

SARVER HEART CENTER

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CONGENITAL HEART CONDITION DIAGNOSED AT AGE 69



Patricia Fickett (center) holds a model of her heart used by her 'miracle workers' to plan a repair of a rare congenital heart defect. From left: Raj Janardhanan, MD, Franz Rischard, DO, Chuck Fickett (Mrs. Fickett's husband) and Michael Seckeler, MD, MS.

Improved cardiac diagnostics, physician collaboration and growing awareness of congenital heart conditions in adults led to the diagnosis of a complex congenital heart defect followed by a minimally invasive repair that has a 69-year-old woman breathing easier. The unique collaborative team that diagnosed and treated her condition is all under one roof at UA Sarver Heart Center and Banner – UMC Tucson.

Looking back, Patricia Fickett, a native of San Simon, Ariz., has experienced symptoms of her congenital heart condition for much of her life. She always was told she had a heart murmur, but that it was nothing to worry about. At age 3, she was diagnosed with anemia, but seemed to outgrow it. As a student in a small-town high school where everyone participated in sports so the school could have a team, she was

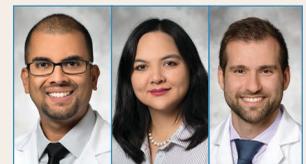
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The *UA Sarver Heart Center Newsletter* is published twice a year - in summer and winter. News reporters are welcome to quote from newsletter articles and are asked to provide credit. Correspondence or inquiries should be addressed to: UA Sarver Heart Center Communications
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Photo: UA HS BioCommunications

NOTE FROM THE DIRECTOR



Nonstop change had been the norm in health care in recent times – especially at academic medical centers. That's all the more reason we at the University of Arizona Sarver Heart Center have remained steadfast in our commitment to advancing lifesaving patient care. We are looking forward to providing that care in our brand new hospital, with the move beginning with equipment in February and patients in April. We can't wait to show you this facility – we think you will be impressed that it brings a new standard to Southern Arizona.

New and exciting changes in leadership at the UA and Banner University Medical Center continue to accelerate improvements in the care we deliver and our position nationally. The UA Sarver Heart Center is fully aligned with new leadership and has experienced much progress. Banner Health has made great strides as a leader in academic medicine and we remain the premier quality medical delivery system in Tucson. The University of Arizona Health Sciences, like all academic medical centers, has had to adapt to declining government and commercial reimbursement rates, more care delivered in non-hospital settings and pressures on providers to deliver care more efficiently.

On the academic side, national funding for research and medical education remain insufficient to support all the deserving candidates nationwide. Despite that, the Sarver Heart Center and our investigators have demonstrated a steady trajectory of growth in numbers, funding and caring for more patients than ever. We continue to grow the number of clinical and scientific faculty focused on excellence and innovation, fostering an academic and scholarly approach to the practice of cardiovascular specialty medicine, while searching for the next breakthrough in our labs. Several investigators obtained new or continued grant funding from the National Institutes of Health, including Khadijah Breathett, MD, MS, Qin Chen, PhD, Brett Colson, PhD, Samantha Harris, PhD, Michael Grandner, PhD, Henk Granzier, PhD, Carol Gregorio, PhD, Coen Ottenheijm, PhD, Casey Romanoski, PhD, and Jil Tardiff, MD, PhD.

Our Clinical Research Program has grown to more than 70 active trials underway, including several phase 1 and phase 2 trials, a testament to the innovative and collaborative leadership of Sarver Heart Center faculty.

The American Heart Association invited at least 14 Sarver Heart Center faculty to present at its national Scientific Conference in Chicago last November, further demonstrating the national leadership of heart center members, and a recognition of the excellence of the University of Arizona faculty.

During 2018, we welcomed five new cardiologists who bring subspecialty expertise in electrophysiology, cardio-oncology and interventional cardiology. (*Meet the three newest cardiologists on page 14.*) Steady recruitment of quality candidates will further strengthen key clinical areas such as advanced heart disease and transplantation, congenital heart disease, heart rhythm disorders, valve diseases and other structural heart conditions.

We have a new strategic planning process underway to redesign our cardiovascular services. Using a recent external review, we will be working with UA College of Medicine - Tucson and Banner leadership to ensure we are delivering cardiovascular care in Tucson to rival the best medical centers in America. This is an exciting time to use the expertise of advisors and best practices nationally to transform the experience for our patients, in new facilities, with the best group of cardiologists one could hope for.

I am very grateful for the support and advocacy so many people have shown and continue to provide for the Sarver Heart Center while we complete our transformation to a modern, cutting-edge academic medical center, with integrated research and patient care. Your ongoing support helps us move closer to our vision –

Innovating. Life-Saving. Patient Care.

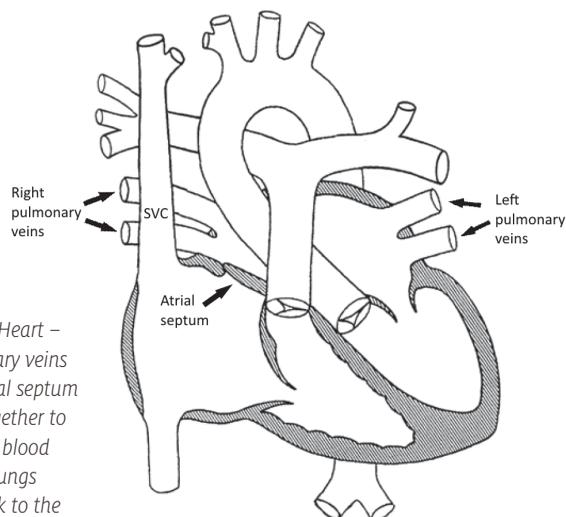
Thank you!

