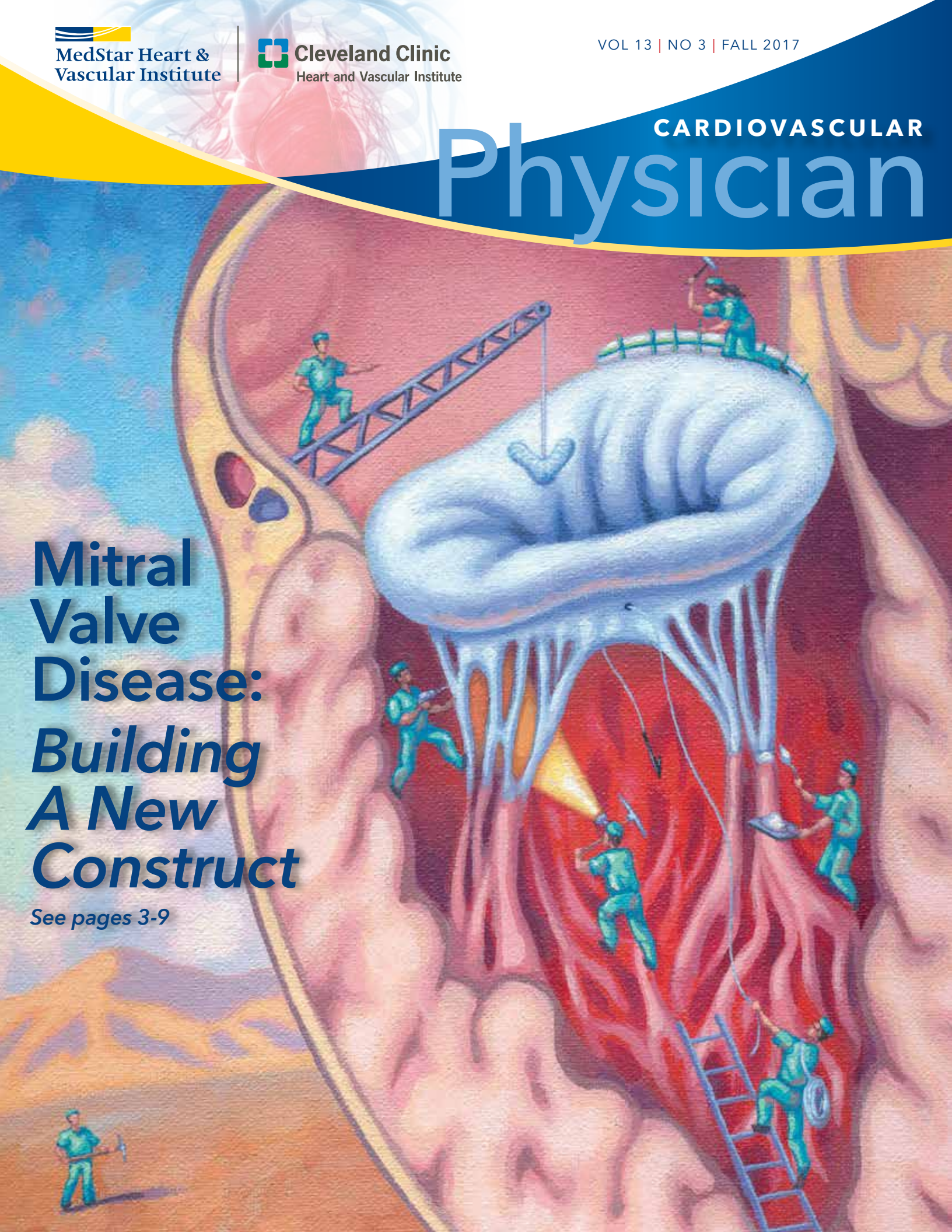


CARDIOVASCULAR  
**Physician**

**Mitral  
Valve  
Disease:  
*Building  
A New  
Construct***

See pages 3-9



## The Inevitability of Change

In medicine, we strive for transformative new therapies and the speedy trajectory of progress. While we celebrate positive change, some change is bittersweet. In this issue of *Cardiovascular Physician* we focus on both.

This summer we said adieu to Dr. Augusto (Gus) Pichard, who left MHVI after 35 years to work with Abbott Medical, and of course, we wish him well. Gus is a true visionary whose extraordinary skill and imagination helped shape what is today's MedStar Heart & Vascular Institute (MHVI). Through his work as director of the Cardiac Catheterization Lab during the past three decades, MHVI rose to prominence as one of the nation's most progressive centers for the treatment of structural heart disease.

Under his direction, our program grew exponentially—moving from the use of catheterization first as a diagnostic tool and then for angioplasty, atherectomy and stenting to open narrowed coronary arteries—to the repair of structural abnormalities. He led MedStar Washington Hospital Center's multidisciplinary team that proved the value of transcatheter aortic valve replacement (TAVR) as an important treatment option for patients with severe aortic stenosis. Because of Gus's pioneering work, the Hospital Center is currently the highest volume TAVR center on the East Coast, performing more than 200 procedures each year.

In the course of my own career, I've had the privilege to work alongside Gus in the cath lab. He is a uniquely talented individual and his once-in-a-generation technical ability was a joy to behold. He has left behind a legacy for generations to come.



### NEW VALVE DISEASE TREATMENT CENTER

Gus Pichard and the TAVR team's work laid the foundation for an exciting new initiative featured on the pages of this newsletter. The enhanced MHVI valve program at MedStar Washington Hospital Center consolidates treatment of aortic, mitral, and tricuspid valve diseases—and is fast becoming a worldwide incubator for revolutionary non-surgical therapeutic approaches.

Mitral valve disease has long posed a challenge for cardiologists. We have not been able to duplicate what a skilled surgeon can do. The mitral valve is far more anatomically complex than its aortic cousin. Its leaflets and elegant support apparatus have proven to be hurdles to non-surgical solutions.

