author Erin Spaulding, BSN, RN (right), they published their methods paper for the Corrie Health Digital Platform for Self-Management in persons who have had a heart attack. Preliminary analysis of their trial results showed that patients who used the Corrie smart phone app and an Apple Watch had a 45% lower risk of being readmitted to the hospital as compared to those treated with usual care.

Dr. Ndumele was awarded the 2019 Scholarly Concentrations Excellence in Mentoring Award at the Hopkins Medical Student Research Symposium. Dr. Ndumele also received an NIH R01 grant focused on the role of adipokines (hormones secreted by fat tissue) in heart failure development. He will collaborate closely with several Hopkins colleagues on this grant, including Dr. Gerstenblith.

Dr. Blaha was the first Hopkins Cardiology clinical research faculty member to be named a full Professor of Medicine after just 6 ½ years on faculty. In 2018, he won the Fred L. Brancati Excellence in Mentoring Award. The Ciccarone Center is fortunate to have so many great members who have carried on the traditions of mentorship, research, and clinical care.

For more than 17 years, Dominique Ashen, CRNP, PhD, has been playing a pivotal role in the medical and lifestyle management of our patients, while pursuing innovative research on first responders with Drs. Ratchford and Jones. Kathy Byrne, CRNP, is a key member of the Advanced Lipid Disorders Center and Dorothy Davis, MSN, RN, works with patients of many of our faculty members to help them optimize their lifestyle habits.

Dr. Roberta Florido published several important articles on physical activity, cardiac structure, heart failure, and cardiac risk in cancer survivors. Dr. Seamus Whelton published innovative work on cardiac CT, lipids, and the competing long-term risks of cancer and CVD; he received a grant from the Center for AIDS research to study fitness in the Multicenter AIDS cohort study.

Finally, the Ciccarone Center lost a long-time supporter with the passing of Ginger Gomprecht. Twenty years ago, Ginger and her husband, Irv Gomprecht (right), offered to provide annual support for the creation and maintenance of databases on cardiac CT findings and CVD outcomes. Their loyal support played a key role in many of our pivotal publications on risk assessment and the prognostic “Power of Zero” coronary artery calcium. Their philanthropy and that of many other loyal annual contributors are directly responsible for the Ciccarone Center’s great contributions to medical science and improving the lives of our patients.

Roger S. Blumenthal, MD, FACC, FAHA, FNLA
The Kenneth Jay Pollin Professor of Cardiology Director, The Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease
This past year has been a momentous one for the Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease. We continue our work in providing excellent clinical care, educating health care practitioners and the public, and studying better ways to prevent cardiovascular disease.

Congratulations to Chiadi Ndumele, MD, who was awarded the 2019 Scholarly Concentrations Excellence in Mentoring Award for his extraordinary commitment to supporting Hopkins medical students. Presented at the 2019 Medical Student Research Symposium on February 8, this award recognizes the faculty mentor who best embodies the goals of the Scholarly Concentrations Program in fostering the spirit of independent scholarship at Johns Hopkins. This award is based entirely on the strength of recommendations from the students each recipient has mentored. According to the selection committee, “though competition was steep this year—several students wrote quite passionate letters of the positive impact their research mentors have had on their development as scholars — Dr. Ndumele’s students’ descriptions of his dedication to mentoring stood a head above the rest.”

Dr. Ndumele also received an NIH R01 grant focused on the role of adipokines in mediating and predicting heart failure (HF) associated with obesity. It evaluates the effects of adipokines on the development of subclinical and clinical HF, with comparison of associations with HF with preserved vs. reduced ejection fraction (HFrEF vs. HFrEF) over 20 years of follow-up. The study examines the usefulness of a panel of adipokines for improving HF prediction in obesity and studies the risk associations of adipokine expression in visceral fat tissue.

The Associate Director of the Ciccarone Center, Erin Michos, MD, MHS, also was honored for her outstanding contributions as a mentor. At the annual Department of Medicine Research Retreat on March 1, Dr. Michos was presented with a David M. Levine Excellence in Mentoring Award, which honors mid-career and senior faculty and is named for David Levine, MD, ScD, MPH. “This is such wonderful news,” Dr. Michos commented. “Mentoring is by far my favorite part of my job as an academic cardiologist. The excitement and passion of trainees and early career investigators embarking on their first research projects brings me much happiness. I hope to instill that joy for clinical investigation in them so that they can continue on for their promising careers ahead. Sometimes one just needs a gentle push in the right direction as my own mentors have done for me.”

A huge congrats to Sherita Hill Golden, MD, MHS, who has taken on a new role — as of July 1, she became a vice president, chief diversity officer for Johns Hopkins Medicine. The Johns Hopkins Medicine Office of Diversity and Inclusion amplifies Johns Hopkins’ capacity for first-rate medicine by ensuring that all patients and their families are welcome; all faculty, staff and learners are respected; and that equity throughout the institution remains a priority.

**New Technology, New Territory**

Kudos to Thorsten Leucker, MD, PhD, director of Basic and Translational Vascular Biology within the Ciccarone Center, for his innovative work with the Dynex DS2. This fully automated enzyme-linked immunosorbent assay (ELISA) system, which can analyze serum, plasma, cell culture supernates and cell lysate, and use virtually any available ELISA assay with a high grade of precision and accuracy. This will allow Dr. Leucker and his team to run several hundred samples per day with only minimal serum volume. “We are focusing on translational vascular projects and are utilizing samples from our ongoing clinical trials elucidating the role of inflammatory mediators, such as PCSK9, on cardiovascular diseases,” he says. “As part of the expanding clinical and basic research programs of the Center, the Dynex DS2 has already been used to analyze samples from ongoing clinical trials evaluating the impact of pro-inflammatory states on endothelial cell and vascular function.”
Dr. Golden also received the 2019 University of Virginia Distinguished Alumna Award not only for her work in the field of medicine and science, but also for her community engagement work following Baltimore’s civil unrest surrounding the 2015 death of Freddie Gray.

Wendy Post, MD, MS, recently co-chaired the Johns Hopkins University Committee on the Biomedical Scientific Workforce, charged with canvassing best practices at the university and beyond, identifying areas of need in our own approach, and setting out a blueprint for reform. The committee, also co-chaired by Pierre Coulombe, MD, included representatives from the School of Medicine, the Whiting School of Engineering, the Bloomberg School of Public Health, the School of Nursing, the Krieger School of Arts and Sciences, and the Applied Physics Laboratory. Dr. Post also was named Director of Cardiovascular Research for the Johns Hopkins Cardiovascular Division.

Erin D. Michos, MD, MHS, made several appearances behind the podium at The American Heart Association (AHA) Council on Epidemiology and Prevention and Council on Lifestyle and Cardiometabolic Health symposium, held in March in Houston. Dr. Michos represented the “con” side of the American Society of Preventive Cardiology (ASPC) Annual Debate, “Genetic Risk Scores for Cardiovascular Risk Assessment: Hope or Hype?” by arguing “Traditional CV Risk Factors and Other Tools Are Sufficient: Who Needs Genetics?” Dr. Michos also delivered the keynote talk for the Early Career session of the meeting, in which she described her own career path and the role that the AHA played in her career development.

Dr. Whelton’s award-winning study, which addressed the importance of fitness and how it can increase survival rates regardless of CVD risk factor burden in elderly adults, also was the subject of several journal articles, including Runner’s World, which inspired this comment by colleague Dr. Michos: “I am kind of jealous that Seamus made an appearance in my favorite magazine before I have!”

High-fives to Emily Brown, a genetic counselor who works with the Ciccarone Center Advanced Lipid Disorders Clinic. Her abstract, “Incorporation of Genetic Testing for Familial Hypercholesterolemia (FH) Nearly Doubles Diagnosis Rate,” was selected as the winner of the Foundation of the National Lipid Association Hunninghake Familial Hypercholesterolemia (FH) Abstract Award for outstanding work in FH research. Brown presented her work as part of the 2019 National Lipid Association Scientific Sessions in May in Miami.