A handwritten signature in black ink that reads "Nancy K. Sweitzer".

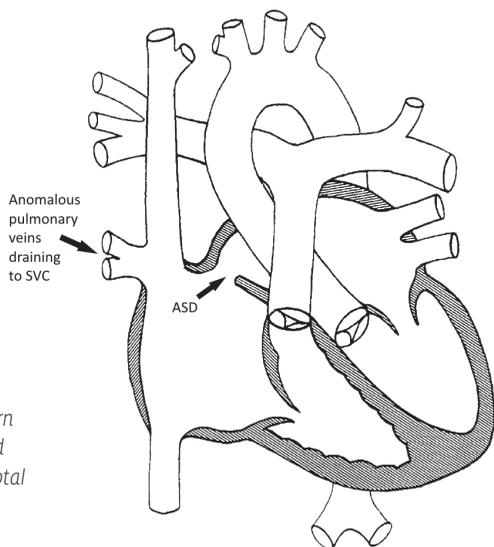
Nancy K. Sweitzer, MD, PhD

Director, University of Arizona Sarver Heart Center

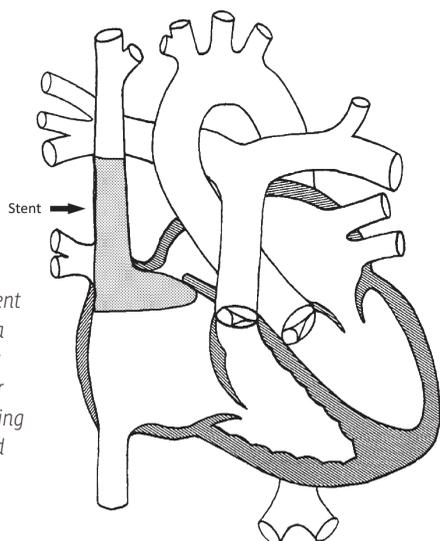
Professor and Chief, Division of Cardiology, UA College of Medicine – Tucson



Normal Heart – pulmonary veins and atrial septum work together to regulate blood flow to lungs and back to the heart



Partial anomalous pulmonary venous return (PAPVR) and an atrial septal defect (ASD)



Large covered stent placed in Patricia Fickett's superior vena cava (upper body vein), creating the wall that had never formed between the left and right heart.

known as the person who consistently could not run distances without “running out of air.” She described her heart palpitations as butterflies that would sometimes feel like hummingbirds.

Seen by a cardiologist after she had a bout with rheumatic fever around age 20, Mrs. Fickett was told she was doing well, considering her heart condition that was described only as a “heart murmur.” “Again, the doctor said don’t worry unless I started having problems,” said Mrs. Fickett. She went on to have successful pregnancies and didn’t pay much attention to her heart condition, until she was in her fifties and doctors became concerned about her enlarged heart.

In 2008, Mrs. Fickett started seeing a cardiologist in Tucson who, despite testing, remained confounded by the cause. In 2018, the cardiologist referred Mrs. Fickett to **Raj Janardhanan, MD**, an advanced imaging cardiologist at UA Sarver Heart Center and Banner University Medical Center - Tucson.

Dr. Janardhanan performed a 3D-transesophageal echocardiogram (3D-TEE), cardiac MRI and CT scan of the chest. The 3D reconstructions from the advanced cardiac imaging confirmed that Mrs. Fickett had a moderately complex congenital heart defect. She had partial anomalous pulmonary venous return (PAPVR), where some of the veins that bring oxygen-rich blood from the lungs back to the heart do not return to the normal location. In Mrs. Fickett’s case, as in most patients with PAPVR, this was accompanied by an atrial septal defect (ASD). This combination of defects leads to excessive amounts of blood flow to the lungs and are a rare cause of pulmonary arterial hypertension, but may cause only relatively mild symptoms through much of a patient’s life.

Dr. Janardhanan, professor of medicine and medical imaging at UA College of Medicine – Tucson, consulted **Michael Seckeler, MD, MS**, an interventional pediatric and adult congenital cardiologist who specializes in repairing congenital heart defects through minimally invasive catheter procedures, and **Franz Rischard, DO**, a specialist in pulmonary hypertension. Drs. Rischard, associate professor of medicine, and Seckeler, associate professor of pediatrics, collaborated on a diagnostic catheterization procedure to measure the pressure and blood flow in Mrs. Fickett’s heart and lungs. “Mrs. Fickett had four times the normal amount of blood going through her lungs because of her congenital heart disease and this was the cause of her symptoms,” said Dr. Rischard.

While these congenital heart defects typically are repaired with open-heart surgery using heart-lung bypass, the Banner – University Medical Center Tucson congenital heart team was unsure that this would provide the best outcome for Mrs. Fickett because of the stress on her body, so less invasive options were considered.

Her anatomy was quite complicated, so Dr. Seckeler created and printed a 3-D model of Mrs. Fickett’s heart from the CT scan raw data, using a 3-D printer obtained through a 2015 Sarver Heart Center Investigator Award. With the model in hand, Dr. Seckeler was able to plan a minimally invasive, catheter-based procedure previously



The heart model used to plan the advanced catheter procedure was made possible by a 3-D Printer purchased by Dr. Seckeler with support from a Sarver Heart Center Investigator Award in 2015.

performed only a handful of times around the world, avoiding open-heart surgery. He also was able to use the model to explain the congenital heart defect and proposed intervention to Mrs. Fickett and her husband, Chuck Fickett.