One size, or in this case, one approach, does not fit all patients. Expertise and experience in the full spectrum of established and emerging therapeutic options are essential to design optimal individualized treatment.

But as you will read, MHVI is tackling this clinical conundrum with some truly innovative techniques and technology. And a very talented team of clinician-researchers are leading a number of trials testing improved ways to repair and/or replace the mitral valve.

### A CELEBRATION

Lastly, we are celebrating an auspicious anniversary. One year ago, the Nancy and Harold Zirkin Heart & Vascular Hospital opened at MedStar Washington Hospital Center. It's the crowning jewel of MHVI—a four-story, 160,000-square-foot facility that has helped to usher in a new model of care and patient experience. I am so grateful to our benefactors for their confidence in us and our team for helping to ensure its success. We look forward to continuing to do great things together.

# Mitral Valve Disease

## Building a New Construct



(L to R) Interventional Cardiologist and Cath Lab Director Lowell Satler, MD; Cardiothoracic Surgeon Ammar Bafi, MD; and Director of Echocardiography Zuyue Wang, MD, comprise the dedicated team of cardiac experts to help detect the exact nature of each mitral valve problem and how to solve it.

*In the battle to beat heart disease, the mitral valve is a tougher opponent than the aortic. It's bigger and trickier to reach, with a more complex architecture, more components...and more ways to go bad.*

*That combination also makes the degenerative mitral valve, the most common condition, more resistant to medical management and more challenging to fix.*

*While many hospitals claim to treat mitral valve problems, MedStar Heart & Vascular Institute is by far the area leader in terms of volume and experience, arsenal and outcomes. From open and minimally invasive surgery to catheter-based solutions and even beating heart mitral valve repair, we perform the most effective procedure for each individual patient, and are the major referral center for the region's most difficult cases. All the while, we continue to pioneer, test, use and perfect the next generation of technology and techniques to advance the field for future patients.*

*What approach to use and when is decided by a comprehensive team of experts in cardiac surgery, interventional cardiology and cardiac imaging working together for the best and most sustainable results.*

# Surgery: Still the standard



Ammar Bafi, MD, cardiorthoracic surgeon, is one of the busiest and most experienced mitral valve repair specialists in the United States today.

Most patients with mitral valve disease today suffer from primary, or degenerative, mitral regurgitation (MR). A structural problem involving the leaflets, annulus or chordae, degenerative MR is one of the most common cardiovascular diseases in the United States and Europe today. And the front-line treatment remains surgery.

Cardiac surgeons at MedStar Heart & Vascular Institute (MHVI) have more options than ever, including open surgery or minimally invasive procedures using a mini-thoracotomy or mini-sternotomy, backed up by new and innovative interventional cardiology approaches for non-surgical candidates. In some cases, our specialists have even appropriated TAVR techniques to fix previously replaced but failing mitral valves.

With the full suite of proven and promising technology at their fingertips, our surgeons can match each patient with the best therapy for optimal outcomes. Matched with landmark research in the field of mitral valve surgery, MHVI cardiac surgeons are re-defining the indications for not only when to operate on patients with mitral regurgitation, but also the variety of techniques used.

### REPLACE OR REPAIR?

At MHVI, the surgical choices are many. And while some cases may be clear-cut,

others depend upon the judgment of the cardiac surgeon.

"Over the course of my career, patients with degenerative MR typically have the best possible outcomes with repair," says Ammar Bafi, MD, a cardiothoracic surgeon with MedStar Washington Hospital Center and one of the busiest and most experienced mitral valve repair specialists in the United States today. "Overall, repair is associated with a lower operative mortality rate, longer survival, better preservation of left ventricular function and fewer prosthetic-related complications than replacement."

At the Hospital Center, hub of MHVI, more than 98 percent of degenerative mitral valves are repaired successfully. However, in some instances, replacement can be equally effective and long-lasting. The choice of repairing or replacing, and the eventual success of either procedure, often boils down to patient selection.

"For patients with ischemic disease," says Dr. Bafi, "replacement may work better. That's also the case for patients with functional mitral regurgitation, after medical therapies and specialized electrical physiology procedures have failed. For others, it just depends upon which approach is going to produce the best outcome for that individual."

"Our MHVI valve program is one of the nation's highest volume centers for mitral valve surgeries, far surpassing most other institutions," says Dr. Bafi. "The key to success is early referral to an experienced site for the most timely intervention and best results."

### MINIMALLY INVASIVE OR OPEN SURGERY?

Vinod H. Thourani, MD, the new chairman of Cardiac Surgery for MHVI and an expert in surgical and transcatheter mitral valve procedures, says, "In addition to deciding between repair or replacement of the mitral valve, MHVI surgeons can help patients decide whether their operation should be a conventional full sternotomy or via the minimally invasive techniques." That same governing principle—what's best for each individual patient—applies to the choice between open or minimally invasive procedures.

The traditional open surgical approach involves a sternotomy. Minimally invasive procedures use a partial sternotomy or non-sternotomy incision through the right side of the chest.

Dr. Thourani notes that MHVI is poised to be in a unique position for the entire Mid-Atlantic region. "With our valve program heart team assessment and surgical expertise," he says, "patients are evaluated for traditional mitral valve surgery or the minimally invasive and transcatheter approaches. Patient outcomes and quality are paramount during this process of shared decision-making for the treatment of mitral valve disease."

