

# The Beat

A PUBLICATION OF  
VCU HEALTH  
PAULEY HEART CENTER



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## Coming Home Pauley Welcomes Dr. Greg Hundley as First Director

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It's April, and Dr. Greg Hundley, VCU Health Pauley Heart Center's first-ever director, has started to move into his new office in West Hospital. Around the room are stacks of boxes filled with books. A dry-erase board, not yet hung, leans against a wall.

Continued >>>



**VCU**Health™

Pauley Heart Center





DR. GREG HUNDLEY POINTS OUT THE SUPERIOR IMAGING OF THE SIEMENS MAGNETOM VIDA 3T MRI SYSTEM.

► ► ► **He wears a dark suit and a stylish tie. He is 56 years old but looks years younger.**

His glasses give him the appearance of a scholar—which, indeed, he is. Among his achievements, he has more than 200 peer-reviewed articles and \$24 million in NIH grants, and 19 years of continuous NIH funding to his name. Despite this, Hundley is approachable. Sitting across from a visitor at a round table near his desk, he is friendly and eager to talk about his new role with Pauley.

“There’s an enormous opportunity here with the talent at VCU Health. We have expertise in heart failure, cancer treatment, electrophysiology, image acquisition and analysis, bioinformatics, biomedical engineering and coronary heart disease,” he said. “We have renowned physicians like Dr. Kenneth Ellenbogen; a phenomenal CEO of the hospital, Deborah Davis; and an exciting new dean with a great vision, Dr. Peter Buckley.”

**“I was very impressed with Dr. Hundley when I first met with him due to several factors, among which are his very humble and pleasant personality, his excellent reputation as a physician-scientist, as well as his vision for the heart center,” said Dr. Fadi Salloum.**

While winding down his practice at Wake Forest Baptist Medical Center, where he served as program director for the cardiovascular imaging program, he helped the MCV Foundation secure funds to build a new \$4 million Cardiovascular Imaging Suite

at VCU Medical Center with the magnetic resonance imaging (MRI) technology necessary to do his high-caliber work. The foundation raised an additional \$5 million for Hundley’s recruitment and research.

“It was an amazingly generous gift of Stan and Dorothy Pauley and their family, in their tradition of commitment to excellence in health care delivery, that made this all possible,” said Hundley.

The Pauleys’ gift enabled the foundation to receive an additional \$5 million in matching funds from the Glasgow Endowment.

The suite will support his groundbreaking work in preventing and treating heart failure in cancer patients and mark a new era of collaboration between Pauley and VCU’s Massey Cancer Center.

“Massey has been one of the research sites with which we have collaborated in the past for my trials,” he said. “Now, with the new lab, I’m going to work side by side with these same physicians as well as VCU engineering and VCU Health exercise physiologists, behavioral scientists and cardiovascular medicine specialists. We are going to be using the very latest

MRI and cardiopulmonary exercise test technologies, which are going to open up all kinds of possibilities. I’m looking forward to seeing what these collaborations will bring.”

“We are all very excited to have him join and lead Pauley,” said Dr. Antonio Abbate,

associate chair of research. “Hundley is an internationally renowned expert in cardiac imaging. He is not only a skilled clinician but also a talented researcher. He also brings an extensive experience in mentoring trainees and junior faculty.”

“I was very impressed with Dr. Hundley when I first met with him due to several factors, among which are his very humble and pleasant personality, his excellent reputation as a physician-scientist, as well as his vision for the heart center,” said Dr. Fadi Salloum, Natalie N. and John R. Congdon Sr. Endowed Chair.

When asked about the impact of hiring Pauley’s first director, Ellenbogen said, “It is highly significant and very exciting. It will be like taking us from the major leagues to the World Series.” He added, “Dr. Hundley is going to provide us with the depth in research and cutting-edge clinical research that will attract physicians from all over the world to study, train and do research with us.”

Hundley grew up in Richmond, then attended the College of William and Mary, where he met his wife, Kim, a native of Ashland. After graduating in 1984, he attended medical school at VCU School of Medicine.

“I was here when the transition occurred to move the main clinical operation from West Hospital to Main Hospital,” he said. During his long hours as a medical student, he remembers taking a tunnel to the capitol to eat at Chicken’s. Skull and Bones was another favorite.

“My class was large, with a lot of diversity and talent and phenomenal clinical and

my desired research training,” he said. “Research-wise, I had the distinct opportunity to work with Dr. Hermes Kontos as well as Drs. Joseph Levasseur, Enoch Wei and Joe Patterson.”

Hundley felt drawn to cardiovascular medicine after working in the cardiovascular ICU. “The patients were relatively sick, and there was a lot of satisfaction in the care that could be delivered in that environment to make them well.”

From 1988 to 1996, he completed his internship and residency in internal medicine, as well as his fellowship in cardiovascular disease at Parkland Memorial Hospital and the University of Texas Southwestern (UTSW) Medical Center in Dallas. There, while originally training to be an interventional cardiologist, he grew fascinated by cardiac imaging.

His world changed the first time he saw an MRI. Parkland Hospital was one of few facilities in the country to own the advanced imaging system in 1993. “One morning I went over to pick up a patient from the magnetic resonance imaging scanners who was scheduled to undergo a heart catheterization. On the screen of the MRI scanning console was an image of a beating heart as if it was being displayed on a high-definition TV,” he said. “Thirty years ago, that was an amazing accomplishment.”

**His world changed the first time he saw an MRI. Parkland Hospital was one of few facilities in the country to own the advanced imaging system in 1993.**

Today, as during the 1990s, the cardiac catheterization lab used invasive procedures incorporating angiograms—x-ray photos obtained by using contrast dye injected through catheters placed in the arteries of one’s arms or legs—to detect blockages in the coronary arteries. At Parkland and UTSW, investigators were working on noninvasive MRI methods that did not require an interventional heart catheterization procedure to visualize and measure blood flow in these same coronary arteries. However, the process of viewing the heart and these arteries took a long time. “It took probably an hour and a half to take 10 pictures of the heart, and then you stayed up all night typing binary commands so you could see them the next day,” he recalled. “Literally all night, until 4 to 6 a.m.”

Today, instead of all-night sessions, “with MRI you can acquire and visualize a complete 3D image data set of the whole heart in 15 seconds,” he said with a laugh, still amazed.

Inspired, he became involved in research with mentors Drs. David Hillis, Richard Lange, Geoff Clarke and Ron Peshock to corroborate MRI findings by comparing

them to coronary angiograms. The research, published by the American Heart Association, gained significant international attention. He also devised protocols for the use of MRIs in creating images of coronary arteries that supplied the heart muscle.

During this time, his innovative work caught the attention of Dr. George Vetrovec, the former chair of cardiology who retired in 2015. “We sat next to each other at a dinner of the Society for Cardiac Angiography and Intervention. He had just won a prize from the organization for imaging studies,” recalled Vetrovec, who later tried to recruit Hundley—twice—but the timing wasn’t right.

Vetrovec recalled his first impressions. “I thought he was very, very intelligent and well-spoken and thoughtful. He had this innovative new technology and was at the forefront of its development.”

While Hundley liked Dallas, he and his wife longed to get back to the East Coast, closer to family. When Dr. William Little at Wake Forest Baptist Medical Center offered him a place on the faculty in 1996, he accepted.

“They recruited me there because they had a lot of patients experiencing heart attacks and they wanted to use this new MRI technology clinically,” he said.

Hundley and Little further developed clinical MRI protocols to image coronary arteries and measure blood flow within

them in patients presenting with chest pain suspected of experiencing a heart attack. At the time, patients with blocked

arteries were treated with intravenous thrombolytic therapy, which involved using clot-busting drugs. With this therapy, “we could never tell whether the infarct artery was open or closed, and this MRI technique could do this.”

