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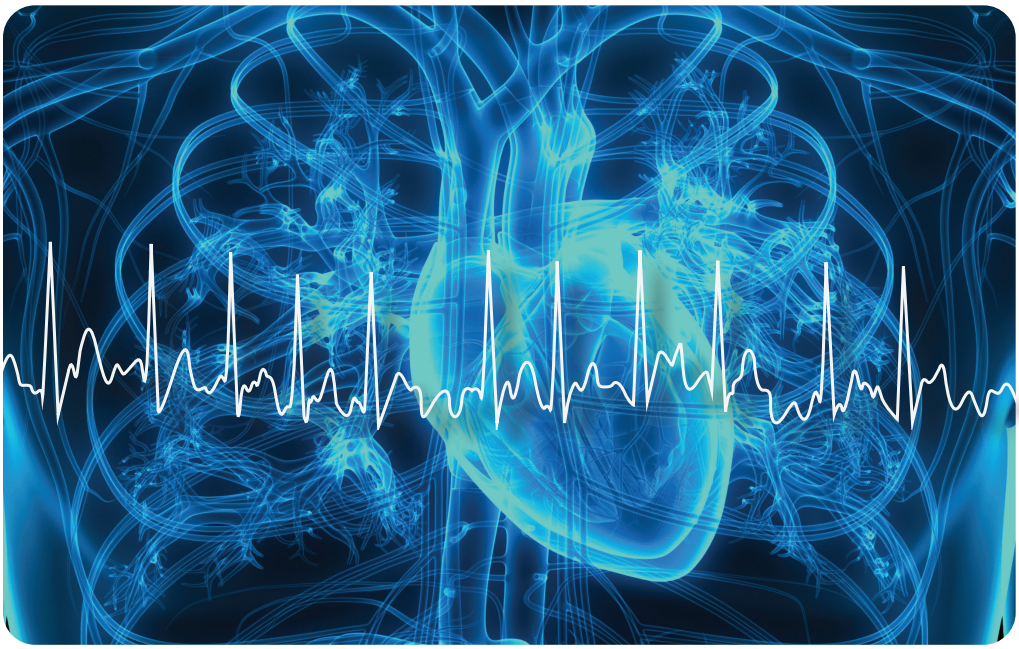

Cardiac Electrophysiology

Dear Colleague,

Cardiac arrhythmia management continues to evolve, often rapidly. The Section of Cardiac Electrophysiology (EP) at MedStar Health is pleased and humbled to help drive this development via cutting-edge clinical trials and highly subspecialized expertise. Our overarching aim is to deliver state-of-the-art care to our patients while promoting their safety, comfort, and best possible outcomes.

Our team handles all aspects of heart rhythm care and is the region's leading EP referral center. Cardiac electrophysiology blends procedural interventions that are often highly technologically advanced with longitudinal outpatient management—all in concert with and in support of our referring physicians.

High-volume experience and concentrated expertise, coupled with next-generation technology, distinguish our program.

In line with our mission to provide compassionate, accessible care for all, we offer one of the largest and most geographically expansive EP service lines in the country. With convenient locations spanning Western Maryland, suburban Baltimore and Washington, D.C., as well as the Eastern Shore and Northern Virginia, our program delivers services close to where patients live and work.

Inside this mailer, we share news on recent research and innovative therapies. If you would like further details, please contact us at 202-877-7685 (Washington region) or 410-554-6727 (Baltimore region). You may also email us directly at the addresses below.

It would be an honor and pleasure to partner with you in addressing atrial fibrillation, left atrial appendage occlusion therapy, complex ablation, His-bundle and left bundle branch-pacing, or any other cardiac electrophysiology concerns, whether simple or complex, for the benefit of your patients.