Articles for Living a Heart-Healthy Life
Since 2014, the staff of the Ciccarone Center have been contributing cardiovascular health-related articles to “Healthy Heart,” a section of the Johns Hopkins Medicine website devoted to patient-friendly content. Written for a lay audience, the articles are designed to serve as an expert advice column and a resource to patients and others interested in managing and improving their health. The following is a list of some of the recent articles:

• “5 Heart Facts That May Surprise You,” written by Roger Blumenthal, MD
• “5 Heart Numbers You Need to Know,” written by Michael Blaha, MD, MPH
• “Surprising Body Cues That Could Be a Heart Concern,” written by Parag Joshi, MD
• “Fight Inflammation to Help Prevent Heart Disease,” written by Erin Michos, MD, MHS
• “How to Reduce Cholesterol: New Medication Options,” written by Seth Martin, MD, MHS

Corrie smartphone app founders Seth S. Martin, MD, MHS, and Francoise A. Marvel, MD, a cardiology fellow at Johns Hopkins, discussed results from the MiCORE study at the American Heart Association Quality of Care and Outcomes Research Scientific Sessions. Patients who used an intervention with a smartphone app and an Apple Watch to manage their care after a heart attack had a 45% lower risk for being readmitted, compared with those treated with usual care. The application also offers an alternative to the traditional paper-based standard of care for this patient population, says Dr. Martin: “There is so much more to like about this than handing someone a static piece of paper. [We are] actually connecting them with what they need to implement those instructions to follow the Ciccarone Center ABCs of prevention.”
In September, Dr. Marvel delivered a featured presentation on the exciting work of the Corrie team at the AHA Research Leaders Academy. She was introduced by AHA CEO, Nancy Brown. The Ciccarone Center plans to greatly expand the use of the Corrie app to cardiometabolic conditions other than post-heart-attack care.

In late April, Erin Michos, MD, MHS, lead author on a new study published on JAMA Network Open, had some sobering news about women with cardiovascular disease: more than half of women diagnosed with coronary artery disease, stroke, heart failure, heart rhythm disturbances, and peripheral artery disease do not participate in enough physical activity to maintain their optimal cardiac health and decrease health care costs associated with cardiac disability. The bottom line for improvement, says Dr. Michos, is communication: “Many high-risk women need encouragement to get more physically active in hopes of living healthier lives while reducing their health care costs.”

Shout-out to outstanding Osler house officer, Rick Ferraro, MD, for an editorial he wrote for the journal Aging under the mentorship of Vince Pallazola, MD (right), about physical activity and CVD prevention in older adults. The article, “Cardiovascular Disease Prevention and Physical Activity in the Aging Population,” provides a nice summary of the 2019 ACC/AHA Primary Prevention Guidelines with a focus on the physical activity recommendations.

Congratulations to Marios Arvanitis, MD (right), Thorsten Leucker, MD, PhD, Emily Brown, and Steven Jones, MD, for winning the 2019 Discovery Award for the “multi-omics project,” which seeks to identify protective mechanisms against atherosclerosis. Multi-omics, or integrative omics, is a biological analysis approach in which the data sets are multiple “omes,” such as the genome, proteome, transcriptome, epigenome, and microbiome; in other words, the use of multiple technologies to study life in a concerted way. A total of 32 Discovery Awards were given out to winning project teams — chosen from 222 proposals — that included 120 individuals, representing 12 Johns Hopkins entities solving complex problems and expanding the horizons of knowledge.

In June, Michael J. Blaha, MD, MPH, became a full professor of medicine at Johns Hopkins — after only six and half years as a faculty member! Joining Hopkins in January 2013, Dr. Blaha, Director of Clinical Research for the Ciccarone Center, has become well-known internationally for his work in subclinical atherosclerosis assessment to improve the accuracy of cardiovascular risk protection. He’s also a recipient of the Fred Brancati Excellence in Mentoring Award and has guided more than three dozen students and physicians in the development of successful clinical research careers. Way to go, Dr. Blaha!

Hats off to Roger Blumenthal, MD (right), Director of the Ciccarone Center, who recently received the 2019 Arthur Agatston Award from the Society of Cardiovascular Computed Tomography (SCCT). Dr. Blumenthal was honored for “his contributions to the optimal management of ischemic heart disease, noninvasive detection of coronary atherosclerosis, and the development of novel strategies to optimize the management of CVD risk factors.” The annual SCCT 2019 Scientific Sessions were held in Baltimore in July and several Ciccarone faculty were among those speaking, including Wendy Post, MD, MS, Michael Blaha, MD, MPH, Erin Michos, MD, MHS, and Roger Blumenthal, MD.
The efforts of several Ciccarone staff members — including Drs. Michos, Blumenthal and Ndumele — made the top 10 most-read stories and announcements from @HopkinsMedNews in 2018. Congrats to everyone!

Kudos to Allison Hays, MD, in her role as Program Chair and organizing an amazing “#WhyCMR” program for the 22nd Annual Scientific Sessions of the Society for Cardiovascular Magnetic Resonance (SCMR) held in February in Seattle.

We are pleased to announce that Lena Mathews, MD, became the new Medical Director for the Hopkins Center for Clinical Exercise Physiology and Cardiac Rehabilitation, effective July 1. As part of the ongoing efforts to integrate the two academic campuses, Dr. Mathews will oversee the Cardiac Rehab programs at both Green Spring Station and Bayview Medical Center.

Erin Michos, MD, MHS, has added to the long list of roles she plays in shaping the programming for disease prevention, locally and beyond. In March, she was appointed the Director of Women’s Cardiovascular Health for the Division of Cardiology at Johns Hopkins, and has since been working to establish a network of women’s CV health clinics around the Baltimore area. Dr. Michos started her own Women’s CV health clinic at the Ciccarone Green Spring Station location in September. In June, Dr. Michos was elected to the Board of Directors for the American Society of Preventive Cardiology (ASPC), in addition to serving on the planning committee for the ASPC Congress 2020. Dr. Michos joins fellow Ciccarone faculty and current board members Seth S. Martin, MD, MHS, and Peter P. Toth, MD, PhD. And in July she was asked to lead a task force established to provide guidance on best practices, resources, position statements and advocacy on these issues for members of American Society of Echocardiography. The task force is part of the “ASE Cares Campaign,” which promotes the well-being of all cardiovascular ultrasound professionals and fosters opportunities for social connection.

And speaking of the Hopkins women’s CV health prevention initiatives — we welcomed Garima Sharma, MD, to the Ciccarone Center this year. Among her many accomplishments, Dr. Sharma will serve as governor-elect for the Maryland Chapter of ACC, beginning April 1, 2020, and begin a three-year term as governor in April 2021. She is first author on a book chapter, “Sex Specific Differences in the Prevention of CAD,” which will be published by Elsevier in Sex Differences in Pathophysiology, Presentation, Diagnosis and Management of Cardiac Disease. Also, Dr. Sharma was recognized by the American College of Cardiology as a cardiologist with Asian roots who has “embraced and enriched the global cardiovascular community in advancing heart health.”

This summer, Michael Blaha, MD, MPH, who directs clinical research at the Ciccarone Center, joined the growing chorus of media voices warning that though e-cigarette use, or “vaping,” has not been shown to be as dangerous as smoking, it’s not a safe practice. In several articles — based on a study published in The New England Journal of Medicine in January — such as “Does Vaping Lead to Smoking?”, published on HopkinsMedicine.org and several articles in Cardiology Today, Dr. Blaha shared his insights on the potential dangers of vaping, and why avoiding cigarettes and their electronic alternatives is the healthier choice.

A CVD Showcase
Several members of the Ciccarone Center shared the spotlight at the 10th annual Johns Hopkins Cardiovascular Research Retreat, held May 31 in the School of Public Health, including several cardiology fellows who were the Stanley L. Blumenthal, MD, research award winners: Carine Hamo, MD, Marios Arvanitis, MD, Virginia Hahn, MD, Francoise Marvel, MD, Faisal Rahman, MD, and Eunice Yang, MD. Dr. Marvel also presented the latest Corrie results at the retreat, with medical students Daniel Weng and Lochan Shah showing off their backend data analytics prowess.

The American Society for Preventive Cardiology

Honorees included from left to right: Aditi Madan, PhD, and Drs. Francoise Marvel, Marios Arvanitis, Brian Lin, Virginia Hahn, and Carine Hamo.

Dr. Marvel presented the latest Corrie results at the retreat.

Seth S. Martin, MD, MHS, with medical student Lochan Shah.

Erin Michos, MD, MHS, and Garima Sharma, MD, at the CVD Showcase.
We are pleased to announce that Thorsten Leucker, MD, PhD, recently passed the American Board of Clinical Lipidology exam and is now a Diplomate of the ABCL. He joins Ciccarone Center members Steve Jones, MD, Seth Martin, MD, MHS, and Roger Blumenthal, MD.

