

# The Beat

A PUBLICATION OF  
VCU HEALTH  
PAULEY HEART CENTER



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## Venturing Forward

### Dr. George Vetrovec Retires After 39 Years in Cardiology

“Dr. Vetrovec has a long history of innovation and being a pioneer in the field of interventional cardiology. He has trained many people all over the world who have gone on to illustrious careers.

Continued ▶▶▶



**VCU**Health™

Pauley Heart Center

▶ ▶ ▶ **He has really been a thinker and been involved in many of the key clinical breakthroughs over the last 25 or 30 years, and his success, along with his colleagues here, has made VCU Health one of the leading institutions in interventional cardiology.**  
**— Kenneth Ellenbogen, M.D.,  
 Chairman of Cardiology and Chief of Surgery**



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**A CARDIOLOGY TRAILBLAZER, HE HAS RECEIVED MANY HONORS, INCLUDING THE VCU PRESIDENTIAL MEDALLION, PRESENTED TO HIM BY DR. MICHAEL RAO ON DECEMBER 13, 2014.**

George Vetrovec, M.D., a professor and the recently retired director of the Adult Cardiac Catheterization Laboratory, is in the middle of packing up 39 years' worth of memories in the West Hospital. As a result, instead of his office, the interview takes place at Einstein's Bagels in VCU Medical Center's Main Hospital. A trim man, with wavy gray hair and a neat moustache, Vetrovec smiles and exchanges a few friendly words with the colleagues who call to him as he passes by on his way to the cafe. He picks up the tab for his guest's coffee and settles into a booth.

"I was born in Ohio, but as I sometimes tell it, I was conceived in Petersburg," says the frequent lecturer. "It gets a laugh."

Vetrovec's mom was seven months pregnant when the family moved from Virginia to Ohio. The family then moved to Chicago—where his paternal grandparents had immigrated ("that's the Czech background," he says)—before finally settling in Sandston, Virginia.

An only child, his mother was a stay-at-home mom; his father, an architectural draftsman. "He was a handy guy. As a draftsman, he was very meticulous," he says. Vetrovec developed an interest in tools, like his father, and was a ham radio operator. "I remember building, when I was in sixth grade, an early transistor radio. I brought it to school. I think the kids thought I was weird," he says with a laugh.

In ninth grade, his curiosity paid off; he was among the students selected to go to MCV for a student heart day, a program sponsored by the medical center and the American Heart Association. "I remember getting to see an early bypass pump and all that sort of stuff. I found that very exciting."

A top student at Highland Springs High School, Vetrovec went on to receive a scholarship to University of Virginia, which he attended for both his undergraduate and medical degrees—becoming the first doctor in his family.

He worked at MCV during the summers when he was in college, conducting cardiology research for the physicians that he would later call his mentors, Dave Richardson, M.D., and Hermes Kontos, M.D. He'd written to Richardson after reading an article

about his research. "He hired me sight unseen," he recalls.

Following medical school, Vetrovec returned to MCV for his internship and residency in internal medicine and his fellowship in cardiology. Then, he was hired as an assistant professor at MCV in 1976, initially working in cardiac rehabilitation and running stress tests.

What drew him? "I really wanted to be on the faculty of a teaching hospital. I love clinical medicine, but I also wanted to be a part of the evolution of new things and the development of new things. And I thought this was where you could do it."

*"As a young doctor, he was very smart and very careful. He was a leader, and he and Dr. [Michael] Cowley were among the first in America to do a balloon dilation of the coronary arteries. I was the chairman of the Division of Cardiology then, and it was very exciting."* — David W. Richardson, M.D., emeritus professor of medicine

**"Dr. Vetrovec is a giant in the field of interventional cardiology. He was an important mentor in my career at VCU. He worked very closely with me to develop a close relationship between cardiology and cardiac surgery, leading to the emergence of VCU Health Pauley Heart Center as a leader in cardiac care."**

**— Vigneshwar Kasirajan, M.D., chief of Surgery**

Vetrovec recalls the twist of fate that brought him to the cardiac catheterization lab, which began in the mid-1960s and was one of the first in the state. In 1976, after the lab's founder had left, "they brought in a fellow from Boston to head the lab, and ironically, he got terrible asthma in Richmond. And his goal had always been to run the Boston Marathon, so after a year, he quit and went back to Boston. And that's how ultimately I became head of the cath lab in 1977," he says.

He describes his early West Hospital days. "Back then, we used 35 millimeter film. The images were X-ray images recorded on movie film. You took the pictures, and the films were developed right there in the cath lab. Now it's all digital," he

says, noting the superiority of today's imaging. Catheter lines were inserted through a "cutdown," which involved making a small incision in the brachial artery in the arm, instead of the groin.

In September 1977, Andreas Gruentzig, M.D., performed the world's first balloon angioplasty. Vetrovec traveled with Michael Cowley, M.D., another young VCU doctor, to Geneva to study the technique with Gruentzig. Vetrovec and Cowley became the first physicians in central Virginia—and likely the state—to perform a balloon angioplasty in July 1979.

"It was new, it was different, and it potentially was going to change the cath lab from a diagnostic lab to a treatment lab," he says. Today, VCU Health Pauley Heart Center physicians undertake the lifesaving procedure, which now includes the placement of a stent, on about 1,000 patients each year.

Over the years, he's been at the forefront of testing new devices and techniques. He reflects on some of the latest interventions, including robotic-assisted angioplasties and trans-aortic valve replacements, that are taking place in new hybrid labs.

"This is a lab that's been known for high-quality patient care and outcomes, but it's also been known for innovations, doing treatments during the investigative stage, and being a lab that was at the cutting edge. I don't think that's changed at all," he says.