After he’d been there less than three months, a superior new technology emerged that replaced thrombolytic therapy: balloon angioplasty. This meant MRI was not needed to view the coronary arteries because patients went straight to the heart catheterization lab to not only view the arteries but directly open them.

“So, I was stuck. Because I’d moved there to introduce this new technique, and Little came in said, ‘Well, we’re not going to do that anymore.’ I said, ‘What am I going to do?’ And he said, ‘Well, you’ll think of something.’”

He soon discovered that being a physician deep in the heart of tobacco and barbecue country presented special challenges. “A lot of people had coronary artery disease, but they were not very good candidates, because of their smoking and obesity, to have pictures made of their heart noninvasively to determine if they

## About Dr. Hundley

“Dr. Hundley is a nationally and internationally recognized leader in his area of research on the cardiac complications of cancer therapy. His ability to collaborate with faculty at VCU Massey Cancer Center is already demonstrated through our participation in his cardiac toxicity prevention trials, which bodes well for productive future collaborations between our two centers. We are excited about him joining us at VCU Health.”

— Dr. Gordon Ginder  
Director, VCU Massey Cancer Center

“Dr. Hundley is a proud alumnus of VCU School of Medicine, and we are equally proud of him. With his outstanding reputation as a physician-scientist and mentor, Hundley is a perfect fit as medical director. His research in the exciting program of cardio-oncology will build on our strengths. This is central to our strategy to attain comprehensive cancer center designation for Massey. Additionally, Dr. Hundley will elevate Pauley’s national prominence and federal research portfolio.”

— Dr. Peter Buckley  
Dean, VCU School of Medicine

## Did you know...

- Since 1999, Dr. Hundley has been involved with more than \$71 million in awarded research funded grants.
- He currently serves as associate editor for *Circulation and Cardiology Today* and serves on the editorial board of five other peer-reviewed journals.
- He is married to his loving wife of 30 years, Kim Hundley, a speech pathologist, “who has encouraged and tirelessly supported my career,” he said. The Hundleys have three children: Anna, 22; Jennifer, 18; and Will, 17.





### Coming Home *continued*

needed a heart catheterization.” Noninvasive echocardiography and radioisotope techniques were often inadequate in these patients.

Hundley, along with Drs. Craig Hamilton and Kerry Link, began using an MRI to image their hearts, “and that *really* took off, because it provided an answer for a population that didn’t have one.” A story about their noninvasive MRI ran on NBC Nightly News.

Next, he began to grow interested in heart failure while doing stress tests. While these tests are usually done on just the heart, he and Little began testing all the

blood vessels in the body. “Heart failure is a complex disease where not just the heart has problems contracting or relaxing, but also the blood vessels that carry the blood have problems,” he said. “With MRI, one could image the heart, blood vessels, kidneys and other structures simultaneously. In so doing, one could determine why tissues weren’t receiving the blood supply they needed.”

Hundley, in collaboration with Drs. David Herrington and Dalane Kitzman at Wake Forest, studied the etiologies of heart failure when the heart ejection fraction is preserved, or shows up as normal, on echocardiograms. This latter syndrome, common in older individuals, often causes heart failure to go

unidentified until it is significantly progressed.

His interests took a turn one day, while working with program manager Kim Lane and acquiring a MRI of a patient who’d had heart failure after being treated for cancer. “The type of imaging we were doing always produced a picture that was black or white,” he said. “But this time we got gray.”

The physicians first blamed it on a glitch in the new software program. However, they later realized that the gray areas indicated early heart damage from the cancer treatments. Often this damage could be detected before permanent injury occurred.

“The chemotherapies and the radiation therapies were actually damaging the heart and blood vessels in addition to treating

**Hundley, along with Drs. Craig Hamilton and Kerry Link, began using an MRI to image their hearts, “and that really took off, because it provided an answer for a population that didn’t have one.” A story about their noninvasive MRI ran on NBC Nightly News.**

the cancer,” he said. “The heart has a high metabolism, so it makes sense that it would be susceptible.”

Working with his associates, Hundley received more than \$20 million in NIH funding for a research trial to use MRIs to identify patients who were developing heart injury from their cancer treatment. Additionally, he has had the opportunity to work with a number of emerging younger

clinicians and scientists in studying mechanisms and methods to prevent heart attacks, strokes, heart failure and exercise intolerance in

those treated for cancer—later putting them into clinical practice.

“Oncologists are so effective in treating cancer that now, for many cancers, heart problems are the primary cause of the death for these patients,” he said.

With all these discoveries, Hundley was highly recruited by other facilities. The opportunity to work at his alma mater as the first-ever director, with a state-of-the-art

imaging suite, proved irresistible.

Hundley will be able to continue and expand his work in the new Cardiovascular Imaging Suite. The new 7,200-square-foot imaging suite includes capabilities to assess tissue anatomy, perfusion, function and metabolism with high temporal resolution at rest and during exercise. VCU Medical Center will be one of the few sites in the world capable of these tests.

Although his work focuses on cancer patients, “the techniques are applicable for all patients with cardiovascular disease,” he said. Because of cancer’s rapid metabolism rate, the disease provides a special window to understanding heart disease.

“High blood pressure causes heart or vessel damage, but it takes 60 years for you to see that, so that’s not great for conducting a study. But in a cancer patient, because of how quickly the disease metabolizes, that 60 years is shrunk into weeks,” he said.

“The developments we’re finding in the cancer patient population will help us better understand heart and vascular disease and high blood pressure, diabetes, patients with high cholesterol and all the other causes of heart failure,” he said.

“It’s enormously exciting for us to be able to do this in central Virginia.”

To get a preview of the new Cardiovascular Imaging Suite, please see “New Cardiovascular Imaging Suite Debuts” on page 14.

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**DR. GREG HUNDLEY RUNS ALONG THE JAMES RIVER. HE IS A LONGTIME ADVOCATE FOR THE IMPORTANCE OF ADOPTING A HEALTHY LIFESTYLE.**

## Abbate, Van Tassell Receive \$2.7 Million Grant for Heart Failure Study

**In June, the National Heart, Lung, and Blood Institute (NHLBI) awarded a \$2.7 million grant to a research team led by Dr. Antonio Abbate, vice chair of the Division of Cardiology, and Dr. Benjamin Van Tassell, vice chair for clinical research in the VCU School of Pharmacy’s Department of Pharmacotherapy and Outcomes Sciences. The grant will allow them to further their promising studies using the anti-inflammatory drug anakinra, an Interleukin-1 (IL-1) blocker, in treating heart failure.**

“This very important award from the NHLBI builds on 10 years of work done here at VCU Health,” said Abbate, the James C. Roberts, Esq. Professorship of Cardiology.

The body produces inflammation—marked by redness, heat, swelling and pain—as a natural and protective response to injury. In the case of cardiac patients, inflammation often occurs following a heart attack. But lingering, chronic inflammation is also linked to many diseases, including heart failure, he said.

In the past few years, Abbate and Van Tassell have used anakinra to target a specific type of inflammation caused by the IL-1 protein. Anakinra, an IL-1 blocker, was originally developed as a drug for rheumatoid arthritis.

Van Tassell and Abbate have narrowed their focus on anakinra in nine subsequent trials, mostly funded by the NHLBI and other National Institutes of Health agencies. In their 2016 study of 60 heart failure

patients with a recent hospitalization, those who took anakinra achieved lower levels of inflammation and were able to exercise longer than those who did not. Over a six-month period, only one of the patients receiving the treatment had to return to the hospital. By contrast, nearly one-third of the patients who did not receive the treatment were hospitalized during the same time.

Their upcoming REDHART2 phase II clinical trial will involve 102 patients, followed for six months. The trial will be restricted to patients who have systolic heart failure, have been admitted to the hospital and discharged within the past two weeks, and show blood markers indicative of enhanced inflammatory response, he said.

