


# Cardiovascular **Physician**

A clinical practice and research publication.

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Welcoming  
**Thomas  
MacGillivray, MD,**  
Physician Executive  
Director of  
Cardiac Surgery

Also inside:

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director Keki Balsara, MD**

**Complex lead  
extractions**

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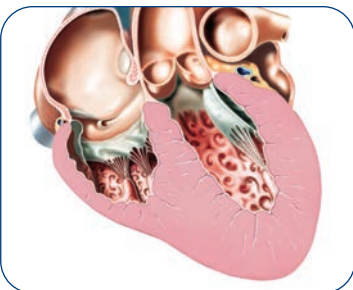
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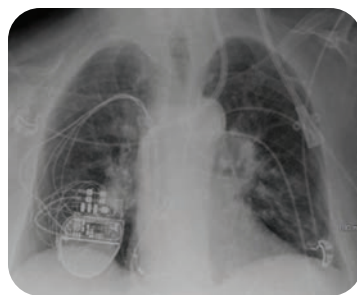
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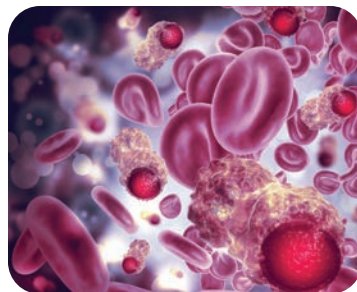
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## Our formula for top cardiovascular talent: A philosophy of innovation, teamwork, and “patient first.”

I am pleased to share with you in this issue the growth and further evolution of MedStar Heart & Vascular Institute. When I reflect on the elements that have driven much of our advancement, I find that it always comes back to our people—our recent arrivals bringing fresh expertise, while our current clinicians continue to refine their practices within our walls. It has been a long-standing and oft-stated priority of this organization to attract, develop, and retain the country's best cardiovascular talent, and I believe that those efforts continue to remain in clear evidence.

First and foremost, our emphasis on our enduring patient-first philosophy is one of the primary reasons why like-minded colleagues have found a home at MedStar Health. This focus has been cited repeatedly as a key reason why distinguished and accomplished physicians join our system. Most recently, this includes Dr. Thomas MacGillivray, physician executive director of Cardiac Surgery at MedStar Health and chairman of Cardiac Surgery at MedStar Washington Hospital Center, and Dr. Keki Balsara, surgical director of Heart Transplantation and Mechanical Circulatory Support. Both are renowned in their respective fields and bring world-class reputations, experience, and leadership to our team. Read more on each physician on pages 4 and 8.

In addition, our strong history and culture of teamwork has been a trademark of MedStar Heart & Vascular Institute for decades. The level of collaboration among our programs is exceptional, as exemplified by cardiac surgery and electrophysiology in complex lead management (page 14), and between interventional cardiology and cardiac surgery in novel mitral valve therapies (pages 10 and 12).

We invest in developing an innovative environment, ensuring our clinicians and researchers have the tools to allow them to keep advancing the science and practice of medicine. We encourage exploration through the robust MedStar Cardiovascular Research Network, as well as our own internal teaching and research grants. As an organization that has been a part of many medical and surgical innovations, we are comfortable with thoughtful change and are ready to embrace any benefit for our patients. Recent examples of this are the application of new medication for patients with hypertrophic cardiomyopathy (page 13) and the addition of our new hybrid vascular operating rooms (page 19).



Our robust training programs not only offer the opportunity for new physicians to work with an extraordinary patient population and experienced mentors, but also serve as a fertile breeding ground for leaders of the future—many of whom elect to stay and build their practices at MedStar Health. This is seen in the journey of Dr. Mrinalini Krishnan, who was trained at MedStar Health and now leads the newly formalized Pulmonary Hypertension program (page 16).

Ultimately, we support an intellectually stimulating environment in which our caregivers can care for our patients in the most up-to-date and compassionate manner. I am proud of this tradition and look forward to continuing to advance that mission.

# Dr. Thomas MacGillivray assumes post as head of cardiac surgery across MedStar Health.



This September, we welcomed renowned cardiothoracic surgeon Thomas E. MacGillivray, MD, as our new physician executive director of Cardiac Surgery at MedStar Health, and chairman of Cardiac Surgery at MedStar Washington Hospital Center.

Here, he shares his goals for the program, his practice, and the future.

#### **Continue a culture of innovation and research, focused on the patient.**

*"My ultimate priority is to maintain the highest level of cardiovascular care for our patients, including state-of-the-art treatments that we currently provide, as well as innovative therapies under investigation. From the early days, cardiac surgeons have developed novel technology and techniques to solve the unsolvable problems of heart disease. Over the last three quarters of a century, hundreds of millions of people have benefited from the culture of innovation and research. Although we have made great progress, there is still much to be done. We continue to make therapies more effective, much safer, less invasive, less expensive, and with less recovery time. At MedStar Health, our research in cardiac surgery is focused on approaches, devices, and technology that will best serve the needs of our patients."*

#### **Enhance teamwork across subspecialties.**

*"I believe our 'special sauce' at MedStar Health is our culture of collaboration across the multiple specialties. The system has an excellent national reputation as a program that offers unsurpassed expertise not only in cardiac surgery but also across the entire spectrum of cardiovascular care. Not so long ago, the roles and therapies provided by different specialists like cardiac surgeons, cardiologists, vascular surgeons, and interventionalists were distinct and defined. As a result of innovative open and endovascular approaches, the heart and vascular system can effectively be accessed by different specialists. For each patient, these different treatment approaches should not be competitive but rather complementary. Our heart teams work closely together, keeping the patient—not the technique—as the focus of our treatment choice. We will continue to be a national leader in the collaborative heart team approach to shared decision-making and care."*

*continued on next page*

#### **Fast facts**

##### **Current appointments**

- Physician Executive Director of Cardiac Surgery at MedStar Health
- Chairman of Cardiac Surgery at MedStar Washington Hospital Center
- Incoming President of the Society of Thoracic Surgeons (STS)
- Member of the Thoracic Surgery Foundation Board of Directors
- Editorial Board of the Annals of Thoracic Surgery

##### **Prior appointments**

- Jimmy F. Howell, MD, Endowed Chair in Cardiovascular Surgery, Houston Methodist Hospital
- Chief of the Division of Cardiothoracic and Transplant Surgery, Houston Methodist Hospital
- Associate Medical Director of the Cardiovascular Intensive Care Unit, Houston Methodist Hospital
- Cardiothoracic surgeon, Massachusetts General Hospital
- Associate Professor of Surgery, Harvard Medical School
- President of the Northeast Cardiothoracic Surgery Society

##### **Clinical and surgical interests**

- Adult congenital heart disease
- Heart failure (mechanical circulatory support and transplantation)
- Aortic root, arch, thoracoabdominal replacement
- Maze procedure
- Septal myectomy
- Cardiac tumor excision
- Pulmonary embolism
- Valve repair and replacement

##### **Education and training**

- Medical school: Tufts University School of Medicine
- General surgery internship and residency: Massachusetts General Hospital
- Fetal surgery research fellowship: University of California, San Francisco
- Cardiothoracic surgery fellowship: Massachusetts General Hospital
- Congenital heart surgery fellowship: Boston Children's Hospital



**Drive a distributed care delivery network.**

"Historically, the walls of a hospital were the boundaries within which care was provided to their patients. At MedStar Health, we are fortunate to have a broad continuum of hospitals, centers, practices, and offices. While we centralize our surgical expertise and high volumes in a few key locations, our distributed care delivery network makes advanced cardiac surgery accessible to everyone. Through collaboration and communication, we ensure that consistency of the same high-quality care occurs throughout the system. Patients shouldn't have to worry where to get the care they need—they can trust that MedStar Health will guide them to the appropriate care, wherever that may be."