In the cath lab, Dr. Seckeler placed a large covered stent in Mrs. Fickett's superior vena cava (upper body vein) and created the wall that had never formed between the left and right heart. As soon as the stent was placed, her lung blood flow was down to almost the normal amount and her lung pressures returned toward normal.

"A week later, I made a meal for one of our church families who had suffered a loss. I now have more energy and no more fatigue. I'm active in my church and I returned to substitute teaching," said Mrs. Fickett. "God took care of me for 69 years and decided I needed to be fixed, so He sent me to my miracle workers. There is no word adequate to express my gratitude to this gifted group of doctors, except, "Thank you."

"Having a team of specialists in Tucson able to diagnose and treat patients with complex congenital heart defects is a great asset. The UA Sarver Heart Center and Banner – University Medical Center Tucson have the longest standing and most experienced team to help patients in Tucson and from all over Arizona," said Dr. Seckeler.

"While most adult congenital heart patients have undergone some type of heart surgery in childhood, at least 10 percent are not accurately diagnosed until adulthood. Mrs. Fickett's cardiologist had suspicions about an underlying cause and referred her to Dr. Janardhanan who applied advanced diagnostic imaging, along with an awareness and direct access to the congenital heart specialists and cardiovascular scientists located under the same roof at BUMC-T/Sarver Heart Center. This permitted a team approach that resulted in the innovative, minimally invasive trans-catheter heart repair for Mrs. Fickett's congenital heart defect. This multi-disciplinary congenital heart environment is unique in Arizona and provides a tremendous resource for adults living with congenital heart disease," said **Scott Klewer, MD**, professor of pediatrics and medicine at UA College of Medicine – Tucson and the Sarver Heart Center's **Peggy M. Barrett Endowed Chair for Congenital Heart Disease in Adults**.

Heart Series Publishes Participants' Data, Collaborates with El Rio

Dr. Charles Katzenberg, clinical professor of medicine at UA Sarver Heart Center, and Heart Series collaborators published a paper in the American Journal of Medicine (August 2018) showing that 105 Heart Series participants were able to lose weight, lower their blood pressure and improve their lipid values. During the six-to-12-month period after the Heart Series only 1 out of 105 participants experienced a hospitalization, which was necessary for the placement of a coronary stent.

El Rio Health Center is hoping to see similar benefits with their patients who recently completed the 12-week course. El Rio identified 20 patients who had either experienced events such as heart attacks, stroke, bypass surgery or stents, or had risk factors for developing heart disease. The format for each weekly session was to learn and practice Tai Chi, listen to a talk on different aspects of prevention and share a whole food, plant-based potluck meal. Topics included understanding the nature and causes of cardiovascular disease, identifying risk factors, optimal heart-healthy nutrition, label reading, effective and safe exercise, Tai Chi, yoga, stress management, medications, supplements, listening and communicating effectively. At the final session, each participant created and shared their own unique plan for heart disease prevention. Each plan had four components: nutrition, exercise, stress management and community involvement. Of the 20 people who enrolled, 19 completed the 12-week program.

The Heart Series is offered to the Tucson community twice a year with classes beginning in September and February. For more information, visit www.heartseries.org

2018–2019 INVESTIGATOR AWARDS FOSTER CAREER DEVELOPMENT



Focused this year on scientists early in their careers or education, University of Arizona Sarver Heart Center Investigator Award recipients for 2018-2019 include an undergraduate, graduate students and early-career faculty members who represent molecular science, psychology and cardiology, among others.

“The unflagging generosity of our donors ensures the ongoing success of the Sarver Heart Center Investigator Award Program. Gifts to this program come in many forms. We have received generous individual donations to support a research focus area. Highly coveted planned gifts provide investigator award funding not only now, but into the future,” said **Nancy K. Sweitzer, MD, PhD**, director of the UA Sarver Heart Center and chief of cardiology. “This allows us to foster career development on our campuses with this program as a predictable resource.”

UA Sarver Heart Center Investigator Awards provide variable amounts of funding up to \$25,000 and support innovative pilot projects that commonly lead to larger regional and national grants. The return on investment for this program has been as high as 10 to 1, said Dr. Sweitzer.

Women of Color Research Award



Dr. Khadijah Breathett (left) with research team members Luis Luy (on screen), Kathryn Herrera-Theut, BS, and Leanne Zabala, BS. Not pictured: Erika Yee, BS, Ashley Larsen, MS, Sade Solola, MD, Natalie Pool, PhD, Megan Hebdon, PhD, and Janice Crist, PhD.

Khadijah Breathett, MD, MS

“Cardiovascular disease affects women and underrepresented minorities, and the disparities in care and outcomes have persisted with little improvement. As a clinician scientist, it is my priority to champion efforts to reduce cardiovascular disparities among women and racial/ethnic minorities, particularly in heart failure. To this end, I have conducted multiple studies to better understand disparities and identify process-of-care targets to reduce disparities. Over the next five to 10 years, I will continue my services research, the results of which, by providing practical tools to reduce disparities, will influence policy decisions, change clinical practice and improve quality of care.”

“Addressing Individual Provider Bias in Selection of Advanced Heart Failure Therapies in Racial/Ethnic Minorities”

Mentor: Nancy Sweitzer, MD, PhD

Understanding the role of bias in the selection of patients for advanced heart failure therapies is a critical step in creating health equity. The study funded by this award will examine individual provider bias and the group decision-making process for selecting patients for advanced therapies for heart failure, heart transplants and left ventricular assist devices. Dr. Breathett’s research team will identify the most important subjective eligibility criteria for advanced therapies and implement a standardized protocol that more objectively addresses these criteria.

