MedStar Health

MedStar Heart & Vascular Institute

Cardiovascular Physician

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The Beat Goes On.

Cardiovascular specialists redeploy resources and reimagine patient care to confront the challenges of COVID-19.

Proving our mettle in a pandemic.

Perspective from Stuart F. Seides, MD, Physician Executive Director, MedStar Heart & Vascular Institute

As healthcare professionals, we are trained to deal with crises. Still, it is the unexpected and seemingly unimaginable crisis that tests our mettle. The coronavirus pandemic was like nothing any of us has ever encountered, but "necessity being the mother of invention," we stepped up to tackle this novel disease, which posed a unique threat to patients, providers, and our community.

What we *do* understand is the value of true leadership during adversity. As leaders in cardiovascular medicine and surgery, we approached this challenge by setting priorities, rapidly gathering information, creating a safe environment for our patients and caregivers, and adapting quickly to deliver needed clinical care. Treatment pathways were adjusted in real time: Like flying the plane while building it, there was no "timeout."

We saw a geometric progression of knowledge in just months. Today we better understand how to treat COVID-19 patients, especially those with cardiovascular disease. We are learning more every day about how the virus affects the heart. And we have made important changes to cardiovascular service delivery that will have an impact far beyond this pandemic and into the future of cardiovascular care.

MedStar Heart & Vascular Institute—and the entire MedStar Health system—came together to fast track innovative solutions, and we have featured several of them in this special issue of *Cardiovascular Physician*.

Rising to the challenge.

Across our region, each of our hospitals kept its doors open to patients with cardiac conditions—COVID-related or not—who required urgent care and treated them safely and efficiently.

We rapidly deployed our cardiovascular physicians to COVID units when needed. At MedStar Washington Hospital Center, our teams helped staff an emergency department overflow unit when our regular ED saw a surge of COVID-19 patients. New protocols for care delivery were developed for the CVICU, and as always, our nurses remained front and center in the care delivery process. A rapid transport system between hospitals was used to transfer cardiovascular patients to the most appropriate level of care.

As the pandemic put extraordinary pressure on institutions throughout the country, including other large heart transplant centers, our medical and surgical advanced heart failure teams stepped into the breach. We continued to serve those patients in need of transplantation, achieving historically high numbers of successful procedures during the past three months.

Telehealth takes center stage.

Among the most dramatic shifts in service was an extraordinary increase in the use of telemedicine and other "virtual" capabilities to evaluate and monitor patients, educate medical teams, and provide critical consultation for emergent situations. Our IT professionals worked with clinicians around-the-clock to effect an evolution in weeks that could have taken half a generation in ordinary times.

Virtual appointments by the network's ambulatory care cardiovascular physicians grew exponentially to thousands each week—and some payers (including CMS) promptly recognized the value of these interactions with fair and timely reimbursement. Additionally, licensing and credentialling were fast-tracked across our tristate area.

We made great use of the virtual systems in our cardiac cath labs to rapidly triage and treat some of our most critically ill patients. Many of our teams employed telehealth tools to closely monitor patients in the safety of their homes from across our entire geographic footprint.

And during it all, we shared knowledge with colleagues throughout the country as we concurrently conducted research and published results in nearly real time.

During these extraordinary times, I have seen the MedStar Heart & Vascular Institute team accept the challenges with grace, flexibility, compassion, optimism, and good humor, while always putting patients first. I am so grateful to them all.

The Beat Goes On.

Essential cardiovascular care endures throughout the COVID-19 pandemic.

Cardiovascular care is rarely truly elective. It's all essential, it's all time sensitive. MedStar Heart & Vascular Institute remained in an "essential-care" stance, even in the midst of a worldwide pandemic.

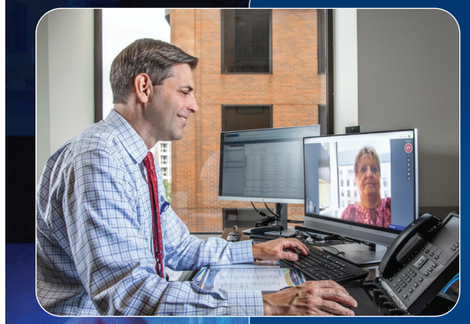
With its coverage of much of the mid-Atlantic region, MedStar Health was uniquely positioned to continue rendering the same sophisticated care throughout the ever-evolving situation. Building on its long-standing air and land transport service, patient capacity at each of the system's hospitals was constantly reassessed and strategically reorganized, creating capacity for high volumes of COVID-19 patients, as well as those needing specialty care.

This was especially beneficial for cardiovascular patients, who were able to receive treatment in the most advanced and experienced settings without delay. At the apex, the Advanced Heart Failure program hit a historic record: 13 heart transplants in three months—more than double its typical volumes. And the ventricular assist device program is expected to match implantation numbers from 2019.

The continuity of life-saving care, for patients of this program and others, is the bedrock of what MedStar Heart & Vascular Institute does.

COVID-19 pandemic turns virtual systems into reality.

The pandemic was an unexpected challenge that called for an extraordinary response. MedStar Heart & Vascular Institute made many innovative adaptations to its practices across the board. Among these was expanding the use of existing virtual platforms and creating new ones in rapid-fire time to facilitate patient and provider safety—while continuing to deliver the high quality, advanced specialty care that has distinguished the Institute for decades.



Robert Lager, MD

Virtual patient visits transform ambulatory care.

COVID-19 called for an immediate remedy to allow thousands of patients throughout the region to meet safely with their physicians. MedStar Health rapidly produced the systemwide platform necessary to implement telehealth capabilities.

A team of ambulatory care cardiovascular physicians from both the Washington and Baltimore regions came together in partnership to development a protocol and establish the infrastructure necessary to make virtual appointments effective. A variety of communication tools were employed to reach patients: emails, phone calls, texts, mail, MedStar Patient Portal, media, and the Web. Physicians are recognizing the real value of seeing patients in their home setting and are reporting seeing some patients for longer periods of time than in-office visits might afford them.

Almost all cardiology outpatient visits are conducted through audio and video formats. Among the ambulatory care cardiovascular physicians in the Washington region, the largest such group in the area, patient visits amount to approximately 100 percent of the number of visits during the same period last year—but this year, they are nearly all virtual.

"Moving forward, we will be able to more closely monitor the clinical status of our patients regardless of where they live or work. Not only will this avoid potentially unnecessary site visits, but it will assuredly reduce the time for a patient to get a physician appointment, decrease hospital length of stay, and most importantly, positively impact the quality of care being delivered."

—George Bittar, MD, Regional Director, Ambulatory Cardiovascular Services, Baltimore Region

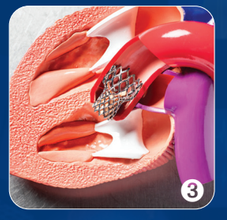
"Our telemedicine capabilities were up and running in a week—the tremendous institutional push was remarkable."

—Robert Lager, MD, Regional Director, Ambulatory Cardiovascular Services, Washington Region

Cardiac cath lab augments technology to keep clinicians and patients informed and safe.

Many conditions necessitating treatment in the cardiac catheterization lab persisted during the pandemic. Modifications were needed across many areas, including the physical layout of the lab, patient transportation routes, preservation and appropriate donning and doffing of PPE, virus screening, triaging patients by risk and need, and the safety of the care team. Amidst these adaptations, MedStar Heart & Vascular Institute interventionalists recognized virtual platforms as an effective conduit for managing patient care.