Best regards,

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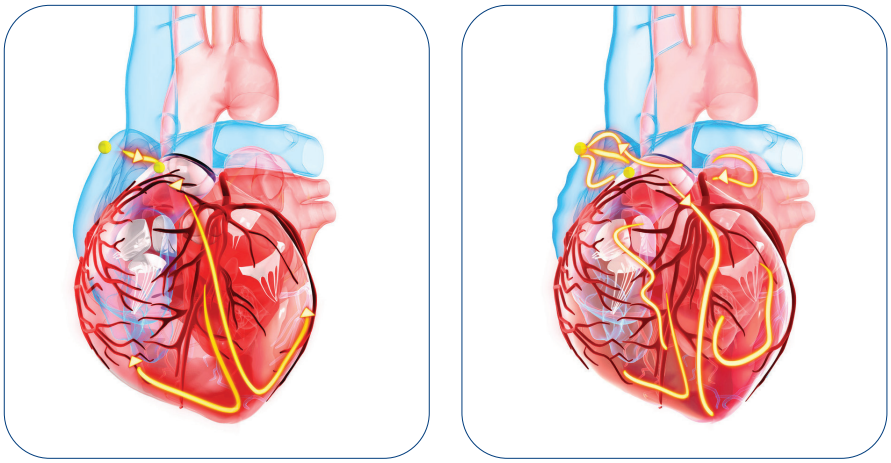
Cardiac electrophysiology

Our multidisciplinary team aims to provide comprehensive, state-of-the-art, personalized heart rhythm care for every individual entrusted to us. Not only staying current, but helping advance the field, inspires our commitment to you and your patients.



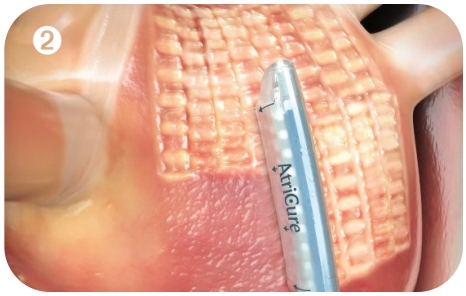
The human heart and its electrical system: The yellow lines depict electrical conduction through the heart during a normal heart beat (left) and in atrial fibrillation (right).

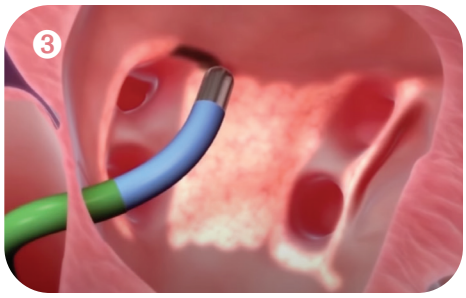
Convergent ablation as first-line therapy for longstanding, persistent AFib.

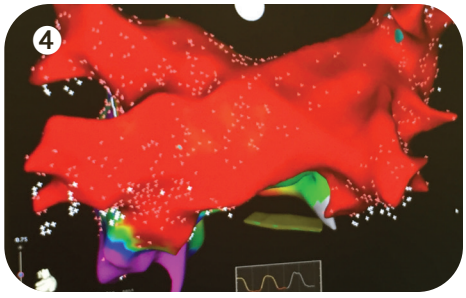
A new FDA label has established convergent atrial fibrillation ablation as first-line therapy for longstanding, persistent atrial fibrillation (continuous AFib lasting longer than a year). The procedure is a collaborative, hybrid one in which epicardial ablation is performed by our cardiac surgical team, followed by endocardial ablation performed by our cardiac EP team.

This newly validated application of a powerful technique expands therapeutic options for patients whose longstanding AFib may cause symptoms and/or be refractory to medications and traditional catheter ablation. Accumulating evidence has shown that maintaining sinus rhythm can promote normal cardiac function and prolong life. In addition to being more effective than other therapies at eliminating or sharply reducing AFib, the convergent procedure has been shown to reduce the need for medication therapy. Although patients undergoing this procedure must be hospitalized for 1 to 2 days (due to the small chest-wall incisions that are made), this is a shorter recovery period than that required by other surgical approaches.

The FDA label followed publication of the landmark CONVERGE trial, in which our cardiac surgeons and electrophysiologists were key investigators who helped demonstrate the safety and superiority of the hybrid procedure over endocardial catheter ablation for the treatment of longstanding persistent AFib. MedStar Health EP first introduced this technology to the region in 2011.







