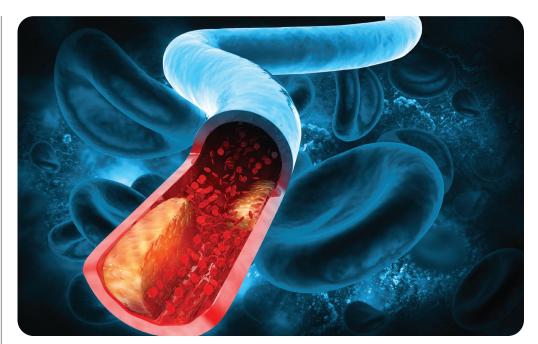




Steven Abramowitz, MD
Chair
Department of Vascular Surgery
Physician Executive Director
MedStar Health
Vascular Surgery Program



MedStar Heart & Vascular Institute

Vascular Surgery

Dear Colleague,

The MedStar Health Vascular Surgery Program aims to be a trusted resource for our physician and advanced practice provider colleagues in the diagnosis and management of all vascular pathology—from the most common to the most esoteric. Our program has grown to be the largest in the mid-Atlantic region with 24 board-certified surgeons coordinating care at 11 hospitals and 20 outpatient sites with non-invasive vascular laboratory imaging services. Regardless of the site, you will find a team dedicated to providing the highest quality, most compassionate care centered on the individual needs of each patient.

We do this by ensuring the department functions as one program. A patient can walk into any MedStar Health facility and tap into a systematic, caring organization with equal access to cutting-edge technologies and advanced clinical trials. As leaders in the field, this is our commitment to our community, our referring providers, and our patients.

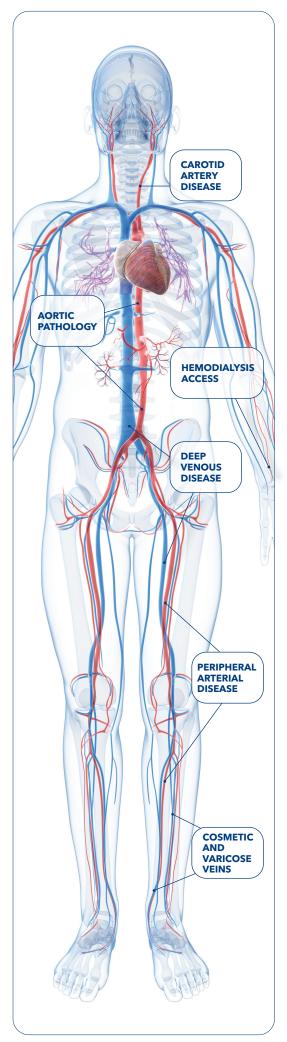
Strengthening our existing bonds with our regional referral network is chief among my priorities this year. We look forward to expanding our program's community outreach and creating a seamless patient experience, while earning your trust by keeping you connected and informed. By building partnerships with physicians throughout the region, we hope to engage patients with vascular disease early, averting potentially catastrophic outcomes.

I hope you'll take a moment to review this brochure, in which we share some of the latest technology, research, and treatments in the field. If you have any questions or would like further information, please feel free to call or email me.

Sincerely,

Steven Abramowitz, MD 203-589-6575 (cell)

steven.d.abramowitz@medstar.net



Vascular surgery

The MedStar Health Vascular Surgery Program is the largest in the region and among the most sophisticated in the nation. Our diverse team specializes in the diagnosis and treatment of all vascular disorders, from the merely uncomfortable to the lifethreatening. Please read on to discover how our surgeons are advancing treatment strategies for vascular disease states.

Deep venous thrombosis and pulmonary embolism

We treat all forms of deep venous disease with open and endovascular techniques, including acute and chronic deep venous occlusive disease, inferior vena cava occlusion, retained IVC filters, and pulmonary embolism.

We have pioneered a number of minimally invasive techniques to treat an ever-growing range of cardiovascular conditions. Endovascular iliocaval reconstruction, a minimally invasive reconstructive technique paramount in the treatment of vena cava stenosis and central venous occlusive disease, is one such example. In addition, we are the only provider in the region to offer endovenectomy, a minimally invasive technique combining open and endovascular surgery to treat deep vein post-thrombotic syndrome. These approaches, along with other evolving minimally invasive approaches, are associated with reduced healing times and infection risks.