1. Using the web-based tool ImageShare, key cardiovascular physicians conduct virtual meetings to review imaging of patients from referring physicians in hospitals throughout the region to quickly determine the need for urgent transfer for specialized treatment.
2. An algorithm addressing protocols for treatment of STEMIs in suspected and COVID-19 positive patients was developed and put into place in record time, preventing unnecessary delays in both treatment in the cath lab and risk of contagion to others.
3. Internal multidisciplinary conferences to evaluate and discuss patients with advanced valvular and structural issues, once held in person, are now web-based.
4. The MedStar Health telemedicine platform supported rapid discharge and reduced hospitalizations when possible, allowing for effective follow-up at home.
5. Through teleconferencing platforms, physicians conducted a continuing series of informational meetings with up to 30 referring doctors at a time to keep them abreast of safety measures and specialized procedures being used, and to ensure them that their patients should not avoid a needed hospital visit.



Allen Taylor, MD, with CVICU patient

Physical distancing at the bedside.

The MedStar Health IT team worked exclusively with Microsoft® to develop a version of Microsoft Teams that allows physicians to round on patients while maintaining physical distance. The platform enables the sharing and reviewing of images, as well as the ability to consult with other providers virtually. This way, just one or two clinicians are at the patients' bedside, limiting interaction and protecting patients and providers.

In this pandemic, providers are part of the story.

Teams across MedStar Heart & Vascular Institute have responded to the crisis by helping healthcare colleagues outside of their cardiovascular specialties.

In more than one instance, electrophysiologists and general cardiologists assisted in seeing patients in the emergency department overflow unit at MedStar Washington Hospital Center. Covering this unit decompressed the main emergency department, allowed those dedicated providers to focus on high acuity coronavirus patients, and protected other patients from unnecessary exposures.

Cardiology hospitalists and Advanced Practice Providers also helped staff a general medicine unit to relieve hospitalists working overtime to treat COVID-19 patients. Sarfraz Durrani, MD, an electrophysiologist, recounts his personal experience of redeployment.

Sarfraz Durrani, MD

I began my medical career in Kashmir in the early 1990s, during the civil unrest in that state. At the time, there were daily pitched battles in the streets of the capital city of Srinagar, and we received casualties in the ED, sometimes even in the middle of the night. It was a harrowing time, and we lost a lot of our patients. We ran out of medications and operated with search lights. Just going to the hospital and returning home was fraught with danger. From that experience, I learned to control my fears and focus entirely on taking care of my patients.

Since that time, I have lived through the AIDS crises in New York during my residency, worked in refugee camps during the war in Albania, trained doctors in remote places like Tanzania and back home in Kashmir. I have climbed tall mountains and hiked treacherous trails. I was certain nothing I do now in my work would ever faze me.

The day I volunteered to take care of the COVID-19 patients, I thought I was emotionally prepared for anything I might encounter. I had first taken care of my home responsibilities. My 87-year-old father is living with us: He was visiting from India and has been stuck here for the last few months. To protect him and the rest of my family, I moved into our basement, to minimize everyone's exposure, in case I contracted the disease. I felt ready to spend a week on the hospital's COVID-19 floor.

But this work was like nothing I have ever experienced—more emotionally challenging, more frightening. As physicians we learn to deal with our insecurities—and mask fear. Appearing fearless is simply part of our profession. But in this pandemic, we providers are part of the story, and I found I was monitoring myself for symptoms as closely as I was monitoring my patients.

During the last three decades as a physician, I have seen some patients who are relaxed, some resigned, and others scared. Usually, I walk into their rooms, confident that I can reassure them. But this is the first time I saw fear in my patients' eyes, and I hoped they did not see the same in mine.

I wanted to give these patients the sense of calm that they deserved, and it didn't take long for me to become relaxed and my own fears to slip away. But I also let down my guard, and soon realized that this could also lead to carelessness in protocol to gown/glove and to deglove.

When one of the patients required a rapid response, I could see how my carefully thought-out ritual of self-preservation could quickly spiral out of control, and into chaos. Then I saw this amazing team fly into action. They had always been there, dealing with these situations all along. Everyone was calm and focused, and the situation was managed, and chaos reigned in.

I learned a lot in just a few days about medicine and about humanity as I covered the COVID-19 floor. I am sure we are all reflecting on this and more, and learning something new about both.

I can't stress enough how impressed I was by the nurses, technicians, hospitalists, NPs, cleaning crews, and techs who continue to work with the COVID-19 patients. They will be doing this day after day, long after we, the temps, are gone. They are the real fearless heroes, and deserve a medal for putting their lives on the line every day. Meanwhile, the fight goes on.

–Sarfraz Durrani, MD

Lessons in medicine and compassion.

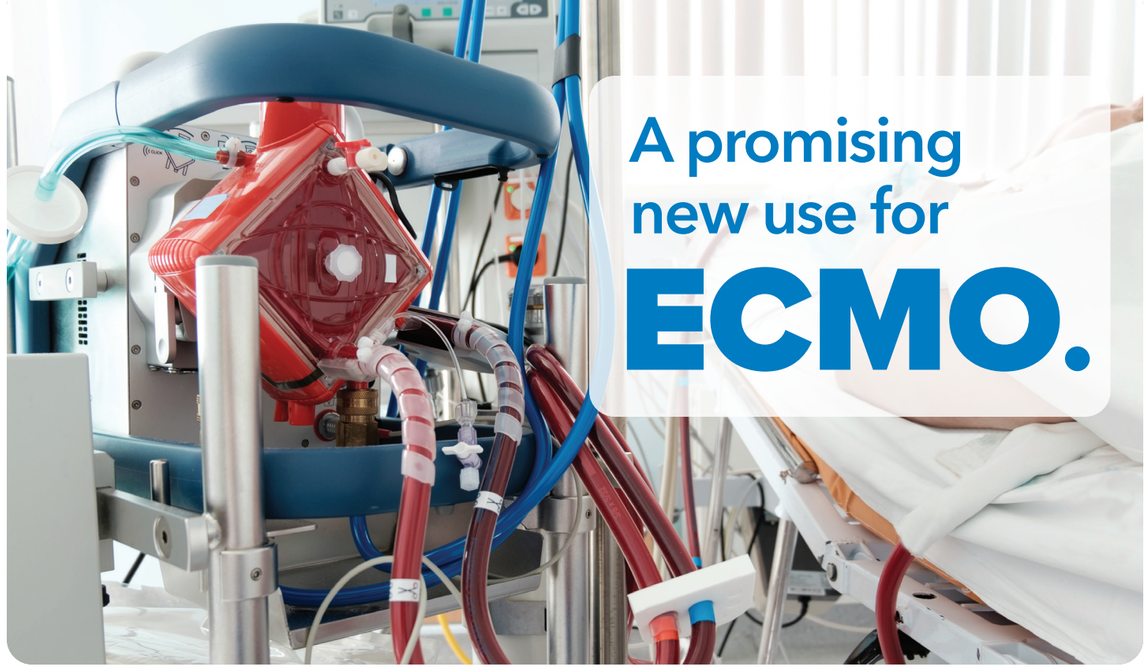
Zyad Qamer, MD

Physicians in our Graduate Medical Education program play an essential, ongoing role to provide the highest quality, safest care for our patients. Throughout the course of our response to the pandemic, cardiology fellows and residents continued to learn and to work. They each spent time in the ICU, caring for patients who were both COVID-19 positive and negative.