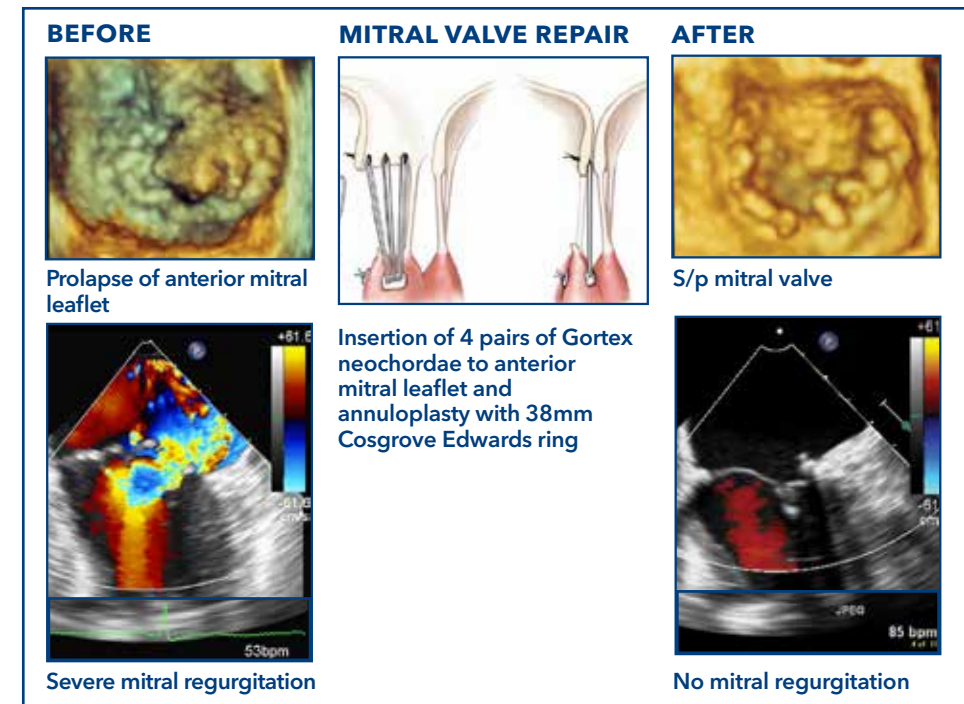
To see if your patient may benefit from surgery, call 202-877-7464.



Vinod H. Thourani, MD, is the new chairman of Cardiac Surgery for MHVI.

98%  
MITRAL  
VALVES

NINETY-EIGHT PERCENT OF DEGENERATIVE MITRAL VALVES ARE REPAIRED SUCCESSFULLY AT MHVI



### CHRONIC SEVERE MITRAL REGURGITATION

#### Indications for Treatment of Mitral Regurgitation

- Any symptoms (NYHA II-IV) Class I
- LV dysfunction Class I
  - EF<60% or serial decrease in EF
  - LVSD>40mm or serial increase ESD
- Pulmonary hypertension Class IIa
- RV dysfunction Class IIa
- Atrial fibrillation Class IIa
- Asymptomatic severe MR with preserved LV function Class I
  - The likelihood of successful repair without residual MR>90% Class IIa
  - Low risk for OR
  - Referred to surgical centers experienced in MV repair Class I

Source: American Heart Association and American College of Cardiology

## repair vs. replace

Overall repair is associated with:

- A lower operative mortality rate
- Longer survival
- Better preservation of left ventricular function
- Fewer prosthetic-related complications

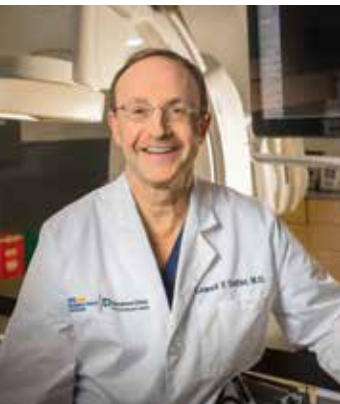
Replacement may work better for patients that have:

- Ischemic mitral regurgitation
- Functional mitral regurgitation of other causes
- Mitral stenosis



(L to R) Interventional Cardiologists Itsik Ben-Dor, MD, Ronald Waksman, MD, and Lowell Satler, MD, employ an array of structural heart percutaneous devices to tackle degenerative mitral valve disease.

# Pursuing Surgery-like Results For Non-Surgical Patients



Lowell Satler, MD, director of the cath lab at MedStar Washington Hospital Center, is a leading figure in understanding and managing structural heart disease.