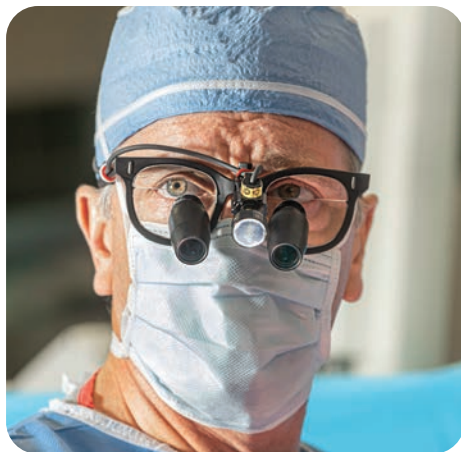
**Continue a clinical practice and research focus.**

"I have been fortunate to engage in many of the subspecialties of cardiac surgery. In addition to the surgical treatment of coronary artery disease and valvular heart disease, much of my practice has focused on complex aortic disease management, adult congenital heart disease, and structural heart disease. I've also been deeply involved in surgical treatment of advanced heart failure, transplants, and mechanical circulatory support. I participated in the original clinical trials of the HeartMate II™ left ventricular assist device.

It's wonderful to join a department with such established programs. We offer every kind of surgical therapy for heart disease. Whenever there are new additions to an established group it is an opportunity to share ideas and techniques. It is an opportunity for cross pollination for all of us. I am eager to learn from my new colleagues and partners."

**Build regional expertise in adult congenital heart disease.**

"When I started practicing, congenital heart disease was a very pediatric-focused specialty. For children with complex congenital heart disease born in the decade that I was born, it was unlikely those children would survive to adulthood. Due to years of extraordinary advances and care by pediatric cardiologists and pediatric heart surgeons, babies affected by congenital defects have been successfully treated to



**MedStar Health Cardiac Surgeons: (l to r, standing) Aiman Alassar, MD; Jeffrey Cohen, MD; Christian Shults, MD; Yuji Kawano, MD; Gabriele Iacona, MD; Ricardo Quarrie, MD; Rachel Harrison, MD; (l to r, seated) Ammar Bafi, MD; Keki Balsara, MD; Thomas MacGillivray, MD; and Brian Bethea, MD**

survive, thrive, and become adults. But that pediatric success story has created a new chapter of challenges. We now know that adults with congenital heart disease can develop sequelae of their heart defect or from their previous treatments, and require further management. Many of the patients treated early in life have been lost to follow up. We need to educate those patients on the need to come back in to get checked out, as there may be something we need to look at, manage, or treat.

There is a real opportunity and need to expand multi-disciplinary programs to care for these adults. There are now more adults with congenital heart disease than children! In addition to their congenital heart disease, many of these patients have other adult medical conditions and issues that must also be evaluated and managed. At MedStar Health, we have all the appropriate partners and resources to care for this growing patient population."

**Serve as president of the Society of Thoracic Surgeons.**

"The Society of Thoracic Surgeons (STS) is the world's largest professional society of cardiac and thoracic surgeons as well as many of the providers who care for cardiothoracic surgery patients. Cardiothoracic surgeons have a tremendous impact on the lives of many people and populations given that we treat many of the leading causes of death and disability—heart disease, lung disease, and congenital heart disease. The mission of the STS is to advance cardiothoracic surgeons' delivery of the highest quality patient care through

collaboration, education, research, and advocacy. I am very proud to be a member of this great organization and honored to serve as its next president."

**Explore life in the national capital region.**

"My wife, daughter, and I are very excited to be living in D.C. In addition to being our nation's capital, D.C. is a glorious city. It has a great vibe, energy, and culture. I love the magnificent architecture, museums, monuments, and green space. As a history buff, it is thrilling to know that around almost every corner or within a short drive are so many historical places where important events occurred.

I'm also looking forward to continuing to meet each of our providers and physician partners in the community. I hope everyone can feel comfortable reaching out if ever there is a question or a need. Or, just to say hello."

**To contact Dr. MacGillivray, please email him at [thomas.e.macgillivray@medstar.net](mailto:thomas.e.macgillivray@medstar.net).**

# Innovative cardiac transplant surgeon takes the helm of the advanced heart failure program.

## Meet Dr. Keki Balsara

Keki R. Balsara, MD, MBA, FACS, FACC, has joined MedStar Health as our new surgical director of heart transplantation and mechanical circulatory support. Based at MedStar Washington Hospital Center, Dr. Balsara works closely with the entire advanced heart failure team to provide guidance and surgical expertise for some of the highest acuity cardiovascular patients in the region.

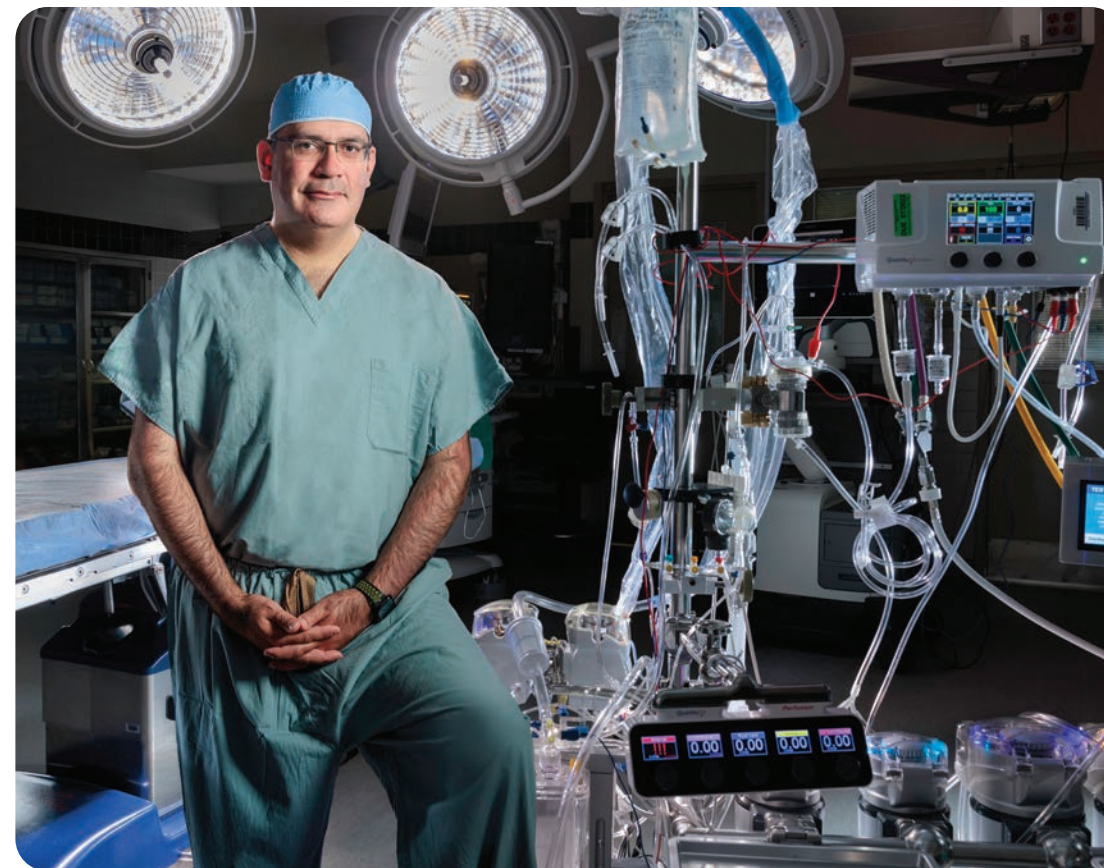
Having grown up surrounded by medicine—his father was a pediatric heart surgeon, his mother, a pathologist, and his twin-sister, a pediatric urologist—he always had some exposure to the field.

“Though I didn’t originally intend to pursue a clinical career, I eventually developed an interest in cardiovascular care, particularly surgery, in part because it involves such a uniquely challenging patient population,” Dr. Balsara explains. “I view my role as not just an operator, but as a provider of guidance, counsel, and support to help my patients understand their diagnosis, treatment options, and prognosis so that, together, we can choose what’s best for them and their families. Sometimes surgery is an

option, but sometimes it’s not—I value the ability to interact with patients along a vast spectrum of care.”