In one particular case, a COVID-19 patient at MedStar Washington Hospital Center began to decompensate overnight, with several ventricular tachycardia incidents and a rapidly dropping oxygenation level. Cardiology fellow Zyad Qamer, MD, was called to provide care for the patient. He made sure the patient was comfortable, and talked to the patient about his impending death.

The patient said his only wish was to see his wife one more time. Dr. Qamer diligently called the patient's wife every 30 minutes, until she finally answered around 1 a.m. He spent the next 45 minutes helping her set up FaceTime® on her tablet, so she could interact with her husband. He also followed up with hospital leadership to get the wife approved to come to the hospital. Dr. Qamer then organized transportation for the wife and talked to her while she was on her way.

When she arrived at the MedStar Washington, Dr. Qamer met her at the entrance. He explained to her what she should expect when she saw her husband, which eased her pain at seeing him in his condition. The patient was transitioned to comfort care and died within a few hours. But thanks to Dr. Qamer, both the husband and wife had some peace during the last few hours of the dying process.



A promising new use for ECMO.

Heart attack, cardiac arrest, respiratory failure, hypothermia. These and other medical emergencies can severely impair organ function and threaten life. These are also situations in which extracorporeal membrane oxygenation (ECMO) can be used to save lives.

Now, sequelae from COVID-19 can be added to the list.

Early on in the pandemic, the critical care and cardiac surgery teams at MedStar Heart & Vascular Institute at MedStar Washington Hospital Center applied ECMO technology to the most seriously ill COVID-19 patients–those who were on maximum ventilator support and nearing death.

ECMO effectively takes over the function of the heart, lungs, or both, drawing blood out of the body, oxygenating it, and recirculating it. Depending on the extent of the damage and the ability to recover, some patients may need it for only a few days while others may need to be treated for as long as several weeks. ECMO doesn't fix the organs, but it provides valuable time for them to rest and heal.

To apply this technology to COVID-19 patients, the team adapted the usual ECMO indication guidelines to meet the emerging needs. Complex parameters were quickly developed, based on patients' chances for survival. The intent was to exhaust other options, including maximum mechanical ventilation with pronation, before using ECMO. Patients determined to be candidates were transferred to the cardiovascular intensive care unit (CVICU). There, a full complement of critical care specialists–physicians, perfusionists, respiratory therapists, and nurses–treated and monitored patients throughout the course of therapy.

Building on a foundation of expertise.

Because of the tremendous amount of specialized experience required to operate ECMO, MedStar Washington Hospital Center is one of the few hospitals in the region that can offer the treatment. Patients throughout the region were transferred there to receive ECMO, putting the service well above its usual capacity.

The foundation of expertise allowed the team to quickly recalibrate its resources and processes in the midst of the pandemic.

The hospital added four ECMO systems to its arsenal, bringing the total up to 10 machines. An area within the CVICU was quickly converted to a negative-pressure unit for COVID-positive patients, effectively and safely separating them from the non-COVID patients receiving cardiovascular intensive care.

Intensivists in the CVICU are board-certified, critical care physicians with backgrounds in medicine, cardiology, infectious disease, pulmonary medicine, anesthesiology, emergency medicine, and surgery. This team, with years of experience in caring for a cardiovascular population, including using ECMO, was able to train additional support staff to assist during the surge.

Encouraging outcomes.

Long-term outcomes for COVID-19 patients treated with ECMO are yet to be determined. Specialists at MedStar Washington continue to collaborate with providers across the globe, sharing data and best practices in an effort to fine-tune this sophisticated life-support treatment option.

Nonetheless, the short-term results are remarkable: nearly 50 percent of the COVID-19 patients placed on ECMO at MedStar Washington survived to hospital discharge.

Nurses are problem solvers.

More than 500 nurses care for surgical and medical patients throughout MedStar Heart & Vascular Institute. When unprecedented challenges arose as a result of the pandemic, each one of these highly specialized professionals learned new skills, adapted to new roles, and contributed significantly to the mission at hand.

300 Nurses

redeployed from normal duties to join their colleagues in critical care units, caring for both COVID-19 positive and negative patients.

Nurses quickly adapted new techniques for managing and monitoring patients on ventilatory support. They assisted with tailoring and implementing specialized longer IV tubing which allowed for changing IV rates/doses outside a patient room, which minimized donning and doffing personal protective equipment. In addition, nurses assisted with pronating patients, which required careful and creative coordination of personnel and equipment.

Ongoing communication remained essential and required creativity. When in-person daily huddles were not possible, nurses turned to virtual seminars and email messaging to communicate best practices and new protocols.

Nursing teams operationalized a new COVID-19 intermediate care unit for patients who no longer required ventilator support but who still needed supplemental oxygen.

I spend my days in the hospital as a vascular surgeon.

I spent one week in the hospital as a patient with COVID-19.

Jesse Garcia, MD

Jesse Garcia, MD, is director of Vascular Access Surgery for MedStar Heart & Vascular Institute. Susan Garcia, RN, his wife, is a nurse in the Burn Center at MedStar Washington Hospital Center.

The way I now look at life, is that I'm lucky to be here. I spend as much time as I can with my wife, my kids, and my friends. The day I came home from the hospital was one of the happiest of my life. I was weak and had lost 15 pounds, but I hugged my girls and wife. They are precious to me, and I want to be around for as long as I can.

My wife, Susan, and I contracted COVID-19. She is an Intensive Care Unit nurse, and we both started having symptoms on the same day: March 22. Initially, we had fevers, body aches, and headaches. The next day, she was having trouble breathing so we both went to the emergency room to get evaluated and tested. We were discharged home and then quarantined while we waited for the results. I rested and took acetaminophen, and Susan and I took turns caring for our two girls, ages three and five. I knew something was wrong, though, and I thought it was very likely that I had contracted COVID-19.

Later that week, I started coughing and difficulty breathing. With my shortness of breath and worsening symptoms, we went back to the hospital to be evaluated. I waited in the car with my mask on and with the kids, while Susan went to the clinic. That's when I really started having breathing problems. When she came back to the car, I went into the clinic. They put a pulse oximeter on me, and my oxygen saturation was in the 80s. They immediately sent me to the Emergency Department, and a chest x-ray showed I had infiltrates. I called Susan and told her they were admitting me to the Medical Intensive Care Unit (MICU).

I spent five days in the MICU. My symptoms got worse on the second or third day. I remember my breathing was shallow, and I was taking 30 to 40 breaths a minute. No matter how hard I tried, I just couldn't take a deep breath. I remember I had a coughing attack once, and my vitals were terrible. My blood pressure was low, and I was tachycardic. I was on five or six liters of oxygen, just to maintain saturation above 90.

They took another chest X-ray, which showed worsening infiltrates. The patient next door to me was intubated, and I was worried I would be next. The whole time, I just tried to relax. Anything I did would tire me out. Just talking took my breath away. My body was so weak, and I had no reserve. It really felt like a truck had hit me.

The nurses and doctors were great. The whole unit was a negative pressure unit. There were no visitors allowed, but I could face time with my wife and kids. I would just smile and wave, as I really was too weak to talk. My Dad would call from the Philippines and speak to a nurse on the unit every day. He was really worried about me.