*"I first met Dr. Vetrovec when I was interviewing for medical school. He took me in under his wing and helped guide and develop my career as a physician scientist, encouraging my efforts in cardiovascular research and fostered a love for bringing scientific discoveries to patient care. He has an impeccable reputation in the interventional cardiology community as an amazing educator and interventionalist."*  
 — Michael J. Lipinski, M.D., Ph.D., interventional cardiologist and scientific lead of Pre-Clinical Research, Medstar Heart and Vascular Institute.





**On October 11, 2015 members of the Pauley Heart Center Consortium Group gathered together to celebrate the nearly four decade career of Dr. George Vetrovec.** Dr. Vetrovec announced his retirement late in the summer, however his passion for medical education will keep him close, he will spend 1-2 days a month working with and mentoring residents and fellows of the Division of Cardiology. The event, hosted by the MCV Foundation Board of Trustees, included over 120 friends, patients, alumni and donors. The evening concluded with a program highlighting Dr. Vetrovec's accomplishments as a caregiver, educator, fundraiser, academic leader and mentor. Former trainee, Dr. Jeff Marshall, announced that the Division had created the George W. Vetrovec, MD Symposium to honor Dr. Vetrovec's longstanding and continuing commitment to cardiovascular education. Dr. Marshall urged those who shared Dr. Vetrovec's passion to join him in supporting the symposium. If you are interested in learning more, please contact Lauren Moore at 804.828.3632 or [lauren.moore@vcuhealth.org](mailto:lauren.moore@vcuhealth.org).



## Dr. Vetrovec has:

- Performed an estimated 18,000 procedures in the cath lab.
- Trained students who are now cardiologists in more than 25 states and seven countries.
- Authored or co-authored more than 200 papers.
- Received the American Heart Association's National Award of Merit in 1991.
- Been named "Clinician of the Year" by his colleagues in 1997.
- Been named a Master of Cardiology by the American College of Cardiology in 2014.
- Received the VCU Presidential Medallion in 2014.

*"Dr. Vetrovec is the main reason why I came to VCU from Italy. He always inspired me to give my best, always aim at doing better, and always care deeply about the patients and the coworkers." — Antonio Abbate, M.D., Ph.D., James C. Roberts, Esq., Professor of Cardiology, VCU Health Pauley Heart Center*

Vetrovec has long been a rallying figure for the VCU Health Pauley Heart Center. He served as chairman of the Division of Cardiology from 1991 to 2009 and led two major fundraising campaigns that secured over \$14 million in donations for the heart center. In recognition of his efforts, he received the first W. Robert Irby Philanthropic Leadership Award by the MCV Foundation and was also awarded the 2010 Distinguished Service Award. In 2013, through the support of a grateful patient, the George W. Vetrovec, M.D. Endowed Cardiology Chairmanship was established in his honor.

In his retirement, he's planning to spend more time with his family, which includes

his wife Mary, two children (John, a stock-broker, and Beth, a cardiology nurse) and their spouses, and four grandchildren. He's looking forward to traveling and photography. Vetrovec stays busy lecturing and is a consultant to Abiomed, which manufactures a cardiac pump used principally during high-risk angioplasties.

He also plans to continue teaching—one of his favorite roles at VCU through the years. He often tells his medical students, "You ought to spend five more minutes talking to your patients because they're really interesting people."

"Working with people, that's the real joy of medicine," he says with a smile. "There are a lot of long hours and challenges in this profession. But at the end of the day, the patients are so appreciative."

The faculty, staff and administration of VCU Health Pauley Heart Center and his friends from the MCV Foundation thank Dr. Vetrovec for 39 wonderful years! ❤️



## An Answered Prayer for

# Afib Patient, Bob Jones

**Bob Jones was a lifelong runner who exercised six days a week. “I was perfectly healthy; the only problem I had was afib,” says Jones, a 56-year-old insurance agent and volunteer fireman who lives on Buggs Island Lake with his wife, Robin.**

Atrial fibrillation, the most common type of arrhythmia, is characterized by a rapid heart-beat caused by faulty electrical signals. Afib patients can have an increased risk of stroke.

Under the direction of a cardiologist, Jones tried medication and wore monitors, but the problem of his erratic heartbeat kept flaring up—sometimes when exercising, sometimes not. “It would come on at random times. I had no control over it,” he says.

The final straw came on the day of the wedding of his oldest daughter, Jade (a graduate of the VCU School of Medicine who is now in her dermatology residency at University of Virginia), in May 2013. He was driving with a friend to South Hill, to pick up some items for the wedding, when his afib struck. “I actually pulled over and asked him to drive. It had become so bad,” he recalls. Jones had to go to a friend’s house and lie down on a bed. “It was two or three hours before the wedding; the worst bout I ever had. So after that happened, I decided to do something about it.”

He called an attorney that he knew who’d had a successful ablation—a catheter-based procedure that involves identifying the tissue area where the erratic signals originate, then burning them with a burst of radiofrequency energy. The attorney referred him to his physician, VCU elec-



**BOB RELAXES ON BUGGS ISLAND LAKE WITH SKIPPER, HIS NEW BRITISH GOLDEN RETRIEVER.**

trophysiologist Kenneth Ellenbogen, M.D., who “was considered sort of the dean of the procedure in Richmond,” recalls Jones.

Upon meeting Ellenbogen, he says, “I had tremendous confidence in his ability; he just came across as so authoritative in his occupation. Anything he said I took to the bank.”

His healthy lifestyle made him an ideal candidate for the ablation, which was led by Ellenbogen on December 27, 2013. He was out of the hospital within 24 hours, and “I haven’t had afib since,” he says. “It was an answered prayer in my life.”

Since his ablation, Jones—a lifelong regular churchgoer—tries to stop by a place of worship daily, even when he is on vacation. “I vowed to try to be thankful every day,” says Jones, who encourages others facing trials to put their faith in prayer.