In a new analysis of findings from 277 clinical trials using 24 different interventions, a team of Johns Hopkins Medicine researchers, including senior author Erin Michos, MD, MHS, found that almost all vitamin, mineral and other nutrient supplements or diets cannot be linked to longer life or protection from heart disease. Although most of the supplements or diets were not associated with any harm, the team’s analysis, published on July 8 in Annals of Internal Medicine, showed possible health benefits only from a low-salt diet, omega-3 fatty acid supplements and possibly folic acid supplements for some people. Researchers also found that supplements combining calcium and vitamin D may be linked to a slightly increased stroke risk. “The panacea or magic bullet that people keep searching for in dietary supplements isn’t there,” says Dr. Michos.

Adjunct Ciccarone Center faculty member Khurram Nasir, MD (right), joined Houston Methodist Hospital as Director of Cardiovascular Wellness & Prevention and Co-Director of the Center of Outcomes Research, combining his interests and expertise in prevention, population health, and health economics. Ciccarone Center research on the prognostic “Power of Zero” coronary artery calcium, led by Dr. Nasir and Mike Blaha, MD, MPH, has greatly advanced the field of cardiovascular risk assessment and was featured in the 2018 AHA / ACC Cholesterol and 2019 Prevention of Cardiovascular Disease Guidelines.

Dr. Michos posted this photo on Twitter, with the caption: “#Marathon state #34 crossed off the list! Beautiful day to run the streets of LA from Stadium to Sea in the #LAMarathon. I am sure slow at these things but I always #RunHappy.”

Run, Erin, Run!

When she is not busy running the Women’s Cardiovascular Health Clinic at the Ciccarone Center, Erin Michos, MD, MHS, can often be found literally running. It’s one of her life’s passions, she says. “I am not a very fast or talented runner, but I love running.” Lately, Dr. Michos, a fitness and healthy lifestyle advocate, has been able to combine her passion with her profession.

“When I was an early career faculty member, I got this idea that I wanted to do 50 marathons in all 50 states, as a way to see the country and combine my love of travel with my love of running,” says Dr. Michos who has completed 36 states to date, often participating when visiting a state for a medical meeting or to give a talk. “For example, in 2015, I ran the Twin Cities marathon a couple days after I gave a guest lecture in the Department of Epidemiology at the University of Minnesota. In 2016, I did the Phoenix marathon the weekend before the AHA Epi and Lifestyle meeting in Phoenix, Arizona.”

She also participated in the 2017 Disneyland Half Marathon in Anaheim during the same weekend as the 2017 AHA Scientific Sessions, and she managed to squeeze in the Sarasota Half Marathon in February 2019 when in town to speak at the Annual National Sarasota Congress for Cardiovascular Disease Prevention. Unlike the full marathons she’s got on her to-do lists, both of these events were completely unplanned, she admits.

“I showed up for the meetings and saw signs that there were half marathons planned that weekend, so I signed up for them on site — good thing I always travel with running shoes!”
A study led by one of our former Ciccarone trainees, Martin Tibuakuu, MD, about 10-year trends in smoking cessation advice and counseling – and disparities by sociodemographic groups — was published in JAMA Network Open in May 2019. The article also got a write-up in Medscape entitled, “Male, Minority, Uninsured Smokers Less Likely to Get Quit Help.”

At the American College of Cardiology’s 68th Annual Scientific Session & Expo, held in March in New Orleans, co-authors Roger Blumenthal, MD, Erin Michos, MD, MHS, and Bill McEvoy, MBCh, MD, MHS, introduced the 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease to much fanfare. Five months earlier, Drs. Chiadi Ndumele and Roger Blumenthal helped Drs. Scott Grundy, Neil Stone, and Donald Lloyd-Jones present the 2018 AHA/ACC Cholesterol Guideline and the Cardiovascular Risk Assessment in Primary Prevention Guideline in New Orleans. These three guidelines were published in Circulation and JACC.

Seamus Whelton, MD, MPH, received a 1-year extension of his Center for AIDS Research grant to help support his project on the “Association of HIV/AIDS and disease specific risk factors with cardiovascular fitness.” Other Ciccarone staff who’ve been newly funded for their work include Michael Blaha, MD, MPH, who received a grant from from BU/NHLBI for “RURAL: Risk Underlying

Compliments to Erin Michos, MD, MHS, and her team of talented trainees and early career faculty working in the Ciccarone Center. Of the total abstracts that were accepted for presentation at the American Heart Association’s (AHA) 2019 Annual Scientific Sessions, held in Philadelphia in November, nine were led by her crew — including Sarah Jang (right), a second-year Hopkins medical student, Safi Khan, MD (right), Victor Okunrintemi, MD, Eve Marie Bensen, MD, and Seye Ogumoroti, MD. It was a busy AHA for Team Ciccarone and the Michos Lab.

Well done Eunice Yang, MD! She was the recipient of this year’s Department of Medicine Silverman Award for her project, “Atrial Fibrillation in HFpEF: Bystander or Modifiable Risk Factor?”

Team Ciccarone Goes ‘Red’ for AHA’s Annual SFRN Meeting
We are so proud of the great science put forth from our Ciccarone team related to sex differences in CVD and HFpEF. Among those presenting at the AHA Go Red for Women Strategically Focused Research Network (SFRN) annual meeting held in Baltimore in late September were (left to right) David Kass, MD; Hopkins medical student Amir Heravi; Erin Michos, MD; Project PIs Kavita Sharma, MD; Sheila Collins, MD, from Vanderbilt; Pam Ouyang, MD; Virginia S. Hahn, MD, AHA fellow Sumita Mishra, MD; Di Zhao, PhD; Jay Vaidya, MD; and Wendy Post, MD, MS.

Rural Areas Longitudinal Cohort Study,” and Thorsten Leucker, MD, PhD, who received an American Heart Association Clinician Scientist Career Development Award.

After serving two years on the Board of Trustees for the Society for Vascular Medicine (SVM), Elizabeth Ratchford, MD, was recently elected to the Executive Board as Secretary of the society. She will also assume the role of Chair of the Membership Committee. As a member of the Program Committee, she had the pleasure of inviting Dr. Michos and Dr. Martin to speak at the 30th Anniversary SVM Annual Meeting at Tysons Corner. Since 2014, Dr. Ratchford has also served as the co-editor of the Patient Information Page for the society’s flagship journal, Vascular Medicine. All of the patient pages can be found online at journals.sagepub.com/vmjpatientpage. Dr. Ratchford has co-authored several patient pages with Ciccarone faculty, including one on electronic cigarettes with Dr. Blaha and one on statins with Dr. Martin. Also, Dr. Ratchford is working closely with Dr. Michos on a research registry and clinic focused on fibromuscular dysplasia and spontaneous coronary artery dissection.

news and highlights
Lowenstein Returns to Hopkins to Become Cardiology Director

After a lengthy search, the Chairman of Medicine Mark Anderson, MD, PhD, announced that Charles Lowenstein, MD, will become the next Director of the Division of Cardiology, effective January 1, 2020. Dr. Lowenstein originally came to Hopkins as a cardiology fellow in 1991 after completing his medical residency at the Massachusetts General Hospital and a research fellowship at the Massachusetts Institute of Technology. In 1993, he joined the Hopkins faculty and served as co-director of the Ciccarone Center for the Prevention of Heart Disease, along with Roger Blumenthal, MD, until he was recruited in 2009 to become the chief of cardiology and the director of the Aab Cardiovascular Research Institute at the University of Rochester School of Medicine and Dentistry. He has served on the NIH Atherosclerosis and Inflammation Cardiovascular Sciences study section, and is a member of the Sarnoff Cardiovascular Research Foundation, an organization that funds medical student research. Dr. Lowenstein’s research is focused on vascular biology, exploring molecular mechanisms of vascular inflammation and thrombosis.

Ciccarone Center Adjunct Faculty member, Peter P. Toth, MD, PhD, had another busy year. He was elected vice chair of the American Heart Association’s National Council on Clinical Lipidology, Lipoprotein Metabolism & Thrombosis, president-elect of the American Society of Preventive Cardiology, and director for the Advanced Course in Preventive Cardiology for the American Society of Preventive Cardiology. Dr. Toth also received the Outstanding Abstract Presentation award, at the National Lipid Association Scientific Sessions, for “High triglycerides are significant predictors of major CV events and increased costs in statin-treated patients: A real-world analysis.” He also lectured as part of an American College of Cardiology delegation to physicians in Malaysia, Mexico, and United Arab Emirates on the importance of guideline-driven care in cardiovascular disease prevention.

