

Cardiovascular Report

NEWS FROM JOHNS HOPKINS MEDICINE

Winter 2018



Oscar Cignolani, left, leads the Center for Resistant Hypertension. Lipid Program co-directors Steven Jones, center, and Seth Martin, right, are working to better understand the genetics behind lipid disorders.

A New Era for the Johns Hopkins Lipid Program

It wasn't long ago that some patients with familial hypercholesterolemia, a genetic disorder leading to high cholesterol levels, would arrive at Johns Hopkins to spend a few hours every other week having their blood stripped of low-density lipoprotein. During the apheresis treatment, similar to kidney dialysis, patients sat while blood was removed through a tube inserted in one arm, the "bad" cholesterol was taken out, and the remaining blood was returned to the body through a tube inserted in the other arm.

But with Food and Drug Administration approval within the past two years of new biologic therapies called PCSK9 inhibitors, many patients in the Lipid Program can instead receive an every-other-week injection of the drug.

"This has been a fantastic new therapeutic option to have for patients because PCSK9 inhibitors lower LDL cholesterol 60 percent on average," says clinic co-director **Seth Martin**. "Combining the therapy with statins, which lower LDL cholesterol 50 percent or more, and ezetimibe, which lowers LDL cholesterol by about 20 percent, we can get people who have genetically high cholesterol down to lipid levels that are so tightly controlled, they don't need any additional therapy."

LIPID CLINIC GOALS



- Continued Genetic Research
- Raising Patient Awareness
- New Clinical Trials

It's just one offering from the Lipid Program, started in the 1970s as a pediatric program by the late Peter Kwiterovich. Since Martin and **Steven Jones** rebranded it a couple of years ago, volumes have increased such that the program went from a half-day a week service to a full-day clinic, with additional appointments taken on other days.

Martin and Jones seek to better understand the genetics of rare and common lipid disorders, keep growing the clinic, and participate in clinical trials for new biologic agents that act through reduction of apoCIII, ANGPTL3 and Lp(a).

"We're changing the risk for and progression of very important diseases well before people have heart attacks, need bypass surgery or have other medical complications from dyslipidemias," Jones says. "We want to see patients when they're well and keep them that way, using very carefully applied measurements to identify candidacy for specific therapies." ■



Learn more or refer a patient: 410-502-0469 or bit.ly/JHlipidprogram

Specialty Clinics: 'Keeping Folks Out of the Hospital'

OVER THE PAST SEVERAL YEARS, many clinics have emerged to provide a specialized home for patients with complex cardiovascular disease. Three programs of note include the Heart Failure Bridge Clinic (HFBC), the Center for Resistant Hypertension (CRH) and the Lipid Program. All three range in complexity and have proven essential to keeping patients out of the hospital, says Gordon Tomaselli, chief of the Division of Cardiology and co-director of the Heart and Vascular Institute. "This has really been a boon for patient satisfaction, keeping folks out of the hospital, improving overall function and getting people 'tuned up' in a more expeditious fashion," he says.

The Heart Failure Bridge Clinic (HFBC), managed by nurse practitioners, provides multi-disciplinary disease care for patients with heart failure, offering postdischarge follow-up, intravenous diuretics, laboratory testing, education, pharmacy visits and palliative care. The clinic handles same-day appointments for patients experiencing complications, as well as referrals from cardiologists. A heart failure nurse educator visits patients in the hospital to let them know

about the clinic and encourage referrals. The goal is to see patients for follow-up within one week of hospital discharge, says clinic director **Nisha Gilotra**.

Since the clinic opened in 2012, HFBC volumes have increased dramatically, and the clinic has become a national model for similar heart failure disease management programs, Gilotra says. In 2016, clinic staff members conducted 2,469 outpatient visits, including 441 administrations of i.v. diuretics. Among those seen after a heart failure hospital discharge, the 30-day readmission rate was just 8.6 percent, compared with 26.9 percent for all Department of Medicine patients discharged with heart failure. "It's become a go-to resource for house staff, cardiologists and community providers," she says.

Gilotra and her colleagues have also been tracking outcomes and conducting small research studies in the clinic.

Another specialty clinic, the Center for Resistant Hypertension headed by **Oscar Cignolani** takes a personalized approach to diagnosing and lowering medication resistant hypertension. The physicians with the CRH aim to diagnosis the underlying causes of recalcitrant high blood pressure and adjust medications. At the same time,



"The Heart Failure Bridge Clinic has become a national model for similar heart failure disease management programs."