Steven M. Gootter Foundation Award



Jared Churko, PhD

“Cardiovascular disease is the number one killer in the world and stem cells provide important new clues to understand heart disease mechanisms.”

“Modelling Exercise Induced Stress with ACM Engineered Heart Tissues”

Mentor: Nancy Sweitzer, MD, PhD

Arrhythmogenic cardiomyopathy (ACM), formerly known as arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D), is an inherited heart disease in which the ventricular heart muscle tissue develops arrhythmias, resulting in higher rates of sudden cardiac death. While ACM generally is considered a genetic disease, exercise and other contributing non-genetic environmental factors are suspected to increase risks. However, researchers still do not understand completely the mechanisms leading to ACM. This research will generate induced pluripotent stem cells (iPSCs) from patients with ACM and further differentiate iPSC cells into cardiomyocytes (hiPSC-CMs) to understand ACM. “Specifically, we are taking a transcriptomic approach to identify the molecular signaling pathways involved in ACM pathology. This approach will help explain how the genome produces specific cells under specific circumstances,” said Dr. Churko.

William J. “Billy” Gieszl Endowment for Heart Research



Brett Colson, PhD

“Heart disease research allows me to apply my interests in physiology and biomedicine to the leading cause of death in the U.S. I became fascinated by the mechanical pumping function of cardiac cells that develop force, and how innovations in medical devices and new pharmaceuticals are used to better treat heart disease.”

“Role of Nox4 in Duchene Muscular Dystrophy-related Dilated Cardiomyopathy”

Mentor: Henk Granzier, PhD

Patients with Duchenne muscular dystrophy (DMD) suffer from progressive muscle weakness, including the heart muscle. Enlargement of the heart, and replacement of heart muscle cells by scarring, leads to heart failure, which is the leading cause of premature death in these patients who lack dystrophin, a large protein that connects muscle cell structures. Numerous studies have demonstrated that skeletal and cardiac muscle in DMD lab models exhibit high levels of oxidative stress. Dr. Colson will develop a proof-of-concept tool to evaluate the Nox4 gene as novel therapeutic target for DMD. Nox4 is a major source of oxidative stress in heart failure.

Finley and Florence Brown Award



Jessika Iwanski, MS, with Mert Colpan, PhD, co-principal investigator

Jessika Iwanski, MS (MD/PhD candidate)

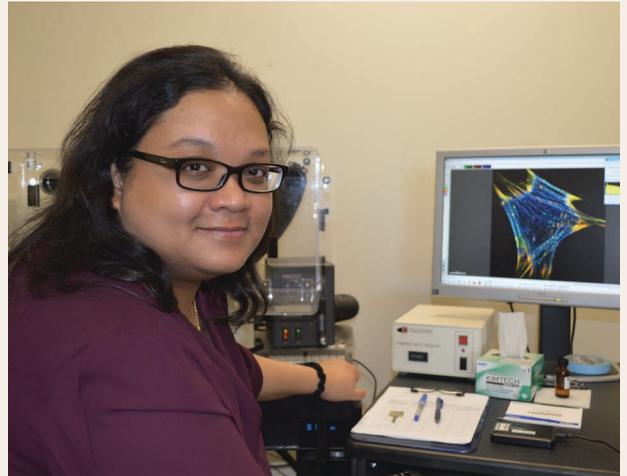
“After joining the UA graduate perfusion sciences program, I fell in love with cardiology, heart devices and transplants. Working alongside cardiothoracic and transplant surgeons, I was inspired to pursue a career in academic medicine, focusing on adult cardiac care and researching the mechanisms behind the development of heart disease.”

“Examining the role of cyclase-associated protein 2 in cardiomyocyte thin filament function and contractility”

Mentor: Carol Gregorio, PhD

A cardiomyopathy is a disease of the heart muscle which can lead to a reduction in pumping function. Previous research in the lab has been instrumental in describing the role that controlling thin filament length plays in cardiomyopathy. Thin filaments are one of two interacting protein strands in heart muscle that are required for contraction. In this study, Jessika Iwanski and **Mert Colpan, PhD**, co-principal investigator, will decipher the molecular role of CAP2, a novel actin regulatory protein, and how it contributes to thin filament length regulation and cardiac disease.

Novel Cardiovascular Research Awards



Lei Mi-Mi, PhD

“My goals are to contribute towards the advancement of basic cardiovascular science research. My long-term goal is to make an impact on the direction of therapeutic discoveries for cardiac myopathies.”

“Leiomodin-2 regulates cardiac thin filament length and function”

Mentor: Carol Gregorio, PhD

As muscles contract, the force they generate depends on the degree of overlap between actin-based thin and myosin-based thick filaments (the threadlike fibers that make up heart-muscle cells). Maintaining precise lengths of these filaments is critical to normal heart function. The long-term goal of Dr. Mi-Mi's work is to understand how thin filament length is regulated in heart muscle and how altered thin filament lengths lead to cardiomyopathy (disease of muscle tissue).



Stefanie Mares Novak, PhD

"I started my career as a scientific researcher in Dr. Darrel Goll's laboratory in the UA Department of Nutritional Science. After losing my mentor, Dr. Goll, to a heart attack in 2008, I decided to earn my PhD in cellular and molecular medicine so I can pursue a career in heart disease research."