“We will test the ability of anakinra to

quench the inflammatory response, improve exercise capacity and possibly reduce rehospitalization after a hospitalization for decompensated heart failure,” said Abbate. The latter—typically accompanied by labored breathing, swelling of the legs or feet and fatigue—is an acute condition that reflects the sudden worsening of heart failure.

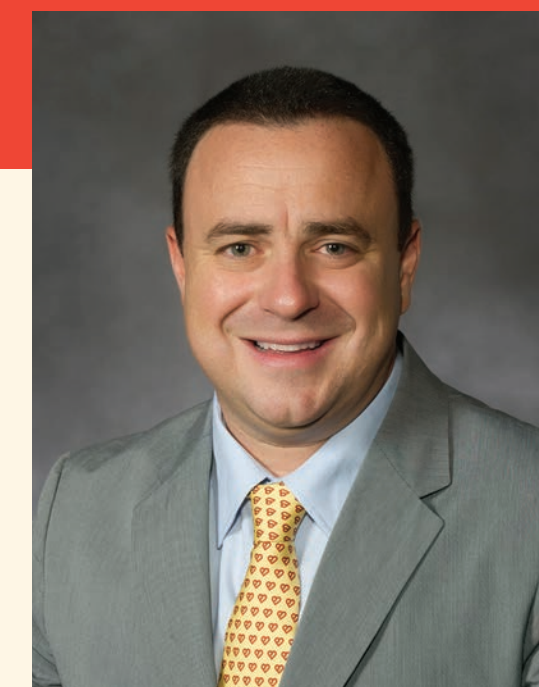
“The treatment for heart failure has dramatically improved over the past 50 years. We mark the 50th anniversary of heart transplantation at Pauley this year, which is an incredible milestone,” he said. “Unfortunately, for every patient with heart disease that is saved and for every heart-failure patient who survives the global burden of heart failure grows, and millions of patients experience symptoms and limitations related to it worldwide. Further



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**DR. BENJAMIN VAN TASSELL**

improvements are urgently needed.”

The trial will enable Abbate to zero in on a solution for the many patients he sees in the hospital, again and again, suffering from



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**DR. ANTONIO ABBATE**

decompensated heart failure.

“REDHART2 will be the largest single trial to date for our team,” he said. “We are looking forward to starting.”



# Cardiology Chair Recognized for Outstanding Scholarship

By Erin Lucero

The American College of Cardiology (ACC) has recognized Dr. Kenneth Ellenbogen for his contributions to its flagship journal. Ellenbogen was honored with the 2018 Simon Dack Award for Outstanding Scholarship at the Journal of the American College of Cardiology (JACC) editorial board meeting, held in conjunction with the ACC's 67th Annual Scientific Session in March in Orlando, Fla.

The JACC ranks first among cardiovascular journals in the world for its scientific impact. The Simon Dack Award honors the publication's founding editor and recognizes the contributions and accomplishments of outstanding peer reviewers who assist the journal in its mission of publishing important new clinical information. Ellenbogen was honored with four fellow reviewers from University of California, Irvine; Hospital Universitario Clinico San Carlos in Madrid, Spain; Johns Hopkins Medicine; and Mayo Clinic.

"Improving patient care depends upon developing a better understanding of health and disease, and then applying those findings," said Dr. Peter Buckley, dean of VCU School of Medicine. "Dr. Ellenbogen has a remarkable track record in doing that, and he's known internationally for advancing the cardiology field through his research and teaching. I'm proud to see him recognized for his contributions."

**The editor or co-editor of five textbooks of cardiac electrophysiology, he has served as principal investigator on more than 100 funded grants and contracts and has published more than 250 original scientific reports and more than 140 book chapters, editorials and review articles.**

Ellenbogen's academic, clinical and research efforts include developing new types of pacemakers and exploring the role of pacemakers in treating congestive

heart failure and atrial fibrillation. He also is involved in developing more effective ways to perform ablation to treat atrial fibrillation.

The editor or co-editor of five textbooks of cardiac electrophysiology, he has served as principal investigator on more than 100 funded grants and contracts and has published more than 250 original scientific reports and more than 140 book chapters, editorials and review articles. Ellenbogen serves on the editorial boards of seven specialty journals, including the JACC. An ACC fellow, he is co-editor of their Electrophysiology Self-Assessment Program.

Ellenbogen has served as chair of the American Heart Association's Committee on Electrocardiography and Arrhythmias, as well as on the steering committee of two National Institutes of Health trials, AFFIRM and MOST. Ellenbogen has been an invited lecturer and speaker all over the world and has given more than 300 talks at major national meetings. ❤️



## VCU Health Pauley Heart Center Consortium

The cardiology consortium started with an "exploratory" dinner meeting in 1997 to assess the interest in community support for a focused cardiology center at VCU Health. Bolstered by early support, including the Eric Lipman Research Professorship in Cardiology and the Kimmerling Chair, the Consortium represented a new opportunity to engage grateful patients and community leaders focused on supporting the cardiology program.

With a rich history in transplant and early pioneering work in cardiac surgery and coronary angioplasty, the program sought to use that recognition to expand opportunities. The Consortium focused on asking members

to provide support in the form of advice, community support and philanthropy.

The program has been exceedingly successful, including two major campaigns culminating in the naming of VCU Health Pauley Heart Center with a donation from Dorothy and Stan Pauley. Steered by volunteer leaders James Roberts, James Sanderlin and Charles Thalhimier, hundreds of donors participated in these campaigns with philanthropic support to Pauley. Their impact has been extraordinary to the research, education and clinical efforts of the faculty and staff.

Pauley continues to provide new opportunities for recruitment of scientists, clinicians and teachers to expand the advancement of cardiac care regionally and nationally. In 2017, member gifts made

possible the new Pauley Pilot Grants program, which funds early investigator-led pilot projects that test promising ideas. The grants enable researchers to collect data so that they may apply for major grants from the National Institute of Health and the American Heart Association.

To join the Consortium online, please visit [vcuhealth.org/pauley](http://vcuhealth.org/pauley) and click on "Support Pauley Heart Center" to be directed to a page where you can fill out an online form. Or contact Carrie Mills, [cmills@vcuhealth.org](mailto:cmills@vcuhealth.org) or (804) 828-0423. ❤️

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**FROM L TO R: DR. TIMOTHY WOLFGANG, DR. GLENN BARNHART, HARRY THALHIMER, DR. PETER BUCKLEY, DAVID AND CHRISTINE COTTRELL, DEBORAH DAVIS, DR. KENNETH ELLENBOGEN, VINCE RADLEY, DR. VIGNESHWAR KASIRAJAN**

# Cardiology Fellows Place Second in National Fellows-in-Training Jeopardy Contest

Each year, the Fellows-in-Training (FIT) Jeopardy contest offers one of the most exciting events at the American College of Cardiology's Annual Scientific Session, which brings together cardiologists and cardiovascular specialists from around the world. This year, the Virginia team was made up of three cardiology fellows from Pauley, Drs. Guru Kowlgi, Mohammad Rajab and Cory Trankle. The team placed second in the final competition.

"Their achievement is a huge deal," said Dr. Kenneth Ellenbogen. "This is a competition between cardiology programs across the nation, and VCU Health's quality is reflected by how well the team has performed. I think our cardiology fellows and faculty have much to be proud of."

According to Rajab, the Pauley fellows had qualified to be on the Virginia team by winning both the state and Mid-Atlantic competitions, beating teams from the University of Virginia, Virginia Tech Carilion and others from Maryland, Delaware and D.C.



"Guru really took the initiative to push our team to study in advance of the competition. Some of the attendings, such as Dr. Jay Koneru, helped keep us motivated as well, prompting us with trivia questions throughout the day," said Trankle. The team focused on guidelines, landmark clinical trials and other areas important to know for their field of medicine. "I would say studying for the competition ended up being another way for us to prepare to be independent cardiologists."