❶ ❷ **Epicardial ablation**: Cardiac surgeon uses radiofrequency (RF) energy applied to the posterior left atrial wall, away from the esophagus. The aim is to create durable and contiguous lesions while reducing risk of injury to structures adjacent to the heart.

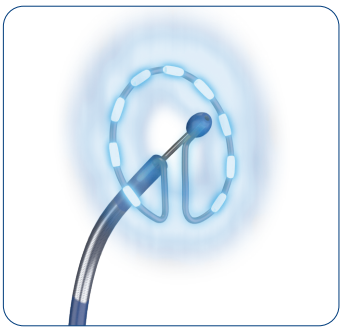
❸ **Endocardial RF ablation**: Electrophysiologist employs mapping and ablation to target the regions requiring additional treatment, as well as those areas inaccessible to the surgeon due to the pericardial reflection. Pulmonary vein isolation (PVI) completes the lesion set.

❹ **Completion mapping**: Electrical silence of the posterior wall (red areas silent)

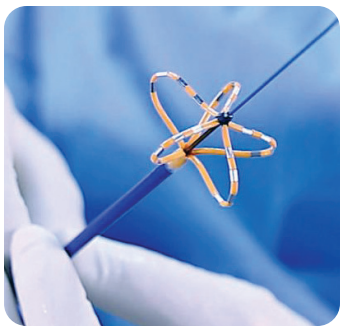
Pulsed field ablation for patients with paroxysmal AFib.

In an unprecedented and welcome honor, MedStar Health EP was selected to conduct multiple competing trials for pulsed field ablation (PFA), a novel modality to treat AFib. Two of these trials, run respectively by Medtronic and Boston Scientific, have been completed, and two others will soon begin recruitment.

PFA is a catheter-based, non-thermal technique which applies a series of high-intensity energy bursts to the pulmonary vein-left atrial border to achieve fast, complete, and targeted ablation of the heart tissue involved in atrial fibrillation initiation. PFA may prevent paroxysmal atrial fibrillation with greater efficiency and selectivity than prior methods. The promise of PFA is greater success, with sharply reduced risk of unintentional injury to surrounding tissues, such as the lungs or esophagus. PFA is an exciting advance which may offer enormous potential to overcome frustrating challenges experienced with traditional ablation and/or medical therapy for atrial fibrillation.



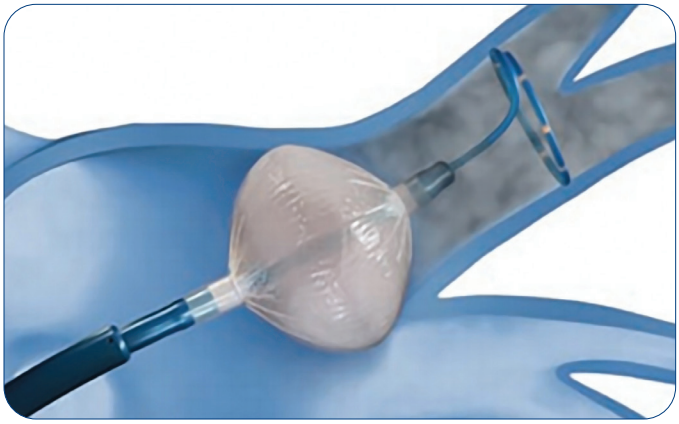
Boston Scientific FARAPULSE™ Pulsed Field Ablation System



Medtronic PulseSelect™ Pulsed Field Ablation System

Radiofrequency balloon catheters

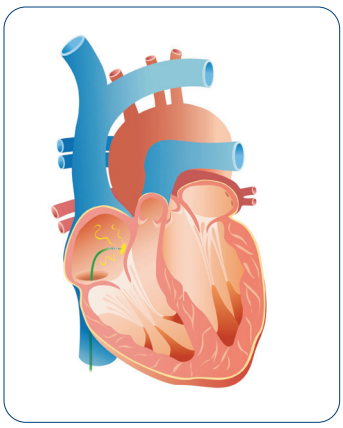
Another leap forward in ablation technology for AFib has been the development of multi-electrode radiofrequency balloon catheters. We are testing these novel technologies and have become among the country's highest enrollers in the HELIOSTAR and STELLAR trials.