The medical team had me lie prone, which really helped my breathing. On the fourth day, I finally started feeling better. On the fifth day of my hospitalization, I was no longer using supplemental oxygen, and I was transferred to the floor. On day seven, I was able to finally be discharged home and hug my family.

Susan recovered without needing hospitalization, and luckily, neither of my kids got sick. I took it easy when I got home, before I thought about returning to work. The Occupational Health Department was really good about making sure I was cleared to return to work. People really don't realize the amazing work nurses, respiratory therapists, and the whole medical team does to care for just one person. They truly are the front lines.

I am 48 years old. My wife is younger than I am. I play basketball, golf, and consider myself very healthy. When I was a child, I had very mild asthma, but never used inhalers. I have no other underlying medical issues. This virus can spread easily, and it does not discriminate. Since Susan and I both work in health care, we understand there are risks, and there are things we have to do to care for our patients.

I do think about the future and wonder if this virus will come back worse. I think COVID-19 is going to change the way we practice medicine, and it's going to change the way we live. But change can also be good. I think telemedicine will improve health care. In my field, I have a lot of patients for whom it can be difficult to come into a clinic, but they would be receptive to phone call or video chats.

I am back to work, and I do feel fine. I have a lot of goals I want to accomplish career-wise but being with family is most important. Going forward, I'm trying to spend as much time with those who matter to me, and I'm focused on making the most of it. I'm happy and blessed to be here.

Jesse Garcia, MD, with his wife, Susan, at MedStar Washington Hospital Center; Dr. Garcia with his family, including his father, Jorge Garcia, MD, (bottom image, pictured far left) who championed the cardiac surgery program at MedStar Washington Hospital Center beginning in 1972.

Progression of symptoms for Jesse Garcia, MD.

DAY 1
Fever, body aches, headache

DAY 2
Visited ED; evaluated and tested; released home to await results

DAY 4
Cough; visited ED; oxygen saturation in 80s; chest infiltrates; admitted to MICU

DAY 6
Shallow breathing; cough; low blood pressure; tachycardic; worsening infiltrates

DAY 9
Oxygen removed; moved out of MICU to patient floor

DAY 11
Released from hospital; returned home

Clinical trials and research continue during COVID-19.

As our hospitals work with national, state, and local officials to follow criteria for resuming non-essential procedures, we will continue to introduce new safety measures for patients and their families, implement widespread COVID-19 testing, and provide increased communication regarding protocol updates.

Please contact Dr. Waksman if you have research-related questions:

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At MedStar Heart & Vascular Institute, our mission has always been one of advancing knowledge. Despite the pandemic, physicians and researchers continue to look at what we've learned about cardiovascular health and how we can share those findings with others.

Ron Waksman, MD, associate director of Cardiology and director of Cardiovascular Research and Advanced Education at the Institute, reflects on how research and clinical trials have been impacted by the virus, and provides a look at the changes that may lie ahead. Bottom line? The beat goes on.

What has been the impact on current studies?

For certain subspecialties—structural heart, for example, in which procedures are generally considered urgent—business and patient recruitment have continued as usual. For other subspecialties, volume is down, as we've been limited to emergency cases only. Our team has adapted well to working remotely, so it hasn't impeded research activity, such as trial design and the functionality of our Cardiovascular Core Lab.

How have researchers incorporated new virtual tools?

In some cases, we've enabled remote monitoring and alternative testing methods. We've found it quite appropriate for some trials, so much so that it's something we may continue post-pandemic. In a recent conversation with representatives from the U.S. Food and Drug Administration, virtual tools, such as new applications that track activity and vital signs, were a big part of our discussion and continue to be. This moment is an opportunity to explore how data collection could be made more efficient—and more patient centered—through the adaption of these tools.

We've also used telehealth platforms to meet with patients who need to be consented and with families who have questions. It's helped us ensure regular, ongoing communications.

Finally, we've moved our weekly research meeting to a virtual platform. Interestingly, we've seen higher numbers of attendees than our previous in-person meetings. We also have clearer visuals and audios that might be harder to see or hear in a large auditorium than on a personal computer. Virtual meetings are certainly something we're considering maintaining even after we all return to onsite work.

How might the virus, itself, affect trial results?

The pandemic has impacted everyone, including our patients. Therefore, we must consider how to account for and address possible variations due to the virus. To ensure we understand how the virus might affect trial results, we're taking a few steps, including:

- Changing case report forms to capture COVID-related information: Was the patient infected? Symptomatic? Hospitalized?
- Accounting for behavioral changes such as adherence to diet and exercise programs, medication regimens, as well as changes in quality of life due to anxiety or social distancing.
- Understanding that event rates may be different due to stay-at-home orders or fear of venturing out of home.

Looking ahead, are there plans to study the virus's impact on the heart?

We've initiated several protocols and submitted grants to study the virus's impact on the cardiovascular system among our patient population. We're also looking at the specific impact that racial disparities may have on cardiovascular events in people with COVID-19 so we can better understand how to treat and diagnose them. Finally, our research on treatment for COVID-19 positive patients with heart attack has just been accepted for publication by *Cardiovascular Revascularization Medicine*.

Powering people and process with the right technology.

Echocardiography in the cloud.

MedStar Heart & Vascular Institute locations in the Baltimore and Washington regions are employing transformative systems to house all patient echocardiogram data in a secure, easily accessible, digital repository. Regardless of where a patient sees a physician or undergoes a test, those results will be available to MedStar Health clinicians anywhere in their respective regions.

Sites in the Baltimore region are using *syngo*®, developed by Siemens, while the Washington region will adopt Philips' IntelliSpace Cardiovascular (ISCV) system. To users and patients, both systems offer similar capabilities. The technology enhances real-time collaboration among cardiovascular specialists, allowing clinicians to view results anywhere in the region, regardless of where the test was done. Patients receive the benefit of quicker turnaround times, flexible testing locations, and fewer test duplications.

"The key is portability," explains Allen Taylor, MD, chairman of Cardiology at MedStar Washington Hospital Center and MedStar Georgetown University Hospital, and leader of implementation in the Washington region. "The systems allow data to 'travel' with patients across offices, hospitals, care units, and physician teams. That improves our overall efficiency, which improves the quality of care and service we deliver to patients."

ISCV is heavily built around augmented intelligence with significant amounts of automation for quality and efficiency including common standards.

George Ruiz, MD, chief of Cardiology at MedStar Union Memorial Hospital and MedStar Good Samaritan Hospital, together with Cheryl Lunnen, vice-president of the Institute in the Baltimore region, and Brad Chambers, president at MedStar Good Samaritan Hospital and MedStar Union Memorial Hospital, and senior vice president, MedStar Health, have spearheaded this vision in the Baltimore region.

"*Syngo* empowers our people with the right technology. It opens up the region for our patients and offers better flow of information for clinicians," says Dr. Ruiz.

More 'systemness' throughout the system.

With a growing network of MedStar Health outpatient sites, the need for integration, quality, and standardization is paramount. The databases provide the free flow of information, placing studies and images in the hands of the most experienced readers, wherever they may be located.

"Our hospitals rely on expedited reports to care for patients," notes Dr. Ruiz. "The database lets us be much more responsive."

Proactive care for each patient.

The systems offer cutting-edge interpretive software that ensures more timely and reliable interpretation of data related to each patient's cardiac history. For example, as a patient's heart function tests are recorded, an automatic system scan of all data elements will immediately alert physicians to inconsistencies that require attention.