Dr. Balsara received his undergraduate and medical degrees from the University of Pennsylvania. He then completed his general surgery residency, a post-doctoral research fellowship in end-stage heart and lung failure, and a fellowship in surgical critical care at Duke University School of Medicine. His cardiothoracic surgery fellowship was completed at The Johns Hopkins Hospital. Dr. Balsara also holds a Master of Business Administration from the Wharton School at the University of Pennsylvania.

Prior to joining MedStar Health, Dr. Balsara practiced at Vanderbilt University Medical Center—the highest volume heart transplant center in the country—where he served as associate professor of surgery and chief quality and safety officer in the Department of Cardiac Surgery. He was previously assistant professor of surgery in the Division of Cardiothoracic Surgery and surgical director for the Cardiothoracic Surgery ICU at Washington University in St. Louis/Barnes-Jewish Hospital.



### Bringing heightened expertise to the mid-Atlantic region.

“MedStar Health has a long history of exceptional cardiovascular care,” says Dr. Balsara. “Not just cardiac surgery, but all subspecialties that intersect with heart failure, including interventional cardiology, electrophysiology, and cardiac imaging. Moreover, with its central location in the mid-Atlantic region, we are well situated to care for so many people who need sophisticated options to manage their conditions. I’m looking forward to continuing to expand our ability to care for these patients.”

With his unique areas of expertise and high-volume experience, Dr. Balsara is positioned to do just that.

He sees patients across the entire spectrum of cardiac disease, performing 400 to 500 procedures each year to address coronary artery disease, valvular heart disease, and aortic pathology, including minimally invasive and complex re-operations. He has a particular interest in end-stage heart failure, heart transplantation, and mechanical circulatory support, which will make up a large portion of his practice.

### Greater opportunity for patients awaiting transplant.

During the first month in his new role, Dr. Balsara has already increased cardiac transplantation volumes at MedStar Washington and expects to see growth of another 50 percent over the next 12 months.

“By leveraging the robust experience of the existing heart failure team and bringing new approaches to our offerings, we can take more calculated risks for both recipients and donors,” he explains.

One of these strategies is continuing to grow the ability to transplant donor hearts with hepatitis C. Pioneered at Vanderbilt, the technique is very familiar to Dr. Balsara and can make a substantial impact on the options available for patients awaiting transplant.

Another option he plans to introduce is donation after cardiac death (DCD). Through this strategy, hearts may be recovered from those who have not historically been candidates for organ donation. Recent technology allows physicians to perfuse and reanimate the heart, while providing time to

assess its viability. Dr. Balsara has been involved in identifying DCD donors, and the research leading to these breakthroughs including the use of the TransMedics® OCS™ Heart System and the use of normothermic regional perfusion (NRP).

“Simply put, expanding our donor pool with these approaches expands our ability to save lives,” he says. “More patients will have access to therapy they previously wouldn’t have been eligible for, or perhaps would have had to travel hundreds of miles to receive. This is incredibly important for these exceptionally sick patients—the closer they are to their homes, families, and social support structures—the better their outcomes.”

### Expanding care outside the OR.

Fellowship trained in critical care and having run one of the largest cardiovascular intensive care units in the country, Dr. Balsara has a distinct perspective that extends outside of the operating room.

“Most people consider the surgeons place to be the OR, but that’s just a small component of the role,” he explains. “A lot of the treatment these

patients need takes place in a critical care setting, so I really appreciate strong partnerships with the ICU and I value the standards and protocol that allow us to deliver consistent care.”

He also looks forward to growing MedStar Washington’s acute extracorporeal membrane oxygenation (ECMO) program throughout the region, a key service for patients with heart failure that can offer a bridge to other therapies.

Dr. Balsara looks forward to developing long-term partnerships with cardiologists throughout the region, and to gaining an understanding of the cases they see daily.

“Knowing that early referral leads to better patient outcomes, our team is available to answer your questions 24/7,” he says. “If issues arise—even if you think the patient is too sick or too healthy—we are here to discuss the case. We are working to expedite evaluations, facilitate easy access to our specialists, and streamline hospitalization, when needed.”

**To reach Dr. Balsara, please email him at [keki.balsara@medstar.net](mailto:keki.balsara@medstar.net).**

# Texan with mitral annular calcification travels to Baltimore for leading Tendyne™ expertise.



**Cardiac Surgeon Brian Bethea, MD, and the team at MedStar Union Memorial Hospital, are among the country's top enrollers in the SUMMIT trial, testing the safety and efficacy of the Tendyne™ transcatheter mitral valve replacement (TMVR) system as an alternative to open-heart surgery.**

When Dallas, Texas, resident Dick Hevey received a diagnosis of heart failure, he was surprised.

The 79-year-old retired construction equipment dealer had experienced occasional shortness of breath, but routine cardiology tests had indicated nothing alarming. It was only when Hevey underwent tests for an elevated red blood cell count that the severity of his condition was fully realized.

"The oncologist said my liver enzymes were off the chart," Hevey recalls. "My geriatric physician confirmed that I likely had heart failure."

His cardiologists at Baylor Scott & White Health diagnosed him with aortic valve stenosis, which he was told could be treated with a fairly straightforward transcatheter aortic valve replacement. More alarming, however, was the discovery of severe mitral annular calcification (MAC), which caused concern that the surrounding heart structure might not support a conventional mitral valve replacement.

Hevey's physicians told him about the Tendyne™ transcatheter mitral valve replacement (TMVR) system, currently under investigation in a clinical trial with enrollment at nearly 80 sites worldwide. Tendyne offers minimally invasive valve replacement for patients with mitral regurgitation, as well as some patients with severe MAC.

However, only a few hospitals in the country have the expertise to perform the highly specialized procedure on a condition as complex as Hevey's. Asked for a referral, his physicians in Dallas recommended Brian Bethea, MD, chief of cardiac surgery at MedStar Union Memorial Hospital.

"They told me Dr. Bethea had performed more of these procedures than the other doctors combined," Hevey says. "I knew that's where I wanted to go."

Although transcatheter mitral valve devices are still in their infancy, Dr. Bethea considers them a valuable option for all mitral valve pathology.

"Now when I see a patient, I can reach into my toolbox to minimize their risk and maximize their benefits," Dr. Bethea says. "With the Tendyne system, patients are treated via a minimally invasive procedure that avoids cardiopulmonary bypass and long hospitalizations."

The most exciting part, he adds, is how they can dramatically improve a patient's quality of life, even for those whose risk profiles may make them ineligible for surgery.

"They're not living with heart failure symptoms or debilitating shortness of breath," says Dr. Bethea. "And in some cases, we can improve survival as well."

Tendyne valves can also help MAC patients such as Hevey avoid the challenges of open-heart surgery, which often carry significant risk.

"Sometimes, you have to remove the calcium to get a valve to fit," Dr. Bethea explains. "That can lead to atrial ventricular dissociation—the top chamber separating from bottom chamber—which is almost always fatal. Using just the catheter, we simply push the old valve to the side with the new."

In July, Hevey underwent his aortic valve procedure in Dallas, followed by alcohol ablation to ensure his heart chambers could handle increased blood flow after the mitral valve procedure. Three months later, he made his first trip to MedStar Union Memorial Hospital for tests and evaluation.

"Dr. Bethea was truly interested in my case," Hevey says. "But he also was very honest and didn't mince words. He told me the risks, and that the outcome we hoped for was not guaranteed. That was okay with me. I was happy to be a part of the study and to do what I could to help advance the procedure and maybe help someone else."

Opting for the Tendyne, Hevey returned to Baltimore in November, where Dr. Bethea performed the procedure with interventional cardiologist John Wang, MD, chief of MedStar Union Memorial's Cardiac Catheterization Laboratory and scientific director of Cardiovascular Research in MedStar Health's Baltimore region.

"Mr. Hevey did great, and insertion of the Tendyne system took only a small portion of the approximately 90-minute procedure," Dr. Bethea says.

Over the past year, Hevey has been closely monitored by physicians at Baylor Scott & White Health, who relay his progress to Dr. Bethea. The new valve is performing as hoped.