Cardiac ablations

With over 10,000 cardiac ablations performed to date, we offer high-volume experience that guides appropriately tailored therapy for each individual patient.

Our team also co-authored the original publication validating cryoballoon ablation for atrial fibrillation and remains among the country's highest-volume experts employing this technology.



10,000+

Cardiac ablations performed

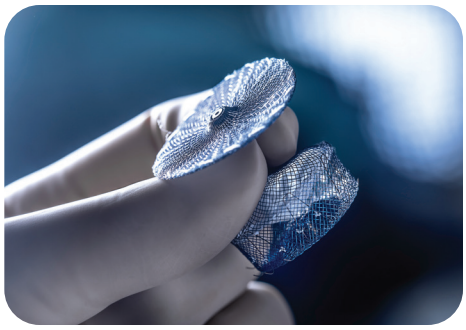
Left atrial appendage occlusion systems

MedStar Health physicians played a pivotal role in developing the original WATCHMAN™ left atrial appendage (LAA) occluder over 15 years ago and were the first implanters of this breakthrough technology in the region. Today, MedStar Health is among the country's highest volume implantation programs for left atrial appendage occluders, with almost 1,000 implantations to date—and increasing weekly.

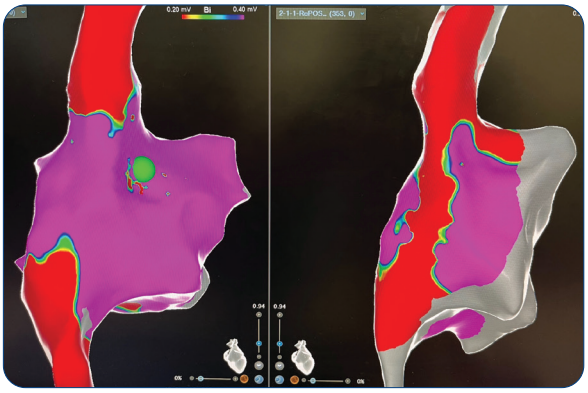
MedStar Health is also among the world's select centers enrolling patients in the OPTIONS study, which compares LAA closure using the WATCHMAN FLX™ device with traditional anticoagulation following catheter ablation for atrial fibrillation.

In addition, we recently became the first healthcare system in the Washington-Baltimore region to enroll patients in the Champion-AF clinical trial—a study designed to evaluate WATCHMAN FLX as a first-choice option versus direct oral anticoagulants. This study focuses on a wider population of patients who have non-valvular AF and are medically able to tolerate long-term blood thinner use but would consider a one-time, non-pharmacologic device option for stroke risk reduction.

We aspire to continue offering our patients the most innovative, safe, and effective therapies for stroke risk reduction—and to remain at the forefront of technology development and adoption. Studies of additional novel LAA occluders, including the Coherex WaveCrest™ and the recently FDA-approved AMPLATZER™ Amulet™ devices are also underway.



Left atrial appendage occluder devices at right, (top) WATCHMAN FLX; (center) AMPLATZER Amulet; (bottom) Coherex WaveCrest



Treating IST and POTS with the novel application of hybrid thoracoscopic ablation.

Recently, Cardiac Electrophysiologist Athanasios Thomaides, MD, and Cardiac Surgeon Christian Shults, MD, (left) were first in the region to offer thoracoscopic ablation for the treatment of inappropriate sinus tachycardia (IST) and postural orthostatic tachycardia syndrome (POTS). Similar to the partnership delivering convergent AFib ablation, our cardiac electrophysiologists and cardiac surgeons have joined forces to perform this therapy via a minimally invasive, hybrid approach.

This groundbreaking treatment offers a new option to patients who have exhausted other therapies for these historically underdiagnosed and often under treated conditions. Up until now, our options for these challenging patients have been limited in short- and long-term efficacy.