"That lets us be more proactive in our care, rather than allowing a condition to potentially worsen before the physician has a chance to collect and review the data on his or her own," Dr. Taylor says.

And, of course, the patient experiences the result of prompter, more convenient care. With faster turnaround times and flexibility of location, the patient experiences a seamless process and a reduction in unnecessary, duplicate tests, as well as the need to search multiple database systems to patient information.

Looking ahead.

The benefits of a digital repository extends beyond patient care. Clinicians will be able to query the database to support public health initiatives. The programs have the ability to generate reports that provide "big data" such as diagnostic patterns or highlight locations with particularly high volumes.

"Beyond the new efficiencies, we now have insight into population health data and can potentially uncover new areas of patient need," says Dr. Ruiz. "It's changing the way we think about things."

George Ruiz, MD (top)
Allen Taylor, MD (bottom)

Pioneering endovenectomy.

A new, minimally invasive approach to deep venous disease.

Steven Abramowitz, MD
Vascular Surgeon

Obstructive deep venous thrombosis (DVT) in the deepest reaches of the leg's circulatory system is painful and potentially hazardous if not addressed quickly. Although DVT can be treated effectively in a variety of ways, including anticoagulation, exercise, and occasionally surgery, the pain and discomfort doesn't always end when the clot dissipates.

Many patients with DVT experience post-thrombotic syndrome (PTS), an equally painful condition that results when a portion of the dissolved clot converts into collagen, leaving scar tissue in the vein, that prevents normal blood flow. While the symptoms of PTS are typically similar to those for a deep vein clot, treatment options are far more limited. Until now, bypass procedures have been the only surgical alternative, but these are associated with high morbidity and are often only moderately effective.

Medication may help moderate PTS symptoms, but not entirely alleviate them. As a result, patients often find themselves coping with intermittent bouts of pain, swelling, and skin discoloration that may vary in intensity for months or even years.

A new approach.

A new approach pioneered by MedStar Heart & Vascular Institute's Steven Abramowitz, MD, could provide a viable surgical treatment alternative for deep vein PTS. Using a reconstructive technique called endovenectomy, a vascular surgeon carefully removes scar tissue from the vein, creating a clean channel for inserting a stent that allows blood to flow freely.

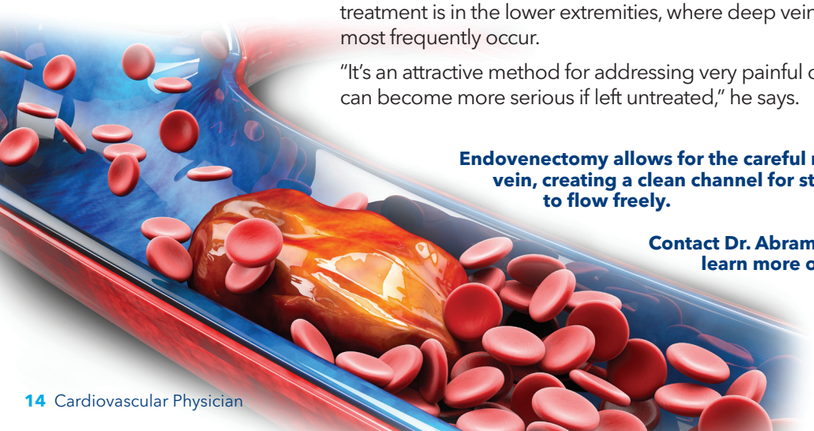
"The procedure requires a connection between healthy sections of the vein," says Dr. Abramowitz, a recognized leader in endovenectomy applications. "Usually a clean path just over three inches is all we need."

Dr. Abramowitz has used the procedure to treat PTS in the common femoral vein, profunda femoral vein, and femoral vein. He reports that the two-to-four-hour-long procedure has so far yielded positive outcomes. Any patient with PTS or a similar condition is a potential candidate.

"Rather than having to rely mainly on medication to treat non-healing venous wounds, we're able to have the condition treated quickly," Dr. Abramowitz says. "Many patients are healed within a matter of months."

Dr. Abramowitz is using the outcomes of endovenectomy procedures to study ways to refine the technique, from modifying segment lengths to ways to accelerate the healing process. Although endovenectomy may help address conditions in other parts of the body, Dr. Abramowitz says the procedure's most promising area of treatment is in the lower extremities, where deep vein clots and other occlusions most frequently occur.

"It's an attractive method for addressing very painful conditions, including those that can become more serious if left untreated," he says.



Endovenectomy allows for the careful removal of scar tissue from the vein, creating a clean channel for stent insertion that allows blood to flow freely.

Contact Dr. Abramowitz at 202-877-0275 to learn more or to refer a patient.

Convenient parking, easy entry, well-appointed waiting areas, and generous treatment rooms make hospital-caliber care seamless, comfortable, and accessible.

Vascular surgeons bring a boutique experience to the treatment of cosmetic and varicose veins.

Four years ago, MedStar Heart & Vascular Institute made its initial foray into outpatient settings to treat venous insufficiency when it opened the MedStar Health Vein Centers. From its original location in Chevy Chase, Md., the new outpost quickly expanded to sites at MedStar Health at Lafayette Centre in Washington, D.C., and in McLean, Va. Now the program is growing yet again.

This past fall, the Institute opened its first Vein Center location in the Baltimore region with a new practice in Bel Air, Md., and recruited Maggie Arnold, MD, a fellowship-trained vascular surgeon, to lead the region-wide effort. Charged with building a program that mirrors its counterpart in the Washington region, Dr. Arnold is based out of MedStar Franklin Square Medical Center.

The expansion is enhancing capacity to reach more individuals with therapeutic and cosmetic vascular needs closer to where they live and work. These settings offer clients the comfort and luxury of a specialty clinic, paired with the expertise of vascular surgeons who provide diagnostics and treatment in the event of a more serious underlying condition.

"In effect, we're bringing hospital-caliber testing into the community setting," says vascular surgeon Misaki Kiguchi, MD, director of the MedStar Health Vein Centers in the Washington region. "All our vein centers are fully equipped to handle testing, diagnosis, and treatments for venous problems. Each center has its own on-site vascular lab, staffed with accredited licensed technologists who can run tests on the spot for fast, same-day turnarounds."

Venous insufficiency is a low mortality condition, but can affect a person's quality of life. The condition is associated with achiness, heaviness, itching, and swelling in the legs, along with cosmetic concerns. In the worst cases, the lack of circulation can result in serious ulcers, threatening both life and limb.

The Vein Centers offer a range of tests including arterial and venous duplex ultrasounds, designed to identify the source of the problem. And while there is no real cure for venous insufficiency, treatment through compression therapy, sclerotherapy, or ablation can stop disease progression and restore quality of life.

"Thanks to today's minimally invasive procedures, approximately 90 percent of venous therapies are office-based, making treatment efficient and convenient for patients," says Dr. Arnold. "Basically, we're creating a comprehensive and connected system of outpatient centers where physicians can confidently send their patients for the highest quality care—every step of the way."

MedStar Health offers four outpatient clinics for venous care throughout the region:

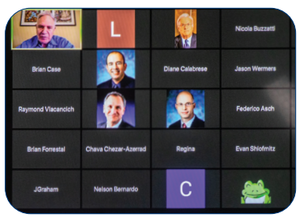
- MedStar Health at Chevy Chase
- MedStar Health at Lafayette Centre, DC
- MedStar Health at McLean, Virginia
- MedStar Health Bel Air Medical Campus

Advanced specialty vascular care and services are also available at MedStar Washington Hospital Center, MedStar Georgetown University Hospital, MedStar Franklin Square Medical Center, MedStar Union Memorial Hospital, and MedStar Good Samaritan Hospital.