Our system-wide pulmonary embolism
 (PE) protocol and response system
 provides rapid and comprehensive
 intervention for patients with PE.
 Each time a PE is suspected, the
 multidisciplinary team—comprised of
 vascular surgery, cardiothoracic surgery,
 interventional radiology, critical care,
 cardiology, and heart failure—immediately
 comes together via teleconference to
 review the case and implement a treatment
 plan. Early data shows quicker recoveries
 and shorter ICU stays, along with better
 outcomes due to more appropriate
 interventions.

 Our internationally recognized DVT program has been the first in the world to use a range of devices from the ClotHunter™ thrombectomy catheter to FlowTriever2* thrombectomy-assist tool.

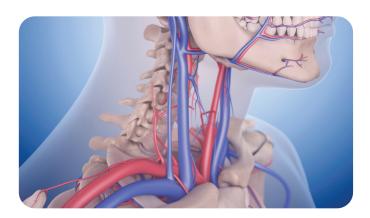




Carotid artery disease

Our expertise covers the spectrum of carotid diseases, including treatment for stenosis, dissection, aneurysmal degeneration, and carotid body tumors.

For individuals with atherosclerotic disease of the carotid artery, our interventions can help improve the chances a patient can prevent or recover from a stroke. Our vascular surgeons are well experienced in carotid endarterectomy and carotid artery stenting and our experience is reflected by our outcomes. As voluntary participants in the Vascular Quality Initiative, we compare our outcomes against others nationally to hold ourselves to a higher standard. Dedication to clinical excellence has resulted in selection to participate in multiple nationwide clinical trials.

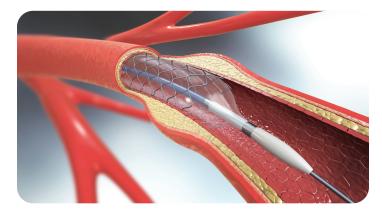


<1%

Carotid revascularization stroke rates



We are leading the region in the use of the novel **TransCarotid Artery Revascularization (TCAR)** procedure.



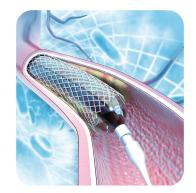


Peripheral arterial disease

Our program cares for patients at every stage of peripheral arterial disease (PAD), beginning with community screenings, to diagnosis in our noninvasive laboratories, and through all varieties of therapy and intervention. Our specialists view patients holistically, which means applying the right approaches to the right person. This may mean a traditional surgery, or it may mean employing the latest and greatest technology. Our program has the expertise and the range of approaches to offer the best option to every patient, every time.



• We offer an alternative approach for patients determined to be high risk for standard transfemoral arterial percutaneous procedures. Primarily used as a "bail-out" when the antegrade approach failed, retrograde pedal access has now been expanded to highrisk patients and, increasingly, as a first-line diagnostic and interventional option for even routine PAD patients. Jason Crowner, MD, is an expert in this approach, which reduces the risk of access site bleeding and hematomas, resulting in less bruising, swelling, and patient discomfort, as well as reducing the amount of time that patients must remain flat by more than half.





Limb salvage

MedStar Health Wound Healing Institute provides a multimodal approach and unified expertise for wound care and limb salvage. Vascular surgeons, together with plastic surgeons, podiatric surgeons, and other specialties, collaborate on each and every wound case that presents throughout the system. Patients receive an integrated evaluation and comprehensive treatment plan, and a coordinated approach to debridement, infection removal, revascularization, and other necessary interventions.



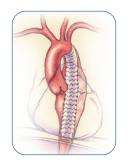
18,000 Limb salvage patients treated annually

Complex aortic pathology

The aortic disease management program is one of the largest and our teams perform more aortic interventions than any other program in the region. We treat the most complex cases—including patients who have been denied care elsewhere—with the full spectrum of available options, including open, minimally invasive, and transcatheter approaches.