This fall, we will participate in the HEAL-IST trial—a prospective, multicenter study in the United States and Europe—to further evaluate the safety and effectiveness of this hybrid procedure.

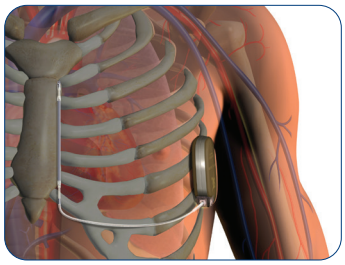
Before and after mapping images show the target site for IST ablation (green circle, on left) and its successful elimination (on right).

Interventional cardiac resynchronization therapy.

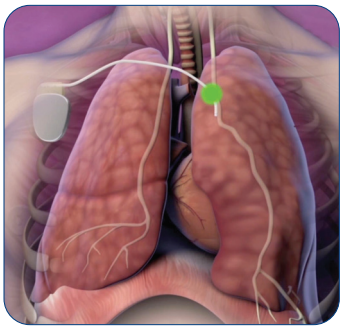
Seth Worley, MD, an internationally recognized thought leader in the field of cardiology, personally developed specialized tools and techniques to optimize the success of transvenous left ventricular (LV) lead implantation. He has coined the term "interventional cardiac resynchronization therapy" to describe this approach. He regularly treats patients who arrive from all over the world to undergo LV lead placement after unsuccessful attempt(s) elsewhere.

Extravascular implantable defibrillators

Traditional endovascular implantable cardioverter defibrillators (ICDs) may be unsuitable for certain patients (e.g., those with poor vascular access or heightened risk of recurrent bacteremia). We are participating in a study of a novel extravascular ICD system (Medtronic EV-ICD), in which defibrillation therapy is delivered by a lead placed outside of the heart and veins.



Breakthrough therapy for central sleep apnea in heart failure patients.



A new approach offers a sophisticated, effective, and safe way to treat moderate-to-severe central sleep apnea (CSA): the remedē® system. Similar to a pacemaker, this implantable device senses apnea and stimulates the phrenic nerve to promote healthy breathing. At this time, Sarfraz Durrani, MD (left), and Walter Atiga, MD (right), are the only specialists in the Washington region to have successfully implanted this novel technology.

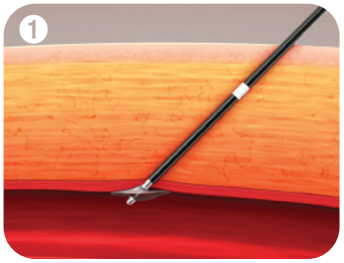
Perhaps half of all patients with heart failure are at risk of developing CSA. Unlike obstructive sleep apnea, which typically is caused by physical blockage of the airways, CSA occurs because the brain doesn't send proper signals during sleep to the muscles that control breathing, resulting in a lack of respiratory effort. Eventually, the repeated interruption in breathing imposes a chemical, mechanical, and inflammatory burden on the heart and circulation. This can result in worsening of heart failure and/or the development of heart rhythm abnormalities, and it is a strong independent predictor of cardiac death and hospital readmission.

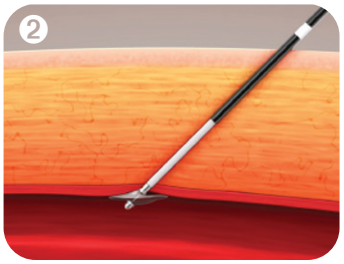
The remedē system can be transformational for CSA patients, particularly those with heart failure, because these patients often experience increasingly diminished heart health and quality of life.

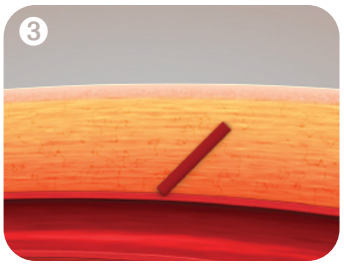
VASCADE® vascular closure system.