For more information or to arrange a consult, please call:
Washington region, 202-877-8346
Baltimore region, 443-777-1900

Maggie Arnold, MD
Director
MedStar Health Vein Centers
Baltimore Region

Misaki Kiguchi, MD
Director
MedStar Health Vein Centers
Washington Region



Conferences and courses go virtual and viral.

At MedStar Heart & Vascular Institute, peer collaboration and continuing education are paramount. Prior to the coronavirus pandemic, online courses were provided as a complement to the Institute's robust, in-person, educational programming. When physical distancing orders necessitated more virtual options, the shift to electronic learning was swift and comprehensive. Conferences are now more accessible and convenient, and are drawing greater numbers of attendees from a wider geographic area.

New course offerings:

DMV Cath Lab Case Review

In this virtual monthly meeting hosted by Lowell Satler, MD, and Ron Waksman, MD, colleagues from hospitals in D.C., Maryland, and Virginia (DMV) engage in thought-provoking conversation regarding unique case reviews.

This activity is intended for interventional cardiologists, clinical cardiologists, cardiac surgeons, interventional cardiology fellows, vascular surgeons, and interventional radiologists who want to enhance their knowledge of complex coronary and structural interventions and review interventional cardiology cases for the treatment of patients with cardiovascular disease.

For meeting dates and to request an invitation, please email lowell.f.satler@medstar.net.

CRT Virtual Fellows Course

Join CRT from 8 am to noon on Saturday mornings through the end of September to sharpen your knowledge and critical skills with colleagues around the world.
Please note: We will not host a course on September 5th.

Each session will offer:

- Part 1: A deep dive into devices, clinical techniques, and research data.
- Part 2: A highly interactive setting for attendees to review interesting cases including challenging complications cases of coronary, structural heart, and endovascular procedures and discuss its management, early recognition, and prevention with experts in the field.

Register at: crtvirtualcourses.org

For more information, contact: info@crtvirtualcourses.org

Please visit **MedStar.Cloud-CME.com** or call **202-780-1655** for information on all regularly scheduled series, including:
• cardiac catheterization • cardiac surgery • cardiology • echocardiography • electrophysiology • cardio-oncology

In memory of Kenneth Kent, MD, PhD.

A pioneer, a colleague, and a friend.

Interventional Cardiologist Kenneth Kent, MD, a long-time member of the MedStar Washington Hospital Center Medical & Dental Staff, passed away in May at age 81.

"Kenny Kent, whom I knew for over 40 years, was one of the early pioneers, and ultimately, an esteemed and internationally known authority in coronary intervention. He was my mentor and colleague while he served as the cardiac cath lab director at the National Heart, Lung, and Blood Institute Cardiology Branch. He stood behind me as we did the first percutaneous coronary intervention at MedStar Washington Hospital Center, in February 1981. After leaving the NIH, he became the cardiac cath lab director at MedStar Georgetown University Hospital, and thereafter, he joined the dynamic group at MedStar Washington Hospital Center that developed one of the busiest and best respected coronary interventional centers in the world, and a key cornerstone of MedStar Heart & Vascular Institute. Kenny was a master clinician, a patient teacher, and the consummate gentleman, and he will be missed by all who had the good fortune to know him."
–Stuart F. Seides, MD, Physician Executive Director, MedStar Heart & Vascular Institute

"Kenny was an authentic pioneer, whose insight and creativity were instrumental in the development of coronary angioplasty. He believed in the rigor of reporting the safety and efficacy of this new revascularization strategy while pioneering the next generation of coronary devices. As a master interventionalist, his creativity in the promotion of the importance of live demonstration cases and education propelled the development of next generation key opinion leaders that continue to shape the field today. He was a true patient advocate, focused on improving quality of life. And as both close friend and colleague, he will be missed forever."
–Lowell F. Satler, MD, Director of Cardiac Cath Lab, MedStar Washington Hospital Center

In addition to his many accomplishments in Interventional Cardiology, Dr. Kent was a member of the editorial board of the *American Journal of Physiology* for four years, and a reviewer for the *American Journal of Cardiology*. He was a fellow of the Society of Cardiac Angiography; a fellow in the American College of Cardiology; a member of the District Medical Society; a member of the American Federation for Clinical Research; past president of the Board of Directors of the American Heart Association, and past chairman NHLBI Percutaneous Transluminal Coronary Angioplasty Registry. Dr. Kent received his undergraduate, graduate, and medical degrees from Emory University.

Celebrating five decades of service.

"Sandy" Mendelson, MD, honored after 52 years.

Sander "Sandy" Mendelson, MD

When Sander "Sandy" Mendelson, MD, landed his first job in medicine in 1967 as an attending cardiologist at what would become MedStar Washington Hospital Center, he literally doubled the size of the department's full-time staff.

"We were general cardiologists, not subspecialized, because the technologies hadn't advanced yet," Dr. Mendelson recalls, adding that as a result, he and then-chief of Cardiology James Bacos, MD, "did a lot of procedures that later landed in the purview of today's electrophysiologists, interventional radiologists, and others."

Dr. Mendelson would do a lot of things over the next five decades, as MedStar Washington's Cardiology Department evolved into MedStar Heart & Vascular Institute. He directed the Code Blue Team from its infancy to maturity, spearheaded its first policies and do-not-resuscitate orders, and directed the Coronary Care Unit for a decade. He played a key role in evaluating procedures and technologies that have become standard tools in cardiology, from cardiac resuscitation to bedside monitoring and defibrillation. He was a pioneer in mobile intensive care and cardiac rehabilitation. Recognizing that these and other new procedures required technical support, Dr. Mendelson, together with chief technician Michael Boivin, organized a cardiovascular technicians training program to fulfill the growing needs of the department while providing employees upward mobility in an exciting field.

Of this, he says, "I have loved working with colleagues, and all these activities needed teamwork."

Other areas of the hospital, and the community as a whole, benefitted from Dr. Mendelson's projects. For the sake of pacemaker safety, he helped establish the Biomedical Engineering Department. As an American Heart Association national faculty member, he brought formal Basic and Advanced Cardiac Life Support to the DC Metro Area and to MedStar Washington. He was a pioneer in establishing Washington D.C.'s paramedic and Emergency Medical Services.

"Sandy's impact at MedStar Washington Hospital Center was always driven by where the needs were," says Allen Taylor, MD, chairman of Cardiology at MedStar Washington. "He gave selflessly, following the interests and needs of the organization."

Dr. Mendelson's 52-year "first job" is scaled back, but he's not quite ready for retirement yet. Recalling that he—a Washingtonian—often drove past MedStar Washington while it was under construction in the late 1950s, "I had no idea I'd make my career here."

(left to right) MedStar Heart & Vascular Institute Physician Executive Director Stuart F. Seides, MD; MedStar Washington Hospital Center President Gregory J. Argyros, MD; Sander Mendelson, MD; MedStar Health President and CEO Kenneth A. Samet; MedStar Heart & Vascular Institute Chairman of Cardiology Allen J. Taylor, MD

Dr. Mendelson with his family at his 52-year celebration.