"Before I left Baltimore, I thanked Dr. Bethea for his effort and everything he's doing to help people like me," Hevey says. "Without that surgery, I wouldn't be here."

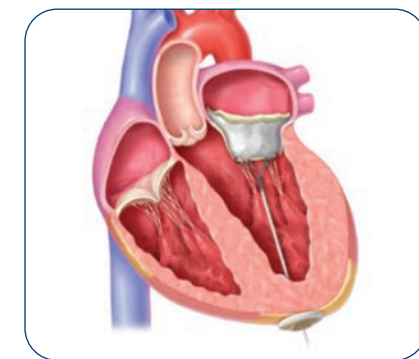
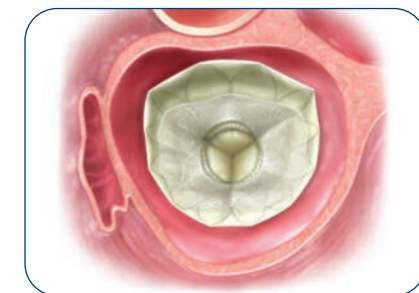
**To discuss a patient with Dr. Bethea, please call 410-554-6550.**



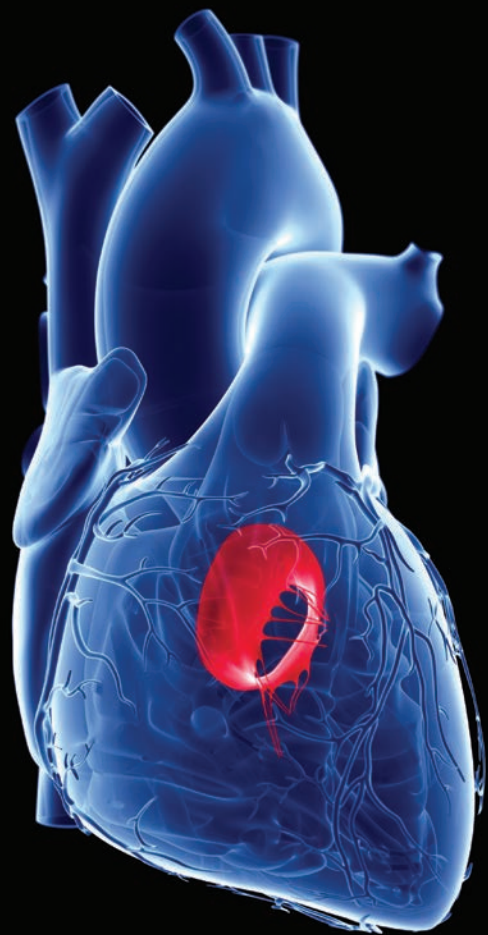
**Dick Hevey, 79, traveled from his home in Dallas, Texas, to Baltimore, Maryland, for complex treatment of severe mitral annular calcification (MAC).**



The Tendyne™ TMVR system is currently under investigation in a clinical trial with enrollment at nearly 80 sites worldwide. Tendyne offers minimally invasive valve replacement for patients with mitral regurgitation as well as for some patients with severe mitral annular calcification (MAC).



# The next frontier in percutaneous mitral valve therapy.



Management options for diseases of the mitral valve—regurgitation, stenosis, or mitral annular calcification—have expanded in recent years as we progress from open sternotomy to minimally invasive approaches and robotic cardiac surgery, to catheter-based procedures. We are building on knowledge from other studies such as the MitraClip™, transcatheter mitral cerclage annuloplasty, Tendyne™ transcatheter mitral valve replacement system (see page 10), the Edwards PASCAL™ transcatheter valve repair system, and others, to find safer, more effective ways to treat the mitral valve.

Transcatheter mitral valve replacement (TMVR) is the focus of several significant clinical trials in which we're currently participating. While TMVR technology will evolve slowly, there is promise of a future with fewer open-heart procedures, better outcomes for high surgical risk patients, and ultimately extended life for patients with severe mitral valve disease.

Our Structural Heart team, comprised of cardiac surgeons, interventional cardiologists, and cardiac imaging specialists, is enrolling patients in two noteworthy studies outlined below. At MedStar Washington Hospital Center, Drs. Ron Waksman, Christian Shults, Lowell Satler, Toby Rogers, Jeff Cohen, and Itsik Ben-Dor make up the multidisciplinary team that conducts a comprehensive review of each individual patient to determine the most appropriate, effective, and safest treatment. It is critical to have such expertise in place, as these trials require very specific anatomical criteria and risk profiles.

## AltaValve™ Transcatheter Mitral Valve Replacement

An early feasibility study of the AltaValve™ is investigating a percutaneous approach for mitral valve replacement and evaluating its potential to reduce complications and length of hospitalizations for patients with moderate-to-severe to severe MR, who are considered to be high surgical risk. This study also may include patients who have primary or secondary MR or who have undergone previous valve repair. Due to the AltaValve's supra-annular position to the native valve, it has less potential to interact with the subvalvular apparatus and outflow tract of the aortic valve. It may also lower the risk of complications that have been present with other TMVR technologies such as left ventricular dysfunction or device embolization. At this point, physicians may deliver the valve transeptally or transapically.

## Intrepid™ Transcatheter Mitral Valve Replacement System (APOLLO Trial)

Our participation in the investigation of the Intrepid™ TMVR system continues, with recent completion of the first case done via femoral access. Previous cases were performed transapically. Femoral access may further reduce complications, potentially offering a new and lower risk solution for patients who are severely ill and poor candidates for conventional mitral surgery. Intrepid is also being studied for use in patients with mitral annular calcification.

**For more information on either trial, please contact:  
Erin Collins, MPH, at 202-877-6622 or erin.c.collins@medstar.net.**

# Promising new medication now available to patients with hypertrophic cardiomyopathy.

In the spring issue of this publication, we shared the details of our comprehensive program for individuals with hypertrophic cardiomyopathy (HCM). Since then, there have been several notable highlights, both within our program and in the broader field of HCM management.

## Novel medication receives FDA approval.

The U.S. Food & Drug Administration has now approved mavacamten, a novel cardiac myosin inhibitor, for adults who have New York Heart Association class II-III symptoms and a specific subset of HCM with concomitant left ventricular outflow tract (LVOT) obstruction. A multicenter, randomized clinical trial demonstrated improved quality of life and exercise tolerance, reduction of symptoms, and favorable hemodynamic effects for patients treated with mavacamten as opposed to a placebo. This therapy opens a new option for patients who may have side effects from other medications that are typically used to treat LVOT.

Though rare and reversible, the most significant side effect of mavacamten is that it may cause reduced ejection fraction or systolic function—which is why its use must be monitored closely and is only available under a Risk Evaluation and Mitigation Strategy (REMS). Patients must be precisely diagnosed, undergo serial echocardiograms at established intervals, be monitored for drug interactions, receive specific titration of their dosage, and be regularly educated on, and monitored for, risks and side effects. Under these restrictions, only certified providers may prescribe mavacamten. Clinics must have specific infrastructure, personnel, experience, and imaging capabilities to qualify under the REMS program.

At MedStar Health, we've invested substantial time and resources to become one of the few certified sites that can offer the medication safely and effectively to our patients. Our HCM clinics at MedStar Union Memorial

Hospital and MedStar Washington Hospital Center both have experience with this class of drugs and are pleased to add it to our roster of therapeutic options.

Also on the horizon is a second investigational myosin inhibitor—aficamten—now in trial with our sites in Baltimore and Washington helping to study a potential therapeutic role for those with obstructive HCM.

## New HCM leadership in the Washington region.

Patrick Bering, MD, has been named the new medical director for the Hypertrophic Cardiomyopathy Clinic in MedStar Health's Washington region. During both of his cardiology fellowships, he has gained substantial experience under the mentorship of national HCM experts, with whom he maintains close personal and professional relationships.

"Treating patients with hypertrophic cardiomyopathy has been a passion of mine for a long time," Dr. Bering says. "Since much of the diagnosis hinges on echocardiography and cardiac MRI, my expertise in these imaging modalities lends itself well to understanding the anatomic and physiologic aspects of the disease. Importantly, I can translate this knowledge to the bedside—I interpret the data myself and understand how it may suggest one treatment over the other, allowing me to dive deep into the care process."