The VASCADE is a novel system that deploys a small, collapsible mesh to seal puncture sites in veins after EP procedures. The mesh contains collagen and is fully absorbed by the blood vessel wall. Before VASCADE, patients undergoing many types of electrophysiology interventions had to spend up to six hours flat on their backs in the hospital. Our patients now benefit from enhanced recovery, increased comfort, and shorter hospital stays. The system has also promoted our ability to discharge most catheter ablation patients, including those undergoing AFib ablation, the same day.

The MedStar Health Cardiac EP team is currently the national principal investigator site for a large-scale study of this device in patients undergoing AFib ablation.







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.

❶ Exchange sheath and verify disc location. ❷ Release collagen patch. ❸ Remove device and obtain hemostasis.

As an internationally recognized contributor to advances in the field, our team continues to play a critical role in the development of devices and approaches, including:

EP Lab of the Future

The MedStar National Cardiac Electrophysiology Training and Education Center is currently under construction and scheduled to open by the end of 2022. Adjacent to the existing Morris and Gwendolyn Cafritz Cardiac EP Suite at MedStar Washington Hospital Center, this one-of-a-kind facility will be the largest and best equipped EP Lab in the Washington-Baltimore region and will also feature a built-in 35-seat auditorium. It will serve as a global training center for providers, technologists, allied care professionals, government, and industry, as well as a technology innovation and product development hub.

EP Same-Day Discharge Suite

In our continuing effort to deliver the best possible patient experience, we are constructing—concurrently with the EP Lab of the Future—a same-day discharge suite for patients undergoing EP procedures at MedStar Washington Hospital Center. This innovative, seven-room facility will enable patients to recover from their procedures under the watchful eyes of our EP care team just steps away from their procedure room, then be discharged home. Because the entire cycle of EP care will take place within the EP Suite, patients will avoid a hospital room altogether and enjoy concentrated expertise with an emphasis on their safety and comfort. The EP Same-Day Discharge Suite is expected to welcome its first patients in early 2023.

New FitBit® app helps detect AFib.

Through research conducted at our sites, a new ECG app from FitBit has been approved by the Food & Drug Administration. This app helps analyze heart rhythm, looking for signs of AFib. Users simply hold their fingers to the device for 30 seconds and the results can be shared with their physician.

Remote monitoring capabilities

Remote cardiac rhythm management is being enhanced daily, so our team of experts can better follow patients with pacemakers, defibrillators, and implantable cardiac monitors no matter where they are in the world. We are rapidly strengthening our audiovisual telemedicine platform to enable patients to be seen and evaluated from the comfort of their own homes or places of work.

MedStar Health Cardiac Electrophysiologists

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Walter Atiga, MD

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Michael Goldstein, MD

Cyrus Hadadi, MD

Malick Islam, MD

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Sung Lee, MD

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Edward Platia, MD

Manish Shah, MD

Sunjeet Sidhu, MD

David Strouse, MD

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Allison Warren, MD

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MedStar Heart & Vascular Institute

Nationally Recognized Excellence in the Baltimore-Washington Region

MedStar Heart & Vascular Institute is a national leader in the research, diagnosis, and treatment of cardiovascular disease, and has been recognized by U.S. News & World Report and The Society of Thoracic Surgeons as one of the top cardiovascular programs in the nation. MedStar Heart & Vascular Institute and the Cleveland Clinic Heart, Vascular & Thoracic Institute, the nation's #1 heart program, enjoy a robust clinical and research relationship based on shared expertise. Patients benefit from rapid-cycle quality improvements and the latest treatment protocols.

Referring physicians have access to recognized national leaders in multiple cardiac and vascular sub-specialties and local access to MedStar Heart & Vascular Institute cardiac and vascular physicians located throughout Maryland, Northern Virginia, and the Greater Washington, D.C., and Baltimore regions.

For more information or to make an appointment or referral, visit **MedStarHealth.org/Services/Heart-and-Vascular**

BEST HOSPITALS
U.S.News & WORLD REPORT
CARDIOLOGY & HEART SURGERY
2021–22

MedStar Washington Hospital Center Awarded