What Dr. Mendelson did know from an early age was that he wanted to become a physician.

"I enjoyed the science and the rigor of medicine, and that I could use it to help people," he says.

The choice of cardiology as a specialty resulted from the good fortune of training under several of the field's leading figures: J. Willis Hurst, MD, at Grady Memorial Hospital in Atlanta, W. Proctor Harvey, MD, at what is now MedStar Georgetown University Hospital, and Eugene Braunwald, MD, at the National Institutes of Health. Following a two-year stint in the Army Medical Corps and a fellowship at the University of Pittsburgh, Dr. Mendelson arrived at MedStar Washington at a time when cardiology was poised to branch into multiple new subspecialties, each with its own exciting new technologies and capabilities.

Though he has readily embraced the proliferation of new diagnostic and treatment tools as great additions to the traditional workup and therapies, Dr. Mendelson emphasizes that the medical team must include what he calls "understanding the patient's narrative;" which includes understanding the individual's social history, values, and potentially life-altering outcomes of their disease and treatment decisions. "Only then do you have the conversation about the future, and apply technology as appropriate," Dr. Mendelson says.

He is particularly proud to have helped stimulate the 1982 formation of what is now MedStar Washington's John J. Lynch, MD Center for Ethics.

"This is such an important area not just for the hospital and its providers, but also patients and families," he adds.

"Sandy's career journey says everything about what matters to him, and what he believes is important for his focus and time," notes Kenneth A. Samet, president and CEO of MedStar Health. "He did not care about bigger titles. He cared about doing everything he could to help us take better care of our patients."

Sandy and his wife, Irene, are enjoying their three children and six grandchildren, learning new things, traveling, and taking in the area's sights and performing arts. Dr. Mendelson plans to remain closely involved with the Center for Ethics, as well as MedStar Washington's Nuclear Medicine program. A lifelong volunteer, Dr. Mendelson will also stay active with his synagogue and several educational organizations in which he participates.

There's one more legacy of which Dr. Mendelson is particularly proud. As one of the leaders of the effort to justify and establish a trauma unit in the early 1970s, he coined the acronym MedSTAR—Medical Shock Trauma and Acute Resuscitation. Twenty years later, after MedStar Washington's parent company Medlantic Healthcare Group merged with Helix Health of Baltimore, the new organization's leaders didn't have to look far for a new corporate name.

"We already had it, and everyone liked it," Dr. Mendelson says with a chuckle. "So it's fair to say that I 'invented' MedStar."

Career Highlights

1967

Began career in 1967 at MedStar Washington Hospital Center

Code Blue Team director for 30 years

Established Biomedical Engineering Department

Director of Coronary Care Unit

Active in the education of hospital techs, house staff, and nurses

Pioneer in CPR, ACLS, and mobile intensive care in Washington, DC

Active in the Bioethics Committee since its onset

2020

News and notes.

Updates from MedStar Heart & Vascular Institute.

CRT 20

New venue and a focus on women in interventional cardiology energize CRT 2020.

CRT 2020 welcomed more than 2,800 attendees to the Gaylord National Convention Center in National Harbor, Md., early this year (❶ ❷). The hotel's stunning views and additional space invigorated the meeting, which was filled with innovation, cutting-edge research, and included a focus on women in interventional cardiology (❸).

This boutique meeting of interventional cardiologists, industry leaders, fellows, and regulators continues to grow and expand with fresh ideas. CRT 2020 included more than 100 women in interventional cardiology, 230 international attendees, nearly 780 faculty, 26 young leaders, and 20 live cases from eight locations around the world.

The new "CRT Village" created an innovative space for attendees to experience hands-on education at the 10 Learning Centers, interact with medical device and pharmaceutical exhibitors, learn in the CRT Cinema, meet with experts in the Legends Park, review abstracts, and relax. Also available to attendees was the ever-popular Live Hearts simulation (❹). The meeting was highlighted by inspiring keynote addresses by former first lady of the United States Michelle Obama (❺) and former U.S. Secretary of State John Kerry (❻). Mike Mussallem, chairman and CEO of Edwards Lifesciences also gave a keynote, during the FDA Luncheon Symposium on "Healthcare Reform and Its Impact on Innovation" (❼). Nine late-breaking trials were presented at the meeting and the newly introduced Great Diet Debate sparked interesting discussions. Augusto D. Pichard, MD, former director of the MedStar Washington Hospital Center cath lab and current medical director at Abbott Structural Heart, received the CRT 2020 Lifetime Achievement Award (❽).

Although there were new facets, the meeting itself kept the same spirit as previous CRT meetings: uniting fellows, experienced interventional cardiologists, industry leaders, and regulators from around the world. "CRT 2020 was full of energy that you could feel throughout the meeting," said CRT course chairman Ron Waksman, MD.

Save the date for CRT 2021!

CRT Meeting will return to the Gaylord National Convention Center in National Harbor, from Saturday, Feb. 27, through Tuesday, March 2, for another year of cutting-edge data, networking, and updates on the latest cardiovascular technology and interventional procedures during CRT 2021.

For more details about past and future meetings, visit **crtmeeting.org.**

New study now recruiting endurance runners with AFib.


Ankit Shah, MD

Ankit Shah, MD, director of MedStar Sports & Performance Cardiology, (pictured left) together with MedStar Sports Medicine, is conducting a pilot study evaluating the association of aerobic fitness measured by cardiopulmonary exercise testing and left atrial size and function in endurance runners with lone atrial fibrillation (AFib). We are recruiting participants for this study and are looking for patients who are endurance runners with lone AFib and have not had an ablation.

If you have any patients that fit these criteria, please contact:
Kezia Alexander: kezia.alexander@medstar.net or Arjun Kanwal, MD: arjun.kanwal@medstar.net

Tonya Elliott awarded VAD Coordinator of the Year.

Tonya Elliott, MSN, RN, was honored by the International Society of Heart and Lung Transplantation as the Ventricular Assist Device (VAD) Coordinator of the Year.

Tonya is the program coordinator for Mechanical Circulatory Support with MedStar Heart & Vascular Institute at MedStar Washington Hospital Center.

"Tonya is a true LVAD expert. She is passionate about the technology, understands these pumps, and knows how to troubleshoot them better than anyone I know. She is also a tireless advocate for patients, constantly seeking new ways to ensure their safety outside the hospital," says MedStar Heart & Vascular Institute Advanced Heart Failure Program Director Samer Najjar, MD.

Tonya Elliott, MSN, RN, with LVAD patient.

New leadership for MedStar Union Memorial Hospital's cardiac surgical ICU.

Nimesh Shah, MD, has assumed a new post as head of MedStar Union Memorial Hospital's cardiac surgical intensive care unit. Under this new leadership, MedStar Union Memorial increases its ability to provide sophisticated and holistic care for complex patients with multi-system organ dysfunction.

Dr. Shah previously served as the medical director of the CVICU and cardiac surgery recovery room at MedStar Washington Hospital Center. He has a special interest in mechanical circulatory support and in the application of comprehensive bedside ultrasound.

Nimesh Shah, MD

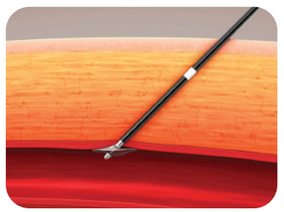
Vascular closure systems.

Enhancing patient recovery after femoral access.

