The Beat

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VCU HEALTH
PAULEY HEART CENTER

SUMMER — 2016

Taking It to Heart

Celebrating the more than 250 nurses who brighten our patients' lives.

The tin man from Oz. Inspirational words on a scroll. A big cat with a colorful, swirling mane entitled "Spirit of the Lion Heart."

Continued ▸▸▸

L TO R: SHERRY LOCKHART, NURSE MANAGER; SHELLEY KNOWLSON, NURSE CLINICIAN; MICHELLE GOSSIP, ARCTIC PROGRAM COORDINATOR; VIRGINIA MCGHEE, NURSE MANAGER; LINDA CURRIE, NURSE CLINICIAN; SARAH PACIULLI, NURSE PRACTITIONER; KATHRYN PERKINSON, NURSING DIRECTOR; KELLY CARTER, NURSE MANAGER; LAURA FRANKLIN, NURSE CLINICIAN; ROBYN DIEHL, NURSE MANAGER; AND RUTH WILLIAMS, NURSE MANAGER

VCUHealth™
Pauley Heart Center

When visitors walk down the hallways of the Cardiothoracic Surgery Progressive Unit, they are surprised by the colorful pictures on the ceiling; all were created by patients or their families.

"The ceiling tiles are stories that patients tell, that we encourage them to express. Each of those tiles has a story—in some cases, it's a message of encouragement for other patients," says Clinical Nurse Specialist/Nurse Clinician Kim Nelson, DNP, RN-BC, ACNS-BC, who leads the nursing unit along with Nurse Manager Kelly Carter, MS, RN, NE-BC.

While some of their patients may stay just one night, perhaps following a procedure, "some patients waiting for transplants may be here weeks or months; a few may be here a year or more," she says. "So you have to look at patients' needs—not only their physical needs but their emotional and spiritual needs as well."

In addition to the colorful tiles, the unit—composed of Main 10 West and 10 Central—is distinctive for its technology, including "Big Blues," the 400+-pound compressors that keep things pumping for artificial heart patients not yet ready to return home with a backpack Freedom driver. Nurses on the unit have special training in caring for patients on mechanical circulatory support and ongoing education to stay current with the latest technology. They are also supported and encouraged to obtain nursing board certification in Progressive Care, Heart Failure, or Cardiovascular Nursing.

"We're geeks for heart failure," says Nelson, with a laugh. Her interest in the complex condition began in nursing school, when she cared for her grandmother.

The nurses work with interdisciplinary teams to provide holistic care. The transplant/device team, for instance, includes nurses as well as surgeons, cardiologists, heart failure specialists, social workers, physical and occupational therapists, chaplains, psychologists, a dietician, and care coordinators. Art and music therapists also offer support. In January 2011, the Hopeful Hearts Support Group was formed for patients and families who are in the hospital with a mechanical circulatory support device or heart transplant. Activities vary from creating tie-dye shirts to family-style meals. Sharing experiences that are life changing with each other along with the struggles that go along with them provides a special bond in the group.

Sometimes, it's the things that remind patients of home that matter most. Nurse Practitioner Morgan Childress, MSN, NP, brings in her boxer/hound mix as a volunteer for the "Dogs on Call" program.

KIM NELSON AND DAVID PALUMBO

SARAH PACIULLI, MS, RN, NP-C

Often, details are worked out for patients to bring in their own pets for a visit.

"I cannot say enough great things about our nurses in the Pauley Heart Center," says Anthony Cassano, MD, interim chair, Division of Cardiothoracic Surgery. "They are very compassionate and always have the patients' best interest at heart."

She adds, "We can fix your heart, but if we can't keep your head and mind in the game, it won't matter what we do. That's what these nurses do and they're brilliant at it."

The 10 Central and 10 West teams were recognized with a DAISY Team award for arranging a candlelight dinner for a gravely ill artificial heart patient and her husband on Valentine's Day. "One of the nurses, Lucy Alburger, RN, even brought in her grandmother's china for them to have that special dinner," recalls Nelson. *(See sidebar for more information on these awards.)*

"Sometimes I can't believe what nurses accommodate here. It's really the kindness that I'm very proud of," says Director of Nursing Kathryn Perkinson, MSN, RN, CEN. "We have weddings up here, birthday parties. People get ready for prom here."

She adds, "We can fix your heart, but if we can't keep your head and mind in the game, it won't matter what we do. That's what these nurses do and they're brilliant at it."

It's only 1 p.m., but Coronary Intensive Care Unit Nurse Practitioner Charlotte "Cha" Roberts, RN, MSN, has just returned from the emergency room, where she assessed her second cardiac arrest patient of the day.

Additionally, she's participated in rounds, reviewed patient data, and managed transfers from other hospitals.

"A lot of what I do is process-oriented: making sure that we do the right things at the right time, expediently, and making certain that there are not any obstacles to care. Also making sure that our care is consistent and reflects adherence to guidelines," she says.

Roberts, who's been in the nursing profession for 35 years, made a decision in 1995 to return to graduate school and become a nurse practitioner. "I am lucky to work with an amazing team of nurses and providers, especially in the Pauley Heart Center and the Emergency Department," she says.

Roberts is one of 20 Advanced Practice Providers—known as APPs—in the Division of Cardiology who provide bedside care to patients while also offering expertise in operations.