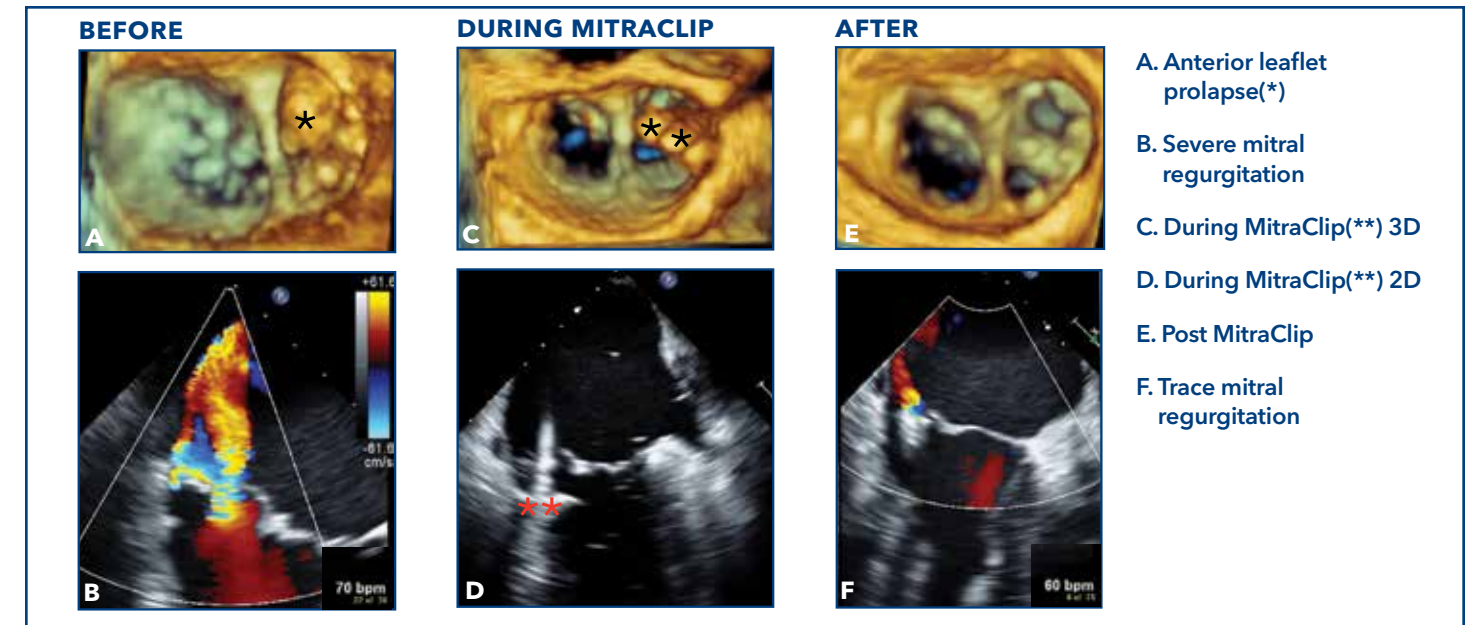
Ever since the success of transcatheter aortic valve replacement (TAVR), MedStar Heart & Vascular Institute's (MHVI) structural heart specialists have pursued replicating that experience in the mitral valve space. The mitral valve, however, has a unique set of challenges—it changes geometrically during a single cardiac cycle; it is subject to higher closing pressures; and it lacks a reliable native annular anchor to hold a non-surgical replacement.

Less than a decade later, however, MHVI's efforts are paying off in full.








"There's been an explosion of new percutaneous devices to repair or replace a leaky mitral valve over the last few years," says interventional cardiologist Lowell Satler, MD, director of MedStar Washington Hospital Center's Cardiac Catheterization Lab and a leading figure in understanding and managing structural heart disease. "We now have alternative, and less invasive, options to open surgery."

In fact, the Edwards Sapien S3 valve, which MedStar Washington Hospital Center tested through the MITRAL trial, just received FDA approval in June as a surgical alternative for high risk patients with a failing surgical bioprosthetic mitral valve. Other mitral valve trials at MHVI have also demonstrated their efficacy. The MitraClip became the first device to repair degenerative mitral regurgitation, receiving approval from both the FDA and CMS for high surgical risk patients.

"Our experience combining interventional cardiology, cardiac surgery, and advanced imaging proves that we can often use a catheter-based strategy for structural disease as a new alternative to a standard open-chest operation," Dr. Satler says. "That's an especially important development for elderly patients who are often already frail and debilitated by co-morbidities, placing them at high or intolerable surgical risk."



## PERCUTANEOUS MITRAL VALVE THERAPIES AT MHVI TODAY

DEVICE/STUDY NAME	USE	DESCRIPTION	STATUS
 MitraClip	Trans-septal Repair	An FDA- and CMS-approved V-shaped clip for degenerative MR repair in "prohibitive risk," non-surgical patients	Approved for select high-risk patients
 NeoChord	Transapical Repair	Off pump, beating heart mitral valve repair for patients with mid- to severe mitral regurgitation, secondary to valve prolapse	Active enrollment
 Cardioband	Trans-septal Repair	This system combines reconstruction implant, similar to a surgical annuloplasty mitral valve repair device, with a transcatheter approach.	Recruiting
 SapienS3 valve/ MITRAL Trial	Trans-septal Replacement	A repurposed aortic percutaneous valve is threaded through the femoral vein and then positioned within the degenerative mitral bioprosthesis.	FDA-approved in June 2017 for valve-in-valve replacement. Still under investigation for valve-in-ring and valve-in-MAC procedures
 Tendyne TMVR	Transapical Replacement	Transcatheter-based mitral valve replacement system, that avoids both a sternotomy and cardiopulmonary bypass	Active enrollment
 Caisson TMVR	Trans-septal Replacement	Mitral valve replacement, delivered through the femoral vein	Active enrollment
 Intrepid TMVR	Transapical/ Trans-septal Replacement	This transcatheter heart valve has a self-expandable nitinol outer stent, which provides fixation and sealing, and a circular inner stent.	Recruiting

# Beating Heart Mitral Valve Repair

## Revolutionary Approach to Mitral Regurgitation Under Study

The tools and techniques available to treat mitral valve disease are rapidly changing. Most recently, an innovative device called the NeoChord DS1000 system has been developed that combines the best of both open and percutaneous procedures for a unique approach to mitral valve repair.

Under an Investigational Device Exemption, MedStar Washington Hospital Center is one of only 20 sites in the United States, Canada and Europe selected for the RECHORD clinical trial, which aims to answer two key questions: Is NeoChord equally as effective as open surgery? And is it safer, reducing the risk of stroke and other complications?

Findings could influence the trajectory of mitral valve repair.

"NeoChord is in a class all its own, and quite possibly the wave of the future," says cardiac surgeon Christian Shults, MD, principal investigator for the hospital's trial. Dr. Shults trained on the device's use in Europe, where it received its CE mark in 2013. "There's no opening of the heart, no sternotomy, no heart/lung machine. Instead, we approach the beating heart through a small incision between the ribs, allowing us to perform a mitral valve repair under physiologic conditions without opening the chest or stopping the heart."

During the procedure, the surgeon introduces the NeoChord system through the apex of the left ventricle and navigates to the mitral valve under 3D transesophageal echo guidance. A small, jaw-like device captures the prolapsed portion of the leaflet and places a stitch in the leading edge. The stitch is then brought out the apical incision along with the device. Next, the surgeon manipulates the new chordae under real-time imaging to achieve the tightest seal and reduce regurgitation. Once dynamic feedback confirms the most effective tension, the chordae are secured to the apex of the heart and the hole sutured.