In May 2014, he attended the wedding of his youngest daughter, Juli (a pharmacist who graduated from the VCU School of Pharmacy in May 2015)—this time, with no problems.

Additionally, “he is now off all of his medicines and running again,” says Ellenbogen. “It’s a return to a wonderful lifestyle.” ❤️



## VCU Medical Center Receives AHA Gold Award

**In July, VCU Medical Center was honored with a Gold Award by the American Heart Association, recognizing its superior emergency care for patients suffering from serious heart attacks known as STEMIs.**

VCU Medical Center, which treats about 80-100 STEMI patients each year, received the Gold Award after meeting the AHA’s top performance metrics for eight consecutive quarters. One of the most difficult criteria to meet is “first medical contact to reperfusion,”



**American Heart Association  
American Stroke Association  
CERTIFICATION**  
Meets standards for  
**Comprehensive Stroke Center**

says Michael Kontos, M.D., director of VCU Health Pauley Heart Center’s Coronary Intensive Care Unit. “Rather than just looking at the time it takes from Emergency Department arrival to getting the artery open, this metric expands care to outside the hospital,” he says, with the clock starting from the moment that the ambulance reaches the patient. “It takes an incredible

amount of coordination and teamwork to facilitate this process.”

Of the award, he says, “we were very pleased. We have an outstanding team that includes EMS, the Emergency Department, Cardiology, nurses, physicians and many others who work together to provide the best care possible for this very high-risk, acutely ill population.”

VCU Medical Center was one of only three hospitals in Virginia to receive the Gold Award, with the others being the Sentara Williamsburg Regional and St. Francis Medical Centers. ❤️





MEDICAL DIRECTOR OF MECHANICAL CIRCULATORY SUPPORT DR. KEYUR SHAH VISITS WITH A PATIENT AT VCU HEALTH PAULEY HEART CENTER.

## Doctors Explore Cardiac Devices in Clinical Trials

**VCU Health Pauley Heart Center doctors are exploring a new generation of mechanical assist devices that may improve quality of life for heart failure patients.**

Two new trials involve left ventricular assist devices. An LVAD is “a pump that is implanted into the left ventricle. It decompresses the heart by ejecting blood in parallel fashion to the aorta,” says Keyur Shah, M.D., medical director of Mechanical Circulatory Support.

Shah and Vigneshwar Kasirajan, M.D., chief of Surgery, are investigators on the MOMENTUM 3 Clinical Trial, which started this summer, and is comparing an older model LVAD to the HeartMate III, a new, smaller, continuous-flow LVAD that is magnetically levitated.

“It’s hypothesized to have lower clotting and bleeding risks than the currently approved device,” says Shah. “We are currently enrolling patients with symptomatic heart failure who are not responding well to medical therapy.”

Daniel Tang, M.D., surgical director of Mechanical Circulatory Support, is Principal Investigator (PI) of the LATERAL trial, which is exploring a new, minimally invasive method of implantation for the

HVAD pump. In the trial, the HVAD is inserted through an incision in the side of a chest wall rather than through the middle of the chest. The trial, which began in June, is also exploring whether this technique will reduce complications and time in the ICU, and ultimately may determine if the minimally invasive approach should become the standard of care in the future.

**“It’s hypothesized to have lower clotting and bleeding risks than the currently approved device,” says Shah.**

Tang is also the PI of two clinical trials that began this summer that look at the total artificial heart (TAH), a pump that replaces the entire heart. Currently, the TAH is only approved for use with dying patients who are awaiting heart transplantation. The first trial is exploring also using the device for the purpose of destination therapy. That is, making the total artificial heart available to patients who are not candidates for transplant but who will choose to have the pump implanted and live out their lives with it. This is the first time the pump is being evaluated for use in these patients.

The second trial looks at a new artificial heart that is much more compact and intended for use in smaller patients,

including women and children. Many of these patients have chest cavities that are too small for the other models.

Finally, the COUNTER HF study that began in 2014 is exploring the new mechanical technology of extra-aortic counter pulsation. “This is a device called the ‘C-pulse,’ and it wraps around the aorta and functions like an intra-aortic balloon

pump, providing counter pulsation to the heart. It improves cardiac function and symptoms of heart failure,” says Shah. “It’s for

patients that are symptomatic but are not sick enough to be eligible for an LVAD or a total artificial heart.”

As devices are explored and refined, he is optimistic about the future. “I think we’re in an age where technological advancements are going to lead to reduced complications with these devices and improve survival and quality of life.” ❤️

### DID YOU KNOW?

**VCU Health Pauley Heart Center doctors have implanted about 300 LVADs to date.**





# VCU Health Community Memorial Breaks Ground

**On Oct. 24, a ground breaking was held on the future site of the new VCU Health Community Memorial Hospital in South Hill, at 1755 North Mecklenburg Avenue. The new 166,700-square-foot facility will include 70 private patient rooms and baths, three operating room suites, a cesarean section suite and a 16-bay emergency department.**

The hospital will feature the area's first permanent cardiac catheterization laboratory. Previously, patients in the area were served by VCU Health's mobile cath lab.

VCU Health Community Memorial Hospital CEO W. Scott Burnette welcomed guests to the event. "Today's ground breaking is symbolic of the fulfillment of just one of the commitments that VCU Health made to our community last year, namely, the construction of a state-of-the-art hospital," he said. "This facility will be a beacon of hope for all who are in need of care, and it will be an anchor for future economic development for this region."

The Air Force JROTC then presented colors, and special guests were recognized. The ground breaking followed, after which, hospital officials unveiled a

rendering of the new hospital.

Guests then enjoyed a concert by the Homegrown Bluegrass Band, health screenings and family-fun activities, including children's bounce houses and hay rides.