"The APPs come from all different types of backgrounds but share a very high level of sophisticated training in cardiology," says Kenneth Ellenbogen, MD, the division's chair.

Roberts' patients in the 14-bed CICU include heart attack and cardiac arrest survivors, patients in cardiogenic shock or suffering complex ventricular arrhythmias, and those awaiting advanced heart failure therapies.

"Cha epitomizes what we strive for in the Pauley Heart Center, as she provides outstanding and compassionate care to patients as well as giving support to the families of patients who are frequently critically ill," says CICU Director Michael Kontos, MD.

With today's lifesaving technologies, "the patient population has certainly become more complex," says Roberts. Additionally, "we have so much more data to review. You can't make a plan this morning and expect it to be durable throughout the day. You've got to be looking at the patient constantly and reassessing their response to the therapies that you may have changed. It's very dynamic."

"Let me take a look at your pills," says Cardiology Nurse Practitioner Sarah Paciulli, MS, RN, NP-C, to a patient during an office visit.

The middle-aged man, recently discharged from the Pauley Heart Center, dumps out the contents of a black plastic shopping bag. About 12 medicine bottles tumble onto her desk. As he sits nearby, she goes through the bottles one by one with him, entering the data into her laptop. Some of the bottles are empty; others are old, having been replaced by newer prescriptions.

The patient seems confused, admitting that it's difficult to keep up with the prescriptions when they're filled at different times of the month.

"I wonder if we could get you on a schedule with them all synched up at the same time," says Paciulli. She makes arrangements to do just that with a pharmacy, which will also deliver the medications to the patient's home.

Making care easier for patients is one of the goals of the Cardiology Navigator Team, whose members offer a four-week program aimed at educating heart failure and heart attack patients following their discharge from the hospital.

"Our clinic is a bridge from the hospital to the long term," says Paciulli, who helped start the program—one of the first of its kind in the country—in February 2015. The team also includes nurse navigators Corey Reed and Amy Patton, pharmacist Patricia Uber, social worker Megan Maltby, and dietician Nicholas Fischetti.

"Patients and their families attend weekly classes on heart failure diet, medications, exercise, and self-care. During class, I pull the patients aside for a quick clinic visit," says Paciulli. "This has been a great way to make sure that patients are staying clinically stable while also equipping them with the knowledge and skills to take more ownership of their disease."

Patients present a variety of challenges. For instance, she's had to color-code medicine bottles for illiterate patients to help make their self-care easier.

"The purpose of this program is to help identify high-risk patients and others who might need extra help to ensure that they have a safe discharge, with the goal of ultimately reducing readmission and improving patient survival," says Keyur Shah, MD, medical director of the Mechanical Circulatory Support Program. "This team has exhibited extraordinary commitment to the welfare and outcomes for this very complex patient population."

Nurse navigators Reed and Patton follow up with patients by phone within 72 hours of discharge to ensure that they are seen in clinic within seven days of discharge and ultimately connect with a cardiologist and medical home.

"Heart failure and myocardial infarction patients are very vulnerable in the immediate post-discharge period. Our team works to make this transition more seamless for patients. We identify the patients while they are still in the hospital and start the education process," says Paciulli.

The Navigator Cardiology Team is just one example of the outstanding nursing care provided to patients, says Perkinson.

"While we are very high tech with everything we do, I think it's our nurses who keep it personal, patient-centered, and support the families through their journey, wherever they are," she says. "That's the art of what our nurses do at the Pauley Heart Center."

DAISY Awards Honor Extraordinary Nursing

DAISY WINNERS AND NOMINEES INCLUDE (L TO R): ROSMOND O'BERRY, BS RN, PCCN; THOMAS HUNT, RN; KATHRYN COOK, RN, BSN, CCRN; AMY COLEMAN, RN; AND GRACE PHELPS, BS, RN.

"I needed an angel that night to listen, care, and just be there watching over. I had one sit with me through one of the toughest nights of my life."

The above words are from a VCU Health Pauley Heart Center patient, in her nomination of Grace Phelps, BS, RN, of the Cardiothoracic Surgery Progressive Care unit, for a DAISY Award. The patient had been in the hospital for many weeks—much longer than expected—and felt at wit's end. "Grace went well beyond the call of duty," wrote the patient. "She went out of her way to come visit and talk to me, even when she wasn't my assigned nurse."

Recognizing such extraordinary nurses as Phelps is one of the goals of the DAISY Foundation, a nonprofit set up in Seattle in 2000 by the family of J. Patrick Barnes, a patient who died of complications of the autoimmune disease idiopathic thrombocytopenia purpura (ITP) at the age of 33. (DAISY is an acronym for these types of diseases.) During his eight-week hospitalization, his family was "awestruck by the care and compassion his nurses provided" and decided to find a way to honor nurses everywhere.

VCU Health System, one of more than 2,000 healthcare facilities that participate in the DAISY Awards, selects one nurse each month for the award. The nurses are chosen from throughout the medical center, following a review of nomination forms filled out by patients or their families. Phelps was one of five Pauley nurses selected in 2015 for the honor.

"Approximately 100 nurses at VCU Medical Center are nominated each month for this award. A team of peers review all of the nominations and select one deserving nurse to recognize. We are thrilled to have so many of our Pauley Heart Center nurses recognized with this honor," says Deborah Zimmermann, DNP, chief nursing officer and vice president of patient care services, VCU Health System.