In addition to his day-to-day work at the Ciccarone Center, Michael Blaha, MD, MPH, served as an author of an upcoming Lipid Management in Patients with Endocrine Disorders guideline from the Endocrine Society; co-wrote an op-ed in the American Journal of Medicine calling for a new cardiometabolic medicine subspecialty training track in Internal Medicine; was added as a steering committee member for the new Lp(a)HORIZON randomized controlled trial; and opened up new lab space for his fellows and students.

J. William “Bill” McEvoy, MBBCh, MEd, MHS, reports that he has made significant progress since returning to “home turf” at the National Institute for Prevention and Cardiovascular Health (NIPC) in Ireland. Highlights include:

• getting appointed by the European Society of Cardiology as the national coordinator for CVD prevention for Ireland;
• publishing several articles highlighting his work on aspirin for the 2019 Primary Prevention guideline, including a review in The Lancet and an NEJM clinical decision piece;
• developing an annual national conference for CVD prevention that has included speaking engagements by Ciccarone faculty Erin Michos, MD, MHS, and Seth Martin, MD, MHS (right).
• securing funding to start an international survey of secondary prevention in 12,000 patients from 30 countries, under the auspices of the World Heart Federation, led by NIPC.

Congrats to Hopkins cardiology fellow Hamied Al Faddagh, MD, who was invited to present at the 2019 AHA’s Scientific Session in Philly about the benefits of omega-3 fatty acids beyond cardiovascular effect. The presentation is based on research conducted using data from the HEARTs trial looking at omega-3 fatty acids and physical function, pain, and cognitive function as secondary endpoints in patients with CAD. Dr. Al Faddagh also was selected as an invited member on the AHA’s ATVB & Lifestyle committee, beginning July 2019.

Elizabeth Ratchford, MD, participated in the writing group for the 2018 American College of Cardiology Expert Consensus Decision Pathway on Tobacco Cessation Treatment, which was recently published in the Journal of the American College of Cardiology. Given that nearly 1/3 of smoking-related deaths in the U.S. are due to cardiovascular causes, the ACC is urging its members to take the lead in promoting tobacco cessation. The document provides concise evidence-based guidance for clinicians in the evaluation and treatment of tobacco dependence for patients with cardiovascular disease. It also addresses special topics, such as weight gain with smoking cessation, the critical importance of quitting smoking prior to surgery, and how to approach electronic cigarette use.
Stanley L. Blumenthal, MD, Cardiology Research Awards
Since 2004, the annual Stanley L. Blumenthal, MD, Cardiology Research Awards have been presented to the Hopkins postdoctoral fellows, graduate students, or house staff submitting the best abstracts to major research meetings. The awards were established in 2003 by the family and friends of the late Stanley L. Blumenthal, a Phi Beta Kappa graduate of Johns Hopkins University and the School of Medicine. Dr. Blumenthal began his pediatrics training at Hopkins before moving to the University of Michigan to be a senior resident and then to Harvard’s Boston Children’s Medical Center to do Pediatric Cardiology training. He then worked at the National Children’s Medical Center in DC and George Washington University, and he had a large clinical practice in Silver Spring, MD.

The awards are bestowed following the yearly Johns Hopkins Cardiovascular Research Retreat. This year’s presentations and awards ceremony, held during the tenth annual event, on May 31 in the School of Public Health, were organized by David Kass, MD, Director, Institute of CardioScience, and featured lectures on cutting-edge cardiovascular disease science. Cash prizes and certificates were awarded to the following outstanding young cardiovascular disease researchers.

First place in the ORAL COMPETITION was an unprecedented, six-way tie. Sharing the prize were:
- Brian Lin, PhD, for his presentation, “Inhibition of Transient Receptor Potential Canonical 6 (TRPC6) in dystrophin-utrophin-deficient mouse model of Duchenne muscular dystrophy (MDM) rescues cardiac dysfunction, bone deformities, and extends life expectancy by nearly three-fold” (faculty mentor: David Kass, MD);
- Francoise Marcel, MD, for her presentation, “Myocardial infarction, CRONIC-device, Recovery Enhancement (MiCORE) Study: Preliminary results of 30-day readmission rates and cost-effectiveness of a novel digital health intervention for acute myocardial infarction patients,” (mentor: Seth Martin, MD, MHS);
- Virginia Hahn, MD, for her presentation, “Tissue is the issue: Endomyocardial biopsy approach to phenotyping in heart failure with preserved ejection fraction” (mentors: David Kass, MD, and Kavita Sharma, MD, right);
- Marios Arvanitis, MD, for his presentation, “Uncovering the role of genetic variation in clinical heart failure” (mentors: Alexis Battle, PhD, and Wendy Post, MD, MS);
- Carine E. Hamo, MD, for her presentation, “Heart failure risk associated with optimal levels of modifiable HF risk factors: The Atherosclerosis Risk in Communities Study (ARIC)” (mentor: Chiadi Ndumele, MD, PhD); and
- Aditi Madan, PhD, for her presentation, “Troponin-T cardiomyopathy mutations depress its inhibitory properties, in vitro, and stimulate myocardial dysfunction, in vivo” (mentor Anthony Cammarato, PhD).

First place in the BASIC SCIENCE POSTER COMPETITION went to Meera C. Viswanathan, for the presentation, “Expression of myosin storage myopathy mutations in Drosophila disrupts skeletal and cardiac muscle structure and function” (mentors: Anthony Cammarato, PhD. Justin Lowenthal took second place for “Engineered heart Slice preparation for drug studies and disease modeling” (mentors: Sharon Gerecht, PhD, and Leslie Tung, PhD).

First place in the TRANSLATIONAL SCIENCE POSTER COMPETITION went to Faisal Rahman, MD, (right), for “Early prediction of cardiogenic shock in acute decompensated heart failure using machine learning tools” (mentors: Steven Schulman, MD, and Suchi Saria, PhD). Second place was awarded to Eunice Yang, MD, for the presentation, “Atrial fibrillation increases 30-day hospital readmission in heart failure with preserved ejection fraction” (mentors: Kavita Sharma, MD, Hugh Calkins, MD, and David Spragg, MD).

First place in the POPULATION SCIENCE POSTER COMPETITION went to Olive Tang, AB, for her presentation, “High-sensitivity cardiac troponin T and I as independent markers of cardiovascular risk in the general population” (mentor Elizabeth Selvin, PhD). Amir Heravi (right), took second for “HIV infection is associated with higher repolarizability in the Multicenter AIDS Cohort Study (MACS)” (mentors: Wendy Post, MD, MS, and Katherine Wu, MD).

Congratulations to all the winners!
Our Donors Make an Invaluable Difference

The impact of philanthropy is immeasurable. It enables research, education, and clinical care to advance beyond the limitations of budgetary constraints and diminished federal funding. We are truly grateful to our generous contributors. They assist in our efforts and partner with us as we remain at the forefront of scientific investigation and collaboration in all areas of cardiovascular disease prevention.

While our space here is limited, please know our gratitude is not. Philanthropic support of any amount has been greatly appreciated, but we’d like to take this opportunity to thank the following donors for their extraordinary investment in our clinical research and activities over the past year:

Mr. Michael A. Amato
Mr. and Mrs. Richard Amato
Mr. David L. Ansell
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More Than 250!

The Ciccarone Center publishes important original research articles, editorials, and review articles in many of the world’s top cardiology, internal medicine, epidemiology, and endocrinology journals. From October 2018 to September 2019, the Center showed amazing productivity, publishing more than 250 articles of significant basic and clinical research findings, commentaries, and review articles in many leading medical journals, including:

- AIDS: 4
- American Journal of Cardiology: 14
- American Journal of Epidemiology: 1
- American Journal of Medicine: 9
- Annals of Internal Medicine: 1
- Atherosclerosis: 9
- ATVB: 1
- Circulation: 18
- Circulation Companion Journals: 9
- Circulation Research: 1
- Diabetes Care: 2
- European Heart Journal: 4
- European Heart Journal CV Imaging: 4
- European Journal of Preventive Cardiology: 5
- Heart: 3
- Hypertension: 3
- Journal of the American Heart Association: 16
- JACC: 20
- JACC Companion Journals: 5
- JAMA Cardiology: 6
- JAMA Network Open: 5
- Journal of Clinical Lipidology: 9
- Journal of Cardiovascular CT: 10
- Lancet: 1
- Mayo Clinic Proceedings: 3
- Nature: 1
- Nature Reviews in Cardiology: 2
- New England Journal of Medicine: 3
- PLoS One: 1
- Vascular Medicine: 8
Simple AS ABC

The Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease has identified a simple and effective way to reduce one’s risk of cardiovascular disease. Our “ABCDE” method — which stands for Assessment of risk, Antiplatelet therapy; Blood pressure management; Cholesterol management, Cigarette/tobacco cessation; Diet and weight management, Diabetes prevention and treatment; and Exercise — organizes the national guidelines into a comprehensive plan for managing prevention. This tool is intended to provide a brief set of instructions for people to discuss with their doctors.