Thirty-five regional winning teams took part in the FIT Jeopardy finals on March 10 and 11 in Orlando, Fla. Contestants from the U.S. and Canada took turns selecting from the four categories, which all featured questions drawn from the American Board of Internal Medicine Certification Examination Blueprint. Like the game show,

**"What grabbed me was the amount of energy and enthusiasm that the competition rounds generated. It was great to see other VCU Health doctors show up to cheer us on," said Trankle.**



**"Their achievement is a huge deal," said Dr. Kenneth Ellenbogen. "This is a competition between cardiology programs across the nation, and VCU Health's quality is reflected by how well the team has performed."**

all answers were required to be in the form of a question.

Nine teams advanced to the semifinals. After further eliminations, the Virginia, Minnesota and New York teams competed in the final round. The Minnesota team, made up of fellows from the Mayo Clinic, took first place, and the New York team, made up of members from the Montefiore Medical Center and New York Medical College, placed third.

"What grabbed me was the amount of energy and enthusiasm that the competition rounds generated. It was great to see other VCU Health doctors show up to cheer us on," said Trankle.

Even competitors from other programs were complimentary. A cardiology program director from another university told them, "Watching you guys answer those questions in less than a second made me want to go back and read [my medical books]," recalled Kowlgi. "That for me was immensely humbling and something I will remember for many years."

Although they had wanted to take home first place, said Kowlgi, "when it sunk in, we realized that we had done quite well to make it to that state and were thankful for the fantastic training we have received at VCU Health." ❤️

**FROM L TO R: PAULEY FELLOWS DRS. MOHAMMAD RAJAB, GURU KOWLGI AND CORY TRANKLE RECEIVED PLAQUES FROM DR. B. HADLEY WILSON, CHAIR OF THE AMERICAN COLLEGE OF CARDIOLOGY'S BOARD OF GOVERNORS. THEY ALSO RECEIVED A COPY OF THE HEART SOUNDS 4, A COLLECTION OF AUDIO FILES OF DIFFERENT TYPES OF HEART MURMURS.**

Read more online at [vcuphc-thebeat.org](http://vcuphc-thebeat.org)



## Pauley Offers Innovative Interventions for Lower Extremity PAD



DR. MARK LEVY

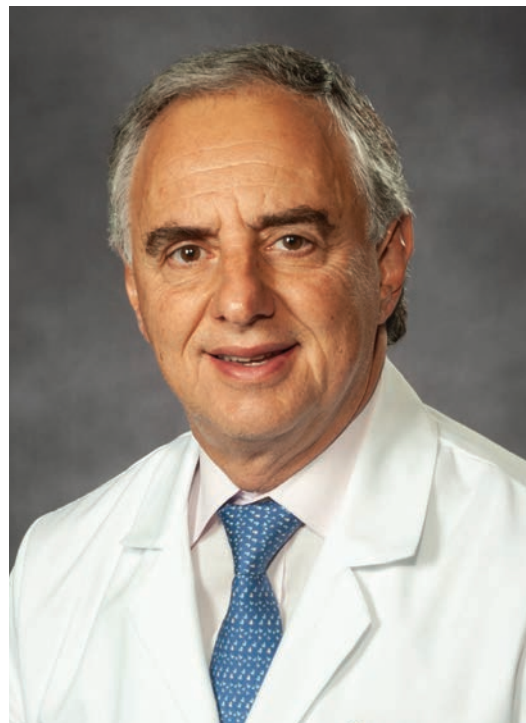
**Peripheral artery disease (PAD) is often called a “silent killer.” Often, individuals are not aware they have the condition until it has significantly progressed.**

“People are walking around all the time with blockages in their legs,” said Dr. Mark Levy, chair of the Division of Vascular Surgery and the H. M. Lee Professorship in Vascular Surgery. “When it’s symptomatic, it’s usually leg cramping or gripping when walking. If the blockage is more severe, then it can cause pain in the feet at rest, which is known as ischemic rest pain. Sometimes the condition can be asymptomatic until the patient develops gangrene, due to lack of circulation.”

The blockages are caused by atherosclerosis, or the buildup of plaque in arteries. Risk factors for developing PAD include smoking, diabetes, hypertension and high cholesterol.

In addition, “the vast majority of patients with PAD will have coronary artery disease,” said Dr. Luis Guzman, medical director of Pauley’s Cardiac Catheterization Laboratory. “There is a significant interaction between the two processes. When a coronary artery disease patient has both conditions, their risk of mortality increases sevenfold. That’s why the prevention and the treatment of this is very important.”

Pauley’s vascular and cardiology teams often collaborate on the treatment of patients. Early treatments can include diet and other lifestyle changes or medications. The first step is a 3D cardiovascular evaluation using state-of-the-art ultrasound imaging and noninvasive imaging tests



DR. LUIS GUZMAN

like magnetic resonance angiograms or computed tomography, or CT, scans. The exams are available at Pauley’s downtown Richmond, Stony Point, Prince George and Colonial Heights locations.

**“There is a significant interaction between the two processes. When a coronary artery disease patient has both conditions, their risk of mortality increases sevenfold. That’s why the prevention and the treatment of this is very important.”**

For more advanced cases of PAD, Pauley’s vascular surgeons and interventional cardiologists offer various procedures:

Minimally invasive, catheter-based treatment. **Angioplasty and stent:** A catheter is inserted into the patient’s femoral artery in the groin. The doctor then directs the catheter through the body to the location of the blockage. A small balloon is then inflated to open the artery, which is followed by the placement of a mesh stent.

During an **atherectomy**, the physician uses a catheter with a blade on one end to shave off plaque that is hardened to the artery walls. Like angioplasty, this procedure is generally performed under local anesthesia, with patients leaving the hospital the same day or the next morning.

**Lower extremity bypass surgery** is recommended when patients have large blockages or are not good candidates for the minimally invasive, catheter-based procedures. In the procedure, the surgeon bypasses the blockage by creating a new path for blood flow by using a graft from one

of the patient’s veins. The surgery requires general anesthesia and a hospital stay.

Pauley’s teams take care of some of the area’s most complex lower extremity PAD patients.

“We’ve been able to offer people limb-saving procedures in situations where other institutions can only offer amputations,” said Levy. Additionally, “we’ve had patients with severe blockages that require both open surgical bypass and angioplasty on two different areas of their leg. Since we have the region’s most modern hybrid suites, we’re able to take advantage of our facilities for the patient’s benefit, performing both the bypass and the angioplasty in one setting.”

About 80% of the surgical procedures for lower extremity PAD are scheduled, with the remaining 20% performed under emergency circumstances. The interventions have led to significantly improved mobility and quality of life for patients.

“Drs. Levy and Guzman are expert clinicians with decades of experience in treating patients with peripheral arterial disease. Combining a collaborative

approach with state-of-the-art technologies, they and their colleagues offer some of the most advanced interventions in the region,” said Dr. Kenneth Ellenbogen.

The Pauley teams stay current on research that can

benefit patients with PAD and have taken part in trials for new therapies aimed at increasing lower extremity circulation.

Whatever the necessary treatment, “we are patient-centered and safety-focused,” said Levy.

*To set up a consultation, please contact the Pauley Heart Center at 1-800-762-6161.* ❤️

### The following Pauley physicians have expertise in treating lower extremity PAD:

#### Dr. Francisco Albuquerque, Jr.

- Vascular Surgery

#### Dr. Jose Exaire

- Interventional Cardiology

#### Dr. Luis Guzman

- Interventional Cardiology

#### Dr. Robert Larson

- Vascular Surgery

#### Dr. Mark Levy

- Vascular Surgery

## Stroke Prevention via the Carotid Artery

Pauley’s vascular surgeons have extensive experience with the minimally invasive stenting of the carotid artery, which is found in the neck. The interventions are performed via catheter.