The new hospital will be constructed on approximately 70 acres of land and is scheduled to open in late 2017. ❤️

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**ABOVE: VCU HEALTH HOSPITAL OFFICIALS UNVEILED A RENDERING OF THE NEW STATE-OF-THE-ART FACILITY THAT IS SCHEDULED TO OPEN IN LATE 2017. / TOP RIGHT: A BILLBOARD FOR THE HOSPITAL, WHICH WILL BE A 166,700-SQUARE-FOOT FACILITY THAT WILL FEATURE 70 PRIVATE PATIENT ROOMS. / BOTTOM RIGHT: VCU HEALTH CMH BREAKS GROUND FOR THE HOSPITAL. PICTURED (LEFT TO RIGHT): EARL HORNE, MAYOR OF SOUTH HILL; JOHN STRUNK, M.D., CHIEF OF STAFF, VCU HEALTH CMH; JOHN F. DUVAL, CEO, VCU HOSPITALS AND CLINICS; WAYNE PARRISH, CHAIRMAN, VCU HEALTH CMH BOARD OF DIRECTORS; W. SCOTT BURNETTE, CEO, VCU HEALTH CMH; LOIS WHITE, AUXILIARY PRESIDENT, VCU HEALTH CMH; AND MICHAEL RAO, PH.D., PRESIDENT, VCU AND VCU HEALTH SYSTEM.**







# U.S. News Ranks VCU Medical Center No. 49 for Heart Programs



**In U.S. News & World Report's Best Hospitals 2015/2016 rankings, released in July, VCU Medical Center**

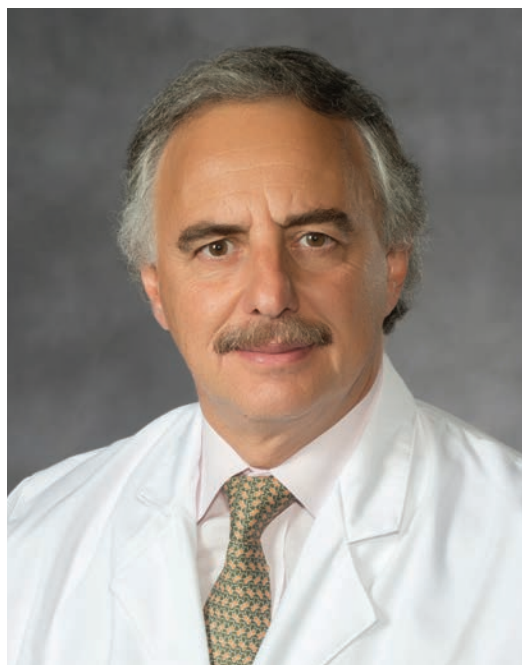
**was ranked No. 49 in the country for cardiology and heart surgery. The medical center was evaluated on a variety of criteria and received its highest marks for its advanced technologies, patient survival 30 days after admission, ratio of nurses to patients and patient services.**

VCU Medical Center's heart programs have achieved U.S. News rankings in the top 40-50 range previously, says Kenneth Ellenbogen, M.D., chairman, Division of Cardiology. "While it's not something new, we appreciate the recognition. This is one of the top medical centers in cardiovascular medicine, and we aim to do everything we can to make sure we're in the top 25 in the next 5-10 years."

VCU Medical Center was also ranked the No. 1 hospital in Virginia and the Richmond metro area and also ranks in the top 50 in the country for orthopedics (No. 34) and nephrology (No. 48). Less than 3 percent of the nearly 5,000 hospitals analyzed for Best Hospitals had even one specialty in the top 50. ❤️



## Welcome, Dr. Luis Guzman!



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**LUIS GUZMAN, M.D.**

**Luis Guzman, M.D., joined the VCU Health Pauley Heart Center in August as the new director of the Cardiac Catheterization Laboratory, leaving his position as director of the Cardiovascular Cath Lab and the Peripheral Interventional Program at University of Florida, Jacksonville. His expertise includes all types of cardiovascular procedures, from treating coronary and structural heart disease to high-risk percutaneous coronary interventions with the assistance of mechanical circulatory devices.**

"He is a world-class cardiac interventionalist who brings a wide range of skills. He is one of the pioneers of a technique that opens up chronically closed coronary arteries, referred to as CTOs—chronic total occlusions—and also brings peripheral vascular disease interventions to the cath lab that we've never had before," says Kenneth Ellenbogen, M.D., chairman, Division of Cardiology.

Within the field of peripheral vascular disease, he conducts critical limb ischemia, with very advanced interventions below the knee, including accessing the tiny arteries in the foot. Born in Buenos Aires, Guzman received his M.D. with honors from the University of Buenos Aires School of Medicine. He completed his internal medicine residency at the Churrucá-Visca Hospital, his cardiology fellowship at the Instituto Cardiovascular Buenos Aires, and his clinical and interventional cardiology fellowships at the Cleveland Clinic. He is board certified in internal medicine, cardiovascular medicine, cardiology and interventional cardiology.

Guzman was drawn to VCU Health for its "significant academic reputation—both the institution itself as well as the Division of Cardiology. It is well-recognized as an institution that is dedicated to not only high standards of patient care, education and research, but also to having the most cutting-edge technologies," he says. ❤️







TOP: JORDANA KRON, M.D. (CENTER) WITH CAMP CARDIAC STUDENTS. / LEFT: CAMP CARDIAC STUDENTS WITH ORGANIZER AMEYA CHUMBLE. / RIGHT: CAMP CARDIAC ORGANIZER AMEYA CHUMBLE WATCHES STUDENTS PARTICIPATE IN A SURGICAL KNOTS WORKSHOP, LED BY CARDIOLOGY FELLOW RYAN MELCHIOR, M.D.