"Elucidating the role of the RNA binding protein, FXR1, in Duchenne Muscular Dystrophy"

Mentor: Carol Gregorio, PhD

This project will increase understanding of the function of a member of the RNA-binding Fragile X family of proteins, FXR1, in heart disease that is prevalent later in life in Duchenne Muscular Dystrophy patients. This project will lead to important insights into RNA-based mechanisms for cardiac function, and may help identify therapeutic approaches for heart conditions linked to defects in FXR1 or its RNA targets.



John M. Ruiz, PhD

Associate Professor, UA Department of Psychology

"I was a post-doctoral researcher at University of Colorado when the Oklahoma City bombing occurred. Within 24 hours of the act, we were on the ground collecting data. My first publication documented variations in stress biomarker concentrations as a function of proximity and emotional reactions among survivors. The evidence we gathered demonstrated that the body "keeps score" of psychological events. This hooked me and led to a career as a scientist studying the impact of stress on cardiovascular disease."

"Hispanic Ethnicity and Southern Border Proximity as a Moderators of Cardiovascular Risk and Resilience: Ethnicity, Stress, and The Relational Environment Study (ESTRES)"

Psychological stress increasingly is recognized as a significant contributor to cardiovascular disease risk and outcomes. Despite high stress exposure, emerging evidence suggests Hispanics may perceive relatively less stress than other groups. This may contribute to an observed Hispanic health paradox: Hispanic Americans have higher life expectancies, despite higher poverty rates, harsher jobs and less access to health care and education. At the same time, the ongoing immigration-related tension at the U.S.-Mexico border may represent a novel stress risk for those Hispanics residing in the border area. Findings will facilitate an NIH/RO1 application to investigate effects of stress on atherosclerotic progression (buildup of plaque in the arteries) and potential mediation by family and social structure.



Samuel Shi, BS

graduate student in the Clinical Translational Science Program, UA College of Medicine – Phoenix

“I’m attracted to medical science because it is a discipline where you need to be constantly learning and growing as an investigator to remain competitive. I am pursuing a doctoral degree in neuroscience,” said Shi.

“Investigating the Expression Profile and Sex Differences of Sphingosine-1-Phosphate Receptor Subtype 1 in the Cerebrovasculature Following Acute Ischemia and Reperfusion”

Mentor: Rayna J. Gonzales, PhD

Acute ischemic stroke, a devastating and common cerebrovascular disease, occurs when blood flow to the brain is blocked. Epidemiologic studies reveal clear sex differences in stroke prevalence, incidence and mortality. Sex differences may also influence response to treatment and subsequent clinical outcomes. Men have strokes at younger ages than women. Shi’s study uses a lab model of brain ischemia and resumed blood flow, or reperfusion (a model of stroke). Shi hypothesizes that ischemia and reperfusion injury alters expression of an important regulatory protein, S1PR1, in brain endothelial cells (the interior surface of blood vessels). Shi will characterize the expression profile of S1PR1 in an animal model and investigate if sex differences exist.



Danielle Spencer-Bearham

Undergraduate, Biomedical Engineering

“My brother has epilepsy and his condition motivated me to pursue biomedical research. I’m planning to study neural engineering. The work in the Goldman Lab gives me a strong understanding of how to conduct research and will help me reach the next step of my training.”

“Quality of Life and Functional Capacity Study in Pre-MI and Post-MI”

Mentor: Steven Goldman, MD

The research team is studying quality-of-life and functional capacity before and after a heart attack. Using a FitBit-like device adapted to the lab model and a portable ECG with special adhesives to record data for 10 minutes, the research team is evaluating exercise tolerance and daily activity levels to compare pre-heart-attack baseline data with post-heart-attack data.

Visit the UA Sarver Heart Center website for information on ways to give to support research: heart.arizona.edu

ASSOCIATION OF BLACK CARDIOLOGISTS HONOR UA MEDICAL STUDENT



The Association of Black Cardiologists (ABC) selected Ikeotunye (Ike) Chinyere as a recipient of the **Dr. Richard Allen Williams Scholarship for Medical Students**. The selection committee cited his scholastic, personal and professional accomplishments, noting he showed great promise in pursuing a career in cardiology. Chinyere, who graduated from the University of Arizona in 2017 with a bachelor's degree in physiology, may apply the \$5,000 scholarship award toward his medical school education. He is pursuing a dual MD/PhD degree in the UA College of Medicine – Tucson, and is part of the highly productive Goldman Research Lab in the Sarver Heart Center. Chinyere (*center*) was acknowledged during the Spirit of the Heart Awards Dinner in Washington, DC, on September 29. He is pictured with Kevin Williams (left), of BMW, the corporate sponsor of the award ceremony, and Richard Allen Williams, MD, founder of ABC.

Be Part of Something Big to Help Beat Heart Disease

Thanks to a great response from the community, Sarver Heart Center has enrolled more than 200 participants in its Cardiac Biorepository. Please help us reach our goal of enrolling 100 people every year.

“These blood samples will help scientists better understand heart disease and improve care and treatment now and in the future,” said **Nancy Sweitzer, MD, PhD**, director of the UA Sarver Heart Center and principal investigator of the biorepository research program.

To participate, you'll complete a questionnaire, sign an informed consent form that allows researchers to view your electronic medical record, and donate about 3 tablespoons of blood. **To complete a Cardiology Research Registry Form, please visit heart.arizona.edu/clinical-research or call 520-626-5431.**

CLINICAL UPDATES



Advanced Electrophysiology Cardiac Catheterization Lab is Up and Running

An Advanced Electrophysiology Cardiac Catheterization Lab opened at the beginning of September at Banner – University Medical Center Tucson, the first hospital in Arizona with this state-of-the-art technology, said Wendy Gonzales, cardiology director, Banner – UMC Tucson and South.