Honorees are recognized in a ceremony and receive a DAISY pin and certificate, along with a hand-carved stone sculpture entitled "A Healer's Touch." Additionally, the foundation provides cinnamon rolls—a favorite of Barnes during his illness—to the nurse's entire unit.

The Pauley Center congratulates Grace Phelps, along with Jacob Fogner, RN, of the Cardiac ICU who received DAISY awards in 2015, and Thomas Hunt, RN, of the Cardiothoracic Surgery Progressive Care unit who received the award in April 2016.

For more information, please visit **daisyfoundation.org.**

Research News

Kukreja and Das Receive $2 Million NIH Grant for Diabetic Heart Failure Study

In 2004, former VCU Health Pauley Heart Center Cardiac Catheterization Lab Director George Vetrovec, MD, was giving a lecture on PCIs using stents that eluted rapamycin. He explained that the drug helped prevent plaque from rebuilding in arteries following the procedure. Sitting in the audience, Pauley Scientific Director Rakesh Kukreja, PhD, pondered that the agent might have other benefits as well.

"I was listening to George's lecture and I thought, 'Maybe this drug has a cardioprotective effect,'" recalls Kukreja.

They were pleasantly surprised to find that the drug did indeed protect the heart from delving into failure following an acute myocardial infarction. "We were the first ones to show it," he says.

To find out, he and Anindita Das, PhD, and other colleagues conducted an animal study. They were pleasantly surprised to find that the drug did indeed protect the heart from delving into failure following an acute myocardial infarction. "We were the first ones to show it," he says. Greeted at first with some skepticism, the innovative research is now widely referenced in other studies.

That work, published in the *Journal of Molecular Cardiology* in 2006, led Das and Kukreja to further studies, along with a growing interest on the role rapamycin could play in diabetes.

"Type II diabetes is one of the biggest epidemics in the world. And anyone whose fasting glucose levels are high, they are three times more prone to death by heart attack than an average person," says Kukreja. "Dr. Das was very excited working in this field of diabetes, and she thought she could take the concept of heart protection with rapamycin into diabetic models. She has done a tremendous job in leading the project and generating beautiful data." He adds, "In fact, Dr. Das is one of the most talented and hard-working scientists I have ever worked with in my entire career. The success of this project would not have been possible without her painstaking efforts."

The data revealed that, in the diabetic heart, an enzyme known as Complex 1 mTOR (mechanistic target of rapamycin) had very high activity and promoted heart failure. Based on those findings, the pair postulated that rapamycin, an mTOR inhibitor, could help to minimize the damage—and now they will have the chance to explore the premise with the help of a $2 million+ NIH RO1 grant.

With the new study, which began in July but is the result of a body of work 12 years in the making, "We wanted to see the molecular, mechanistic part—discover more detail about how rapamycin is protecting the heart against myocardial ischemic injury," says Das, an assistant professor. The NIH study will use both cellular and translational models to explore how the modulation of mTOR provides cardioprotection over both the long term and following the acute injury following a severe heart attack.

RAKESH KUKREJA, PhD

ANINDITA DAS, PhD

"Our aim is to protect that heart cell; in particular in diabetic conditions, where the cells are dying due to lack of oxygenation and high glucose."

Heart cells do not regrow following injury, she says. "So even if one cell is dying, it is a huge loss for the heart. Our aim is to protect that heart cell; in particular in diabetic conditions, where the cells are dying due to lack of oxygenation and high glucose."

Interestingly, rapamycin is also being used to prevent tumor growth in cancer patients. Kukreja projects it will not be long before rapamycin or its novel analogues will be also available to diabetics.

"We believe that by the end of our studies, within the next two to three years, we should have sufficient, compelling data to start the clinical trials in diabetic patients," he says.

What's in a Name?

Here's a reference guide to two highly sought-after NIH grants:

- **RO1 – A top-tier award that supports research projects with significant preliminary data. The grants are generally awarded for 3–5 years, and, with some exceptions, have no specific budget limit.**
- **R21 – A grant that encourages new, innovative research projects by supporting them in their early stages. Preliminary data is not required. The grants are limited to two years of funding and usually a budget of $275,000 (direct cost).**

Salloum's Heart Failure Research Moves to Next Level

In the slow, highly regulated world of cardiac research, Fadi Salloum, PhD is on the fast track.

The VCU Health Pauley Heart Center scientist, who this spring received the VCU Distinguished Research Award in the Department of Internal Medicine and also served on the American Heart Association's new Strategically Focused Research Network (SFRN) peer-review panel on heart failure, was recently awarded a $1.9 million "RO1" grant from the National Institutes of Health. The funds support a study that "will explore the exact mechanisms by which hydrogen sulfide (H_2S) protects the heart," he says. The study was ranked in the top 6% of all proposals in the Cardiac Contractility, Hypertrophy, and Failure study section.

In earlier research, Salloum and his colleagues found that daily H_2S therapy can stem the progression of heart failure that often follows an acute myocardial infarction by suppressing inflammation and cell death.

"I want to build upon that research and also study two novel proteins that we identified as potential key players in the cardioprotective and anti-inflammatory response," says Salloum, associate professor of Medicine and Physiology & Biophysics.