## High School Students Attend Camp Cardiac

**This past June, VCU School of Medicine held a camp for high school students interested in careers in medicine or science. A total of 25 students attended the weeklong Camp Cardiac in Richmond, one of 26 cities taking part in the national program.**

"This was the first year a camp was offered in Richmond. It was organized by second-year VCU Health student Ameya Chumble and a team of his fellow students who simply did a phenomenal job," says Jordana Kron, M.D., associate professor of cardiology and program director of the Clinical Cardiac Electrophysiology Fellowship, who was among the doctors participating in the clinic.

Chumble helped organize the camp because he "wanted to give back" by providing the sort of educational experiences that he did not have access to growing up and going to school in the

smaller towns of Martinsville and Danville.

The high school students, who were selected after an application process that included an essay, took part in a cardiology-focused curriculum that included lectures by physicians, CPR training, an anatomy lecture and pig heart dissection, a suture-tying clinic, and a live surgery observation.

"The best part was that there were

**"I think Camp Cardiac is a fantastic idea because it is very important for young students to know that science and medicine can be exciting," she says. "Careers in these fields can be challenging and meaningful ..."**

a lot of hands-on activities—they were not passively sitting in a classroom," says Chumble. "The students found the camp very educational and had a really good time."

Kron taught the students about ECGs and also brought in a patient with a

history of sudden cardiac death to talk about his experiences. As he shared his medical history, the students examined his ECGs and images from his cardiac catheterization and other studies.

"The students were enthusiastic and engaged," says Dr. Kron. "They asked great questions."

The program was so successful that the camp will return to campus next

year. VCU Health is also eligible to debut its sister program, Camp Neuro.

"I think Camp Cardiac is a fantastic idea because it is very important for young

students to know that science and medicine can be exciting," she says. "Careers in these fields can be challenging and meaningful, and it can be very motivating for young students to see what the end result of working hard in school could be." ❤️



# New Hires



**KEYUR MAVANI, M.D.**

**Keyur Mavani, M.D., an invasive cardiologist, joined the staff of the VCU Community Memorial Hospital in South Hill in July. An affiliated assistant professor in Internal Medicine, Division of Cardiology, he is board certified in echocardiography, vascular ultrasound and nuclear medicine.**

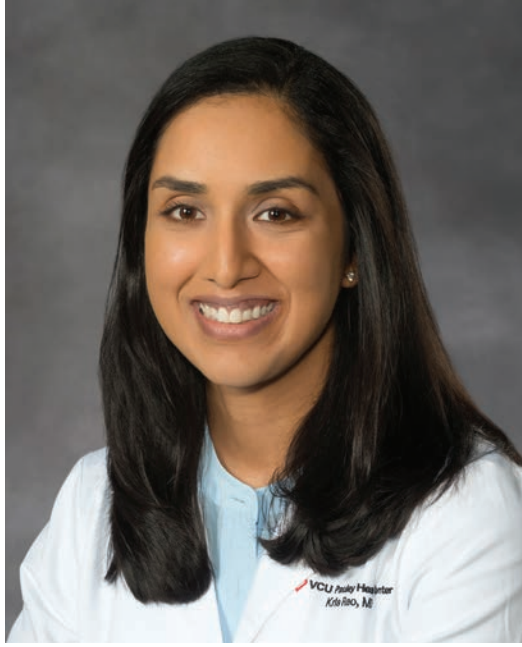
He was drawn to VCU for its research and teaching opportunities. “It is among the best places to work in cardiology on the East Coast. The environment is collegial with a focus on quality and safety, along with innovation and research, to help our patients get the best care possible,” he says.

A native of Surat, India, he received his Bachelor of Medicine and Surgery (MBBS), the equivalent of an M.D., from Baroda Medical College in Vadodara. He completed his residency in internal medicine and his fellowship in cardiovascular medicine at the Wright Center for Graduate Medical Education in Scranton, Pennsylvania.

His specializations include transesophageal echocardiography, cardioversions, stress testing, Holter/event monitoring and loop recorder placement. He also performs diagnostic cardiac catheterizations from the wrist, an approach performed by only 10-15 percent of American cardiologists.

“Dr. Mavani is the first cardiologist that we’ve hired to be full time at South Hill. He is an excellent clinical cardiologist,” says Kenneth Ellenbogen, M.D., chairman, Division of Cardiology.

**Kris Rao, M.D., a heart failure and transplant cardiologist, began her work as an assistant professor**



**KRIS RAO, M.D.**

**in Internal Medicine, Division of Cardiology, in August. She specializes in advanced heart failure, heart transplantation and mechanical circulatory support (LVADs). She performs right heart catheterizations and heart biopsies and is board certified in internal medicine.**

“Kris Rao is an incredible asset to our program; in addition to her training in adult heart transplant and mechanical circulatory support, she has a special interest in teaching both at the undergraduate and graduate level,” says Richard Cooke, M.D., associate professor and the medical director of the heart transplant program.

She holds a B.S. in Neuroscience from the University of Pittsburgh and an M.D. from Drexel University College of Medicine. She completed her residency in internal medicine and her cardiology and advanced heart failure fellowships at University of Texas Southwestern Medical Center.

According to Rao, “The advanced heart failure program at VCU Health is exceptional and is at the forefront of cutting-edge technology in its field. I like the team approach to patient care that is modeled here, and I feel privileged to be able to work with such a fantastic group of people.”

**Deepak Thomas, M.D., joined the Pauley Heart Center in August as an assistant professor, specializing in interventional cardiology. He will work downtown on the MCV Campus, as well as VCU Health’s offices in Petersburg, Hopewell and Colonial Heights, conducting peripheral vascular and percutaneous coronary**



**DEEPAK THOMAS, M.D.**

**interventions. He is board certified in cardiology, echocardiography, vascular interpretation (RPVI) and internal medicine.**

“I came to VCU Health because as a Virginia-born native, I’ve always held high regard for the Richmond community — with both its history and medical tradition. The academic environment here is one of mutual respect between student and professor, between doctor and patient,” he says.