“Most are not emergency procedures but are performed promptly when patients are discovered to have a severe blockage in the carotid artery to their brain,” said Dr. Mark Levy. “Some of those patients have had ministroke or stroke symptoms; other patients are occasionally identified before they develop these life-threatening symptoms.”

Signs and symptoms for a stroke may include face drooping, blurred vision, difficulty with speech or a sudden weakness, often on one side of the body. Always call 911 in the event of a suspected stroke.

## Did you know...

About 8.5 million people in the U.S. suffer from peripheral artery disease, according to the American Heart Association.

## Consortium Celebrates Heart Transplantation



DR. MOHAMMED QUADER DISCUSSES INNOVATIONS IN HEART TRANSPLANTATION AT THE CONSORTIUM DINNER.

**This year’s Pauley Consortium dinner highlighted the 50th anniversary of Virginia’s first heart transplant, performed at MCV by Dr. Richard Lower on May 25, 1968.**

The dinner, held in May at the Dominion Arts Center’s Dorothy Pauley Square, included many Pauley friends and supporters. The guests included three heart transplant patients and several retired cardiac surgeons who had worked with Lower, including Dr. Joe Deignan, a member of the team that performed the first transplant.

“As a cardiothoracic surgeon myself, I came to VCU Medical Center from the Cleveland Clinic in 2000 because of the incredible program Dr. Dick Lower built,” said Dr. Vigneshwar Kasirajan, one of the evening’s speakers. Since the first transplant, “we have performed 590 heart transplants at VCU Medical Center as well as more than 300 at the Hunter Holmes McGuire VA Medical Center.”

Kasirajan and Dr. Mohammed Quader spoke about innovations in heart transplantation and advanced heart failure, and what to expect in the next decades. Dr. Daniel Tang was unable to join the celebration as he was finishing a heart and

liver transplant that evening. The combined heart-liver transplant is a rare, lifesaving procedure that treats complex and often fatal diseases including familial amyloidosis polyneuropathy.

Other speakers included Dr. Kenneth Ellenbogen, who gave opening remarks and spoke about the new research pilot grants funded by donations to the Consortium’s annual fund. Michael Rao, Ph.D., president of VCU and VCU Health, introduced a video featuring transplant survivor and VCU alumna Jeni Simonitis. Dr. Peter Buckley, dean of VCU School of Medicine, and Deborah Davis, CEO of VCU Hospitals and Clinics, announced the leadership gift to establish the Christine B. and David E. Cottrell Surgical Innovation Suite, a new facility designed to foster cutting-edge surgical research and education.

Ellenbogen recognized the importance of the donors and others gathered. “We appreciate your support and investment in the research, clinical and educational mission place just blocks away from where we are now,” he said. “We are able to be extraordinary thanks to your support.”

To see a preview of the planned surgical suite, please visit [surgery.vcu.edu/aboutus/cottrells](http://surgery.vcu.edu/aboutus/cottrells) ❤️



# Pauley Heart Center: Proud of Its Past. Poised for the Future. By Janet Showalter

**Jeni Simonitis was 8-years-old as she lay in a hospital bed at MCV Hospitals, now VCU Medical Center, in December 1992.**

With her parents by her side, she anxiously awaited news that a donor heart had been found to save her life.

Twice she went into cardiac arrest.

"It was scary," she said. "We weren't sure they would find a match in time. But they did. I remember the doctor coming in and telling us we had a heart. It was a Christmas miracle."

Twenty-five years later, in December 2017, Simonitis underwent her second successful heart transplant at VCU Medical Center.

"It never crossed my mind to go anywhere else," said Simonitis, 34. "The team there is just amazing. They are passionate about what they do, and they are the best in the field."

The world's first successful human-to-human heart transplant took place in December 1967 in South Africa. Five months later, the first heart transplant in Virginia — ninth in the country and 16th in the world — took place at MCV Hospitals.

Since that historic moment 50 years ago, the team has completed more than 590 heart transplants, including the first heart-lung transplant in Virginia and the first total artificial heart transplant on the East Coast. It is the second-oldest heart transplantation program in the U.S.

"It's an amazing thing we do here," said Dr. Daniel Tang, the Richard R. Lower, M.D. Professorship in Cardiovascular Surgery and director of heart transplantation, heart-lung transplantation and mechanical circulatory support. "It may not be uncommon anymore, but it is hardly routine. The very notion that we are taking a heart that was someone else's and giving it to a patient so that they may have life is truly amazing. It is very emotional and never gets old."

**Since that historic moment 50 years ago, the team has completed more than 590 heart transplants, including the first heart-lung transplant in Virginia and the first total artificial heart transplant on the East Coast. It is the second-oldest heart transplantation program in the U.S.**

The race to perform the first human-to-human heart transplant was a competitive one.

"It was similar to the race to get a man on the moon," said Dr. Keyur Shah, section chief of heart failure. "Anytime you accomplished anything to get you closer to your goal, you were on the cover of Time magazine."

The breakthrough was one of the most significant in the field of medicine in the



**NOW ON HER SECOND HEART TRANSPLANT, JENI SIMONITIS STILL HAS THE SAME STUFFED ANIMAL FROM HER FIRST TRANSPLANT AT AGE 8.**

20th century, with the late MCV surgeon Dr. Richard Lower leading the way. Lower, along with Dr. Norman Shumway, began extensive research in California in the late 1950s and later successfully completed the first heart transplant in an animal model.

Their work grabbed media attention, as well as the eye of renowned transplant surgeon Dr. David Hume, chief of surgery at MCV Hospitals at that time. In 1965, Lower accepted Hume's invitation to join him in Richmond to lead the cardiac surgery program.

As the team inched closer to its ultimate goal, Dr. Christiaan Barnard, a young South African surgeon, visited Richmond for three months to observe the team's work. He became obsessed with becoming the first surgeon to perform

a human heart transplant.

A few weeks after Barnard returned to South Africa, Lower and Hume nearly performed the first transplant but decided against it because the donor and recipient blood types did not match.

That opened the door for Barnard, who found a donor for a patient under his care. On Dec. 3, 1967, Barnard successfully

performed the world's first human-to-human heart transplant. Lower performed his first in May 1968. In all, he took part in 393 heart transplants before he retired in 1989.

"Lower was cautious, as he should have been," said Dr. Michael Hess, who worked with Lower for 10 years and started the heart failure program. "He did groundbreaking work that led to incredible growth in the field."

Soon after Hess became medical director of cardiac transplantation in 1979, the team was well on its way to performing more than 50 heart transplants a year.

"We were demystifying cardiac transplantation," said Hess, who retired in 2017. "People back then thought we were crazy as hell. Or they thought it was a piece of cake. Today, it is standard heart patient care."

But when Lower retired, the program took a hit. Several other surgeons and physicians also left, and three other transplant programs opened in Virginia. The number of heart transplants completed at MCV Hospitals plummeted to fewer than 10 annually.

"When I interviewed for a job here in 1999, they had done only one transplant that year," said Dr. Vigneshwar Kasirajan, the Stuart McGuire Chair of Surgery. "But we were able to rebuild it. I am most proud of the team we have assembled here."

Over the past 15 years, the number of heart



**"We were demystifying cardiac transplantation," said Hess, who retired in 2011. "People back then thought we were crazy as hell. Or they thought it was a piece of cake. Today, it is standard heart patient care."**

failure and transplantation cardiologists at VCU Medical Center has grown from two to six while the number of surgeons has doubled to four.

Today, the medical center averages 25 transplants a year, including several multi-organ transplants.

"This has been a second coming," Shah said. "Our staff takes a lot of pride in that, and our patients can see the passion we have in serving our community."