Based on experiences with more than 500 cases in Europe, the procedure takes one to two hours, with a relatively quick recovery. Without a sternotomy and the attendant restrictions associated with open heart surgery, most patients resume normal activities within a week. A recent clinical data report from the University of Padua also showed sustained outcomes comparable to open mitral valve repair at the two-year mark.

"This is a potential game changer for mitral valve therapy," says Dr. Shults, "and could make the case for earlier intervention in asymptomatic patients with severe mitral regurgitation."

### NeoChord Trial Seeks Candidates

MedStar Washington Hospital Center is one of the first in the United States to begin the randomized NeoChord trial and the only one in the area. The multicenter, prospective pivotal study hopes to enroll up to 585 patients with degenerative mitral regurgitation from ruptured or elongated chordae over a two-year period.

Trial candidates must be eligible for open surgery and free from other coronary disease or renal failure. A limited number of non-randomized study slots are reserved for high-risk, non-surgical candidates who will automatically be treated with NeoChord. Other criteria apply.

**To see if your patient may qualify, please email Dr. Shults at [Christian.Shults@medstar.net](mailto:Christian.Shults@medstar.net) or call 202-877-7464.**



# Spotting Subtleties and Solutions

## Imaging: The Devil is in the Details

When it comes to mitral valve disease, incorrect diagnoses often lead to delayed treatment, deteriorating health and diminished outcomes. MVHI relies upon a designated team of cardiac experts at MedStar Washington Hospital Center—and its complete complement of sophisticated imaging technology—to help detect the exact nature of each mitral valve problem and how to solve it, sooner versus later.

The team is composed of cardiothoracic surgeon Ammar S. Bafi, MD; Lowell Satler, MD, director, Cardiac Catheterization Lab; and cardiologist Zuyue Wang, MD, a specialist in advanced heart imaging. Their combined experience and judgment guide the diagnoses and therapeutic recommendations for hundreds of mitral valve patients each year from the Hospital Center, MHVI and beyond.

The process starts when referring physicians upload their patient's most current imaging studies through MedStarImageShare.com. Drs. Bafi, Satler and Wang then review the studies together to determine the best course of action or the need for more detailed 3D imaging, which is required for all mitral valve interventions. When all information is reviewed and the patient is finally evaluated, shared decision-making is used to determine if the patient is a candidate for surgery or a percutaneous therapy.

"Altogether, we review and interpret between 300 and 600 images each month from MedStar Health physicians and other cardiologists and subspecialists throughout the region," says Dr. Satler. Dr. Wang adds, "We're a highly synchronized team, working very closely together from start to finish."

That extensive process might make for longer days for the team, "but it allows for a smoother, faster and better experience for the patient," says Dr. Wang, who is in the surgical suite or cath lab for real-time imaging for most of the Hospital Center's mitral valve repairs.

With the increase of minimally invasive catheter-based cardiac interventions, multiplane 2D transesophageal echocardiography (2D TEE) and intracardiac echocardiography (ICE) have evolved to become the most important guiding tools. However, 2D imaging modalities are limited because there are only two spatial dimensions. A novel realtime 3D technology (RT3D TEE) has merged with TEE to provide realtime volume imaging with high resolution, resulting in unique views of cardiac structures. High quality real time 3D TEE imaging with good spatial and temporal resolution has great potential for guiding interventional procedures by adding additional morphological information not available before. This may lead to safer and shorter procedures with higher technical success, a diminished amount of radiation exposure and, therefore, better outcomes for patients.

**If you have an image you'd like to discuss, call Lowell Satler, MD, Director, Cardiac Catheterization Lab, MedStar Washington Hospital Center at 202-877-5975. Your images can be uploaded to [www.medstarimageshare.com](http://www.medstarimageshare.com)**



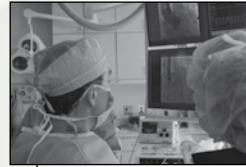
**TOP:** Zuyue Wang, MD, a specialist in advanced heart imaging, with Lowell Satler, MD, director, Cardiac Catheterization Lab.

**MIDDLE:** Dr. Wang performs real-time imaging for most mitral valve repairs at the Hospital Center.

**BOTTOM:** Dr. Wang, Steven Goldstein, MD, and Gaby Weissman, MD, review a 3D transesophageal echo (TEE) of a prosthetic mitral valve.

# a career of firsts

## Augusto Pichard, MD



**1979**  
PERFORMS FIRST ANGIOPLASTY PROCEDURE AT MOUNT SINAI HOSPITAL



**1983**  
RETURNS TO NATIVE CHILE AND PERFORMS COUNTRY'S FIRST ANGIOPLASTY AT CATHOLIC UNIVERSITY & ORGANIZES FIRST CARDIOVASCULAR RESEARCH PROGRAM



**1990**  
PERFORMS FIRST LASER BALLOON ANGIOPLASTY & FIRST TRIAL ON NEW STENTS



**1990s**  
ONE OF THE BUSIEST CATH LABS IN THE WORLD



**2011**  
ROBOTIC PCI PROCEDURE



**2007**  
FIRST TAVR PROCEDURE PERFORMED

### MEDSTAR WASHINGTON HOSPITAL CENTER CATH LAB FIRSTS

- PERFORMED BALLOON ANGIOPLASTY WITH LASER
- USED PERFUSION CATHETERS IN CORONARY SINUS
- PERFORMED FIRST AORTIC VALVULOPLASTY
- PIONEERED CORONARY STENTS
- PIONEERED ATHERECTOMY TECHNIQUES
- DEVELOPED ANTICOAGULATION PROTOCOLS FOR STENTS
- INTRODUCED INTRACORONARY IMAGING
- LED THE TAVR PARTNER TRIAL