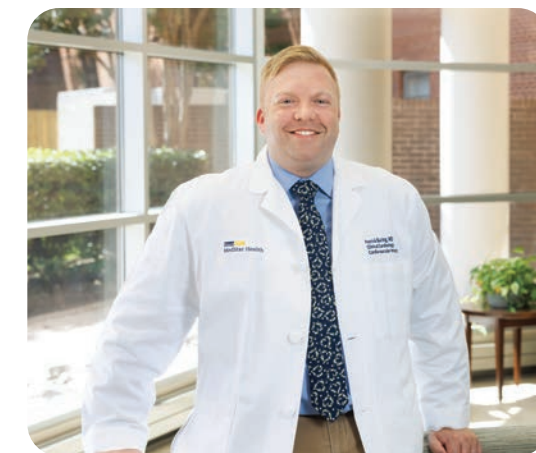
"This heart condition has drawn together a close-knit community of providers who openly share knowledge and expertise," he adds. "The patients too, uniquely support one another outside of the clinic setting."

Dr. Bering joins his counterpart Sandeep Jani, MD, director of the HCM clinic in the Baltimore region, in the mission of advancing knowledge and caring for patients.

"Many patients with HCM are currently undiagnosed or underdiagnosed," explains Dr. Jani. "Our teams are truly

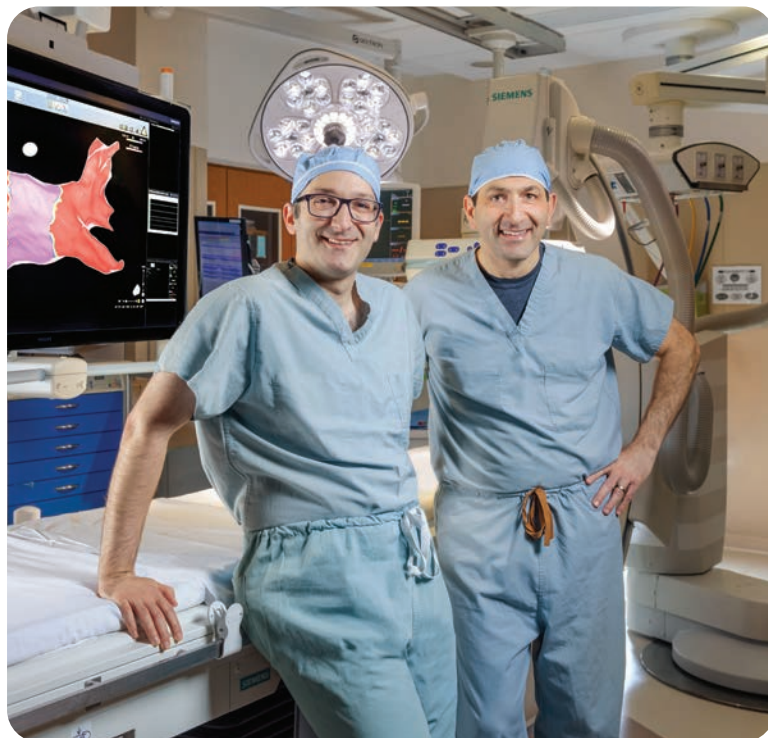
committed to partnering with our colleagues in the community to identify individuals who could benefit from a diagnostic workup, and potentially, long-term management."

**For information on our HCM specialty care, please contact:  
Washington region: Xiaoyun Lin, nurse navigator, at 202-877-2183;  
Baltimore region: 410-554-6550**



**Hypertrophic Cardiomyopathy Clinic Directors Patrick Bering, MD, (top) in Washington, and Sandeep Jani, MD, (bottom) in Baltimore.**

# Elite lead extraction program for implantable devices delivers fewer complications.



**Complex lead management teams, (l to r) Washington-region Cardiac Electrophysiologists Cyrus Hadadi, MD, and Athanasios Thomaides, MD; Baltimore-region Cardiac Electrophysiologist Sunjeet Sidhu, MD, and Cardiac Surgeon Rachel Harrison, MD.**

Approximately one million pacemakers, cardiac defibrillators, and resynchronization devices are implanted worldwide each year, including more than 300,000 in the United States alone. Reliable and effective, today's cardiac implantable electronic devices (CIEDs) can reduce morbidity and mortality by up to 40 percent. However, they are not without risk, with lead or device infection topping the list.

Within three years of implantation, 1 in 20 CIED patients will develop an infection, the risk escalating the longer the device is in place. Yet the source of the problem is often misdiagnosed, leaving 8 in 10 patients undertreated. Of those who do receive therapy, fewer than 30 percent are treated according to best practice guidelines; the consequences can be deadly.

## Tackling an epidemic of undertreated CIED infection.

In recognition of the problem, the American Heart Association plans to launch a two-year, nationwide physician campaign to increase awareness, detection, and treatment of CIED infection. This information is not just for cardiologists, but any specialist who might encounter an intractable infection.

"In fact, many cases of CIED infection occur in end-stage renal disease patients who develop a lead infection when skin bacteria pass through their port or a needle," says Cardiac Electrophysiologist Cyrus Hadadi, MD, associate

director of Cardiac Arrhythmia Research at MedStar Heart & Vascular Institute and MedStar Washington Hospital Center.

Beyond lack of awareness of CIED's causes and symptoms, many physicians have misperceptions about the only effective treatment available today: lead extraction and device removal.

"We've come a long way from the original procedure, introduced in the 1980s, that involved a pulley and weight system," explains Athanasios Thomaides, MD, cardiac electrophysiologist at MedStar Washington. "Today's mechanical or laser extraction techniques and technology are much more sophisticated with a low complication rate." Extraction usually takes four to six hours under general anesthesia. The length of hospitalization is one-to-two days, with recovery time similar to that of a pacemaker or ICD implantation. EP specialists typically replace the infected device with the latest generation or a leadless pacemaker after the infection has cleared.

Potential risks of the procedure include fracture of the lead, dissection of a blood vessel, major hemorrhage requiring transfusion, or cardiac trauma; actual occurrences are rare.

Studies show that complete lead and device extraction is the only way to thoroughly eradicate a CIED infection. A 2021 article in *Circulation* cites a 95 percent success rate for the procedure, with few major complications (0 to 4.8 percent),

a very low incidence of mortality (0 to 2.4 percent), and a relapse rate of only 0 to 4.2 percent.

In contrast, relapse occurs in over 50 percent of cases when CIED infections are treated with antibiotics alone, or with only partial device removal. Antibiotic therapy without device removal can be catastrophic, associated with a seven-fold increase in 30-day mortality.

## Complex procedure requires expertise and experience.

Another barrier to care is the relative scarcity of expert lead management and extraction programs nationwide. Specialists experienced with implantation, long-term monitoring, and especially extraction and replacement are in scarce supply. Another limitation is that a cardiac surgeon be on standby at all times, during an extraction.

With one of the most sophisticated cardiac electrophysiology labs in North America, and a national ranking for advanced cardiovascular care, MedStar Washington launched a lead management program—including lead extraction—in 2019. Today, this specialized program is among the highest volume sites in the nation, performing a projected 100 procedures in 2022 alone. Performed by our multidisciplinary team of experts, the procedure has proven efficient, safe, and effective.

Meanwhile, MedStar Union Memorial Hospital, with 10 EP specialists on staff and a laser lead extraction system, will open its own program this winter.

"We're adopting an integrated approach," says MedStar Union Memorial Cardiac Surgeon Rachel Harrison, MD, a key member of the lead extraction team and a national opinion leader who contributed to the AHA's CIED infection initiative. "In conjunction with Glenn Meininger, MD, director of Cardiac Electrophysiology for MedStar Health's Baltimore region and his associates, Sunjeet Sidhu, MD, and Richard Jones, MD, we'll evaluate the patient together to decide upon the best procedure: extraction, or if the infection has spread to the heart, open heart surgery. The beauty of this arrangement is that I'm already in the hybrid OR and ready to operate immediately, if and when necessary."