Born in Norfolk, he received his A.B. (Honors) in Literature & Cultures in English from Brown University and then was awarded a full scholarship to Cambridge University, in the United Kingdom, where he was only one of two Americans that year to receive a Master of Philosophy in 18th Century British Literature. He then went on to receive his M.D. from VCU School of Medicine and completed his residency at Yale University, where afterward he continued on as faculty at Yale as an assistant professor of medicine—practicing primary care as an attending physician at Yale-New Haven Hospital. He then completed a fellowship in cardiology at Washington University School of Medicine in St. Louis and an advanced fellowship in interventional cardiology (Level III Peripheral Vascular and Coronary Intervention) at University of Virginia.

As a young doctor, “he brings the new generation of interventional cardiology to our group. He was just recently trained so was exposed to all of the latest procedures. He brings great energy and interest in learning new things and has special skill sets in coronary artery and peripheral vascular disease,” says Luis Guzman, M.D., the new director of the Cardiac Catheterization Laboratory. ❤️



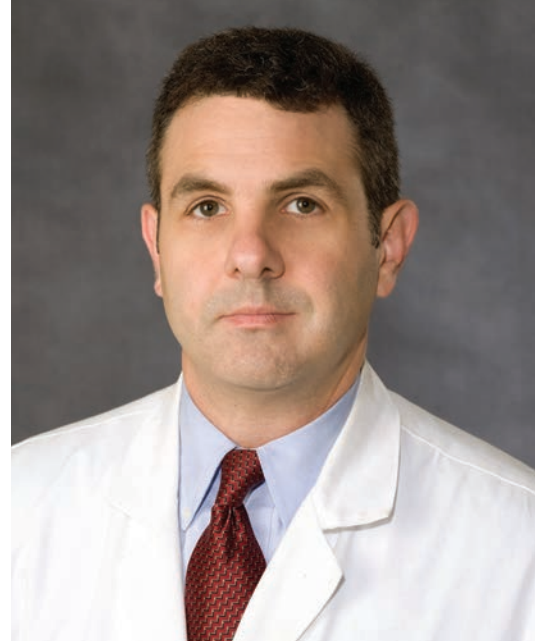
# Promotions and Expanded Practices



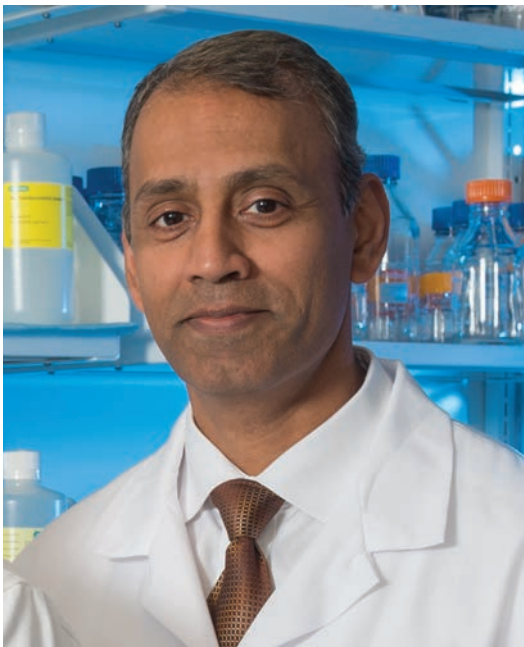
ANTONIO ABBATE, M.D., PH.D.



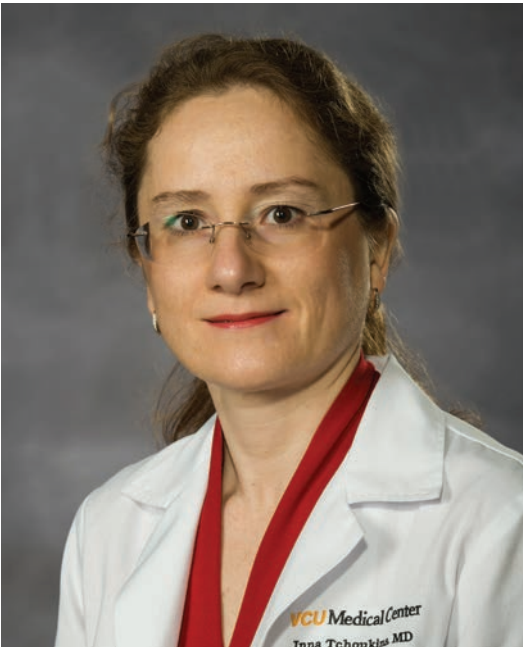
HEM BHARDWAJ, M.D.



ANTHONY CASSANO, M.D.



MOHAMMED QUADER, M.D.



INNA TCHOUKINA, M.D.

**Anthony Cassano, M.D.**, has been named interim chief of Cardiothoracic Surgery. A cardiac/thoracic surgeon, his clinical specialties include surgical treatment of benign and malignant disease of the lungs, airways and mediastinum and minimally invasive approaches to surgical therapy.

Cardiac/thoracic surgeon **Mohammed Quader, M.D.**, has expanded his practice and now sees patients downtown and at the Hunter Holmes McGuire VA Medical Center. His clinical specialties include coronary artery bypass surgery, minimally invasive valve surgery, arrhythmia surgery and surgery for heart failure, including cardiac transplantation and implantation of mechanical assist devices.

**Antonio Abbate, M.D., Ph.D.**, has been named medical director of Clinical Research Services at the Center for Clinical and Translational Research. Abbate is the James C. Roberts, Esq., Professor in Cardiology and serves as vice-chair of the Cardiology Division. He divides his time between conducting research and seeing patients in the Coronary ICU, the General Cardiology

Practice and the Ambulatory Care Center.