### 1970s *seventies*

### 1980s *eighties*

### 1990s *nineties*

### 2000s *two thousands*



**1971**  
TRAINED AND JOINED MEDICAL STAFF OF CLEVELAND CLINIC



**1975**  
JOINED MOUNT SINAI HOSPITAL IN NYC AS DIRECTOR OF CATH LABS



**1983**  
JOINED WASHINGTON HOSPITAL CENTER AS DIRECTOR OF CATH LAB



**1987**  
LED THE FIRST LIVE DEMO COURSE ON AORTIC VALVULOPLASTY



**2008**  
ALCOHOL ABLATION PROCEDURE IN KOREA AT TCT



**2015**  
TRANSITIONED TO DIRECTOR OF STRUCTURAL HEART DISEASE & INNOVATIONS AND VICE CHAIR OF MHVI

In 1983, Washington Hospital Center had just two cardiac catheterization labs, where a handful of pioneering invasive cardiologists performed several hundred diagnostic angiograms and balloon angioplasties each year.

Fast forward to today, when the hospital serves as the flagship for MedStar Health and home to MedStar Heart & Vascular Institute (MHVI) and the Nancy and Harold Zirkin Heart & Vascular Hospital, allied with the Cleveland Clinic Heart & Vascular Institute. The interventional cardiology team currently performs about 7,400 diagnostic and interventional treatments each year in 10 cath labs.

How did this happen? When cardiologist Augusto Pichard, MD, joined the hospital's medical staff in 1983, he had a remarkably prophetic vision of the future of interventional cardiology, and with his characteristic enthusiasm set out to make that vision a reality.

"Gus Pichard—who is peerless in the cath lab—was the booster rocket that propelled MHVI to the stratosphere," says Stuart Seides, MD, physician executive director of MHVI. "His vision, passion and enthusiasm drove all of us to be the best that we can be, and he pushed MHVI to its lofty place in the cardiovascular pantheon. I am very grateful for his friendship and honored to have worked so closely with him these many years."

After completing his training at the Cleveland Clinic in 1971, Dr. Pichard joined its medical staff and was fortunate to work with F. Mason Sones, MD, who developed coronary

angiography, and Rene Favalaro, MD, the first to develop coronary artery bypass surgery (CABG).

In 1975, Dr. Pichard left the Cleveland Clinic to become director of cath labs at Mount Sinai Hospital in New York City. He was tasked with developing state-of-the-art cath labs and was the first to perform balloon angioplasty there in 1979. After eight years at Mount Sinai, Dr. Pichard traveled to his native Chile for a sabbatical at the Catholic University of Chile, where he performed the country's first angioplasties and organized a cardiovascular research program.

Dr. Pichard returned to the U.S. in 1983. Jorge Garcia, MD, who had returned from a stint at the Cleveland Clinic to jump-start the cardiac surgery program at the Hospital Center, lured Dr. Pichard to Washington, where he was appointed as the Hospital's cath lab director under Joseph Lindsay, MD, then chief of cardiology.

"I had a vision that I could create something very special here," Dr. Pichard says. He worked with the members of the cath lab team to improve processes and, with their buy-in, implemented a vastly enhanced system. The angioplasty volume jumped from 200 to 2,000 procedures annually. "It was a team effort, and everybody was working with great enthusiasm," he says.

As the program grew, Dr. Pichard needed associates who would contribute to his efforts to enhance the academic stature of the cath labs. He invited Drs. Martin Leon, Kenneth Kent and Lowell Satler to join him. "This was a

major second chapter for the cath labs," Dr. Pichard says. "We grew beyond anyone's expectations."

The cath labs expanded in 1990 and were performing many thousands of procedures each year, with more than 1,000 personally performed by Dr. Pichard.

A key element of his plan was to make sure that research and education became mainstays of the Hospital Center's cath labs program. In 1987, he led the first live demonstration course on aortic valvuloplasty. Early on, the group founded the Transcatheter Conference (TCT), which became the world's best-known venues for interventional cardiology education.

Since the early 1980s, Dr. Pichard has welcomed interventional cardiology fellows across the globe for advanced training. He also has been active with interventional cardiology societies in Latin America, Asia and Africa, promoting the exchange of knowledge among nations.

In the 1990s, the yearly cath lab volume had grown to 12,000 diagnostic procedures and 6,000 percutaneous interventions. "We grew to 10 cath labs, operating very efficiently and safely," Dr. Pichard says. "Cardiologists came from around the globe to study all the innovations of one of the busiest cath labs in the world. Due to the cath lab's reputation, companies with new cardiac devices came to the hospital to initiate clinical trials."

Dr. Pichard always emphasized team spirit among his co-workers, as well as the concept of being successful to better serve those in need of the hospital's expertise.

In 2007, the transcatheter aortic valve replacement (TAVR) Partner Trial was initiated in the U.S. MHVI at the Hospital Center contributed the highest number of enrollees in the country, bringing Dr. Pichard's team to prominence in the emerging arena of intervention for structural heart disease.

In 2015, Dr. Satler assumed the role of medical director of the cath labs. Dr. Pichard became director of structural heart disease and innovations, and vice chair of the newly organized MHVI.

With the future direction of the hospital's cardiac cath labs firmly in place and while still at "the top of his game," Dr. Pichard says he decided to stop performing routine procedures in favor of concentrating on teaching and proctoring newer valve and structural heart procedures throughout the world. He has recently accepted a position as medical director for Abbott/St. Jude Medical.

"It's most gratifying to see our cath labs and MHVI providing cardiac patients with exceptional treatment and care," he says. "I'm most happy to see that what I started in a simple way has grown to be a model for other cath labs. It took tremendous effort to get to this point, and I look forward to entering a new stage in life, with lots of excitement but fewer demands on my personal time."