The proteins are Cofilin-2 and mitochondrial antiviral signaling (MAVS). Salloum's research using an animal model of ischemic heart failure had previously discovered that, following a heart attack, the levels of Cofilin-2 increase while MAVS decreases. That's bad news, since, at normal levels, MAVS is a beneficial protein that prevents programmed cell death pathways that are activated following ischemia. Also, Cofilin-2 tends to aggregate in heart muscle cells after stressful stimuli, and when expression is increased, it impairs the ability of the heart to function normally.

"I want to build upon that research and also study two novel proteins that we identified as potential key players in the cardioprotective and anti-inflammatory response," says Salloum.

In the RO1 study, which began in July, he and co-investigators Anindita Das, PhD, Edward Lesnefsky, MD, Antonio Abbate, MD, PhD., Qun Chen, PhD and Stefano Toldo, PhD will further explore H_2S and its effects upon Cofilin-2 and MAVS, and take a closer look at the proteins themselves.

The previous H_2S trials began with animal heart failure models. Salloum later verified the results with trials using human heart failure samples—that is, tissue from failing human hearts at the time of transplantation. "Now that we have validated that this protein [Cofilin-2] is important clinically, we're back to animal models in this grant. And I will test how we can manipulate this protein through different approaches, including gene therapy, and see if that will alleviate heart failure."

He hopes the findings will lead to clinical trials in the near future, ultimately leading to drug or gene therapies for patients with heart failure.

He is also undertaking two other studies on Serelaxin, a promising drug for acute heart failure patients by Novartis Pharmaceuticals. One study is supported by ~ $400,000 industry grant that is set to begin this summer, and the other to study relaxin receptor by a $420,000 NIH exploratory R21 research grant—ranked in the top 3%—that starts September 1. *(See sidebar for more information on the differences between the grants.)*

Serelaxin is a synthetic form of the hormone relaxin, which is present in small amounts in both men and women but increases significantly during pregnancy. It is associated with improved heart, blood vessel ,and kidney function. The FDA had designated Serelaxin one of its new "Breakthrough Therapy" drugs for heart failure to hasten its approval. But the agency denied the drug in 2014, requesting further data. A Stage III clinical trial involving 6,300 patients is expected to be completed this year.

Salloum's studies of the drug will include both animal models of heart failure and human heart failure samples that will provide additional data to further understand the mechanism of action of Serelaxin. Having researched Serelaxin previously, he says, "We saw fascinating results with this drug as far as attenuating acute heart attack injury and also we observed survival and heart function benefits in long-term studies."

With his research and his accolades, "Fadi has proven he is a big player in the world of basic science," says Kenneth Ellenbogen, MD, chair of the Division of Cardiology.

Research News

Translational Team Receives Promotions, Awards

ANTONIO ABBATE, MD, PhD

STEFANO TOLDO, PhD

SALVATORE CARBONE, MS

Several members of the Clinical and Translational Research Program have recently been in the news.

The Director of the Clinical Research Services Unit, Antonio Abbate, MD, PhD, was selected for the VCU School of Medicine 2016 Distinguished Mentor Award and will be recognized at a September 21 ceremony.

"The passion he puts in his work is very inspiring," says Salvatore Carbone, MS, an instructor of medicine, who has worked with Abbate since December 2013. "Even though he is very busy, you know he is always there and available to help—to sit down with you and help find a solution to overcome potential obstacles."

He adds, "I could not ask for a better mentor here at VCU."

Molecular biologist **Stefano Toldo, PhD,** was named an assistant professor and laboratory manager of this "bench to bedside" program in September 2015. Toldo received his PhD from the Catholic University of Rome, Italy, and joined the VCU Health Pauley Heart Center in 2009, first as a research assistant, then a post-doctoral fellow.

"Stefano was referred to me by my prior mentor in Rome, Professor Crea, and I recruited him," says Abbate. "When he first began, it was only he and I in the lab. We worked hard, shoulder-to-shoulder, for many long hours, but quite rapidly Stefano became the person in charge in the lab, and it was only logical that when he joined the faculty in 2015 that he would take over the direction of our lab, which has now grown to include several assistants and students."

We worked hard, shoulder-to-shoulder, for many long hours, but quite rapidly Stefano became the person in charge in the lab, and it was only logical that when he joined the faculty in 2015 that he would take over the direction of our lab, which has now grown to include several assistants and students."

Toldo's research focuses on acute myocardial infarction, heart failure, inflammation, cardioprotection, and diabetes, and he has been a first or corresponding author on more than 50 publications in the past six years.

"Stefano is incredibly hardworking, tireless, and he can do the work with a constant smile on his face," says Abbate. "He is very smart and skilled, and is capable of complex work in molecular biology, pathophysiology, and translational research. We are lucky to have Stefano at VCU."

Salvatore Carbone, MS, is a dietician who joined the Pauley Heart Center in November 2013 as a research assistant. Carbone, who holds a master's in Molecular and Nutritional Biology from the University of Urbino 'Carlo Bo' in Italy, was promoted to instructor of medicine in 2015, and is now leading his own research studies on how diet, body composition, and glucose-lowering medications affect heart failure in patients with diabetes.

In May, he received a two-year, $154,000 American Heart Association grant to investigate the molecular mechanisms and the efficacy of a new type 2 diabetes FDA-approved class of drugs known as sodium-glucose co-transporter 2 (SGLT-2) inhibitors in patients with systolic heart failure.