A: Assess Your Cardiovascular Disease Risk and Know Your Numbers
10-Year Atherosclerotic Disease (ASCVD) risk estimator—An adult can estimate his/her 10-year risk of heart attack and stroke using this simple online calculator: CVriskcalculator.com

Common cut-offs are:
• LOW: Less than 5%
• INTERMEDIATE: 5% to 20%
• HIGH: Greater than 20%

Using this information, talk to your clinician about how you can best prevent future heart attacks and strokes.

A: Aspirin therapy
• Any patient who has had a heart attack or stroke in the past should take a low-dose aspirin (81 mg) once a day
• For the rest, we only recommend aspirin for ASCVD prevention in selected patients
• Talk to your clinician about it

B: Blood Pressure
• Normal blood pressure is <130/80
• For everyone with high blood pressure (>130/80), eat less than 2 grams sodium per day (consider DASH diet), lose weight if BMI > 25, and exercise more frequently or longer
• For those with high blood pressure at high risk of cardiovascular disease, or who can’t control blood pressure with lifestyle alone, you may need medication

C: Cholesterol
• Cholesterol can gradually build up in the walls of our arteries and form plaques, which can lead to decreased blood flow. Over time, this can lead to heart attacks or strokes
• The best ways to reduce cholesterol remain a healthy diet. If additional help is needed, a statin can be started, with further medication changes, as needed
• LDL is the “bad” cholesterol which can cause the plaque build up in our arteries: this number should generally be <70 mg/dL in high risk patients
• It is also important to keep triglycerides <150 mg/dL, which can be achieved through management of weight, exercise, and diet.

C: Cessation (Quitting) of Tobacco
• Smoking cigarettes and the use of other tobacco products (e.g., e-cigarettes, hookah) can cause heart and lung disease and cancer
• Quitting smoking is the most important thing you can do to prevent heart disease in the future
• 1-800-QUIT-NOW is a great resource that offers advice and resources to help quit smoking
• Available treatments include nicotine replacement (e.g., gum, patch, lozenge) as well as medications (e.g., varenicline, bupropion)

D: Diet and Maintaining a Healthy Weight
• A “healthy” BMI is 18-25 kg/m2
• Individuals with increased weight (BMI 25-30) and obesity individuals (BMI >30) should aim to lose 3-10% of body weight by restricting calorie intake and increasing physical activity
• A combination of reducing calories eaten and increasing physical activity is recommended
• A food and exercise diary can be helpful to keep track of healthy lifestyle patterns that are sustainable
• The 3 major healthy cardiovascular diets are: the Mediterranean, DASH, and healthy plant-based diets
• Healthy diets are generally high in fruits and vegetables. Healthy protein sources include fish, soy, and lean meats (e.g., boiled, grilled, or sautéed chicken, turkey)
• Limit amounts of simple carbohydrates, added salt, alcohol, processed foods, and processed meats
• Drink water instead of soda or juices (as well as other sugar-sweetened beverages)

Increase Good Fats (unsaturated)
• Nuts, nut butters, canola oil, olive oil, avocado oil, avocados, chia seeds
• Salmon, trout, mackerel

Decrease Bad Fats (saturated/trans)
• Butter, margarine, ghee, “tropical oils”, cheeses, high fat milks, red meats, prepared desserts
• Your clinician and nutritionist can help you work on the right diet that can meet your health and financial needs

E: Exercise (Physical Activity)
• Adults should engage in >150 minutes/week of moderate intensity physical activity (e.g., brisk walking, yoga, leisurely biking) OR >75 minutes/week of vigorous physical activity (e.g., jogging, swimming laps, singles tennis)
• The more physical activity you do, the lower your future risk of developing cardiovascular disease

Take control of your ABCs! For more information, call the Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease at 410-955-7376 or visit www.hopkinsmedicine.org/heart

Personalized prevention advice is the trademark of the Ciccarone Center.
WHAT IS THE CICCARONE CENTER?

Since 1990, the mission of the Ciccarone Center for the Prevention of Cardiovascular Disease has been three-fold:

- To provide excellent clinical care for people with, or at risk of developing, cardiovascular disease (CVD)
- To educate health care practitioners regarding the most recent advances in the identification of established and novel cardiovascular risk factors and their management so as to enable them to better decrease their patients’ risk of developing CVD
- To establish rigorous research programs to advance prevention of cardiovascular disease

Determined pursuit of these goals over the past 29 years has led to the creation of one of the fastest growing clinical, research, and educational programs at Johns Hopkins, which is highly regarded for its innovative and effective approaches to cardiovascular disease prevention and risk factor management.

Clinical Care
The trademark of the Ciccarone Center is its comprehensive approach, which involves both global assessment and aggressive management of multiple risk factors (rather than single risk factors, such as high blood pressure or high cholesterol alone) contributing to the development and progression of atherosclerosis. Our clinical center is dedicated to:

- The identification and management of individuals at risk for accelerated atherosclerosis (primary prevention) to prevent or delay the onset of CVD, and
- The management of patients with established vascular disease (secondary prevention) to reduce recurrent cardiovascular events and long-term disability, and to prolong survival.

Education
Our educational efforts are directed to both the medical community and the general public. The Ciccarone Center serves as a model for teaching the science and art of prevention of cardiovascular disease to Cardiology fellows, residents, and students at the Johns Hopkins School of Medicine and the Bloomberg School of Public Health. Our faculty participate in educational activities including seminars and lectures at national and international forums.

Our physicians and nurse practitioners also educate patients and the public in the most recent health management guidelines and behavior modification techniques to achieve individual prevention goals.

Research
The Ciccarone Center is committed to conducting cutting-edge research on the lifestyle basis of cardiovascular risk, risk factors for cardiovascular disease, early detection of atherosclerosis, and appropriate use of pharmacotherapy for prevention of future cardiovascular events like heart attack stroke. We conduct research on three levels:

- Epidemiology research studies documenting the prevalence of cardiovascular risk factors and cardiovascular disease, both in the United States and globally.
- Clinical research studies of cardiovascular disease involving informed, consenting adults, including studies of wearable technology and studies of new pharmaceuticals recently introduced into the marketplace.
- Basic research to decipher fundamental mechanisms responsible for the development, progression, and clinical manifestations of atherosclerotic vascular disease, from the level of isolated arterial cells to small and large animal models of heart disease. We have particular expertise in inflammation.

continued on next page

ABCDE of Primary Prevention: Lifestyle Changes and Team-Based Care

The Ciccarone Center has pioneered the use of the “ABCs of Heart Health” to help patients learn more about heart health. The following “pieces of the puzzle” have been shown to reduce the development of not only cardiovascular disease but also other health issues as well.

WHAT IS THE CICCARONE CENTER?

A Personalized, Comprehensive Approach
The Ciccarone Center specializes in managing adults who are at high risk for future cardiovascular disease because of the presence of multiple cardiac risk factors (such as hypertension, dyslipidemia, diabetes, smoking, sedentary lifestyle, or overweight status) or a history of known cardiovascular, cerebrovascular or peripheral arterial disease.

The goals of Ciccarone Center’s personalized, comprehensive approach to lifestyle and medical management is to slow or halt the progression of cardiovascular disease and thereby decrease one’s future risk of a heart attack, stroke, and heart failure. We also sponsor research that includes large epidemiologic studies, single and multi-center clinical trials, and basic molecular studies.