# Advanced Heart Failure

## Collaboration throughout MedStar Health



(L to R) Sandeep Jani, MD, George Ruiz, MD, and Jane Lashley, CRNP, care for patients in the MedStar Baltimore region and can transfer them to the Hospital Center for consideration of VAD therapy, among other options.

MedStar physicians continually look for ways to provide better access to care across the entire region.

“We take our role as stewards in promoting population health very seriously,” says George Ruiz, MD, chief of Cardiology at MedStar Union Memorial Hospital and MedStar Good Samaritan Hospital.

Recently the cardiac team began leveraging system-wide expertise to benefit advanced heart failure (AHF) patients. These patients might receive screening and diagnosis of AHF in one of the northern (Baltimore area) hospitals, such as MedStar Union Memorial or MedStar Franklin Square Medical Center. Then a team comprised of cardiac experts from various hospitals evaluates and determines treatment—and within a day, patients can be transferred to MedStar Washington Hospital Center for consideration of ventricular assist device (VAD) therapy, among other options.

“We are focusing on having the most advanced therapies and the best resources readily available to all our patients, regardless of their geographic location,” says Dr. Ruiz.

Cardiologist Sandeep Jani, MD, associate director of Advanced Heart Failure and Population Health for the Baltimore region, agrees. “Our system encompasses a broad region and population, and each hospital provides specialized options,” he says. “Patients are seamlessly provided access to a wide variety of services.”

Jane Lashley, CRNP, helps coordinate patient care and services between the northern and southern hospitals as the new program develops. “The entire team—physicians, nurse practitioners, VAD and transplant coordinators, palliative care specialists, social workers,

among many others—all have the attitude that we will figure out, as a team, the details to make this work and do what is right for each patient,” she says. “Our patients are telling us that, from being virtually bedridden, they are now able to walk without losing their breath and can’t wait to go home. We all believe we are transforming these people’s lives.”

Dr. Ruiz adds that the team’s involvement spans the range of patient needs. “In addition to technologies and advanced therapies, we also work together to deliver the palliative care options. System-wide, our approach is aggressive but thoughtful. Our entire AHF team is integrated and tightly connected—which allows us to build these bridges across regions to deliver the care that fits with each patient’s individual goals. If the treatment exists, we will find a way to deliver it.”

*To schedule a consultation with a member of the Advanced Heart Failure team, call George Ruiz, MD, at 410-554-6550 (ask for Danielle) or Sandeep Jani, MD, at 410-574-1330.*

### INDICATORS OF ADVANCED HEART FAILURE

- I** Needs inotropes
- N** NTProBNP, NYHA III/IV
- E** End organ dysfunction
- E** EF < 20%
- D** Defibrillator shocks
- H** More than 1 hospital in last 12 months
- E** Persistent Edema/ Escalating diuretics
- L** Low BP < 100mmHg
- P** Prognostic meds— inability to uptitrate ACE/Arbs, etc



### One Baltimore Patient’s Story

Victoria Washington’s heart was failing and she needed help. Luckily her cardiologists at MedStar Union Memorial were able to tap into the expertise of the specialists at MedStar Washington Hospital Center, the flagship hospital that treats patients with conditions like Ms. Washington’s.

Ms. Washington, now a consultant, was manager of Operations and Human Resources for 16 years with The Family Tree, a Maryland agency that combats child abuse and neglect. She says she loved her job and planned to work full-time until she was 70. But her heart had other plans.

With a grandfather and brother who suffered from advanced heart failure (AHF), Ms. Washington wasn’t surprised when she was diagnosed at MedStar Union Memorial with the same disease, eight years ago.

Medication and dietary changes helped at first. Over the next several years, however, she began suffering more and more. She cut back to part-time work, but even that became too difficult. She couldn’t walk. She couldn’t cook or clean. After several hospitalizations to help rid her of excess fluid, she would feel better, but it didn’t last. “I’m just not doing my medications correctly,” she recalls thinking. “No big deal.”

Last August, when she was admitted to MedStar Union Memorial again, cardiologist George Ruiz, MD, set her straight. “He told me I had very advanced heart failure, and that I would die if things didn’t change. He performed some tests, then sent me to the Hospital Center for more tests. Doctors there consulted with Dr. Ruiz, and recommended a VAD, something I had never heard of,” she says.

Before the surgery, she met with members of the multidisciplinary team—Cardiology, Social Work, Palliative Care and the VAD coordinator nurses—where she received the necessary education on the process. On Valentine’s Day this year, Steven Boyce, MD, performed the surgery.

Ms. Washington spent eight weeks recovering, including four across the street from the Hospital Center at MedStar National Rehabilitation Hospital, where she began regaining her strength. “Bit by bit I was starting to function again,” she says. “I’d forgotten what it was like to live a normal life.” She’s working again as a consultant, and best of all, she’s returned to singing in her church choir. “They clapped for me when I came back.”

“MedStar’s AHF team is actively creating systems of care delivery for Baltimore-based VAD patients at Union Memorial,” says Dr. Ruiz. “We are keeping our promise to the Baltimore community: connecting patients with solutions regardless of geography.”

**New Medical Staff**



**Suzanne Siefert Kool, MD**, joins the MedStar Heart & Vascular Institute team at MedStar Union Memorial Hospital and MedStar Good Samaritan

Hospital as a vascular surgeon. Dr. Kool recently completed her vascular surgery fellowship at Ohio State University Wexner Medical Center,

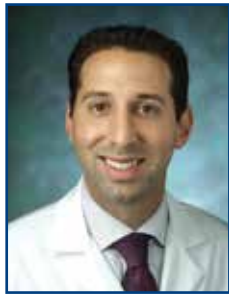
Columbus, Ohio. She earned her medical degree at the University of Virginia Medical School, Charlottesville, Va., and did her internship and general surgery residency at the University of Maryland Medical Center, Baltimore, Md., where she was also a research fellow at the Center for Vascular and Inflammatory Disease.