**Hem Bhardwaj, M.D.**, is the new director of Inpatient Cardiology Services/ Cardiology Consultation Services. Bhardwaj specializes in performing and reading transthoracic and transesophageal echocardiograms, as well stress tests. She sees patients at both the downtown and Stony Point offices.

**Inna Tchoukina, M.D.**, has been named medical director of Cardiac Rehabilitation. Dr. Tchoukina is a cardiologist who specializes in treating patients with advanced stages of cardiovascular disease and heart failure, including those with mechanical circulatory support devices and heart transplants. Her clinical specialties include hemodynamic heart catheterizations and heart biopsies. ❤️

## New Drug Reduces Injury to Heart Following Attack

**Antonio Abbate, M.D., Ph.D., of Cardiology, Shijun Zhang, Ph.D., of Medicinal Chemistry and Benjamin Van Tassel, PharmD, of the School of Pharmacy have developed a new pharmaceutical aimed at reducing the risk of heart failure following an acute myocardial infarction, more**

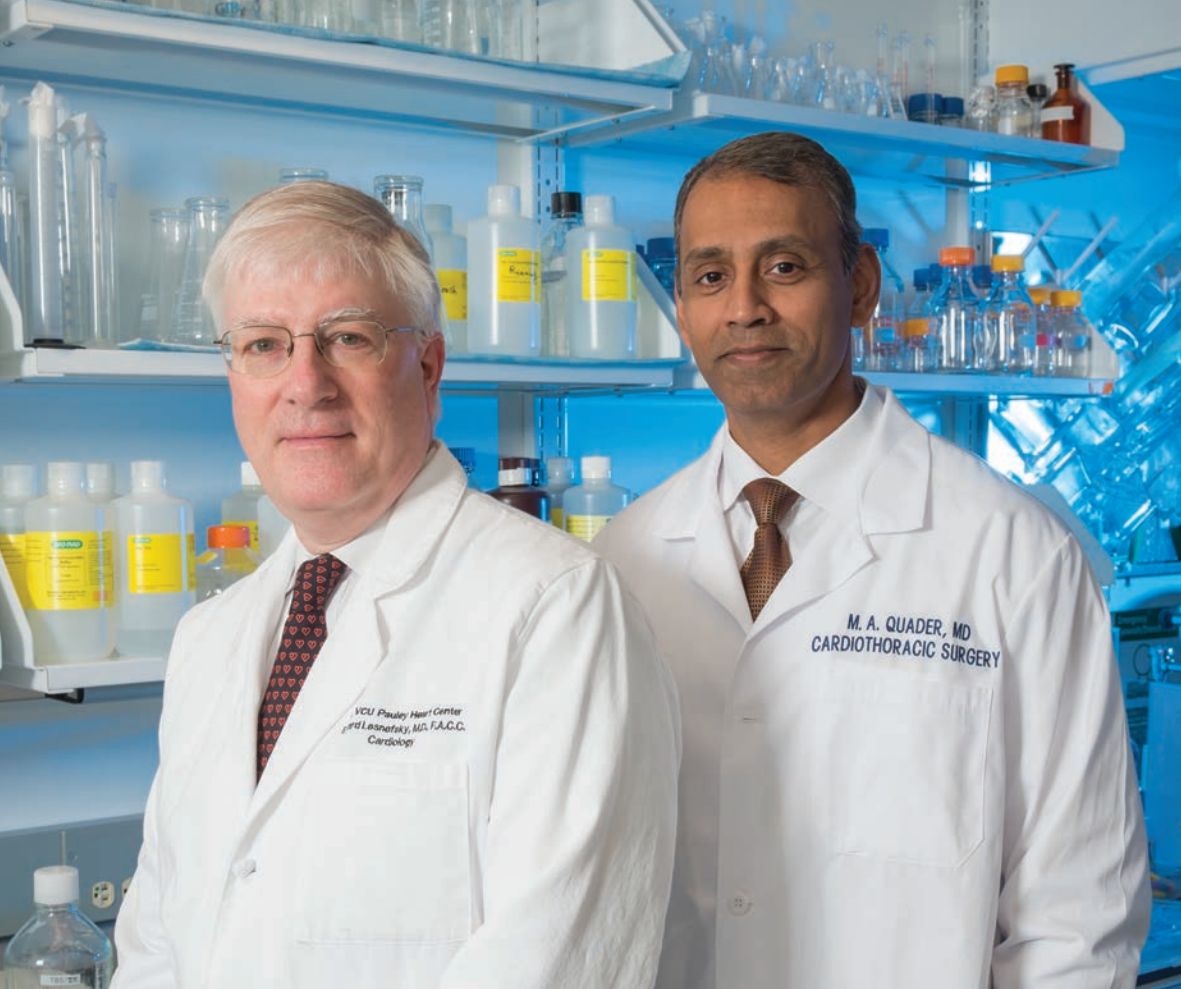
**commonly known as a heart attack.**

The new drug inhibits the activation of the NLRP3 inflammasome that initiates intense inflammation following an AMI. Still in the preclinical phase, the drug is being licensed by a small biotech company, and the VCU team will conduct

further tests.

“The results of this new drug in animal models of heart attacks and heart failure are quite impressive. It reduces the amount of injury to the heart by half,” says Abbate, James C. Roberts, Esq., Professor and interim director of Clinical Research. ❤️





ABOVE: EDWARD LESNEFSKY, M.D., AND MOHAMMED QUADER, M.D.

## Researchers Seek to Reduce Donor Heart Wait

**VCU Health Pauley Heart Center physicians and scientists are engaged in research that they hope may answer questions about the viability of certain donor hearts.**

One study conducted by Mohammed Quader, M.D., Vigneshwar Kasirajan, M.D., and Luke Wolfe, M.S., of the Division of Cardiothoracic Surgery reviewed data on heart donors who had experienced cardiopulmonary resuscitation (CPR) before their deaths.