Several groups of patients are of particular interest to the Ciccarone Center:
- Women and ethnic minorities
- Patients with metabolic disorders such as inherited dyslipidemias, the metabolic syndrome, and diabetes
- Patients with accelerated atherosclerosis
- Persons with a family history of premature cardiovascular disease
- Persons with recurrent chest pain but without significant obstructive coronary artery disease
- Persons who cannot tolerate standard cholesterol or blood pressure medications

State-of-the-Art Testing
We are especially interested in individuals who develop cardiovascular disease before the age of 65. We also have special expertise in the screening and management of asymptomatic family members of persons with premature atherosclerotic disease. Our team may selectively employ state-of-the-art testing to identify factors contributing to heart disease clustering in families.

For an individual patient, we may use the latest assessment techniques to measure lipoproteins (total cholesterol, high-density lipoprotein cholesterol [HDL-C], LDL-C, and triglyceride levels) and apolipoproteins [Lp(a), apolipoprotein B] as well as nontraditional risk factors.

However, for many individuals testing for these emerging risk factors may not be needed to optimize their management.

Advanced Diagnostic Tools
Among asymptomatic adults with no history of cardiovascular disease, we may use a 64-slice or a 320-slice multi detector computed tomography (MDCT) scan of the heart to measure the extent of coronary artery calcification. The presence of elevated coronary artery calcification (e.g., > 75th percentile for one’s age and gender or > 100 Agatston Units) or thickened carotid arteries are signs of accelerated atherosclerosis for one’s age and may prompt more aggressive comprehensive risk factor changes achieved by both medical management and lifestyle modification.

Occasionally, a cardiac CT angiogram may also be indicated in patients with atypical chest pain and inconclusive stress test results. After an initial comprehensive evaluation, this test may help to inform management decisions, including more sophisticated laboratory and diagnostic testing and intervention.

Improving Lifestyle Habits
We specialize in helping people improve their lifestyle habits by assisting them in achieving behavior changes such as:
- Following healthier diets
- Maintaining a prudent body weight
- Smoking cessation
- Maintaining a regular aerobic program
- Coping better with stress

Our Mission
We have built the Johns Hopkins Ciccarone Center with the following goals in mind:

1. Provide a center dedicated to clinical patient care and the global assessment of risk factors for cardiovascular disease, which enables patients to receive:
   - the latest information on the prevention of atherosclerotic vascular disease,
   - comprehensive management of CVD risk factors, and
   - high-quality care that is integrated into the other health promotional resources of Johns Hopkins.

2. Create a center for the education of health care providers in the area of prevention of cardiovascular disease. Teaching by our physicians and nurse practitioners broadly targets Hopkins nurses, medical students, fellows, and physicians as well as the provider and patient community at large.

3. Foster cardiovascular research, including both epidemiologic studies, clinical trials and translational research.
A listing of the publications by the staff of The Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease, from October 2018 through September 2019.

**Antithrombotic**


**Summary:** CAC helps to identify very high-risk primary prevention adults without established CVD who may derive net-benefit from low-dose rivaroxaban.


**Summary:** We reappraise aspirin’s role in primary prevention of cardiovascular disease, with data from historical and contemporary trials.


**Summary:** Ischemic and bleeding risk scores add significant value to therapeutic management decisions.


Assessment

Summary: The new coronary artery calcium score compared to the traditional Agatston score.


Summary: Almost 1 in 10 individuals with ASCVD without a diagnosis of depression is at high risk for it.


Summary: CAC strongly predicts CHD, CVD, and all-cause mortality beyond traditional risk factors in Asian Americans.


Summary: CAC has utility for clinical decision-making among select young adults at elevated risk of CVD.


Summary: This easily accessible model can be used to facilitate personalized-medicine and doctor-patient communication.


Summary: Patients with extensive CAC represent a unique very high-risk phenotype with mortality outcomes commensurate with high-risk secondary prevention patients.


Summary: The presence and high burden of left main CAC are independently associated with a 20-30% greater hazard for mortality in asymptomatic adults.

Ty J. Gluckman, MD
An adjunct faculty member of the Ciccarone Center for the Prevention of Cardiovascular Disease, Ty J. Gluckman, MD, FACC, FAHA, currently serves as Medical Director of the Center for Cardiovascular Analytics, Research, and Data Science (CARDS) at the Providence Heart Institute in Portland, Oregon. Dr. Gluckman’s principal clinical interests include identifying, coordinating, and implementing cardiovascular care improvement strategies. He has co-authored many peer-reviewed scientific articles, reviews, and book chapters, and serves as Associate Editor for “Practice Guidelines and Clinical Documents” for ACC.org. He also holds several positions with the ACC, including currently serving as National Chair of the ACC Patient Navigator Program-Focus MI. Dr. Gluckman was lead developer for the ACC Atherosclerotic Cardiovascular Disease (ASCVD) Risk Estimator app, and more recently helped to design the AnticoagEvaluator, BridgeAnticoag, ASCVD + and LDL-C Manager apps.


Summary: CAC density was the strongest independent predictor of major cardiac events, but it did not provide incremental value beyond the Agatston score after adjustment for diameter stenosis.


Summary: Detectable breast arterial calcium in screening mammograms may identify women at increased cardiovascular risk.

Abdulhamied Al Faddagh, MD
Dr. Abdulhamied Al Faddagh earned his Medical Degree from Kuwait University after graduating as the Valedictorian of his class in 2013. He then joined the Welty Lab at Harvard Medical School as a research fellow primarily focusing on cardiovascular disease prevention research. Using data from the HEARTs randomized controlled trial of omega-3, he studied the effect of high dose omega-3 fatty acids on coronary atherosclerotic plaque progression measured by coronary computed tomography angiography. Dr. Al Faddagh then went on to complete his residency at the Beth Israel Deaconess Medical Center before coming to Johns Hopkins for a cardiology fellowship. This year, Dr. Al Faddagh was selected as an invited member on the AHA’s ATVB & Lifestyle Clinical Lipidology, Lipoprotein, Metabolism & Thrombosis Committee beginning July 2019.


Summary: Although self-rated health and CAC integrate many risk variables, they are poorly correlated and have complementary predictive utility.


Summary: GlycA and composite inflammation are associated with CAC among low cardiovascular risk individuals but not otherwise.
Research Publications

Michael Blaha, MD, MPH: A Timeline of Achievement

In June 2019, Michael J. Blaha, MD, MPH, became the first Hopkins cardiology clinical research faculty member to be named a full professor of medicine in just six and half years. Joining Hopkins in January 2013, Dr. Blaha, Director of Clinical Research for the Ciccarone Center, has become well-known internationally for his work in subclinical atherosclerosis assessment to improve the accuracy of cardiovascular risk protection and has guided more than three dozen students and physicians in the development of successful clinical research careers. Here’s a visual guide to track his amazing accomplishments.


Summary: Before recalibration, the clinical performance of four widely used CVD risk algorithms varied substantially.


Summary: Blacks and Hispanics may have greater mortality risk compared with whites and Asians after adjusting for atherosclerosis burden, with implications for US race/ethnic healthcare disparities research.


Blumenthal RS. All cardiovascular health professionals need to know the ABCDEs of primary and secondary prevention. Journal of the American College of Cardiology. 2019 Sep 24;74(12):1640-1641.


Research Publications


**Summary:** We summarize the rationale and evidence base for quantitative risk assessment and provides practical advice regarding implementation of risk assessment and decision-making strategies.


**Summary:** The high burden of sudden cardiac death and the racial-gender disparities observed in our study represent a major public health and clinical problem.


**Summary:** Elevated resting heart rate is independently associated with greater cognitive decline and incident dementia over 20 years.


Research Publications


**Summary:** The success of a mHealth intervention links more strongly with how well it connects patients back to routine clinical care, rather than its behavior modification technique.


**Summary:** The establishment of a quantitative pimping score may have relevance for training programs concerned about the learning environment in clinical settings.


Fashanu OE (right), Oyenuwa AO, Zhao D, Tibuakuu M, ... Michos ED. GlycA, a novel inflammatory marker and its association with peripheral arterial disease and carotid plaque. *Angiology*. 2019 Sep;70(8):737-746.

**Summary:** GlycA was associated with prevalent low ankle-brachial index, prevalent carotid plaque, and incident peripheral artery disease.


Biomarkers


**Summary:** Survivors of some cancers may be more likely to have elevated hs-cTnT than persons without prior cancer.


Research Publications


Summary: Serum PCSK9 levels are increased in treated HIV individuals and are associated with abnormal coronary endothelial function.