In May, he received a two-year, $154,000 American Heart Association grant to investigate the molecular mechanisms and the efficacy of a new type 2 diabetes FDA-approved class of drugs known as sodium-glucose co-transporter 2 (SGLT-2) inhibitors in patients with systolic heart failure.

"SGLT-2 inhibitors represent the first anti-diabetic class of drugs with beneficial cardiovascular effects not necessarily related to the improvements in blood glucose control, and have the potential to become the drug of choice in patients that have both heart failure and diabetes," he says.

According to Abbate, "Salvatore is very talented and, despite his young age, he is knowledgeable and clinically skilled. He is driven to excellence and to success." He notes, "I am extremely confident that with his skills and determination, Salvatore will significantly expand the research of nutrition, metabolism, and heart failure at VCU and help improve the health and lives of our patients at VCU."

In the Spotlight: Dr. Rakesh Kukreja

Rakesh Kukreja, PhD, joined the VCU Health Pauley Heart Center faculty in 1984, and is now Eric Lipman professor and the center's scientific director since 2010. Kukreja's research on cardioprotection has resulted in more than $22 million in grants and many accolades, including the NIH's most prestigious MERIT Award in 2006, the Faculty Award for Distinguished Research for 2008/2009, VCU's Distinguished Scholarship Award in 2009, and Virginia's Outstanding Scientist of the Year award in 2010. He also received international honors, including the Norman Alpert Award for established investigator in Cardiovascular Sciences and Ken Bowman Research Achievement Award from Institute of Cardiovascular Sciences, University of Manitoba in 2013.

In addition, "Dr. Kukreja is an outstanding mentor who is generous with his time, knowledge, and long-standing experience and wisdom in scientific research," says Fadi Salloum, PhD, who has worked alongside the scientist for 18 years.

Kukreja helped Anindita Das, PhD transition from an exclusively cancer researcher to a highly competitive investigator in cardiology.

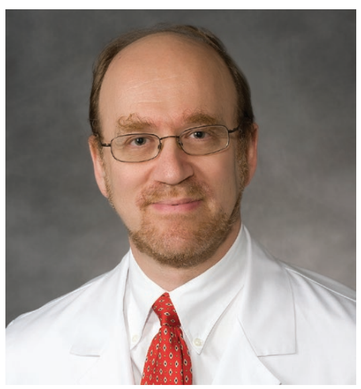
"He is an example of a successful mentor who continuously encourages me to see the potential inside of myself."

"Dr. Kukreja's depth in scientific vision, integrity, and intrinsic motivation inspires me to expand my research into new frontiers," says Das.

Trial Explores DEEP Afib Therapy

Vigneshwar Kasirajan, MD, and Kenneth Ellenbogen, MD, are jointly engaged in a trial for a procedure that may bring new hope for patients with chronic atrial fibrillation that has not responded to medication or previous ablations.

According to Kasirajan, Dual Epicardial Endocardial Persistent (DEEP)'s two-step therapy targets the areas of erratic heartbeat from both inside and outside the heart. "Patients first undergo a surgical ablation of the left upper chamber of the heart from the outside using a minimally invasive closed-chest procedure. Then 90 to 120 days later, they undergo a catheter-based mapping inside the heart to see if the condition still exists," he says. If it does, "the patient will then receive an EP ablation, from the inside of the heart."



DR. KENNETH A. ELLENBOGEN

VIGNESHWAR KASIRAJAN, MD

Kasirajan, chair of Surgery, and Ellenbogen, chair of Cardiology for VCU Health, have conducted the dual procedure since 2006; this particular trial explores the use of the AtriCure bipolar system, a device for performing the ablations outside the heart along with other approved devices for ablation inside the heart.

"By combining both procedures, we hope for higher success rates over the long term."

"For persistent afib, particularly if the patient has failed medications and the condition has lasted over one year, the EP-only ablation success rate is about 30–50%. The surgical success is also in the 30–50% range," he says. "By combining both procedures, we hope for higher success rates over the long term."

Patient Shares His Journey from

"Medical Nightmare" to Recovery

For David Cottrell, his story with heart disease began like this: "Last year, I went to bed with a 'touch of flu.' When I woke up, I was dying."

These words are from an open letter of appreciation to his cardiac team at the Pauley Heart Center, which he published in the *Richmond Times-Dispatch* in January.

"Mr. Cottrell was a wonderful patient to take care of. I am always impressed by the resilience and tenacity that patients demonstrate when facing such dire circumstances," said Cardiac/Thoracic Surgeon Daniel Tang, MD.

Instead of the flu, Cottrell, who had previously enjoyed a lifetime of good health, was diagnosed with spinal meningitis, along with a bacterial staph infection that attacked his heart valve. He'd experienced multiple embolic strokes, and his body was going into multisystem organ failure.

He was transferred to VCU at the urging of a cardiac surgeon in New York. "From the moment I arrived at VCU Health and saw the team that had already been gathered, I never again had a moment of doubt or fear," he says.

His surgical team was made up of Vigneshwar Kasirajan, MD, Daniel Tang, MD, Zachary Gertz, MD, Rajiv Malhotra, DO.

"You faced a medical nightmare, but what you said to me was, 'Don't worry. This is what we do every day,'" he recalls in the letter.