“There are quite a few surgeons who are reluctant to accept hearts for transplantation that have undergone CPR,” says Quader, VCU Health assistant professor and a cardiac/thoracic surgeon.

The group explored whether such concerns were legitimate by analyzing UNOS transplant data from May 1994 to July 2012. Of the 29,242 adult heart transplantations performed in the U.S. during the study period, 1,396 (4.7 percent) had received hearts from donors who had experienced CPR.

After reviewing the data, “we found no difference in the short-term and long-term survival rates of recipients who have received a heart from someone who had undergone CPR versus other who didn’t. That was really very encouraging,” he says.

Published in the *Journal of Heart-Lung Transplantation*, in November 2013, the study has since received widespread acclaim. “If our work has changed the minds of even 100 surgeons, it will mean at least that many new lifesaving opportunities for patients,” he says.

The study will also have future appli-

cations. “This study is the foundation to our ongoing quest to expand donor heart availability by developing better methods of heart preservation and resuscitation,” says Kasirajan, chief of Surgery.

Currently, the wait list for a donor heart can range from three months to three years, depending upon the patient’s blood type and medical condition, says Quader. “The number of donors has plateaued over the last decade, and we are not able to do any more heart transplants than what we were able to do 10-15 years ago. But at the same time, the need for trans-plantation has increased perhaps by 300 percent.”

**“This study is the foundation to our ongoing quest to expand donor heart availability by developing better methods of heart preservation and resuscitation,” says Kasirajan, chief of Surgery.**

Quader and Kasirajan are working closely with VCU Health research scientists who are exploring other avenues of reducing donor wait times. Marty Mangino, Ph.D., Edward Lesnefsky, M.D., and Stefano Toldo, Ph.D., are undertaking animal studies to answer a number of questions related to a potential heart donor group, the “Donation after Cardiac Death”—also known as “DCD”—donors.

These are individuals who may not meet the legal criteria of brain death but who have enough brain damage “that in

**Cardiac donors are generally trauma victims who have experienced brain death but not cardiac arrest.**

all probability the brain function recovery is almost zero,” says Quader. “Almost all of these patients would have suffered a heart attack during the DCD process.” Currently, the hearts of DCD donors are not used for transplantation, though their longer-surviving livers and kidneys are.

Cardiac donors are generally trauma victims who have experienced brain death but not cardiac arrest. “Circulation is very protective, and there are potential drug treatments that could protect the heart, optimize metabolism and keep the heart going until it is implanted in a recipient,” says Lesnefsky, VCU Health professor and chief of Cardiology at McGuire V.A. Medical Center.

DCD patients, however, experience a loss of blood flow, which injures the heart cells. As a result, “their metabolic pathways—their metabolic wiring, if you will—is damaged.” And, paradoxically, the cells experience further damage when reintroduced into an environment of normal oxygen and blood flow, as is the case with transplantation. “They become metabolically overwhelmed and undergo cell death.”

Through a VCU Health-sponsored animal study, the team is looking into approaches to preserve and perhaps even “rehabilitate” DCD hearts. One approach is that used by Lesnefsky’s laboratory in the study of heart cell injury during an experimental heart attack. This approach modulates or modifies the metabolism of heart cells. They are targeting the mitochondria, the “powerhouses of the cell,” that drive cell death following restoration of blood flow. “Up to 25-35 percent of the cells will die,” he says, during what should be a regenerative

time. The team is using a drug that temporarily paralyzes the mitochondria during reflow.

“We think our mitochondria-derived treatment prevents a large amount of early cell death that will keep the heart for

transplant working well.”

In addition to preventing this acute period of cell death, “one needs to also protect the donor heart recipient against longer-term heart cell loss.” He points to the studies by Antonio Abbate, M.D., Ph.D., and others (see article “New Drug Reduces Injury ...” on previous page) into preventing heart failure that may also apply to transplantation. “It’s going to take a comprehensive approach to help these DCD heart grafts work the best and stay the best.”

“About 15-20 percent of the livers and kidneys used are actually from DCD donors,” he says. “If this could expand the amount of available hearts 10-15 percent even, that would be very exciting.” ❤️




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**Friends and Supporters,**

One of the most exciting parts about working here at VCU Health Pauley Heart Center is the opportunity to work with colleagues who are not willing to accept conventional wisdom, who continue to question and learn and who seek new solutions to challenges in cardiovascular care. Over the years, it has been a great privilege to know one of these individuals, a continual seeker of better cardiac care, **Dr. George Vetrovec.**

In this issue, I hope you will enjoy reading about Dr. Vetrovec and his legacy of innovation in our cardiac catheterization lab. As a colleague, I have found him to be a great human being who puts patients first, teaches by example and is just a consummate clinician.

Our catheterization labs are amidst a large and exciting renovation even as I write this. The new technologies will allow us to continue to develop our structural heart disease program, which is one of the most advanced in the country, and bring in new methods for opening up chronically closed arteries and treating peripheral vascular disease through the work of Dr. Luis Guzman. I am pleased to welcome Dr. Guzman as the new director of the VCU Health Pauley Heart Center Cardiac Catheterization Laboratory.

Other stories in this issue highlight the exciting research that is taking place in our basic research laboratories and clinical trials. Cardiac surgeon Dr. Mohammed Quader, for instance, is leading groundbreaking studies on the effects of CPR on donor hearts.

We are grateful for all that you do to support our many pioneers here at VCU Health, as they seek to provide the very best in cardiovascular care.

**SINCERELY,**
**Kenneth A. Ellenbogen, M.D.**

Chairman, Division of Cardiology


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