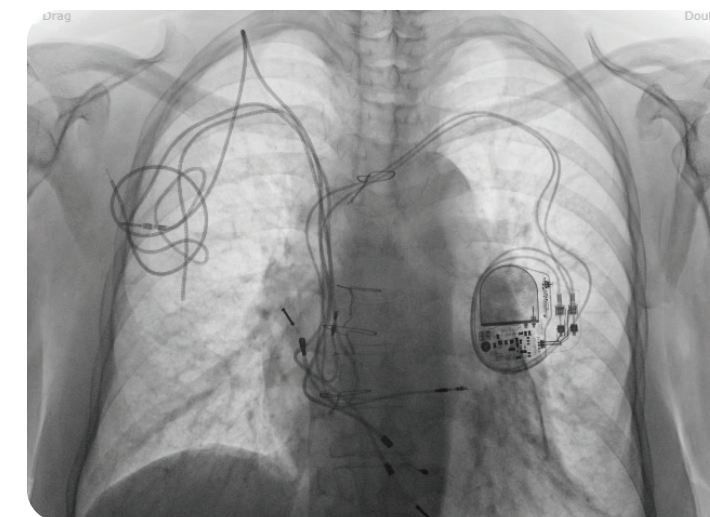
## The best approach for a bad condition.

Aside from infections, other reasons for extractions include lead fractures, clot formation on a lead obstructing a vein, a retained lead triggering an arrhythmia, or product recalls. However, only around 20 percent of such patients are ever referred for lead extraction, receiving less effective approaches to therapy instead.

"Unfortunately, this common practice creates further risks of infection, vein occlusion, and other complications," explains Dr. Sidhu. "The threat is especially serious for the growing number of younger CIED patients who, as their original implants wear out, will need replacement devices down the line."

"Regardless of the cause, lead extraction is currently the only effective intervention for severe CIED issues," adds Dr. Hadadi. "Especially for a bloodstream/CIED infection, there are simply no other alternatives. So the earlier the referral, the better the patient outcome."

**To refer a patient, please call:  
202-877-7685 (Washington)  
410-554-6727 (Baltimore)**



(Top) Chest X-ray above shows a patient with numerous fractured leads and new lead implants subsequently resulting in SVC occlusion before finally being referred for lead management/extraction.

(Bottom left) Patient with subtle device pocket infection.  
(Bottom right) Patient with fulminant device pocket infection.



# Pulmonary hypertension:

A hybrid team of providers manages the turning tide.



*There's been a meaningful shift within the pulmonary hypertension community in recent years. New diagnostic thresholds now provide the ability to appropriately diagnose the condition earlier, which allows physicians to begin therapy more promptly. This is significant with regard to patient morbidity and mortality, as delay in management of pulmonary hypertension (PH) can be the difference between a poor and successful outcome.*

*At MedStar Health, we have harnessed our clinical expertise and resources into a multidisciplinary team, led by Advanced Heart Failure Specialist Mrinalini Krishnan, MD. This positions us to tackle the large, underserved cohort of PH patients in the Baltimore-Washington region. As PH is truly a cardiopulmonary disease process, our team is comprised of both cardiologists and pulmonologists, offering the benefit of shared perspectives and interdisciplinary collaboration. Our wide, regional availability across Maryland and D.C. offers multiple access points to the same consistent, sophisticated level and continuity of care, closer to home.*

## **Early identification of complex symptoms leads to prompt diagnosis.**

Disease recognition is still a widespread concern, often leaving PH underappreciated and undiagnosed for years. The non-specific nature of many of the primary symptoms—shortness of breath, lower extremity swelling, decreased exercise capacity—can make it difficult to pinpoint. To that end, we work closely with primary care physicians, cardiologists, pulmonologists, rheumatologists, hematologists, and infectious disease specialists to screen any patients suspected of having PH. We have taken steps to streamline the diagnostic workup process so that we can evaluate patients in a timely manner.

At our program, the diagnostic process is standardized by our interdisciplinary team across the region. Workup begins with a screening echocardiogram to evaluate pulmonary arterial pressure and right heart size and function, as well as screen for structural issues. A right heart catheterization—the gold standard in PH diagnosis—is then performed to evaluate intracardiac pressures as well as cardiac output and index to confirm pre- or post-capillary pulmonary hypertension. As part of the process, patients will undergo a comprehensive assessment for underlying pathologies: pulmonary evaluation with high-resolution CT and pulmonary function tests; sleep study to screen for obstructive sleep apnea; VQ scan to evaluate for chronic thromboembolic pulmonary hypertension (CTEPH); liver ultrasound to screen for portopulmonary hypertension; and bloodwork to screen for connective tissue diseases, thyroid disease, HIV, and blood disorders.



**(l to r) Pulmonologist Julian Chung, MD; Cardiologist Raymond Young II, MD; Pulmonologist John Sherner, MD; Director of Pulmonary Hypertension Program and Advanced Heart Failure Specialist Mrinalini Krishnan, MD; and Advanced Heart Failure Nurse Navigator Julie Dias-Douglas, BSN, RN**

## **New methods of management and medical therapy offer promise.**

Once the cause is confirmed and the type of PH is identified, we then work to manage the underlying issues. This is where a multidisciplinary team becomes truly valuable. Pulmonologists can adjust inhalers and nebulizers, interventional cardiologists may provide treatments for left-sided heart failure, rheumatologists can address autoimmune disease, infectious disease specialists can treat HIV and other issues, and hematologists can manage blood disorders.

In patients with certain underlying causes, as well as those with idiopathic pulmonary arterial hypertension (PAH), targeted drugs now play a large role in the management spectrum. As recently as 25 years ago, we only had one drug option. Today, we have numerous pulmonary vasodilators in our toolbox, which can be delivered orally, inhaled, or parenterally as either intravenously or subcutaneously. These therapies must be justified and quite carefully regulated, as they can be dangerous when used for the wrong diagnosis or before a full workup is completed. Periodic clinic visits with testing including echocardiograms, six-minute walk tests, and bloodwork also help risk stratify patients for prompt adjustment and escalation of their therapies as needed.

The historically poor outcomes associated with PH are largely based on an era when fewer treatment options were available. Today, many advances have been made in delineating the cause of PH, risk stratifying the patients and

adjusting therapeutic management to prevent progression of disease. When PH is tied to structural heart disease, for example, we have a multitude of interventions that can reverse the disease process if caught and managed early enough. Or if the patient has CTEPH, then a pulmonary endarterectomy or angioplasty can be curative. For the majority of patients with PAH where there remains no cure, an array of medications can be prescribed to alleviate strain on the right side of heart and prevent right heart failure. Patients can now live for many years on currently available medications and delay the need for lung transplantation. There are promising advancements on the horizon, as well. Our team participates in phase-II trials for new medications, as well as other studies sponsored by the National Institutes of Health (NIH).

## **The takeaway.**

Our team believes that it is never “too early” to screen for PH if the patient presents with suspicious symptoms. If no advanced treatment is warranted, then the patient can continue to be managed by the referring provider. If there is PH present, we will work closely with the referring provider to co-manage the patient’s care. Either way, our team is always ready and willing to consult if you are concerned about your patients’ risk and may be reached at **202-877-2339 (Washington) or 410-554-6550 (Baltimore).**

## The J.D. Murphy Jr. Cardio-Oncology Fellowship Program launches at MedStar Health, one of only a few in the country.

This summer, the J.D. Murphy Jr. Cardio-Oncology Fellowship Program was initiated at MedStar Washington Hospital Center. A generous gift of \$500,000 from philanthropist Genevieve Murphy, in recognition of her gratitude for MedStar Washington and in honor of her late husband, J.D. Murphy Jr., a patient, board member, and past chair of the philanthropy committee, provides this new and unique training opportunity for future leaders in cardio-oncology.

Due to the rapidly growing population of cancer survivors, the need for cardio-oncology services has become much more pronounced. Chest radiation, conventional chemotherapies, and newer agents such as immune checkpoint inhibitors can contribute to the development of cardiovascular conditions such as coronary artery disease, peripheral arterial events, deep vein thrombosis, atrial fibrillation, and even heart failure. As newer oncologic therapies continue to prove more successful, physicians must appropriately monitor and care for the patient's heart—often before, during, and long after their cancer treatments.