—NISHA GILOTRA

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Inroads in Vascular Care Bring Relief—and Hope

BEFORE JOHNS HOPKINS ESTABLISHED ITS Multidisciplinary Diabetic Foot and Wound Clinic, says director and vascular surgeon **Christopher Abularrage**, patients with diabetes and complex foot or wound care needs weren't making the appointments they needed with specialists, including endocrinologists and podiatrists.

"They might have seen me but didn't get to the endocrinologist," says Abularrage, "so once we got their foot healed, they would come back with the same problem because their blood sugar was out of control." Getting to appointments required major effort for these patients, many of whom were already scheduled for dialysis three times a week or relied on others for transportation.

The clinic recently celebrated its fifth anniversary; within that time, it has expanded from a service offered one half day every other week to one full day a week, with vascular surgeons, surgical podiatrists, and endocrinologists available to see about 40 patients in one stop. The clinic, which also features physician assistants and a wound care nurse, manages patients with issues such as peripheral arterial disease, foot ulcers or foot infections. If surgery is needed, the team includes an orthopaedic and plastic surgeon, physical therapists, and orthotics and prosthetics specialists.

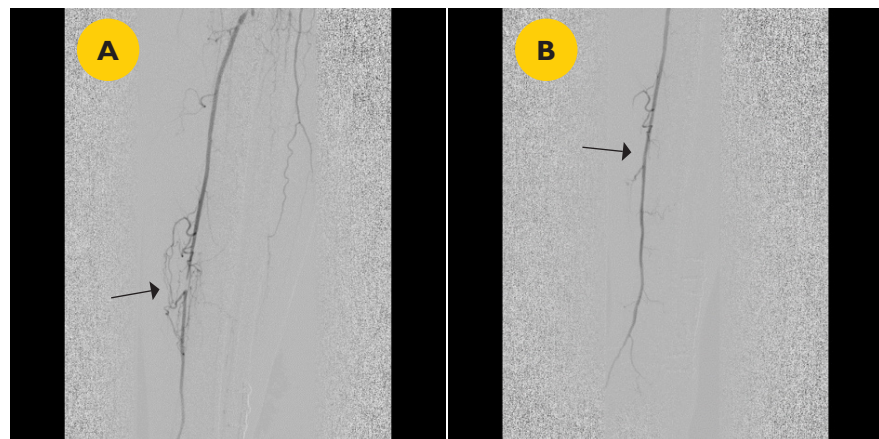
Building on the Johns Hopkins Medicine model, the office also boasts a robust research database. The first time patients arrive, a clinic staff member enters basic information about their medical history, comorbidities and any previous surgeries. Patients are then tracked over time.

"What we recently found is that, stage for stage, in the types of wounds and the types of ischemia and infections patients have, our amputation rates are some of the lowest in the country, especially for stage IV wounds requiring major amputation," Abularrage says. In the U.S., he adds, about 20 percent to 64 percent of stage IV wounds require major amputation; at Johns Hopkins, it's around 7 percent. The work was published in the *Journal of Vascular Surgery*.

Rates of recurrent ulcers have also dropped—60 percent of new wounds that occur after patients have been seen initially are less serious, resulting in fewer surgeries and lower health care costs. Overall, Abularrage says, multidisciplinary care has equalized treatment outcomes for patients regardless of socioeconomic status, whereas in many settings, patients who are disadvantaged have much worse outcomes. ■



Learn more or refer a patient: **410-955-5165** or bit.ly/footwoundclin



A: Preoperative angiogram in a patient with a complete posterior tibial artery occlusion (arrow) and single vessel runoff. Note the multiple collateral blood vessels reconstituting the distal posterior tibial artery.

B: Postoperative angiogram after minimally invasive directional atherectomy and angioplasty showing 100 percent patency (arrow). The patient went on to heal his foot wound without complication.

Shoring Up Treatment of Aortic Aneurysms and Thoracic Outlet Syndrome

Endovascular repair of aortic aneurysms is ready to take another leap forward, says **James Black**, chief of the Division of Vascular Surgery and Endovascular Therapy. Johns Hopkins is one of seven centers in the country approved by the U.S. Food and Drug Administration and Medicare to offer branched stents for minimally invasive aneurysm repair in the spring of 2018. The devices, which are guided to the damaged portion of the aorta through a catheter, have additional arms that preserve blood flow through major branch arteries to the limbs, spinal cord and other areas of the body. They will provide an additional minimally invasive option along with fenestrated stents, which contain small windows and can be used for aneurysms located above the kidney arteries.

"This will be a real gain for patients who are currently having to run the gauntlet on complex open surgeries, particularly when they're older," Black says.