Summary: GlycA was positively associated with prevalent and incident extra-coronary calcifications measures.


Summary: Suboptimal CV health is associated with higher GlycA levels, independent of traditional inflammatory biomarkers.


Summary: In 2 HIV cohorts, elevated plasma levels of ceramides, correlating with immune activation and inflammation, were associated with antiretroviral therapy use and progression of carotid artery atherosclerosis.

Blood Pressure
Summary: Nonalcoholic fatty liver disease is modestly associated with carotid IMT and coronary artery calcification in a multi-ethnic population.


Summary: The ACC/AHA hypertension guidelines extend antihypertensive medication to a substantial number of individuals.

David Feldman, MD, MPH
A prior research fellow of Dr. Michael Blaha from 2013-2015, Dr. David Feldman returns to Johns Hopkins to join the Osler Housestaff after graduating from the University of Miami where he earned his MD and MPH degrees. During his time in Miami, Dr. Feldman continued to collaborate with the Ciccarone Center faculty on various projects, including his work on erectile dysfunction to determine its role as a potential risk modifying factor for cardiovascular disease. Building on his prior mobile health work with Dr. Seth Martin where he helped lead the mActive project, he recently completed a mobile health review that highlighted the benefits and limitations of harnessing mobile health technologies to prevent cardiovascular disease. He also was supported by mentors Drs. Khurram Nasir and Blaha on his MPH Capstone Project (thesis), which focused on how maximizing cardiovascular disease risk factor profiles can help reduce the economic burden on the healthcare system. During residency, Dr. Feldman hopes to build on his previous research productivity with the Ciccarone Center in preparation for a fellowship in cardiology and eventually an academic career in Preventive Cardiology.
Research Publications


Song L, … Post WS, Guallar E, … Jones MR. Ambient air pollution as a mediator in the pathway linking race/ethnicity to blood pressure elevation. Environmental Research. 2019 Sep 30.


**Cholesterol**

Haj-Mirzaian A, … Blaha MJ et al. Statin use and knee osteoarthritis outcome measures according to the presence of heberden nodes. Radiology. 2019 Sep 10;190557. Summary: Statin use was associated with reduced risk of radiographic knee osteoarthritis joint space narrowing progression.


Sandesara PB, … Sathiyakumar V, Martin SS, Blaha MJ, Blumenthal RS, Sperling LS. Clinical significance of zero coronary artery calcium in individuals with LDL cholesterol ≥190 mg/dL: The Multi-Ethnic Study of Atherosclerosis. Atherosclerosis. 2019 Sep 27. Summary: Among persons with LDL-C ≥190 mg/dL, younger age, female sex, and the absence of diabetes were associated with zero CAC.


Summary: We discuss the relationship between LDL-C lowering and cardiovascular risk reduction and the recommendations from the most recent lipid guidelines.


Summary: Our findings emphasize the need to standardize definitions and measurements of remnant lipoprotein cholesterol.


Summary: This study provides insight into the complexity of lipid metabolism in hypertriglyceridemic phenotypes.


**Summary:** Diagnosis of the drucebo effect in patients presenting with statin intolerance will allow restoration of lipid-lowering therapy.


**Summary:** These findings reinforce the need for more aggressive lipid-lowering therapy among adults who have had an MI.


Summary: In US adults on statins and at high risk for CVD, the health care costs associated with hypertriglyceridemia are substantial.


Cigarettes


Summary: All smoking measures showed significant associations with 3 major atherosclerotic diseases, with the strongest effect size for incident PAD.


Summary: Smoking intensity, burden, and time since quitting did not provide additional information for HF risk after accounting for smoking status.


Summary: There are significantly higher odds of cardiovascular disease among dual users of e-cigarettes + combustible cigarettes, compared with smoking alone.


Summary: Differential effects of tobacco products (conventional vs. new and emerging products) on different indexes of cardiovascular injury provide insights into mechanisms of harm.


Summary: There is a strong association between smoking and peripheral arterial disease in blacks.


CV Imaging


Diabetes


Summary: There was no independent association between reduction in LDL cholesterol and incident diabetes.


Summary: We review the modalities and components of various impactful interventions for insulin management, diabetes education, self-management and prevention.


Summary: The Dietary Approaches to Stop Hypertension, Mediterranean, and vegetarian diets have the most evidence for CVD prevention.


Summary: CT-measured visceral adipose tissue was independently associated with incident hospitalized HFpEF but not HFrEF.


Summary: Self-reported weights may provide prognostic information about future heart failure risk, incremental to current BMI.


Summary: Maintaining healthy life habits could reduce the development and progression of subclinical atherosclerosis and prevent clinical cardiovascular events.

Summary: Temporal shifts in the association between increased estimated sodium intake and markers of subclinical CVD point to the complex pathobiology of the association between sodium intake and CVD.


Summary: Bariatric surgery is associated with a lower atrial fibrillation recurrence after ablation.


Summary: Heavy alcohol consumption was associated with unfavorable cardiovascular health, while light or moderate drinking may be associated with a more favorable CV health in women.


Exercise


Summary: Fitness is inversely associated with risk of all-cause mortality and MI at all levels of ASCVD risk, and it provides incremental risk discrimination and reclassification beyond the ASCVD risk score.


Summary: Higher fitness was associated with a lower risk of lung and colorectal cancer and a lower risk of all-cause mortality among those with lung or colorectal cancer.


Summary: Moderate-high cardiorespiratory fitness in patients with HFrEF is associated with improved survival, and differences in fitness partly explain the intrinsic risk of HFrEF.


Summary: In individuals with isolated low HDL-C, fitness significantly improved risk stratification.


Summary: Greater positive changes in leisure-time physical activity levels were associated with a more eccentric-type of left ventricular remodeling pattern.

Summary: Participation in specific sports and exercises may substantially reduce the risk for CVD.


Gender Differences


Summary: Changes in sex hormones with aging and menopause may result in vascular changes in women.


Summary: This review summarizes the literature on polycystic ovary syndrome and CVD risk factors.


Summary: Multiparity was associated with poorer cardiovascular health, especially for women with ≥5 live births.


Summary: The proportion of women with CVD not meeting recommended physical activity is high and increasing.


Summary: Sex hormone levels may help identify women at increased risk for CVD who may benefit from additional risk-reducing strategies.


Genetics


Genetics


HIV


Summary: Carotid artery plaque was predictive of mortality, with differences observed by sex and HIV serostatus.


Whelton SP, … Sarkar S, … Post WS. Associations between lipids and subclinical coronary atherosclerosis. *AIDS*. 2019 May 1;33(6):1053-1061. Summary: The associations between lipids and coronary atherosclerosis tended to be weaker for HIV+ compared with HIV- men, although total cholesterol had the strongest association for both groups.


**Vascular**


**Vitamin D**


Fashanu OE … Michos ED. Mid-life serum vitamin D concentrations were associated with incident dementia but not late-life neuropsychological performance in ARIC. *BMC Neurology*. 2019 Oct 22 (vit D)
A listing of the late-breaking clinical research data presented at major cardiology meetings the staff of The Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease.

Presentations at the 2019 Scientific Sessions of the American Heart Association (AHA), November 16-18; Philadelphia.

Okunrintemi V. Non-dietary cardiovascular health metrics and their association with patient reported outcomes among US adults with CVD.

Okunrintemi V. Age-specific differences in patient reported outcomes among adults with ASCVD.


Khan SU. Trials of lipid lowering therapy: A systematic review.

Khan SU. Effects of therapeutic lowering of non-high density lipoprotein cholesterol on cardiovascular outcomes among women versus men: A meta-regression analysis.


Albert NM, Gluckman TJ, … Mobayed J. The association of Patient Navigator Program features and hospital strategies with processes and outcomes metrics in acute myocardial infarction and heart failure.

Albert NM, Gluckman TJ, … Mobayed J. Clinical process and outcomes improvements based on within site communication: Insights from the Patient Navigator acute myocardial infarction and heart failure program.


Khan SU, … Leuker TM, Blaha MJ, Michos ED. Apolipoprotein B with mortality and cardiovascular outcomes across various lipid lowering therapies.


Post W. Lp(a): In whom to measure and what to screen for?

Heravi AS, … Wu KC, Post WS. HIV infection is associated with higher repolarization lability in the Multicenter AIDS Cohort Study (MACS).

Heravi AS, Michos ED, Zhao D, … Ndumele CE, Guallar E, (right), …, Post WS. Associations between urinary isoprostane levels and menopausal status in the Coronary Artery Risk Development In Young Adults (CARDIA) Study.