From Left: Mathew Hutchinson, MD, Julia Indik, MD, PhD and Peter Ott, MD.



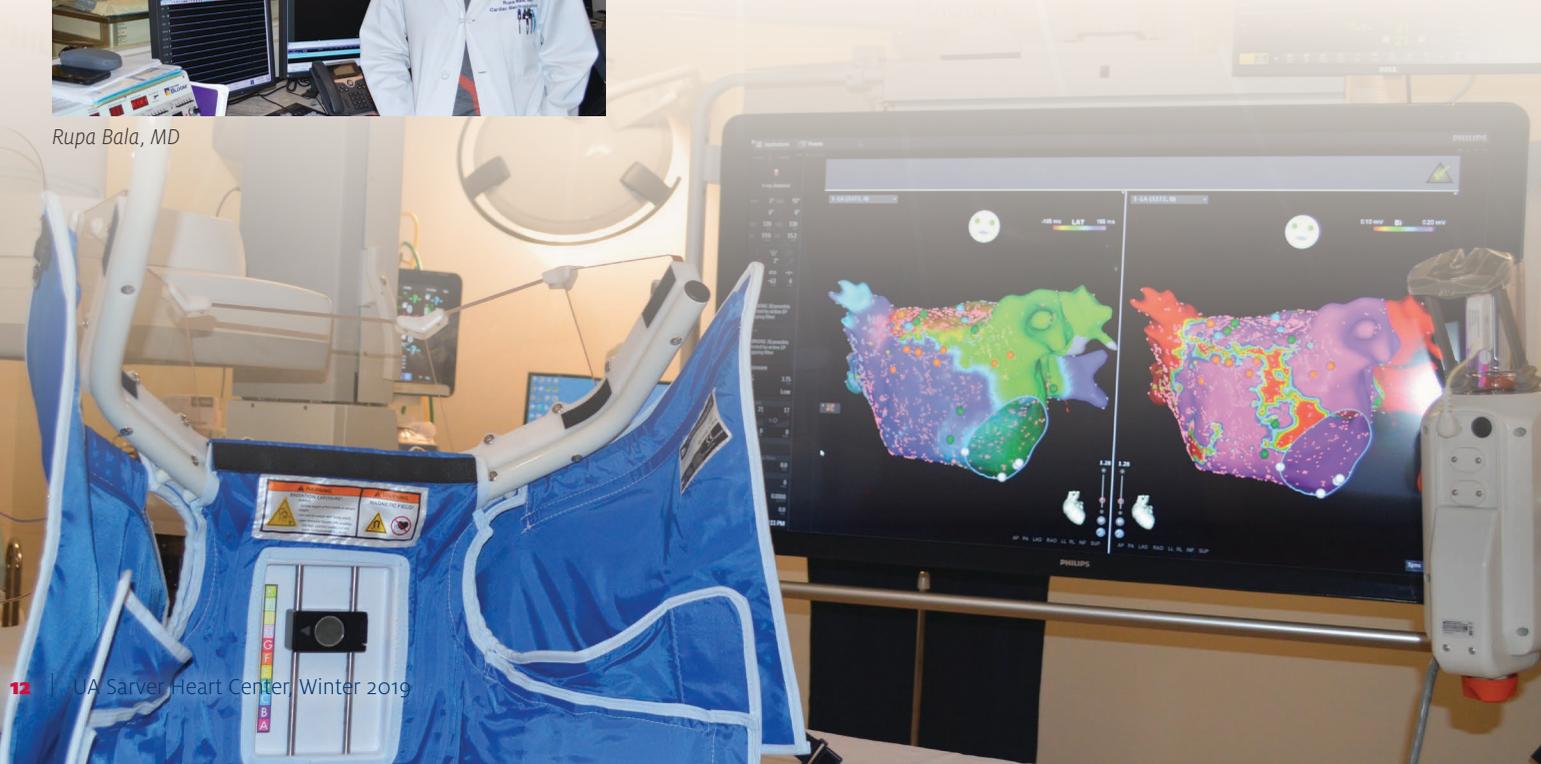
Rupa Bala, MD

Mathew Hutchinson, MD, professor of medicine and director of the Cardiac Electrophysiology Program at UA Sarver Heart Center championed this project. “The opening of our new state-of-the-art EP laboratory reaffirms BUMC-Tucson’s commitment to provide the most innovative and comprehensive cardiac rhythm care for patients in Southern Arizona,” Dr. Hutchinson said.

EP faculty will use the new system to conduct routine and complex catheter-based procedures to treat arrhythmias, including atrial fibrillation. These minimally invasive interventions reduce the risks and recovery time of traditional surgical approaches.

Other benefits of this system include high-quality imaging and excellent visibility, low radiation levels to increase safety for patients and physicians, as well as shorter hospital stays without the pain of a large incision and less visible surgical scarring.

For more information, please call (520) 694-6156.





Structural heart team for this procedure from left: Dr. Ranjith Shetty (interventional cardiologist); Dr. Toshinobu Kazui (cardiac surgeon); Dr. George Gellert (cardiac anesthesiologist, Banner – University Medical Center Phoenix); Dr. Paul Ford (cardiac anesthesiologist); Dr. Sam Paidy (cardiac anesthesiologist) and Dr. Kapildeo Lotun (interventional cardiologist), director, Structural Heart Disease Program.