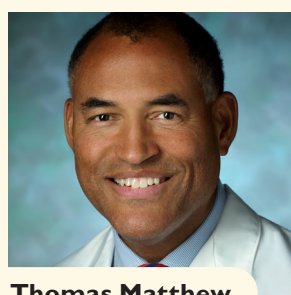
In other advances, vascular surgeons **Ying-Wei Lum** and **Margaret Arnold** have been drawing more patients from out of state for their expertise with thoracic outlet syndrome (TOS), demonstrating good results from rib removal and finding nonsurgical approaches for management of TOS, including Botox injections to the shoulder girdle muscles. **Mahmoud Malas** has managed many protocols for clinical trials in peripheral arterial disease and carotid arterial disease.

"Vascular surgery continues to integrate with specialties that can help improve quality and length of life for patients with peripheral disease, arterial disease and strokes," Black says. Also on the table: making sure vascular surgeons are available at all five Johns Hopkins hospitals so patients can stay closer to home for treatment. ■



Watch a video about a patient's thoracic outlet syndrome surgery experience: bit.ly/TOSptstory

WELCOME NEW STAFF MEMBERS



Thomas Matthew



Ahmet Kilic



Dan Choi



Stefano Schena

New Faculty Appointments

Four new faculty members have joined the Division of Cardiac Surgery. **Thomas Matthew, M.D.**, has been named director of Johns Hopkins Cardiothoracic Surgery at Suburban Hospital in Bethesda, Maryland. Matthew, who previously worked for University of Colorado Health, has surgical interests in complex coronary artery surgical revascularization, mitral valve repair, reoperative cardiac surgery and aortic valve replacement, including transcatheter aortic valve replacement.

Ahmet Kilic, M.D., a new associate professor, comes to Johns Hopkins from The Ohio State University Wexner Medical Center, where he was director of the heart transplant and mechanical circulatory support programs and co-director of the advanced heart failure program. He was also vice director for clinical and academic affairs for the Division of Cardiac Surgery. Kilic is an active heart failure clinical investigator.

Chun (Dan) Choi, M.D., and **Stefano Schena, M.D., Ph.D.**, have joined the department as assistant professors. Choi previously was with Vanderbilt University Medical Center, where he served as director of the ex-vivo heart perfusion program. His research interests include perfusion, clinical and surgical outcomes, heart failure and surgical innovation.

Schena comes to Johns Hopkins from Washington University School of Medicine. His clinical interests include minimally invasive coronary and valve surgery, thoracic and cardiovascular trauma, endovascular surgery, surgical treatment of atrial fibrillation, and video-assisted and robotic thoracic surgery. ■



Learn more: bit.ly/hviexperts

A Patient-Centered Approach to Mitral Valve Repair



Clockwise, Jon Resar, Kaushik Mandal and Rani Hasan discuss a recent case. Johns Hopkins Hospital was among the first centers to offer transcatheter mitral valve repair.

SINCE JOINING THE FACULTY SIX YEARS AGO, cardiac surgeon **Kaushik Mandal** has had his sights set on making Johns Hopkins an internationally known center for treatment of mitral valve disease. He's off to a promising start.

From building a robotic surgery program for treatment of mitral valve conditions, to participating in international trials investigating the best methods of treatment and establishing a same-day multidisciplinary clinic for patients, Mandal says the mitral valve team at Johns Hopkins is well-equipped to manage any patient with mitral valve disease and co-occurring conditions: "We tailor our treatments to patient needs, rather than the patient needing to conform to what we can offer."

Robotic mitral valve repair can be a good option for patients who are reasonably fit and have no other major health issues, says Mandal. He performs 30 to 50 mitral valve repairs a year using the robot, which allows him to access the valve through much smaller incisions, without cutting the breastbone. The procedure results in less pain, shorter hospital stays and quicker recovery times—about six weeks versus six months for open surgeries (see sidebar). He also notes that the center has an isolated mitral valve repair rate of over 97 percent with a 0 percent stroke or mortality rate.



"We tailor our treatments to patient needs, rather than the patient needing to conform to what we can offer."

—KAUSHIK MANDAL

Mandal's team is also playing a role in determining the best methods of mitral valve treatments, having signed up as a participating center in two landmark clinical trials. One, called ReChord, is studying the safety and effectiveness of a handheld device to perform mitral valve repair on a beating heart, compared with traditional open surgical repair, in which a patient is placed on bypass. It's intended for patients with degenerative mitral valve regurgitation. The second trial, called Apollo, is comparing conventional mitral valve replacement surgery to a minimally invasive approach in which surgeons use a catheter to deliver a synthetic replacement valve to the heart.