We have pioneered this niche medical subspecialty since 2012, participating in much of the ground-breaking research and protocol implementation aimed at minimizing cardiovascular impact in people with cancer.

The natural next step in growing this service is to provide training for future specialists. Over the past decade, we have established many of the necessary elements that a cardio-oncology fellowship program requires: access to advanced imaging technologies, a robust research program, and collaborative coordination of care. Now, enabled by Mrs. Murphy's gift, we have become one of only a few sites in the country to offer this distinctive post-graduate training program. Ultimately, this improves our ability to improve and extend the lives of cancer patients and survivors.

In July, Seyed Ebrahim Kassaian, MD, became the program's inaugural fellow. Dr. Kassaian comes to MedStar Health with 20 years of clinical and research experience in interventional cardiology, heart failure, quality metrics, and academics. During a previous rotation spent working at MedStar Washington, he developed a particular interest in cardio-oncology.

"I could see the breakthroughs and revolutions in the field of oncology over the past five-to-ten years—new medications and treatments led to much higher survival rates," Dr. Kassaian recalls. "But at the same time, I also observed increasing incidents of cardiac complications, many because of these powerful new treatments, but also because the survivors are reaching older ages than in the past. We are seeing that many don't die from the cancer,



**Cardio-Oncology Program Inaugural Fellow Seyed Ebrahim Kassaian, MD**

and they often have chronic cardiac problems that we can manage. This is a new challenge that is best tackled as a joint venture between cardiology and oncology—you need both perspectives."

Dr. Kassaian also recognizes that cardio-oncology is still relatively unknown among many providers even though the need is rapidly rising. This furthered his desire to specialize.

"The demand for this type of care is through the roof, and there are not many programs in the country that can appropriately address the need. We are moved by Mrs. Murphy's mindful and wise gift, reflecting a purpose that would be meaningful for her late husband. Her contribution will help provide needed access to cardio-oncology care for the people of this region. I think we will see very active growth in this program and in this subspecialty in the future."

During his one-year fellowship, Dr. Kassaian sees patients in the cardio-oncology clinic, as well as at the MedStar Georgetown University Hospital survivorship clinic.

"It is very satisfying to work at a system where patients are happy to come, and where so many oncologists want to refer their patients," he says. "It is a pleasure to work with the entire team—the physicians, nurses, assistants, navigators, and counselors—everyone is well coordinated around the needs of our patients. We learn from our patients, many of whom have been through so many challenges. Cancer is frightening. Heart disease is frightening. If you have both, it can easily be overwhelming. When treated at MedStar Health, our patients can continue cancer treatment knowing their heart is also well cared for. They gain confidence and regain hope for their life."



## New hybrid vascular ORs at MedStar Washington Hospital Center.

Two new, state-of-the-art, operating rooms have opened at MedStar Washington Hospital Center, allowing for vascular surgery cases to transition from endovascular, to open, to hybrid at the literal touch of a button.

Patients requiring intervention for deep venous disease, limb salvage, aortic pathology, and more—virtually all vascular-related cases—will benefit from the new technology in the rooms.

These spaces provide improved magnification and better visualization for surgeons, and lower radiation for patients. They also allow for use of cutting-edge imaging, integration or overlay of previous studies, and the ability to perform de novo CT scans during a case. With these rooms, we are also well positioned to employ intravascular ultrasound and other future technologies that use fiber optic imaging.

Steven Abramowitz, MD, physician executive director and chair of MedStar Health's Vascular Surgery Program, sees the technology as a means to advance medical innovation, as well.

"As international leaders, we are now better equipped to collaborate more closely with our industry and academic research partners," he says. "The spaces also keep us on the forefront of medical education, with unique recording equipment that make it possible for certain cases to be shared with other sites, providing educational symposia for our peers and trainees."

"Ultimately, and most importantly," Dr. Abramowitz adds, "these new additions enhance our ability to deliver the greatest quality of care for our patients."

# Welcome **new medical staff.**



**Keki R. Balsara, MD**, is a cardiac surgeon at MedStar Washington Hospital Center and serves as surgical director of Heart Transplantation and Mechanical Circulatory Support for MedStar Health. Dr. Balsara sees patients across the entire spectrum of cardiac disease and has a particular interest in end-stage heart failure, heart transplantation, and mechanical circulatory support. His experience includes expanding both the donor and recipient pools for transplantation through the use of donor hearts with hepatitis C and donation after cardiac death (DCD).

*For an in-depth feature on Dr. Balsara, please see page 8.*

#### Education and training:

- **Fellowships:**
  - Cardiothoracic surgery, The Johns Hopkins Hospital
  - Surgical critical care, Duke University
  - End-stage heart and lung failure research fellowship, Duke University
- **Residency:** General surgery, Duke University School of Medicine
- **Medical School:** University of Pennsylvania



**Sadia Ilyas, MD**, is a vascular surgeon at MedStar Washington Hospital Center who is also fellowship trained in surgical critical care. This dual training is an uncommon specialty, and gives her further insight in the preoperative and postoperative settings as well as in the OR and the ICU. Dr. Ilyas manages and treats the entire spectrum of vascular surgery and is experienced in both open and advanced endovascular approaches. She has a special interest in aortic branch graft technology and fenestrated aortic repair for aortic dissection and aortic aneurysms, as well as advanced endovascular limb salvage techniques including deep vein arterialization.

#### Education and training:

- **Fellowships:**
  - Vascular surgery, Dartmouth-Hitchcock Medical Center
  - Surgical critical care, The Ohio State University College of Medicine
  - Basic science research and translational clinical trials, National Institutes of Health
- **Residency:** General surgery, Wright State University Boonshoft School of Medicine
- **Medical School:** University of Missouri-Kansas City School of Medicine



**Brian Baturin, MD**, is an imaging cardiologist at MedStar Washington Hospital Center and MedStar Georgetown University Hospital. As a part of the structural heart team, he specializes in advanced interventional echocardiography, with a focus on valvular heart disease. Dr. Baturin also conducts imaging studies for clinical trials

for transcatheter interventions and is interested in research that involves advanced echocardiography and structural heart imaging to better assess valvular disease and determine treatment options.

#### Education and training:

- **Fellowships:**
  - Advanced echocardiography, MedStar Washington Hospital Center
  - Cardiovascular disease, Cooper Medical School of Rowan University
- **Residency:** Warren Alpert Medical School of Brown University
- **Medical school:** Rutgers New Jersey Medical School



**Richard P. Jones II, MD**, is a cardiac electrophysiologist at MedStar Union Memorial Hospital and MedStar Franklin Square Medical Center. Dr. Jones treats all heart rhythm disorders, including atrial arrhythmias, like PSVT, atrial flutters, and atrial fibrillation, and ventricular arrhythmias, like ventricular tachycardia. He performs ablation procedures for all heart rhythm issues, pacemaker and defibrillator implantations, and left atrial appendage closures. He also has a special interest in lead extractions, left bundle area pacing, and pulsed-field ablation.

#### Education and training:

- **Fellowships:**
  - Clinical cardiac electrophysiology, The Johns Hopkins Hospital
  - Cardiovascular disease, The Johns Hopkins Hospital
- **Residency:** The Johns Hopkins Bayview Medical Center
- **Medical school:** Florida State University College of Medicine



**George H. Clements, MD**, is a noninvasive cardiologist practicing in Annapolis and Chester, Maryland. He has advanced certifications in echocardiography and nuclear cardiology. His clinical interests are coronary artery disease, heart failure, arrhythmias, hypertension, hyperlipidemia, and valvular heart disease. He also sees

patients who are at high risk for heart disease and works with them to lower their risk through preventative measures.