Dr. Kool is board certified by the American Board of Surgery. During her training, she served on various committees, and was president of the medical class of 2008 at the University

of Virginia School of Medicine. She also served as a mentor and small group lecturer at Ohio State University Wexner Medical Center.

Her interests include:

- Aortic aneurysms
- Peripheral vascular disease/ limb salvage
- Carotid disease
- Venous disease
- Hemodialysis access



**Jonathan Grinstein, MD**, joins the MedStar Heart & Vascular Institute team at MedStar Washington Hospital Center as an attending physician in the

Section of Advanced Heart Failure. He recently completed an advanced heart failure and transplantation fellowship at the University of Chicago, where he also completed his cardiovascular fellowship.

A graduate of the University of Chicago, Pritzker School of Medicine, Dr. Grinstein did his internship and residency at Brigham and Women's Hospital in Boston.

Dr. Grinstein has been a vital part of cardiovascular research initiatives throughout his training and received a National Institute of Health T32 Cardiovascular Training grant. He has been published in numerous professional journals, and has made numerous presentations, both nationally and internationally. He also holds a patent for an

LVAD algorithm called the Ventricular Filling Phase Slope, used as an indicator of high pulmonary capillary wedge pressure. The algorithm may one day serve as the basis for a smart LVAD that can modulate based on the physiologic needs of the patient.

Dr. Grinstein's clinical and research interests include:

- Ventricular assist devices
- Heart transplantation
- Pulmonary hypertension
- Heart failure



**Seth J. Worley, MD, FHR, FACC**, joins the MedStar Heart & Vascular Institute team at MedStar Washington Hospital Center as senior consultant

for Cardiac Rhythm Device Management. Dr. Worley is directing a monthly training program for physicians from around the world on the use of the tools and techniques he developed, as well as treating patients referred from across the country who have had unsuccessful traditional left ventricular (LV) lead implantation and are seeking another attempt at transvenous LV lead implantation.

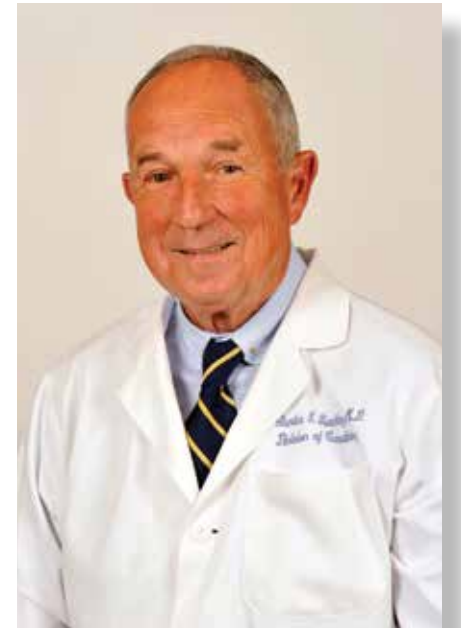
Dr. Worley earned his medical degree from Temple University, and completed his internship and an internal medicine residency at Strong Memorial Hospital. He completed a fellowship in cardiology at Duke University Medical Center.

Prior to joining the MHVI staff, Dr. Worley served as director of the Interventional Implant Program at the Lancaster Heart Center, Lancaster General Hospital in Pennsylvania and a partner in The Heart Group of Lancaster General Health. During his 30-year distinguished career, Dr. Worley has been widely published in national and international journals, authored numerous book chapters, served as invited faculty for international audiences, made presentations at

meetings across the country, and served as principal investigator for dozens of nationwide multi-center clinical research trials. He holds patents for a number of innovative cardiac treatment tools and is the founder of several community initiatives to improve care and speed access to services for stroke and heart attack in the eastern Pennsylvania region.

Dr. Worley's clinical and research interests include developing, using and teaching the use of interventional technique for cardiac device implantation, in particular LV lead implantation.

*Celebrating 35 Years*  
**Charles Rackley, MD, Retires**



Charles Rackley, MD, retired this spring, capping a stellar career as a researcher, provider and leader in cardiology care. Arriving at MedStar Georgetown University Hospital in 1982 as chairman of Medicine, Dr. Rackley went on to write 375 published manuscripts and book chapters. Working on acute coronary syndromes, he became interested in lipids, and developed a prescient appreciation for their central role in atherosclerosis. Dr. Rackley "has contributed the most to our institution by mentoring young investigators," said Stephen Ray Mitchell, MD, professor of Medicine and Pediatrics. "Many of those have gone on to substantial contributions of their own." Bruce A. Luxon, MD, the Department of Medicine's chairman, said his retired colleague singlehandedly provided funding for the department's highly successful Medicine Research Day. "His wisdom in initiating Research Day, and his guidance as it has grown, have been invaluable to me and to the department," Dr. Luxon said.

**MHVI Fellows Graduate**



(L to R) Stania Vora, MD; Bryan LeBude, MD; Regina Lee, MD; Gaby Weissman, MD (Program Director); Raymond Young, MD; Wunan Zhou, MD; Sachil Shah, MD; Christy Kaiser, MD (Assistant Program Director)

In his keynote address to six physicians graduating from their MedStar Washington Hospital Center fellowships, Stuart F. Seides, MD, physician executive director, MedStar Heart & Vascular Institute, said, "As the world of medical practice gets ever more complex, trust your instincts and do what you truly believe is in the best interest of your patient; regardless of the consequences, you will never regret it." The mid-June graduation was held at the Leavey Center at Georgetown University. The fellows represented five disciplines: General Cardiology, Electrophysiology, Advanced Heart Failure, Advanced Echocardiology and Interventional Cardiology.





# CARDIOVASCULAR Physician



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