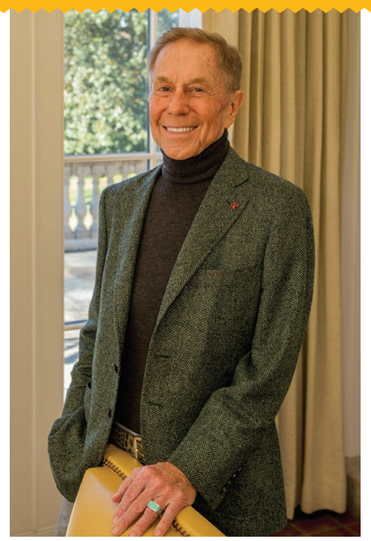
In the year that followed, his team grew as he returned to the hospital for a series of frightening setbacks—including three emergency open-heart surgeries. Denise Lynch, RN, coordinated the effort, working closely with Cottrell's wife, Christy, who visited him every day.

"Mr. Cottrell was a wonderful patient to take care of. I am always impressed by the resilience and tenacity that patients demonstrate when facing such dire circumstances," said cardiac/thoracic surgeon Daniel Tang, MD. "Equally impressive was his determination to rehab and recover."

According to Tang, "It was quite a surprise and very gratifying to see the open letter. It is certainly unusual and was very much appreciated by the staff involved in his care."

With David now recovered, he and Christy are enjoying their second chance at life with home renovations and travel—and gratitude for VCU.

"When I arrived, I was your patient," he writes. "Today, you are my family."



GRATEFUL PATIENT DAVID COTTRELL AT HOME.

To read Carissa Etters' article on the couple's amazing story and watch a video, please follow this link:

http://news.vcu.edu/article/Health_care_from_the_heart_Three_new_valves_and_a_fresh_outlook

Walkers Show Support for American Heart Association

Teams from the VCU Health Pauley Heart Center took to the streets to raise funds for the American Heart Association's annual Richmond Heart Walk, held Oct. 10, 2015, at West Creek Parkway. A total of 147 walkers from the heart center took part in the event and raised $15,991 for the organization, which seeks to save lives and support critical research for heart disease and strokes.

"We have a long history of participation in the Heart Walk. We enjoy being a part of an event that has such an impact and supports the Pauley Heart Center and our patients in so many ways," says VCU Health Pauley Heart Center Director of Nursing Kathryn Perkinson, RN. "The American Heart Association is a great partner in the fight against heart disease."

The Pauley Heart Pumpers were VCU Health's leading fundraising team. Lorraine Witzke, RN, served as co-chair with Greg Lowe, a heart transplant recipient.

"The 2015 Richmond Heart Walk raised over $1 million for the first time and we are looking forward to even greater things this year," says Witzke.

The next Heart Walk will take place Saturday, October 8, 2016, and offer both 1- and 3-mile routes. To sign up or support a VCU Health Pauley Heart Center team, please visit www.WalkWithVCU.com.

"We hope you will join us. It is a great time for family, friends—even the four-legged ones—to get some fresh air and exercise," says Witzke.

CO-CHAIR PHOEBE ASHLEY, MD, (LOWER RIGHT) LED ONE OF THE MANY PRESENTATIONS AT THE WOMEN'S HEART HEALTH SYMPOSIUM.

First Annual Women's Heart Health Symposium

On February 6, as part of Heart Month activities, VCU Health Pauley Heart Center hosted a symposium on women's heart health at the Virginia Museum of Fine Arts. Following opening remarks by Cardiology Chair Kenneth Ellenbogen, MD, the event's speakers—an all-female group of cardiologists and a cardiac surgeon from VCU—presented case studies, a panel on heart failure, and topics including heart disease prevention, eating disorders and the heart, stress tests, and atrial fibrillation.

About 60 guests, including many from the medical community, attended the event. "The audience members were very engaged throughout the morning and asked thoughtful, provocative questions," says Jordana Kron, MD, who co-chaired the event with Phoebe Ashley, MD.

Among the findings, attendants learned that "women with cardiac disease have different symptoms than men, receive different treatments, and respond differently to many therapies," she says.

For instance, some women experience understated symptoms when they are having a heart attack. Instead of the familiar gripping chest pain, they might feel nausea, pain or discomfort in their stomach, jaw, neck, or back, or shortness of breath. Such "silent" warning signs may be missed by the women or even their healthcare providers.

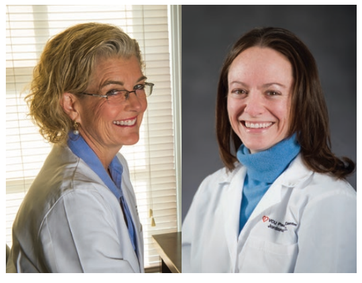
Over the years, women have also been underrepresented in cardiac research. As a result, "the complexities, subtleties, and nuances of women's hearts and vasculature are just now burgeoning onto the cardiovascular scene," says Ashley.

That's one reason the co-chairs hope to draw even more healthcare providers to next year's symposium.

Among the findings, attendants learned that "women with cardiac disease have different symptoms than men, receive different treatments, and respond differently to many therapies," she says.

"We feel that exploring the differences between men's and women's cardiac disease and educating ourselves and our colleagues regarding these issues will be critical to providing state-of-the-art women's cardiovascular care in our area," she says.

The VCU Health Pauley Heart Center is grateful to Ellen and Barry Chernack for their support of this event.