#### Education and training:

- **Fellowship:** Cardiology, University of Maryland Medical Center
- **Residency:** University of Maryland Medical Center
- **Medical school:** Joan C. Edwards School of Medicine at Marshall University



**Ahmed Khan, MD**, is an advanced heart failure and transplant cardiologist at MedStar Washington Hospital Center. Dr. Khan treats patients with all stages of heart failure, from determining appropriate medical therapy to advanced interventions such as LVAD and heart transplantation. In addition, Dr. Khan also treats a wide range of cardiovascular conditions, including coronary artery disease, valvular heart disease, pulmonary hypertension, and atrial fibrillation, drawing from his experience with echocardiography and nuclear cardiology. His research interests include medical bioethics as it pertains to heart failure and heart transplantation.

#### Education and training:

- **Fellowships:**
  - Advanced heart failure and transplant cardiology, MedStar Washington Hospital Center
  - Cardiovascular disease, University of Maryland Medical Center
- **Residency:** Rutgers Robert Wood Johnson Medical School
- **Medical school:** Rutgers Robert Wood Johnson Medical School



**Thomas MacGillivray, MD**, is physician executive director of Cardiac Surgery at MedStar Health and chairman of Cardiac Surgery at MedStar Washington Hospital Center. While he performs conventional coronary artery bypass operations, valve repairs, and valve replacements, Dr. MacGillivray's expertise stretches into more specialized

procedures, including aortic repair, maze procedures, septal myectomy, and cardiac tumor excision. He is a nationally recognized leader in the surgical treatment of patients with adult congenital heart disease and heart failure. Dr. MacGillivray serves as the incoming president of the Society of Thoracic Surgeons.

*For an in-depth feature on Dr. MacGillivray, please see page 4.*

**Education and training:**

- **Fellowships:**
  - o Fetal surgery research, University of California, San Francisco
  - o Cardiothoracic surgery, Massachusetts General Hospital
  - o Congenital heart surgery, Boston Children's Hospital
- **Residency:** General surgery, Massachusetts General Hospital
- **Medical school:** Tufts University School of Medicine



**Amy Marino, MD**, is a noninvasive cardiologist at MedStar Georgetown University Hospital. She treats a wide range of cardiovascular conditions, including coronary artery disease, lipid disorders, atrial fibrillation, heart failure, and valvular heart disease. Dr. Marino has a particular clinical and research interest in cardiovascular disease in

women, including complications during pregnancy and the management of future CV risk.

**Education and training:**

- **Fellowship:** Cardiology, University of Pittsburgh Medical Center
- **Residency:** University of Pittsburgh Medical Center
- **Medical School:** The George Washington University School of Medicine and Health Sciences



**Melissa K. Meghpara, DO**, is a vascular surgeon at MedStar St. Mary's Hospital. She treats the whole spectrum of vascular disease, including carotid, aortic, and peripheral vascular disease, with both endovascular and open approaches. Dr. Meghpara specializes in a number of advanced endovascular techniques, including EVAR, TEVAR, and TCAR. She

is also interested in clinical research that explores practical improvements on modern methods.

**Education and training:**

- **Fellowship:** Vascular Surgery, Maimonides Medical Center
- **Residency:** General Surgery, Flushing Hospital Medical Center
- **Medical School:** New York Institute of Technology College of Osteopathic Medicine



**Miguel Pinilla-Vera, MD**, is an advanced heart failure and transplant cardiologist at MedStar Washington Hospital Center. Dr. Pinilla-Vera's clinical and research interests include diagnosing, treating, and providing long-term care for patients with advanced heart failure and inflammatory cardiomyopathy, from the early and asymptomatic stages

to the most advanced situations, in which a heart transplant or LVAD might be needed.

**Education and training:**

- **Fellowship:** Heart failure and transplant cardiology, The Johns Hopkins University School of Medicine
- **Residencies:**
  - o The Johns Hopkins University School of Medicine
  - o University of Pittsburgh Medical Center
- **Medical school:** Pontificia Universidad Javeriana, Bogotá, Columbia

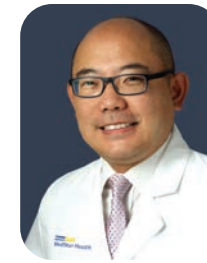


**Christopher W. Puleo, MD**, is a noninvasive cardiologist practicing in Washington, D.C. Dr. Puleo incorporates his experience with a variety of cardiac imaging modalities, including echocardiography and nuclear stress testing, to diagnose, treat, and risk stratify patients for a broad range of cardiovascular conditions. His main clinical interest is

in preventive care and he works with patients to identify and incorporate healthy lifestyle choices that they enjoy to both treat and prevent cardiac disease before it reaches advanced stages.

**Education and training:**

- **Fellowship:** Cardiovascular disease, Ochsner Foundation Hospital
- **Residency:** University of Texas Southwestern Medical Center
- **Medical School:** Columbia University Vagelos College of Physicians and Surgeons



**John Shin, MD**, is cardiac electrophysiologist at MedStar Washington Hospital Center with practice locations in Annapolis, Md., and Washington, D.C. Dr. Shin treats patients for all cardiac arrhythmia disorders (both common and complex), including atrial fibrillation, ventricular tachycardia, supraventricular tachycardia,

bradyarrhythmia, and syncope. Dr. Shin performs implant procedures for patients who are candidates for devices such as pacemakers and defibrillators. He also performs minimally invasive catheter-based ablation procedures.

**Education and training:**

- **Fellowships:** Cardiac electrophysiology and cardiology, University of Chicago Medical Center
- **Residency:** University of Chicago Medical Center
- **Medical School:** Vanderbilt University School of Medicine



**Tania A. Vora, MD**, is an advanced heart failure physician at MedStar Union Memorial Hospital. Dr. Vora specializes in identifying and evaluating patients with chronic heart failure, particularly stage D heart failure, and managing them through the spectrum of treatment options, including home inotropic therapy, left

ventricular assist device (LVAD) implantation, and heart transplantation. Dr. Vora has a special clinical and research interest in infiltrative cardiomyopathies, including cardiac sarcoidosis and amyloidosis.

**Education and training:**

- **Fellowships:**
  - o Advanced heart failure, MedStar Washington Hospital Center
  - o Cardiology, Georgetown University School of Medicine
- **Residency:** Georgetown University School of Medicine
- **Medical School:** Georgetown University School of Medicine

Cardiovascular Physician is a publication of MedStar Health. It is a forum to share clinical, research, and teaching information in cardiology, cardiac surgery, and vascular care.



Please submit any comments to Managing Editor Karoline Hutson, at [karoline.m.hutson@medstar.net](mailto:karoline.m.hutson@medstar.net).

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## Upcoming conferences and courses

### DMV Cath Lab Case Review

Thursdays  
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Colleagues from hospitals in D.C., Maryland, and Virginia engage in thought-provoking conversation regarding unique, interventional cardiology case reviews.

**To request an invitation, please email [lowell.f.satler@medstar.net](mailto:lowell.f.satler@medstar.net).**

### Cardiovascular Research Technologies (CRT) 2023

February 25 - 28, 2023

The Omni Shoreham Hotel  
Washington, DC

This annual 4-day conference will focus on five tracks—coronary, valve and structural, endovascular and stroke intervention, health disparities, and nurses and technologists. CRT 2023's concurrent meetings are designed to impact practice with focused sessions that discuss new trial data, explore evidence-based research, and demonstrate cutting-edge techniques that can be directly applied to the learners' clinical and academic practice. CRT 2023 will feature more than 750 world-renowned faculty and live cases from seven sites across the globe. Hillary Clinton has been selected as one of the keynote speakers.

**To register, visit [CRTmeeting.org](https://www.crtmeeting.org).**

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**Cardiac Catheterization Conference**  
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1 AMA PRA Category 1 Credit<sup>™</sup>  
**202-877-3951**

Visit us at [MedStarHealth.org/Services/Heart-and-Vascular](https://www.MedStarHealth.org/Services/Heart-and-Vascular).

Some of the photos in this publication were taken prior to the COVID-19 pandemic. Photo editing techniques were used to create some group photos. All patients and providers are expected to follow the current MedStar Health guidelines for safety including proper masking and physical distancing where appropriate. Learn more at [MedStarHealth.org/Safe](https://www.MedStarHealth.org/Safe).