Each year, thousands of patients turn to the center for inpatient and outpatient care, ranging from noninvasive cardiology procedures to heart transplantation. Pauley's transplant and heart failure experts speak at national conferences, lead clinical trials, take part in funded research and have published hundreds of abstracts and manuscripts.

The center has become known worldwide for its groundbreaking work, and Pauley leads the way in device-based treatments for advanced heart failure. In 2006, Kasirajan led the team that completed the first total artificial heart implant on the East Coast.

Since then, VCU Medical Center has performed more than 100 artificial heart transplants, and its program is the third largest in the country. Pauley also implants about 40 ventricular assist devices a year. A VAD is a mechanical pump that helps the heart push blood to the body. Artificial hearts and VADs can allow a heart transplant candidate to safely survive until a donor heart becomes available.

"This work has become mainstream," Kasirajan said. "It's incredible how far we've come."

For some, it might sound like science fiction. For others, research in the areas of stem cell and gene therapy, genetic coding and xenotransplantation offers a promising future.

"People looked at what Lower was doing 50 years ago and thought those guys were absolute cowboys because they were doing something that was so unusual," said Tang, who performs about half of the heart transplants at VCU Medical Center. "Their work evolved into what we are doing today. People may think that the days of the cowboy

are over. I would argue it is not."

Stem cell therapy, now in the trial stage, is showing great promise in repairing tissue damaged by heart attacks. If successful, this would save patients who otherwise need a heart transplant.

Another national study underway is for the Carmat heart, which has been called the world's first self-regulating, total artificial heart. It uses embedded sensors to regulate the rate of blood flow to a patient based on his or her individual needs.

Tang is also excited about research that could lead to an increase in donor hearts. Currently, about 2,500 heart transplants are performed in the U.S. each year. But about 4,000 people nationwide are waiting.

"The need is great," Tang said. "We need to do all we can to meet it."

The prime window to successfully use a donor heart is four to six hours after death. That time frame is not always plausible because of distance to the recipient, and sometimes the heart goes unused. But new ways to expand protection times are being studied, including a pump system that would keep the heart viable until it arrives at its destination.

Another area of study by Dr. Mohammed Quader, assistant professor of surgery, is exploring ways to recover a heart from a person who has suffered a cardiac death. Currently, donor hearts are used only if the person suffers brain death because blood continues to flow to the heart. In a cardiac death, blood ceases to flow and the heart sustains cellular damage. But research is uncovering ways to protect the donor heart from cellular damage, making it viable for transplantation.

In addition, the ongoing study of modifying genetic signatures could one day open the door to cross-species heart transplantation.

"It's very exciting to think what the future can bring," Tang said.

Tang, who performed Jeni Simonitis' surgery in December, said that while the procedure is becoming more common, he will never get used to the miracle it is.

"When you call the patient and tell them we have found a donor heart for them, they jump for joy," he said. "Even though they know it is a daunting surgery, they look forward to it."

Simonitis can remember the fear she felt as a young girl, clutching her stuffed tiger, Stripes, in her hospital bed. Born with a heart defect, a transplant was her only option.

"As they were wheeling me to surgery, I got scared and wanted to back out," she said. "But I knew I had to do it. A few months later, I was back on the playground with my friends. I got my life back."

For more than 20 years, her donor heart served her well. The average life expectancy of a donor heart is 12 years, with some

lasting three decades. When Simonitis began experiencing chest pains three years ago, she hoped it was heartburn. It turned out to be a form of chronic rejection.

In August 2017, Simonitis was placed back on the transplant list. Four months later, she got the call that a donor heart had been found. She and her husband, Jason, grabbed her bag, already packed with clothes and Stripes, and drove to VCU Medical Center. A few hours later, she was in surgery. This time around, her hospital stay was two weeks instead of three. She missed nine weeks of work.

"It's amazing how much more advanced they are now," Simonitis said. "Technology is better, the medications are better and the surgeons, I think, are more skilled. The team is right there with you through it all. I trusted them every step of the way."

As she did after her first surgery, Simonitis will send a letter to the donor family, offering her gratitude.

"Words can't possibly express how thankful I am," she said. "I know my heart came at a cost. It means someone else's family suffered great tragedy. I never lose sight of that. Every year on the anniversary of my surgery, I celebrate that family. They gave me the greatest gift possible. They gave me life." ❤️

Janet Showalter is a contributing writer for the alumni magazine. This article was originally published in the spring 2018 VCU Alumni magazine. Alumni can read the whole magazine online at [vcualumni.org](http://vcualumni.org)

**VCU Medical Center's heart transplant program was established in 1968, making it the longest-running transplant program on the East Coast and the second oldest in the U.S.**

- MCV Hospitals celebrated the first long-distance heart transplant in the world in 1977 when **Dr. Szabolcs Szentpetery** made the 600-mile flight from Richmond to Indianapolis to bring back a donor heart.
- In 1981, Dr. Michael Hess created the International Society of Heart and Lung Transplantation.
- The first heart-lung transplant in Virginia took place at MCV Hospitals in 1986.
- In 1994, the first left ventricular assist device was implanted at MCV Hospitals.
- The first total artificial heart on the East Coast, and the third in the country, was implanted at VCU Medical Center in 2006.
- VCU Heart Center was renamed VCU Pauley Heart Center in 2006 to recognize a \$5 million gift from the Pauley Family Foundation.
- The center has 14 endowed professorships and chairs.
- Since 1972, the American Heart Association has funded 138 VCU Health researchers with \$12.8 million.



## Campaign Kicks Off for Surgical Innovation Suite

Pauley recently unveiled plans for the new Christine B. and David E. Cottrell Surgical Innovation Suite, which will support innovation in cardiac surgery and other interventions. Through a new \$5 million fundraising campaign, Pauley is now reaching out to its supporters to make the state-of-the-art lab a reality.

In fall 2017, the Cottrells generously donated \$1 million to launch the initiative. VCU hopes to raise an additional \$4 million for the 6,000-square-foot lab. The lab will be built on the ninth floor in Sanger Hall in the same lab space of Dr. Richard Lower. He helped develop the techniques for transplanting a human heart and performed the ninth transplant in the United States.

"The new Cottrell Surgical Innovation Suite will offer the space and advanced technologies necessary to usher in preeminent cardiovascular and other surgical research at VCU Health," said Dr. Vigneshwar Kasirajan. "One of the focus areas for research will be to understand organ preservation further and to improve the number of organs available for transplants. Also, this space will help us train future generations of surgeons."

One faculty member who will use the new lab is cardiothoracic surgeon Dr. Mohammed Quader, who is studying how



DR. VIGNESHWAR KASIRAJAN (LEFT) AND DAVID AND CHRISTINE COTTRELL DISCUSS PLANS FOR THE NEW COTTRELL SURGICAL INNOVATION SUITE, TO BE LOCATED IN SANGER HALL.

to improve the viability of hearts procured from donors after circulatory death. The lab will be available to the faculty of all surgical specialties and VCU's schools of Pharmacy and Engineering for preclinical, translational and other research studies. The site will also provide additional space for students and continuing medical education.

All donations to the campaign are appreciated, and naming opportunities are available for extraordinary levels of support:

\$10K – \$75K: Donor recognition  
 \$75K – \$500K: Named research spaces  
 \$500K – \$700K: Surgical space recognition

"We are grateful to Christy and David Cottrell for providing the lead gift for this new venture and invite others to be a part of this exciting campaign," said Kasirajan.

For more information, contact Carrie Mills at (804) 828-0423. ❤️

## Sharing a Piece of History

On May 24, a group of current and retired physicians gave a historical grand rounds presentation on the 50 years of heart transplantation at VCU Health. The program focused on the work of Dr. Richard Lower and how the heart transplant program began at the Medical College of Virginia, now VCU Medical Center. About 250 guests attended the event.