We provide treatment for all aortic pathology including thoracic endovascular aortic aneurysm repair (TEVAR) for patients with thoracic aortic aneurysms and dissections, endovascular aortic aneurysm repair (EVAR) in patients with infrarenal abdominal aortic aneurysms, and fenestrated or branched endovascular repair (F/B-EVAR) in patients with more complex thoracoabdominal aortic aneurysms.

Patients benefit from a team that is truly multidisciplinary, led by vascular and cardiac surgeons. Together, they perform a collaborative assessment to determine the patient's least invasive, most effective solution. Procedures take place in a hybrid operating room to allow for both open and endovascular approaches, as well as contemporaneous imaging.



150
Endovascular procedures, in collaboration with cardiac surgery



Our Complex Aortic Centers, located at MedStar Washington Hospital Center and MedStar Union Memorial Hospital, offer 24/7 access for emergent, urgent, and elective evaluation and treatment of complex aortic disease.

Complex referral cases may include:

- Aortic dissection
- Occlusion
- Intramural hematoma
- Aneurysm
- Penetrating ulcer
- Other aortic pathology

Our MedSTAR Transport service provides expedited air and ground access to care, regardless of patient location. We accept all transfers.

To refer a patient and arrange for a 24/7 transfer, call: Washington, D.C. region: 800-824-6814 Baltimore region: 410-554-2332

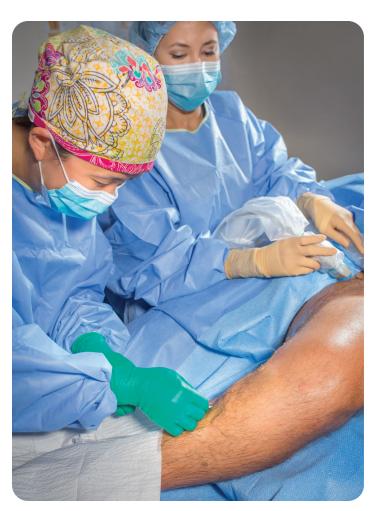






 Javairiah Fatima, MD, vascular surgeon and co-director of the Complex Aortic Center at MedStar Washington, recently received the region's only FDA-approved investigational device exemption (IDE) to use physician-modified endografts with fenestrations and branches that are tailored specifically to each patient's individual anatomy. This unique therapy extends our ability to offer minimally invasive aortic repair to patients who are considered high risk for open thoracoabdominal aortic repair using commercially available stent grafts.





Cosmetic and varicose veins

MedStar Health Vein Centers are convenient outpatient clinics dedicated to the treatment of venous disease, including cosmetic and functional. These boutique settings offer clients the comfort and luxury of a specialty clinic, paired with the expertise of vascular surgeons who provide comprehensive diagnostics and treatment in the event of a more serious underlying condition. Each center has an on-site, accredited vascular lab, staffed with licensed technologists who can run tests for fast, same-day turnarounds. Services are now available at nine locations in Maryland, Virginia, and Washington, D.C.



• New study evaluates expansion of the VenaSeal™ Closure System for venous varicosities. Vascular Surgeon Misaki Kiguchi, MD, is now enrolling patients in SPECTRUM, a postmarket, prospective, randomized control trial of the VenaSeal™ Closure System. Approved for use by the FDA in 2015, VenaSeal is a non-thermal, non-tumescent, non-sclerosant closure system that uses adhesive to permanently close diseased superficial veins. Performed in an outpatient setting, the approach provides less peri- and post-procedural discomfort and faster recovery time than traditional thermal ablations. In this new study, VenaSeal is being evaluated against endothermal ablation for the treatment of early and advanced stages of superficial venous disease.



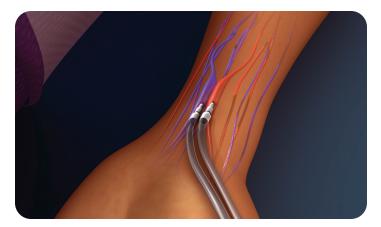
Noninvasive vascular imaging

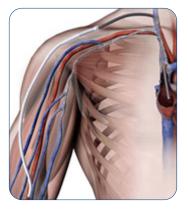
At 17 laboratories across the region, our elite specialists use state-of-the-art technology to ensure that the first diagnosis your patient receives is the right diagnosis. We provide advanced diagnostic and treatment options for conditions of the carotid, peripheral, and abdominal venous and arterial systems.