PHOEBE ASHLEY, MD & JORDANA KRON, MD

In addition to those mentioned in the article, the Heart Center also thanks speakers Hem Bhardwaj, MD, Bethany Denlinger, M.D. and Roshanak Markley, MD; roundtable contributors Mimi Peberdy, MD, Krishnasree Kasuganti Rao, MD, Melissa Smallfield, MD and Inna Tchoukina, MD; and moderator Patricia Nicolato, DO for their participation in the symposium.

Save the Date

The 2nd Women's Heart Health Symposium will take place Saturday, Feb. 4, 2017. Please contact **Caroline.Whitbeck@vcuhealth.org** for more information.

SPEAKERS INCLUDING VIGNESHWAR KASIRAJAN, MD, (ABOVE LEFT) SHARED PAULEY HEART CENTER NEWS WITH CONSORTIUM MEMBERS AND GUESTS.

2016 Pauley Heart Center Consortium: "Helping people live longer, happier lives."

"The Pauley Heart Center is a true VCU treasure," said President of VCU and VCU Health System Michael Rao, PhD, as he welcomed guests to the 2016 consortium. Approximately 75 faculty, administrators, and donors attended the event, held April 12 at the John Marshall Ballroom.

Rao observed that the center is at the forefront of science. "But our mission is really about people ... helping people live longer, happier lives."

After dinner, Kenneth Ellenbogen, MD, chair of the Division of Cardiology, next shared some of the notable events of the year, including the completed renovation of the cardiac catheterization labs and the retirement of its innovative director George Vetrovec, MD after three decades. In his place, newly hired director, Luz Guzman, MD, "is doing a stellar job of carrying forward our tradition of excellence in cardiac catheterization."

Chair of Surgery Vigneshwar Kasirajan, MD, then spoke about cardiac surgery and the increasing importance of collaboration between cardiac surgery, cardiology, and nursing teams. Additional efforts are forthcoming, he said, such as "bringing together pulmonary medicine and vascular surgery more closely to our work in the Pauley Heart Center."

"Each year, consortium members and other guests gather to learn about recent advances in cardiovascular care stemming from research conducted at the Pauley Heart Center. Saving and improving lives of those with heart disease is one of our most important missions. It is a pleasure to work with so many donors and friends who share a passion for excellence in healthcare. They fuel discovery and its translation to the bedside."

— Dr. Jerry Strauss, Dean, VCU School of Medicine

Kasirajan also participated in the next event, a conversation led by VCU School of Medicine Dean Jerry Strauss III, MD, PhD that included Fadi Salloum, PhD, and Michael Hess, MD, PhD. While Salloum talked about how VCU's basic science lab is making discoveries in heart failure that may one day help patients, Hess fielded questions about the Cardio-Oncology program that he has initiated at VCU. Hess's endeavor—the only one of its kind in Virginia—provides support to cancer patients, many of whom suffer cardiovascular damage as a result their chemotherapy and other treatments.

"These are the types of research and advances that we are so excited to share," said Strauss at the program's conclusion. "Without your advocacy and gifts, we would not be able to do all of the things you heard about tonight."

"Thank you for your steadfast support."

In Memoriam

At this year's consortium, a moment of silence was held in memory of two special friends who had recently departed.

Walter Craigie, who passed away March 3, "was one of the MCV campuses' most impactful advocates," says Kenneth Ellenbogen, MD. An investment banker and public servant, Craigie was also an active volunteer, serving as a trustee of the MCV Foundation. With his wife, Beese, he supported everything from Nursing to Pharmacy to Parkinson's and the Massey Cancer Center. In 2000, the couple founded the Craigie Endowment for Cardiology Scholarship Awards at VCU to benefit the scholarship of professional staff.

"Over the years, the two had grown that fund and we are so appreciative of their generosity to the Pauley Heart Center," says Ellenbogen. "Mr. Craigie's impact is widely felt as he advocated each year on behalf of the Medical Center and VCU to the General Assembly."

John ("Jack") Zehmer, Jr., died Feb. 7. An architectural historian in Richmond for many years, he served as the city's first senior planner for historic preservation. He later directed the Valentine Museum, the Historic Richmond Foundation, and the Capital Region Office of the Virginia Department of Historic Resources and helped lead efforts to expand historic districts, restore such architectural treasures as the Virginia Executive Mansion and the Wickham-Valentine House, and save Old City Hall.

In addition to his preservation work, he was also committed to the Pauley Heart Center and many other local medical charities. His wife, Fran, is continuing his philanthropic legacy. "The Zehmers have supported the Pauley Heart Center steadfastly as annual donors and have been great advocates," says Ellenbogen. "We thank them for their leadership in giving, and we will certainly miss Mr. Zehmer."

Common Ground: Support Group Helps ARCTIC Survivors and Their Families

As the meeting time draws near, a small group gathers around a conference table in the VCU Health Pauley Heart Center. The attendees, who are of a variety of ages and backgrounds, are survivors of cardiac arrest—an experience that few of them remember but one which has greatly impacted all of their lives.

Advanced Resuscitation Cooling Therapeutics and Intensive Care Program Coordinator Michelle Gossip, BSN, RN, started the support group in late 2013 because she began to see a pattern in her cardiac patients who were brought back from death through resuscitation and hypothermia. "It grew from a constant awareness, as I would see these patients prior to discharge, that there were so many long-term needs that weren't being met by a clinical visit."