DRS. DANIEL TANG, SZABOLCS SZENTPETERY AND TIMOTHY WOLFGANG

Cooke, gave opening and closing remarks. He observed how many of the clinical discoveries made 50 years ago had led to further developments in the field, and presented a chart showing that cardiac transplantation one year survival rates have improved from 41% in the early era to 97% in recent years.

Guests included faculty, fellows, residents and alumni. "It was a multi-

generational event. The room was filled with people who over many years had built and sustained the heart program at VCU Health," said Shah. "There was a real sense of pride about our continuation of the program's advanced heart failure and transplant research."

To see the videotaped interview, please visit [MCVFoundation.org](http://MCVFoundation.org) ❤️

"It was standing room only in the Egyptian Building auditorium," said Dr. Michael Hess, one of the guests, who also appeared in a video interview with Dr. George Vetrovec. "The event was designed to inspire our students and demonstrate the high quality of our cardiac transplant program."

Drs. Szabolcs Szentpetery and Tim Wolfgang also shared their memories of working with Dr. Lower in the program's early days. Dr. Keyur Shah, one of the hosts along with Drs. Daniel Tang and Richard

## Conference Focuses on Women's Heart Health



FROM L TO R: DR. ERIKA MASON, DR. STEPHANIE MAYER, DR. BARBARA LAWSON, DR. PHOEBE ASHLEY, DR. JOHN REAVEY-CANTWELL, DR. JORDANA KRON, DR. HUZAEFAH SHAH, AND ALLISON GOODWIN, M.S.

Electrophysiology nurse Eileen Tangley never misses VCU Health's Women's Heart Health Symposium. "I have attended all of the symposiums so far and look forward to it each February now," she said. "It has really opened up my eyes to the subtle, yet sometimes significant, circumstances that are unique to women's heart health."

About 100 health care providers attended the annual conference in February at the Virginia Historical Society. Participants arrived from all over the state and even outside Virginia for the symposium, sponsored by Pauley and VCU Health Continuing Medical Education.

"The conference was fantastic," said Dr. Jordana Kron, who organized the event with fellow Pauley cardiologist Dr. Phoebe Ashley. "As in previous years, the feedback was very positive. Attendees really enjoyed the day, both the lectures and catching up with old friends, and had suggestions for topics to include next year."

Highlights of the day included a talk on hypertension in women, led by Dr. Benjamin Van Tassell. "It was very thought-provoking," said Kron. "He challenged the audience to think about the ways research answers and sometimes doesn't answer the critical questions of how diseases and treatments affect women differently than men."

In addition to traditional risk factors for cardiac disease—such as hypertension,

smoking, diabetes, and obesity—there are nontraditional risk factors that play an important role in women, she said. "These emerging, nontraditional risk factors include hypertensive disorders of pregnancy, gestational diabetes, autoimmune disease and breast cancer treatment."

Tangley, a cardiology nurse at Pauley for more than 35 years, described the talks as "enlightening." For instance, in Dr. John Reavey-Cantwell's talk on carotid artery disease, "he promoted the simple act of listening for a bruit to help when screening." A bruit is the sound heard over a blood vessel reflecting turbulent blood flow.

Dr. Huzaefah Syed spoke on cardiac risk in women with rheumatologic disease—an important topic, said Kron, "because many inflammatory diseases predominantly affect women."

Following breakfast, Dr. Kenneth Ellenbogen gave opening remarks. Other speakers included Dr. Stephanie Mayer (diabetes), Dr. Barbara Lawson (valvular heart disease), Dr. Jose Exaire (peripheral vascular disease), genetic counselor Allison Goodwin (genetics) and Dr. Erica Mason (obstructive sleep apnea).

"Throughout the conference, we highlighted that heart disease is the number one cause of death in U.S. women, killing more than all types of cancer combined," said Kron. "Women hear and worry a lot about breast cancer, but they should be aware that cardiac disease is their number one threat."

**Save-the-date!** The Fourth Annual Heart Health in Women Symposium will be on Saturday, February 2, 2019. Visit [vcuhealth.org/pauley](http://vcuhealth.org/pauley) for more information. ❤️

## Save the Date: Heart Failure Symposium

Pauley doctors will present "Heart Failure Symposium: Caring for our Community" on Saturday, October 13. Targeted to health care professionals, the event provides an in-depth look at current practices, emerging technologies and medical advances in this rapidly growing and evolving field.

Dr. Keyur Shah, section chief of heart failure, will speak in the morning on "Identifying Patients for Advanced Heart Failure Therapies" and moderate the event along with Dr. Richard Cooke, medical

director of heart transplantation who will present opening remarks.

Other morning topics will include heart failure, cardiac transplantation, mechanical circulatory devices, pulmonary hypertension and structural heart disease. Drs. Melissa Smallfield, Antonio Abbate, Ben Van Tassell, Zachary Gertz and Inna Tchoukina will be some of the featured speakers.

In the afternoon, guests will rotate to three rooms for short sessions on "LVADs" presented by Drs. Daniel Tang, Mohammad Quader and Vigneshwar Kasirajan; "Pacing Case Studies" presented by Drs. Gautham Kalahasty, Jay Koneru and Kristyn Gentry,

PA.; and "Genetic Heart Disease: MRI Imaging Potpourri" presented by Drs. Greg Hundley, John Grizzard and Krishnasree Rao.

Attendees will receive continuing medical education credit for the symposium, which will run from 8 a.m. to 2 p.m. and include breakfast and lunch. The event will be held at VCU McGlothlin Medical Education Center, 1201 E. Marshall Street, Richmond, Virginia 23219. Call (804) 628-0719 for more information or visit [vcu.cloud-cme.com](http://vcu.cloud-cme.com) ❤️





DR. VIGNESHWAR KASIRAJAN, DR. KENNETH ELLENBOGEN, DR. PETER BUCKLEY, DR. GREG HUNDLEY, STAN PAULEY, KATHY PAULEY HICKOK, DR. MARSHA RAPPLEY, DEBORAH DAVIS, AND DR. GORDON GINDER CELEBRATE THE RIBBON-CUTTING OF THE NEW CARDIOVASCULAR IMAGING SUITE.

## New Cardiovascular Imaging Suite Debuts

**“The new Cardiovascular Imaging Suite was designed with multidisciplinary collaboration in mind,” said Dr. Greg Hundley.**

Filled with numerous monitors and screens displaying MRI and cardiopulmonary exercise test (CPET) findings, the suite’s 435-square-foot control room provides space for Hundley to work with a wide array of experts in cardiovascular medicine and radiology as well as biomedical engineering, medical informatics, physical medicine and rehabilitation, and behavioral medicine. The group is exploring heart failure in cancer and cardiac patients.

“The new suite is a cutting-edge diagnostic unit offering a combination of equipment, procedures and expertise only available at a few top-tier institutions,” said exercise physiologist Justin Canada, Ph.D.

A \$4 million donation by Stan and Dorothy Pauley and family made the suite and Hundley’s recruitment and research possible, and enabled Pauley to receive an additional \$5 million gift for the project from the Glasgow Endowment. Stan Pauley and his daughter, Kathy Pauley Hickok, attended the official ribbon-cutting held July 17.

“Our visit to the new suite was most gratifying. We are very excited by Dr. Hundley’s vision and are pleased to have been able to support this unique endeavor,” said Stan Pauley. “We think the work that will be conducted here will have a major impact on the lives of many heart and cancer patients.”

Located on the ground floor of the North Hospital, the 7,200-square-foot suite is decorated in warm earth tones. Blue-accented entrances guide patients from

waiting to changing rooms, then on to rooms for procedures and recovery. A plexiglass wall with rows of 2-inch holes allows for improved communication between the patient recovery and control rooms.

A sign indicates “Magnet Always On” at the doorway to the room that holds a new Siemens Magnetom Vida 3T MRI system, which just received FDA approval last fall.