"Repair is always preferable to replacement because it maintains the natural geometry of the heart, leaving less foreign material in the site, less risk of infection and better preservation of heart function," Mandal says. "Unfortunately, not every patient with mitral valve disease is a candidate for repair, so both therapies are needed."

It's quite common for patients with mitral valve conditions to also have issues such as arrhythmias or heart failure, he says, so every Thursday, Mandal and colleagues throughout the Division of Cardiology offer a multidisciplinary clinic through which patients can consult with several specialists in one visit. Available experts include heart failure specialist **Ed Kasper**; interventional cardiologists **Jon Resar**, **Rani Hasan** and **Matt Chacko**; and electrophysiologists **Joe Marine** and **Hari Tandri**. "Patients don't have to be shunted from door to door," Mandal says. "We have the ability to address all mitral valve disease-related problems in one place." ■



To refer a patient call: 410-955-2698
Learn more: bit.ly/mitralvalverep



With renewed peace of mind, Elaine York relaxes with her sons.

Getting a Grip on a Worrisome Congenital Heart Problem

Shortly after moving from Florida to Maryland for her husband's job transfer, Elaine York knew it was time for heart surgery to repair her mitral valve. Born with mitral valve prolapse, York, in her mid-40s, had been monitored by cardiologists for the past several years. Although a recent echocardiogram had showed her condition was moderate to severe, because she was experiencing no accompanying symptoms such as swelling or high blood pressure, her doctors in Florida had been content to wait before operating.

But the heart palpitations and atrial fibrillation York had experienced around twice a year were becoming more frequent, occurring several times a month. When York called a friend who had recently undergone mitral valve surgery for advice, she encouraged York to check out Johns Hopkins. A new echocardiogram revealed that York's condition had become more severe and the heart muscle was starting to thicken. York's new cardiologist referred her to **Kaushik Mandal**.

During a consultation for robotic surgery, York was nervous and started to tear up, but Mandal took her hand and assured her he would treat her in the safest manner possible. "Seeing how knowledgeable and skilled he was, but also that he was a calming presence, made it easy for my husband and me to go ahead and schedule surgery," York recalls.

York underwent robotic surgery on Sept. 1. She was in the intensive care unit less than 24 hours, released for home four days later and was back to work in her graphic design business in just over two weeks. "I'm glad I made the choice to go with Johns Hopkins for this procedure because I definitely notice that my heart is functioning normally now. I've experienced none of the irregular heartbeats that had become the norm over the past couple of years," she says. "I need to be around for my kids for a long time and the cardiac surgery team at Johns Hopkins made that possible." Her husband says he is glad they moved to Maryland, if for no other reason than to have access to Johns Hopkins and their state-of-the-art surgery options. ■

Specialty Clinics Are 'Keeping Folks Out of the Hospital'

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they make lifestyle recommendations to create an optimal treatment plan for patients.

"If you look at general internal medicine clinics and even cardiology clinics, the diagnosis of hypertension is fraught with lots of errors," Tomaselli says. "There's as much overdiagnosis as there is underdiagnosis."

Cingolani and his colleagues conduct detailed evaluations to deduce what is so-called white coat hypertension, when someone's blood pressure rises out of anxiety from being in a clinic, versus hypertension resistant to drug treatment, including looking for contributing causes of high blood pressure, such as sleep apnea or thyroid issues. ■



Learn more about The Heart Failure Bridge Clinic: **443-997-0270** or bit.ly/jhheartfailurebridgeclin



Learn more about the Center for Resistant Hypertension or refer a patient: **443-997-0270** or bit.ly/jhvascuclin

CardiovascularReport

The Johns Hopkins Heart and Vascular Institute *Cardiovascular Report* is one of the many ways we seek to enhance our partnership with our thousands of referring physicians. Comments, questions and thoughts on topics you would like to see covered in upcoming issues are always welcome. Contact jminkov2@jhmi.edu.

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Cardiovascular Access Team

To refer patients for cardiovascular services
443-997-0270

Cardiac Surgery

410-955-2800

Vascular Surgery and Endovascular Therapy

410-955-5165

Pediatric Cardiology

410-955-9714

Online Referral Directory

hopkinsmedicine.org/doctors

CareLink

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medical records
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Hopkins Access Line (HAL)

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faculty members in any specialty
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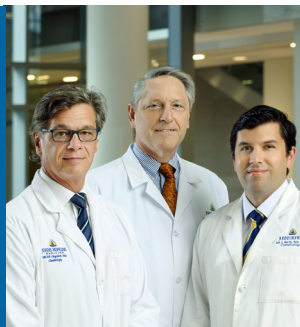
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