A grant from the MCV Hospitals Auxiliary helped her start the monthly program, which provides a supportive environment in which individuals can share their challenges and successes. The group is safe, confidential, and "allows sharing in an environment of like-minded and like-experienced individuals," she says.

MICHELLE GOSSIP, BSN, RN

While initially many are simply grateful to be alive, "oftentimes, patients need to go home and reintegrate in their daily routine before they recognize some of the long-term issues of anxiety, depression and persistent short-term memory loss. "It's a unique patient population with unique needs."

Family members are also welcome to attend the sessions. Many of them are working through their own emotional turmoil related to the cardiac arrest, having often provided life-saving CPR or witnessed the death and revival of their loved one. "When survivors and family members both participate in the group, it allows for a variety of perspectives to be shared that can open up the opportunity for emotional healing," she says.

The support group is part of a comprehensive ARCTIC post-cardiac arrest program at VCU Medical Center.

"Michelle helps them understand where they are and helps them through it," says Pauley Heart Center Nursing Director Kathryn Perkinson, MSN, RN, CEN. "Through our ARCTIC program, we see people across the continuum and we support them."

Celebrating "Top Docs"

Congratulations to all of the VCU Pauley Heart Center physicians selected by their peers as "Top Docs 2016" by *Richmond Magazine*!

The top vote getters in their categories were:

Kenneth Ellenbogen, M.D.
Cardiac Electrophysiology,
Vigneshwar Kasirajan, M.D.
Cardiac Surgery,
Zachary Gertz, M.D.
tie for Cardiology: Interventional,
William Moskowitz, M.D.
of CHOR at VCU Pediatric Cardiology,
Anthony Cassano, M.D.
Thoracic Surgery
and **Mark Levy, M.D.**
Vascular Surgery

- Other winners were Jordana Kron, M.D., Michael Hess, M.D., Richard Cooke, M.D. of VCU Pauley Heart Center and Scott Gullquist, M.D. of CHOR at VCU.

To see the entire list, please visit http://richmondmagazine.com/best-of-richmond/top-docs/top-docs-2016

Becker's Top 100 Heart Center

According to *Becker's Hospital Review*, VCU Pauley Heart Center is one of the top providers of cardiovascular healthcare in the nation. In October, *Becker's* selected the VCU Medical Center as one of the "100 Hospitals with Great Heart Programs 2015-16." Other honored hospitals in Virginia were Henrico Doctors Hospital in Richmond, Sentara Norfolk General Hospital-Sentara Heart Hospital, and Virginia Hospital Center in Arlington.

Pauley Active in Heart Month Events

February brought a whirlwind of activities for the VCU Pauley Heart Center during the American Heart Association's Heart Month. On Feb. 5, VCU Health served as the Presenting Sponsor of the AHA's "Bollywood Goes Red" benefit, which brought Indian food, music, and entertainment to the Virginia Museum of Fine Arts. The "Go Red" theme continued on Feb. 6, when VCU Health employees wore red to work to help raise awareness about women's heart disease and stroke.

Additionally, the Pauley Heart Center held the first annual Women's Heart Health Symposium *(see article, p. 9)* and physicians took part in a lecture series at Lewis-Ginter Botanical Gardens, covering new treatments for atrial fibrillation, women's heart health, and peripheral artery disease. Also during the month, VCU cardiologists answered questions on Twitter and Phoebe Ashley, MD appeared on *Virginia This Morning*.

"It was a busy month but a rewarding one," says Chairman of Cardiology Kenneth Ellenbogen, MD. "At events such as our symposium and lecture series, audiences were very engaged and appreciated the information that we provided."

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Friends and Supporters,

Welcome to the summer issue of *The Beat*. In this edition, we have much to celebrate at the VCU Pauley Heart Center.

In the realm of basic science, we congratulate Dr. Rakesh Kukreja, Dr. Anindita Das, and Dr. Fadi Salloum on their recent National Institutes of Health grants; Dr. Alex Tan, Dr. Jose Huizar, Dr. Mohammed Quader, and Salvatore Carbone on their grants received from the American Heart Association; Dr. Edward Lesnefsky on the renewal of his Veterans Administration Merit award; and Dr. Antonio Abbate and Dr. Salloum on their investigator-initiated studies supported by industry partnerships.

This year we've been busy with community outreach, including participating in the AHA's Richmond Heart Walk and Bollywood Goes Red events and a forum at Lewis-Ginter Botanical Gardens. Dr. Jordana Kron and Dr. Phoebe Ashley, who share a passion for women's health, led our first Women's Heart Health Symposium in February. In April, we enjoyed gathering with our faculty and administration, along with some of our most ardent supporters, for the annual consortium.

Finally, I am excited to share with you a feature story on our nurses, who have received Beacon Awards and other accolades for their high levels of performance. Working with them on a daily basis, and having also had a family member recently in their care, I can't imagine a better trained, more dedicated group.

At the Pauley Heart Center, teamwork is essential in the care of our patients. Many of them suffer complex medical conditions. Just as our researchers, physicians, and nurses are key players, so too are our donors who support our work here. Thank you for being an important part of the Pauley Heart Center team.

SINCERELY,
Kenneth A. Ellenbogen, MD
Chairman, Division of Cardiology

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Visit us online at vcuphc-thebeat.org

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