Another Milestone for UA/Banner Tucson Structural Heart Team

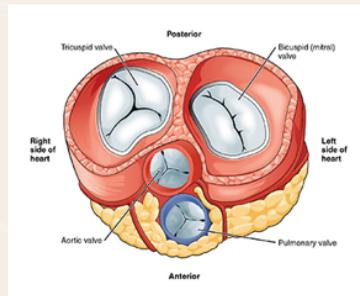
The University of Arizona Structural Heart Disease Program team at Banner – University Medical Center Tucson reached another milestone in completing the first-ever transcatheter aortic valve replacement (TAVR) procedure on a patient with a bicuspid aortic valve using only transesophageal echocardiography (TEE) to guide the procedure.

The procedure also was unique in that only a minimum of contrast dye was employed in final diagnoses preparations for the procedure and no CT (computed tomography) scan was used at all.

“With this alternative imaging modality, our team was able to complete the pre-procedure diagnostic testing and implant the TAVR valve using a small amount of contrast dye, allowing for increased kidney safety and preserving of the patient’s somewhat compromised kidney function,” said **Kapildeo Lotun, MD**, a professor of medicine in the UA Division of Cardiology, director of the Structural Heart Disease Program at the UA Sarver Heart Center.

The bicuspid aortic valve patient was from New Mexico and suffered from kidney disease. He was released the next day from the hospital. Avoiding open heart surgery and minimizing potentially damaging contrast agents typically used in studies to plan TAVR maximized the patients changes of avoiding kidney failure, which must be treated with dialysis.

“He was not on hemodialysis. We were trying to prevent him from having to go on dialysis. That’s one of the reasons we minimized use of the contrast dye,” noted **Monique Crawford, RN**, a clinical coordinator for the program. “We didn’t want to tip him over the edge with that potential reaction.”



Bicuspid aortic valves are a congenital heart defect involving an inherited form of heart disease where two of the leaflets of the aortic valve fuse during development in the womb resulting in a two-leaflet (or bicuspid) valve instead of the normal three-leaflet (or tricuspid) valve.

Dr. Karnes Named Director of Scientific Programs for All of Us Research



Jason Hansen Karnes, PharmD, PhD, BCPS, has been named director of scientific programs for the All of Us Research Program team at the University of Arizona and Banner Health.

Dr. Karnes is assistant professor with the UA College of Pharmacy in the Department of Pharmacy Practice and Science. He also is assistant professor in the Division of Pharmacogenomics at the Center for Applied Genetics and Genomic Medicine within the UA Health Sciences, assistant professor of applied biosciences with the UA Graduate Interdisciplinary Program, and member of the UA Sarver Heart Center.

A pharmacogenetics expert, Dr. Karnes’ research involves studying the effect of genetics on drug response. His work involves using insights from electronic health records to identify genetic influences on disease and severe side effects of common medications. Using big data and bioinformatics techniques, Dr. Karnes’ research may identify genetic variation that can be used to diagnose and prevent severe side effects.

In his role, Dr. Karnes will work with UA faculty members to leverage opportunities for scientific innovation and research using the All of Us Research Program’s resources, including access to the researcher datasets and tools.

The All of Us Research Program is currently enrolling participants. All eligible adults who live in the United States can join the program and U.S. citizenship or permanent residency are not needed to enroll. There are three ways to join:

- Visit the All of Us website, AllOfUsAZ.org.
- Download the All of Us Research Program app (Google Play or iTunes).
- Visit one of the Arizona enrollment locations listed at AllOfUsAZ.org/locations.

WELCOME NEW FACULTY



The University of Arizona Sarver Heart Center welcomed three new faculty cardiologists in September.



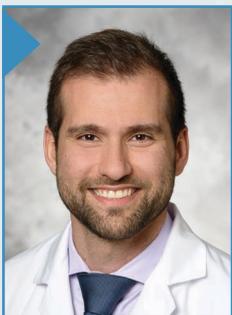
Tushar Acharya, MD, is board certified in cardiovascular disease, echocardiography, nuclear cardiology and internal medicine, and is board eligible in nuclear cardiology. His clinical interests include integrating multi-modality cardiovascular imaging into routine patient care and delivering evidence-based cardiovascular care with an emphasis on preventive cardiology. His research interests include improving cardiovascular care and outcomes through application of advanced cardiovascular imaging modalities, such as cardiac CT and cardiac MRI, as well as through scholarly conduct of population-based studies, clinical effectiveness and implementation research to optimize cardiovascular care strategies. He has authored and co-authored multiple original research publications and has presented his research at national and international scientific meetings.

At the University of California, San Francisco, in Fresno, Dr. Acharya completed his residency in internal medicine in 2013, followed by a fellowship in cardiovascular disease in 2016. He then completed an advanced cardiovascular imaging fellowship in 2018 at the National Heart, Lung and Blood Institute, National Institutes of Health, in Bethesda, Md. He is completing a master's degree in public health from the Harvard T.H. Chan School of Public Health in Boston.



Olivia Hung, MD, PhD, is board certified in internal medicine and cardiovascular disease. Her clinical interests include non-invasive cardiology, heart disease prevention, women's heart disease, cardio-oncology and cardiac imaging. Her research interests include cardiovascular disease in women and coronary physiology. She has authored multiple original research publications and textbook chapters.

After receiving her bachelor's degree in chemistry from Harvard University in Cambridge, Mass., where she graduated cum laude, Dr. Hung completed a doctorate in organic chemistry at the University of California, Berkeley. She completed her medical degree and postgraduate training at the Emory University School of Medicine, including the ABIM Research Pathway with combined training in the J. Willis Hurst Internal Medicine Residency and Academic Clinical Investigator Pathway in Cardiovascular Diseases (cardiology fellowship).