Martin SS. Practical application of the new cholesterol guideline: Assessing risk and optimizing therapies.
Dr. Ndumele Named Co-Director of New Johns Hopkins Center for Cardiometabolic Health
The Ciccarone Center is proud to announce that Chiadi Ndumele, MD, PhD, MHS, was recently named co-director of a new American Heart Association Strategically Focused Research Network (SFRN) grant studying cardiometabolic health and type 2 diabetes. One of only four such grants awarded across the country, the new Johns Hopkins SFRN Center involves synergistic basic science and population/clinical projects, examining whether molecules secreted by fat cells called adipokines play a key role in determining why some individuals with obesity develop metabolic risk factors (high blood sugar, elevated blood pressure and abnormal cholesterol) and type 2 diabetes, while others do not. Rexford Ahima, MD, PhD, Director of the Division of Endocrinology, Diabetes and Metabolism at Johns Hopkins University School of Medicine, also was named as co-director.

The grant will also examine how metabolic risk factors and diabetes lead to heart failure and will assess the impact of weight loss on these pathways. The project includes a significant training component for post-doctoral fellows, led by our own award-winning mentor, Dr. Erin Michos. An important component of the project is a collaboration with Morgan State University, which will provide research experiences at Johns Hopkins for Morgan’s students and faculty. A truly collaborative project, the Hopkins SFRN Center is a partnership among several departments, including cardiology (Drs. Ndumele, Michos, Wendy Post, Gary Gerstenblith, Bob Weiss, and Roberta Florido), endocrinology (Drs. Ahima, Sangwon Kim, Justin Echouffo Tcheugui), epidemiology (Drs. Elizabeth Selvin [co-Principal Investigator of the Population/Clinical Project] and Josef Coresh) and genetics, with Dr. Dan Arking.

Blaha M. No contest! Calcium scoring beats risk scores and should be more broadly performed.

Sathiyakumar V. Can we optimize CVD care using genetics, digital health and the microbiome?: Case of a primary prevention patient.


Blumenthal RS. All you need to know about cardiovascular disease prevention guidelines. Well—almost all.

Michos ED. How to assess ASCVD risk?

Blumenthal R. Putting it all together – ABCDE’s of prevention.


Shrestha R, Hashi S, Martin S. Understanding and implementation of coronary artery calcium scanning by primary care providers.


Michos E. Facts or alternate facts: A case-based deep dive into the recently released prevention of cardiovascular disease guidelines. Case presentation: It’s all about the risk or is it?

Martin S. Finding the clinician entrepreneur and establishing an innovation program.

Blumenthal R. The devil is in the details: A case-based discussion on cholesterol guidelines.

Martin S. Top 3 presentations in digital innovation/mHealth/precision medicine most likely to impact or change clinical practice or future research agenda.

Swanson R, … Gluckman TJ. Process to ensure correct classification of myocardial infarction-related deaths.

Gluckman TJ, … Rao SV. Differential impact of bleeding avoidance strategies on risk-adjusted PCI-related bleeding rates within a large multistate health system.

Westerdahl DE, … Gluckman TJ. Gender differences in Takotsubo cardiomyopathy as a secondary diagnosis: Higher hospital charges, more procedures, and longer lengths of stay.

Toth PP, Granowitz C, Hull M, Philip S. Long-term statin persistence is poor among high-risk patients with baseline peripheral artery disease: A real-world administrative claims analysis of the Optum Research Database.
Leatherman S, … Toth PP (right), Bhatt D, Boden WT. Increased residual cardiovascular risk in US veterans with moderately elevated baseline triglycerides and well controlled LDL-C levels of statins.

Ray KK, … Toth PP et al. BET protein inhibition and cognition: A pre-specified substudy of the BETonMACE phase 3 trial evaluating apabetalone in patients with diabetes and acute coronary syndrome.

Wong ND, … Toth PP. Burden of atherosclerotic cardiovascular disease risk in persons with elevated triglyceride levels according to statin use.

Toth PP, Jones SR, … Banach M. Effect of evolocumab on lipoprotein(a) levels: results across 15 studies.


Toth PP, … Jones SR. Effect of evolocumab on non-HDL-C and ApoB levels: an analysis of double-blind and open-label extension studies.

Zhao D, Guallar E, Ndumele CE, … Post WS, Lima JA, Ying W, … Michos ED. Plasma cyclic guanosine monophosphate (cGMP) and heart failure with preserved ejection fraction: ARIC.

Ogunmoroti O, … Ying W (right), … Michos ED. Parity and ideal cardiovascular health: MESA.

Presentations at the American Heart Association EPI/Lifestyle 2019 Scientific Sessions, March 5-8; Houston.

Donors Make a Difference

Donors make contributions for reasons as unique as the donors themselves. Some give out of gratitude for restored health. Others choose to honor a friend, family member, or the physician that guides their medical care. Still more want to make a personal investment in the science that informs the treatments for cardiovascular patients around the world.

Whatever their reason, people give to make a difference. At the Ciccarone Center, we are committed to making a difference too, and we invite you to join us as a philanthropic partner. There is power and potential in every gift we receive, and we are grateful for each individual who chooses to tap into that power with a personal contribution.

Help us make a difference. Make your gift today using our secure online form at: https://secure.jhu.edu/form/heart

Or make your check payable to Johns Hopkins Medicine with the Ciccarone Center noted on the memo line and mail to:

The Johns Hopkins Heart and Vascular Institute Development Office
600 N. Wolfe Street
536 Blalock
Baltimore, MD 21287

For more information, contact Lisa Hammann, Director of Development, at 443-287-7384 or lhamman1@jhmi.edu
The Ciccarone Center for the Prevention of Heart Disease was founded in 1989 in memory of Henry A. “Chic” Ciccarone, a legendary athlete and lacrosse coach at Johns Hopkins who died at age 50 after his third heart attack.

But he was more than that. In the way he led his teams and his life, Chic embodied all that Johns Hopkins itself represents: dedication, excellence, leadership.

With intense, energetic competitiveness, pride, and engaging, infectious humor, Chic compiled an extraordinary record of achievements in athletics. As a three-time All-American midfielder and team captain, he won nearly every major Hopkins lacrosse award and was named to the All-Time Hopkins lacrosse team upon his graduation in 1962.

In 1989, the friends and former players of Coach Ciccarone began raising funds for the development of a comprehensive program geared toward the prevention of coronary heart disease events. The Ciccarone Center sought to unite the proud traditions of Hopkins lacrosse and Hopkins Medicine.

We all have a stake in winning the battle against heart disease. By joining the team at the Ciccarone Center, by sharing our enthusiasm and dedication to it, your support of coronary disease prevention will protect your life and the lives of those you love. ▲
How to Contact the Ciccarone Center

We see patients Monday through Friday at the Johns Hopkins Ciccarone Center at Green Spring Station and on Mondays, Tuesdays, and Fridays at the Johns Hopkins Outpatient Center.

Dr. Michos also sees patients at Odenton. At each location we can perform exercise stress tests, treadmill stress echo tests, echo Doppler tests, EKGs, Holter monitors, and refer patients for cardiac CT scans. Vascular ultrasound testing and consultations are available at Green Spring Station. Vascular Medicine consultations are also available at White Marsh.

Appointments at the Johns Hopkins Ciccarone Center at Green Spring Station, 10755 Falls Road, Pavilion I, Suite 360, Lutherville, MD 21093 location can be scheduled at 443-997-0275. (Drs. Blumenthal, Post, Ashen, Ratchford, Whelton, Michos, and Blaha)

Appointments at the Johns Hopkins Outpatient Center, 601 North Caroline Street, Baltimore, Maryland 21287, can be scheduled at 443-997-0270. (Drs. Jones, Ndumele, Blumenthal, Martin, McEvoy, and Gerstenblith)

Appointments at the Johns Hopkins Cardiology Center at Odenton, 1132 Annapolis Road, Suite 104, Odenton, MD 21113, can be scheduled at 443-997-0275 or 410-874-1520. (Dr. Michos)

Appointments for Vascular Medicine consultations or vascular ultrasound testing can also be scheduled through Dr. Ratchford’s Center for Vascular Medicine scheduling line at 443-997-1800. Dr. Elizabeth Ratchford serves as the Medical Director of the vascular ultrasound laboratory at Green Spring Station.