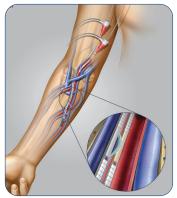
Study reports are delivered to the referring physicians promptly, via phone, fax, or MedConnect. We offer expedited scheduling, convenient parking, and accept a wide variety of insurance plans which cover nearly all studies.

Hemodialysis vascular access

Led by Jesse Garcia, MD, we are the largest vascular hemodialysis access program in the mid-Atlantic region, and our surgeons perform over 2,500 cases each year. Whether creating the initial access, amending failed access points, or reestablishing flow to thrombosed access, we focus on long-term results and reduced risk of infection. Our team can manage even the most complex dialysis patients with an array of fistulae and graft options tailored to each person.









- HeRO® graft placements: Specialized grafts applicable for patients in whom access cannot be obtained through the standard route, due to blocked veins or previous stenosis. We have among the highest volumes in the country and serve as a regional leader and proctor for this approach.
- Artegraft®: A bovine tissue graft, used to obtain access for patients who have poor veins and are not candidates for the standard surgical procedure.
- The WAVELINQ™ EndoAVF System: A minimally invasive technology for percutaneous fistula creation, avoiding surgical incisions.
- Laparoscopic peritoneal catheter insertion: Allowing for the option of home dialysis.

Our surgeons are committed to partnering with you to achieve long-term, effective management of your patients' disease. All interventions are performed by a vascular surgeon in a surgical suite at one of our three regional locations. With the increasing number of patient comorbidities, we believe it's imperative to have access to the full range of surgical support and critical care services, if needed.



All labs are accredited by the Intersocietal Accreditation Commission, providing confidence that high standards and best practices are applied consistently and meticulously.

RPVI®

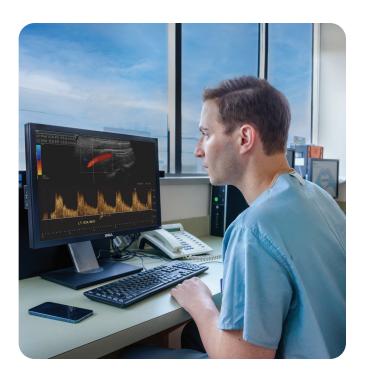
Each study is interpreted by vascular surgeons who hold Registered Physician in Vascular Interpretation (RPVI) certifications.

28,000

With 28,000 studies performed annually, our program has one of the highest volumes in the region.



Our sophisticated imaging technology is constantly monitored for overall quality, safeguarding against any variability in the equipment or readings.



MedStar Health Vascular Surgeons

Washington region



Left to right, standing: Danielle Salazar, MD; Krystal Maloni, MD; Misaki Kiguchi, MD; Joshua Dearing, MD; Javairiah Fatima, MD Kyle Reynolds, MD; Left to right, seated: Jesse Garcia, MD; Ayesha Hatch, MD; Steven Abramowitz, MD; Cameron Akbari, MD; Not pictured: Ed Woo, MD; Arthur Flatau, MD; John Harvey, MD

Baltimore region



Left to right, standing: Jason Chin, MD; Jason Crowner, MD; Stephen Stanziale, MD; Maggie Arnold, MD; Geetha Jeyabalan, MD; Suzanne Kool, MD; Left to right, seated: Lucy Kupersmith, MD; Mark Peeler, MD; Raghuveer Vallabhaneni, MD; Kevin Brown, MD

Program Locations

District of Columbia

1 MedStar Georgetown University Hospital 3800 Reservoir Rd., NW Pasquerilla Healthcare Center, 4th Fl. Washington, DC 20007