The term “3T” refers to a 3 Tesla magnet, indicating the strength of the magnetic field. The new Siemens wide bore MRI is the first 3T system of its kind at VCU Health and generates a field twice as strong as the existing 1.5T machines. The 3T runs faster, is less vulnerable to background noise, and produces higher resolution images as a result. The new Biomatrix Sensors of the Siemens’ model help anticipate a patient’s breath-holding capability, to reduce the percentage of poor quality scans.

**“MRI CPET imaging is done by only a few centers in the world,” said exercise physiologist Justin Canada, Ph.D.**

“It’s the Cadillac of the 3 Tesla systems,” said Brent Metts, MRI modality manager at VCU’s Massey Cancer Center.

Heart studies involve more than 1,000 images and can take 45 minutes to an hour to complete at many facilities. “With the new equipment, for some patients, we can complete the studies in as little as 15 minutes,” said Hundley, who explored the effectiveness of these shorter MRI sessions as principal investigator of a multi-center, NIH-funded study of patients undergoing the imaging for the treatment of cancer.

The new suite offers electrocardiogram

(ECG) stress testing, stress echocardiography, exercise MRI, and MRI CPET testing for patients. Normally, patients who undergo CPET have a catheter placed in their wrist, to draw blood samples during the test; breathe into a tube to measure ventilation, oxygen consumption and carbon dioxide production; and are hooked up to a blood pressure cuff, pulse oximeter and ECG leads. The new testing will include all these measurements coupled with magnetic resonance imaging. A bicycle attachment will allow patients to pedal to get their heart rates up while lying inside the MRI.

“MRI CPET imaging is done by only a few centers in the world,” said Canada. “It will refine our ability to detect early signs of cardiopulmonary disease and more accurately determine the causes of exercise intolerance in symptomatic patients.”

According to Dr. Ann Fulcher, chair of the Department of Radiology, “the lab will enhance collaboration between radiologists and cardiologists as exercise/stress testing followed by magnetic resonance imaging will be performed in the same area.” She added, “this will promote a close working relationship as these physicians strive to provide optimal diagnostic examinations for their patients which can then be used to guide therapy.”

The suite provides technologies and opportunities not available at any other academic institution in Virginia, North Carolina or Maryland and will draw other VCU Health experts and students as well as from VCU’s School of Engineering and other academic programs, said Hundley.

“This is going to be a training facility for the next generation,” he said. ❤️

## New Stony Point Clinic Offers Heart and Vascular Care in One Location



**Joseph Chodkiewicz, the first echocardiogram patient at Pauley’s new Stony Point outpatient clinic, had the honor of cutting a ceremonial ribbon to a patient room on January 9, 2018.**

“I was very much impressed with the professionalism of the clinic,” said Chodkiewicz, a health care worker for numerous hospitals over the years and a heart patient since 2008. “The new location is much more convenient—we live in Bon Air—and you don’t have to fight the downtown traffic.”

The clinic is on the second floor of VCU Health’s Stony Point 9000 building, which is conveniently located off the Chippenham Parkway, near the Stony Point Fashion Park, and offers free parking. About 25-30 Pauley physicians and surgeons see patients at Stony Point each week.

“We now have a strong footprint in this community for all heart services and providers,” said nurse manager Karen Stewart. “You can come for women’s heart health, heart failure, for electrophysiology and device, and consultation with thoracic surgery, vascular surgery, cardiac surgery and transaortic valve replacement. We also have a provider who does a special clinic for lipid management.”

Drawing so many specialists to one location, the clinic creates a collaborative environment that benefits patients.

“When we are all in the same space, we can consult with each other in real time. This is particularly helpful when treating patients with complex needs,” said Dr. Zachary Gertz, medical director of Pauley’s Stony Point clinic and the Hermes A.

Kontos, M.D. Professorship of Cardiology.

Services include Holter monitor placements, lab work, echocardiograms, vascular testing and pre-operative assessment appointments, which are required before surgeries. The clinic plans to offer stress testing within the year.

**“You can come for women’s heart health, heart failure, for electrophysiology and device, and consultation with thoracic surgery, vascular surgery, cardiac surgery and transaortic valve replacement,” said Karen Stewart.**

“We’re very patient-centric,” said clinical coordinator Ann McRae. “A patient can come here for a vascular test prior to seeing their vascular surgeon. If it turns

out they need surgery, they can get a pre-operative appointment on the same day. All other pre-operative testing, including electrocardiograms, labs, and radiology, can be done in the same building.”

The vascular clinic offers a full range of ultrasound and other arterial testing. “We offer pretty much the gamut, from checking the circulation in the legs to testing for deep vein thrombosis, blocked carotid arteries, and fistulas,” said Gary Travis, a registered vascular technologist. “While the vascular lab at Stony Point has daily scheduled appointments, patients can be seen the same day for emergent needs.”

The clinic space underwent a complete renovation before its opening. The 15 exam rooms are decorated in warm colors and designed with patient comfort in mind.

“We have equipment in every room, which makes it very convenient. We also have scales in each room, for patient privacy,” said McRae. Examination tables can accommodate patients up to 500 pounds, and a wheelchair scale provides easy access for patients with disabilities.

Patients often note the friendliness of the staff, said Stewart. “Our nurses here are exceptional in managing patient calls, concerns and questions,” she added.

Ronda Boyd, a patient access representative, said the new Stony Point clinic has proven popular with the patients she sees at checkout. “They like it because it’s not the hustle and bustle of downtown,” she said. “It’s more relaxing because everything they need is in one central spot.”

To schedule an appointment at the new Stony Point clinic, please call (804) 628-4327. ❤️



JOSEPH CHODKIEWICZ CUTTING A CEREMONIAL RIBBON AS ECHO TECHNICIAN KIM MURPHY LOOKS ON.





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**Friends and Supporters,**

**It's an exciting time at Pauley. In this month's issue, you will read about amazing research, new facilities, state-of-the-art technologies, grateful patients and our first-ever director, Dr. Greg Hundley.**

Hundley is well-respected—not just in Virginia or the U.S., but all over the world—for his groundbreaking research in cardiac imaging. Like many of our faculty members, he is not satisfied with the status quo but is continually thinking

about ways to improve patient outcomes and prevent heart disease. He's a thoughtful, brilliant and very warm human being. We are so delighted to have him here and hope you will enjoy reading about him in the cover story.

Our new Cardiovascular Imaging Suite will support Hundley's research, including his collaborative work with VCU Massey Cancer Center. The venture was made possible through the support of our great friends, Stan and Dorothy Pauley.

One of my favorite stories is about our bright cardiology fellows, who recently placed second in the national Fellows-in-Training Jeopardy contest at the American College of Cardiology's Annual Scientific Session. I could not be more pleased. It's a testament to the outstanding education they have received.

Finally, in this issue, you'll also read about the plans for a new Surgical Innovation Suite, unveiled at our Consortium dinner in May. In gratitude for the care he received at VCU Health, David Cottrell, along with his wife, Christine, provided a generous lead gift for the new suite. "When I arrived, I was your patient," he wrote in an open letter to the *Richmond Times-Dispatch*. "Today, you are my family."

We would not be where we are today without the support of people like the Cottrells, the Pauleys and other members of our family. Thank you!

Sincerely,

**Dr. Kenneth A. Ellenbogen**

Chair, Division of Cardiology

Martha M. and Harold W. Kimmerling, M.D. Chair in Cardiology



A publication of  
VCU Health Pauley Heart Center

**Design**

Bergman Group

**Photography**

VCU Creative Services

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Gifts to VCU Health Pauley Heart Center allow us to invest resources in transforming patient care, education and research. For more information on how to honor a loved one or a caregiver, please contact Carrie Mills at (804) 828-0453 or [cmills@vcuhealth.org](mailto:cmills@vcuhealth.org)



Pauley Heart Center



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