Nader Makki, MD, is board certified in cardiovascular medicine, vascular imaging nuclear cardiology and in interventional cardiology. His clinical interests include interventional cardiology specifically pertaining to complex coronary artery disease, structural heart disease and above-the-knee peripheral artery disease.

His research interests include structural heart disease outcomes evaluation in special populations, such as patients with chronic kidney disease, and investigating contributors to pacemaker dependency following transcatheter aortic valve replacement (TAVR). In addition, he is interested in developing quality measures to guide improvements in anticoagulation and hemodynamic monitoring in the cardiac catheterization lab. He has authored and co-authored more than 30 research publications.

After earning his medical degree from the American University of Beirut Medical School in 2011, Dr. Makki completed his internal medicine residency at University of Iowa Hospitals and Clinics in Iowa City in 2014. He completed a fellowship in cardiovascular medicine at Ohio State Wexner Medical Center in 2017 and a fellowship in interventional cardiology in 2018 also at the OSU in Columbus.

COMMUNITY PARTNER UPDATES



1 Congratulations to **Cheryl Alli**, who was acknowledged by the **Community Coalition of Heart Health Education** for nine years of dedication to community outreach and chest-compression-only CPR training. “Cheryl’s work and dedication to community is a shining example of the vision and need for heart health education for women, especially women of color. Her work and dedication help to change the world every single day,” said **Wanda F. Moore**, chair of the CCHHE. *Pictured from left: Dyann Roller, Barbara Lewis, Cheryl Alli, Wanda Moore, Aubra Gaston and Marilyn Robinson.*

2 Many thanks to **Alpha Phi Sorority**, University of Arizona, for inviting Sarver Heart Center to present the importance of heart disease research and education during the sorority’s Red Dress Gala 2018, held during Family Weekend in October. *Pictured from left: Kate LaMantia, Alpha Phi vice president of community relations; McKenzie Meza, a UA freshman who shared her story of excelling in life despite living with a congenital heart condition; and Dr. Nancy Sweitzer, director of Sarver Heart Center and chief of cardiology at UA College of Medicine – Tucson.*

3 Do you prefer **chest-compression-only CPR** or **RCP con solo compresiones de pecho**? Either way, our volunteer students – medical school and undergraduate – have you covered. Spanish-language training materials are now available for community training sessions, including a video, instruction cards, a bilingual AED trainer and bilingual volunteers who can teach chest-compression-only CPR in Spanish. This was made possible through a collaboration between the REACT Group (Resuscitation Education and CPR Training), the Arizona Hispanic Center of Excellence, the Sarver Heart Center and a grant from the UA Area Health Education Centers. For more information, visit heart.arizona.edu/heart-health/learn-cpr or contact Erika Yee, 520-626-5976 or erikayee@shc.arizona.edu. *Pictured from left: Alejandra Zapien Hidalgo, MD, assistant professor, Family and Community Medicine, Erika Yee, Sarver Heart Center Health Education Assistant, Issa Dominguez, volunteer, Marty Cisneroz, fourth-year medical student and former REACT Group president.*

4 At the UA Sarver Heart Center board meeting in November, **UA President Robert C. Robbins** (right) provided an overview of the UA strategic plan and presented the Mary Anne Fay Women’s Heart Health Advocate of the Year Award to **Dr. Nancy Sweitzer** (center). In nominating Dr. Sweitzer for the award, **Mary Anne Fay** (left) called her a “champion of the Sarver Heart Center Women’s Heart Health Education Committee, for her continuing focus on women’s heart health.”





THE UNIVERSITY OF ARIZONA
HEALTH SCIENCES

**Sarver Heart
Center**

The University of Arizona
Health Sciences
Sarver Heart Center
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Tucson AZ 85724-5046

Green Valley LECTURE SERIES 2019

FEB. 21 –

“Aortic Diseases: Can We Intervene Before They Turn Deadly?”

- Craig Weinkauf, MD, PhD

MARCH 21 –

“Stroke Prevention and Atrial Fibrillation.”

- Ranjith Shetty, MD

APRIL 18 –

“Arthritis and Heart Disease: Is inflammation the common culprit?”

- Kent Kwoh, MD

All Green Valley Lectures are held on Thursdays from 10 a.m. to 11 a.m. at Canoa Hills Social Center, 3660 S. Camino del Sol in Green Valley

**For more information, visit
heart.arizona.edu/events**



Learn about heart valve disease, a condition that affects 11.6 million Americans, yet 40 percent of adults have never heard of the disease.

**Friday, February 22, noon to 4 p.m.
Santa Rita Springs Social Center
921 W. Via Rio Fuerte,
Green Valley AZ 85614**

Visit information booths and attend a community lecture by members of the University of Arizona Sarver Heart Center Structural Heart Team at 2 p.m.

The event is free and open to the public, including refreshments.

For more information, email
BUMCTstructuralheart@bannerhealth.com

For more information on heart valve disease, visit UA Sarver Heart Center's Heart Valve Disease webpage.
heart.arizona.edu/heart-health/heart-valve-disease

Banner/UA College of Medicine – Tucson Doc Talk

**Tuesday, March 5 – 5 p.m.
Event Location: Double Tree Reid Park
445 S. Alvernon Way**

Doc Talks are a free community health lecture series featuring top docs. A Wellness Expo kicks off the event at 5 p.m., the lectures start at 6 p.m. Light refreshments are provided.

**Mathew Hutchinson, MD
“Keeping Your Heart in Sync: What You Need to Know About Atrial Fibrillation”**

**David Bull, MD
“Aortic Disease and Your Treatment Options”**