P 202-444-2255 F 877-376-2434

2 MedStar Health at Lafayette Centre 1133 21st St., NW, 7th Fl. Washington, DC 20036 P 855-647-8346 F 202-416-2007

3 MedStar Washington Hospital Center **Center for Vascular Care**

106 Irving St., NW Physicians Office Building North, Ste. 3150 Washington, DC 20010 **P** 202-877-0275 **F** 202-877- 0456

MedStar Washington Hospital Center-Vascular Access

106 Irving St., NW Physicians Office Building South, Ste. 419 Washington, DC 20010 P 202-877-3100 F 202-877-6585

Maryland

Annapolis

MedStar Health Cardiology Associates The Vascular Institute

2002 Medical Pkwy., Ste. 520 Annapolis, Md. 21401 P 410-571-8430 F 410-573-5981

5 MedStar Franklin Square Medical Center 9101 Franklin Square Dr., Ste. 212 Baltimore, Md. 21237 P 443-777-1900 F 443-777-1901

6 MedStar Good Samaritan Hospital 5601 Loch Raven Blvd.

Smyth Bldg., Ste. 303 Baltimore, Md. 21239 **P** 443-444-3431 **F** 443-444-3435

MedStar Harbor Hospital

3001 S. Hanover St. Outpatient Center, Ste. 216 Baltimore, Md. 21225 **P** 443-444-3431 (scheduling) **P** 410-350-3357 (call center, front desk) **F** 443-444-3435

8 MedStar Union Memorial Hospital

3333 North Calvert St. Johnson Professional Building, Ste. 325 Baltimore, Md. 21218 P 410-554-2950 F 410-261-8226

Bel Air

MedStar Health Bel Air Medical Campus
 12 MedStar Blvd., Ste. 175
 Bel Air, Md. 21015
 P 443-777-1900 F 443-777-1901

Bowie

 MedStar Health Cardiology Associates 4175 North Hanson Ct., Ste 100 Bowie, Md. 20716
 P 301-809-6880 or 410-741-1835
 F 301-805-4233

Charlotte Hall

11 MedStar Medical Group at Charlotte Hall 29955 Three Notch Rd., Ste. 201 Charlotte Hall, Md. 20622 P 240-434-4072 F 240-434-4022

Chester

12 MedStar Health Cardiology Associates Kent Island

1630 Main St., Ste. 208 Chester, Md. 21619 P 410-643-3186 **F** 855-620-5346

Chevy Chase

13 MedStar Health at Chevy Chase 5454 Wisconsin Ave., Ste. 1100 Chevy Chase, Md. 20815 P 855-647-8346 F 855-861-2080

Clinton

14 MedStar Southern Maryland Hospital Center

750¹ Surratts Rd., Ste. 208 Clinton, Md. 20735 **P** 301-877-7353 **F** 301-877-1240

Ellicott City

15 MedStar Health at Dorsey Hall

9501 Old Annapolis Rd., Ste. 220 Ellicott City, Md. 21042 **P** 410-554-2950 **F** 410-261-8226

Leonardtown

16 MedStar St. Mary's Hospital

25500 Point Lookout Rd.
Outpatient Pavillion, Ste. 200
Leonardtown, Md. 20650
P 240-434-4072 F 240-434-4022

Olney

17 MedStar Montgomery Medical Center

18109 Prince Philip Dr., Ste. B-100 Olney, Md. 20832 **P** 301-774-8962 **F** 301-774-8963

Pikesville

18 MedStar Health Vascular Surgery at Pikesville

1838 Greene Tree Rd., Ste. 245 Pikesville, Md. 21208 **P** 410-554-2950 **F** 410-261-8226

Prince Frederick

19 MedStar Health at Prince Frederick

301 Steeple Chase Dr., Ste. 107 Prince Frederick, Md. 20678 **P** 410-535-7290 **F** 833-788-2583



Northern Virginia

McLean

20 MedStar Health at McLean

6862 Elm St., Ste. 800 McLean, Va. 22101 **P** 855-647-8346 **F** 866-990-5516 For more information or to refer a patient, please call:

Washington region: **202-877-0275**

Baltimore region: **410-554-2950**

MedStarHealth.org/Services/ Vascular-and-Endovascular-Program







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**