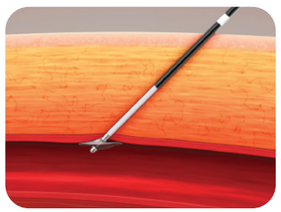
VASCADE® is a new vascular closure system that works by placing a small, collapsible mesh disc against the inside of the vessel wall to temporarily stop the bleeding, releasing a collagen patch into the tissue and then removing the mesh disc. The collagen patch expands, providing a mechanical and physiological seal to stop the bleeding, and then absorbs into the body, leaving nothing behind and allowing further access to the vessel if additional procedures are required.

"Before vascular closure systems were available, patients undergoing many types of electrophysiology procedures were required to spend up to six hours flat on their backs in recovery," explains Zayd Eldadah, MD, PhD, director of Cardiac Electrophysiology at MedStar Heart & Vascular Institute. "Innovations such as VASCADE are not only timely, but transformational for our patients' experience, our organizational efficiency, and our multi-hospital health system's benefit. Comfort is enhanced, throughput is increased, length of stay is shortened, and hospital beds are kept free for others who need them."

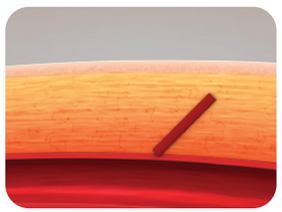
MedStar Washington Hospital Center was the first hospital in the mid-Atlantic region to offer VASCADE, and now, physicians at MedStar Union Memorial Hospital are using it, as well.



❶ Exchange sheath and verify disc location.



❷ Release collagen patch.



❸ Remove device and obtain hemostasis.

VASCADE works by placing a small, collapsible mesh disc against the inside of the vessel wall to temporarily stop bleeding, releasing a natural collagen patch into the tissue, which the body absorbs.

A safer, less-invasive approach for carotid artery disease.

The MedStar Health Vascular Program is leading the region in the use of the novel TransCarotid Artery Revascularization (TCAR) procedure for carotid artery disease. Before TCAR, approaches to carotid plaque removal were limited to open carotid endarterectomy or stenting, which is associated with an increased risk of intraoperative stroke. The TCAR procedure is a less invasive alternative indicated for patients in whom open surgery carries a higher risk.

TCAR employs carotid stenting while applying a novel technique to protect the brain. Prior to stent deployment, a catheter system is inserted into the carotid artery and connected to the femoral vein. The pressure gradient created effectively reverses blood flow from arterial to venous systems, obviating embolization of debris to the brain. After stent deployment, normal flow is restored. Patients benefit from a less-invasive procedure compared to surgery and a lower incidence of stroke.

For more information about the TCAR procedure, please call 202-877-0275 (Washington) or 410-554-2950 (Baltimore).

❶ A small incision is made just above the collar bone to expose the carotid artery; ❷ a specialized sheath is placed through a small puncture in the common carotid artery to deliver a stent; ❸ blood flow in the artery will be temporarily reversed to keep debris away from the brain protecting it from dangerous emboli; ❹ with flow reversal established, the stent is then placed to treat the lesion.

MedStar Union Memorial Hospital is first in Maryland to replace mitral valve via Tendyne™ transcatheter.

(left to right) John Wang, MD, Brian Bethea, MD, Antony Kaliyadan, MD, and Nauman Siddiqi, MD

Drs. Brian Bethea, John Wang, Nauman Siddiqi, and Antony Kaliyadan of the MedStar Heart & Vascular Institute at MedStar Union Memorial Hospital, successfully implanted Maryland's first Tendyne transcather mitral valve replacement system as part of a national clinical trial testing the safety and efficacy of the implant as an option to open-heart surgery. Dr. Bethea is the MedStar Union Memorial principal investigator for the trial.

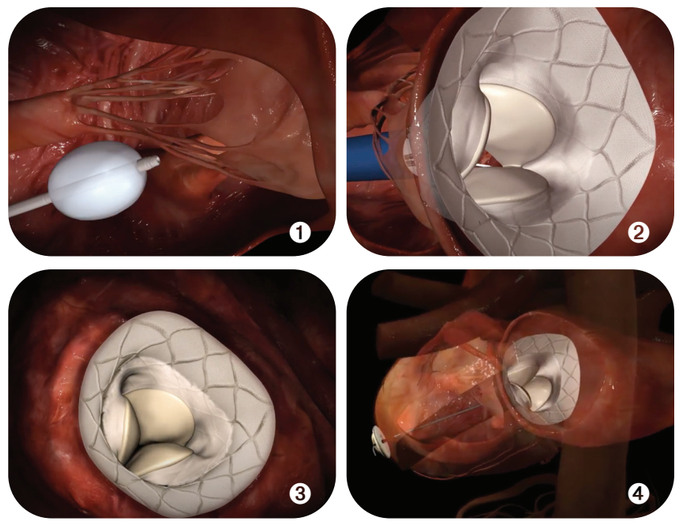
The patient, an 86-year-old Pikesville woman, was enrolled in the trial because of mitral regurgitation. "The patient in this case really had limited treatment options because of the severity of her valvular disease, her age, and other factors," says Dr. Bethea, vice chief of Cardiac Surgery at MedStar Union Memorial. "This is truly a groundbreaking advancement that is potentially lifesaving for patients who could not undergo the risks of open-heart surgery. It will dramatically improve their quality of life."

The device is a tri-leaflet, bioprosthetic valve available in multiple sizes, that, once inserted through a small puncture in the lateral chest wall and through the cardiac apex (❶), is then positioned inside the native mitral valve (❷ ❸). Using a unique tether mechanism, the valve position is stabilized when an apical pad is applied directly to the heart (❹).

The Tendyne mitral valve system is the first and only mitral valve replacement device that can be repositioned, ensuring precise placement during implantation. It can fully retrieved if necessary.

Physicians at MedStar Washington Hospital Center also use the Tendyne mitral valve system.

The clinical trial, called SUMMIT, is expected to enroll more than 1,000 patients at 80 sites across the U.S., Canada and the European Union.



Cardiovascular Physician

Cardiovascular Physician is a publication of MedStar Heart & Vascular Institute. 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**

Visit our website, at **MedStarHeartInstitute.org.**

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UPCOMING CONFERENCES AND COURSES

New virtual offerings

DMV CATH LAB CASE REVIEW

Virtual Conference
Monthly; 7:15 p.m.

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

For meeting dates and to request an invitation, please email **lowell.f.satler@medstar.net.**

CRT FELLOWS VIRTUAL COURSE

Virtual Conference
Saturdays through Sept.; 8 a.m. to noon

Please note: We will not host a course on September 5th.

Each session will include a deep dive into devices, clinical techniques, and research data, as well as the opportunity to review interesting cases including challenging complications cases of coronary, structural heart, and endovascular procedures.

Register at **CRTMeeting.org/CRT-Fellows-Course.**

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202-877-7808

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2 AMA PRA Category 1 Credits™
202-877-3510

Cardiology Grand Rounds
Weekly, Tuesdays, 12:30 p.m.
1 AMA PRA Category 1 Credit™
202-877-9090

Echocardiography Conference
Weekly, Thursdays, 7:45 a.m.
1.25 AMA PRA Category 1 Credits™
202-877-6264

Electrophysiology Core Curriculum Conference
Weekly, Tuesdays, 7 a.m.
1 AMA PRA Category 1 Credit™
202-877-3951

Some of these photos were selected prior to the COVID-19 pandemic. 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.**