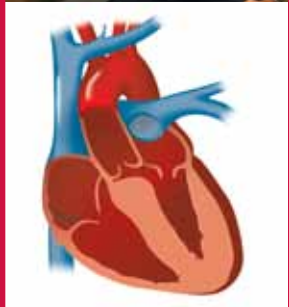




Gootter Endowed Chair for Sudden Cardiac Death Research Established



For Jil C. Tardiff, MD, PhD, the University of Arizona Sarver Heart Center's reputation in heart muscle research was a major draw in her decision to accept the *Steven M. Gootter Endowed Chair for the Prevention and Treatment of Sudden Cardiac Death*.

"I am primarily a basic science researcher, specifically a muscle biologist, and the UA—stretching back to Eugene Morkin (a founding co-director of Sarver Heart Center)—always has been known as a stellar center for muscle research. That reputation continues to this day and the opportunity to interact directly with scientists like Carol Gregorio, Henk Granzier and Paul Krieg—to name but a few—was a significant attractant. Cardiac muscle is an inherently difficult system to study and having like-minded colleagues with such varied approaches is a major advantage to any research program," says



Jil Tardiff, MD, PhD, at the Gootter Grand Slam Gala Dinner where her appointment was celebrated.

Dr. Tardiff, who recently joined the faculty as a professor in the Department of Medicine, Section of Cardiology, and the Department of Cellular and Molecular Medicine in the UA College of Medicine, and the BIO5 Institute.

The UA's "large and vibrant" Department of Physiology is another important factor to this physician-scientist, as is the emphasis on translational research that expands the role of physician-scientists who apply clinical experience to lab studies in the hope of improving patient care. "I like the energy here and am looking forward to developing

ways to both attract more junior investigators and encourage undergraduates and medical students to consider careers in biomedical research," says Dr. Tardiff. As a southern California native, she also is enjoying a return to the Southwest after spending the past 25 years in New York City. "I was born and raised in southern California, so this is a bit of a homecoming for me."

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...from the Director



Scientific advances in medical care are predominantly made by academic medical institutions. New approaches to the prevention and treatment of diseases are instituted to improve not only the quality, but the longevity of life. These advances are practiced and taught to the present and future physicians and other health-care providers.

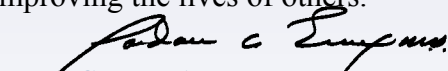
The state-approved “Centers of Excellence” at the University of Arizona are important contributors to the academic mission of our College of Medicine. The Sarver Heart Center’s vision of a future free of heart disease and stroke can only be realized via the academic principles of research, education and service. The majority of the service component in a medical school is patient care and the secret of patient care is caring for the patient! It is through the academic scientific discipline of caring for our patients that one often sees where advances in diagnosis and therapy are needed. These stimulate the so called bed-to-bench-and-back-to-the-bedside research that improves patient care.

There was a time when state support for teaching and the remuneration for patient care were sufficient to allow support of our academic institutions. There

was sufficient “protected” or “research” time to allow for patient care and scientific inquiry and research. In my view, and in the view of many, those times are past. As we look toward the future of academic medicine, endowed chairs will play an increasingly important role. Endowed chairs are established by families or groups who designate gifts to the University of Arizona Foundation. These endowed chairs are “in perpetuity,” in that they will last as long as the University of Arizona lasts. Endowments to the UA Foundation support a specific project or purpose and a percentage of the endowment, which is managed by the foundation, is provided each year to support the academic and research functions of the selected faculty member. Thus the principle is not depleted and will grow with inflation, so that centuries after it is established, it will still produce the income for its intended purpose.

In this issue of the University of Arizona Sarver Heart Center Newsletter, we highlight the creation of the *Steven M. Gootter Chair for the Prevention of Sudden Death*. It is because of this endowment that we were able to attract another world-class physician/scientist to our faculty here at the UA College of Medicine. The Steven M. Gootter Foundation board of directors and the many individuals who supported this effort should feel justifiably proud.

We encourage you to visit the Sarver Heart Center to see and hear of the many exciting activities that are part of our daily lives and are aimed at improving the lives of others.


GORDON A. EWY, MD
Director, UA Sarver Heart Center

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Fernando D. Martinez,
MD



Allan and Alfie Norville

Dr. Tardiff's recruitment was made possible by support from the Steven M. Gootter Foundation and accelerated by a grant from the UA Clinical and Translational Sciences Institute (CTSI). Under the leadership of Fernando D. Martinez, MD, the UA CTSI provides the groundwork for therapeutic medical advances in priority areas, including cardiovascular disease. In March this year after seven years of fundraising, the Gootter Foundation met its goal of \$2 million for the endowed chair. Their goal was reached early when Allan and Alfie Norville, long-time Sarver Heart Center and Gootter Foundation supporters

stepped forward with a generous gift during the Gootter Gala dinner.

"We truly could not be happier with the appointment of Jil Tardiff as the *Steven M. Gootter Endowed Chair for Sudden Cardiac Death Research*. Dr. Tardiff's unparalleled expertise in hypertrophic cardiomyopathy coupled with her drive and passion to improve treatment and find a cure for this insidious disease makes her uniquely qualified for the position," says Claudine Messing, spokesperson for the Gootter Foundation and sister of Steven.

"I have tremendous respect for the Gootter Foundation and the work of the UA Sarver Heart Center Resuscitation Research Group. In many ways there is no greater gift than a successful resuscitation or 'save.' It gives someone a second chance in a situation where all would be lost. To develop all of these programs, provide AEDs and help broaden the knowledge in the community of the new approach to CPR that was developed at the UA is an incredible accomplishment," says Dr. Tardiff.

"The Gootter Foundation also emphasizes the important and active role that independent

foundations and donations can play in furthering health goals. My entire career has been focused on developing new approaches to alter the natural history of hypertrophic cardiomyopathy (HCM). The goal is to identify relatives at risk to prevent a cardiac arrest," says Dr. Tardiff.

Starting her medical career as an endocrinologist, Dr. Tardiff recalls a patient that changed her entire career trajectory. "This patient was resuscitated from a sudden cardiac arrest and turned out to have HCM. Many, many groups have wrestled with the difficulties in linking genotype (genetic makeup) to phenotype (physical characteristics) in the past 20 years and it has become very clear that new, results-oriented approaches are needed, both with respect to bench research and clinical diagnosis," she says.

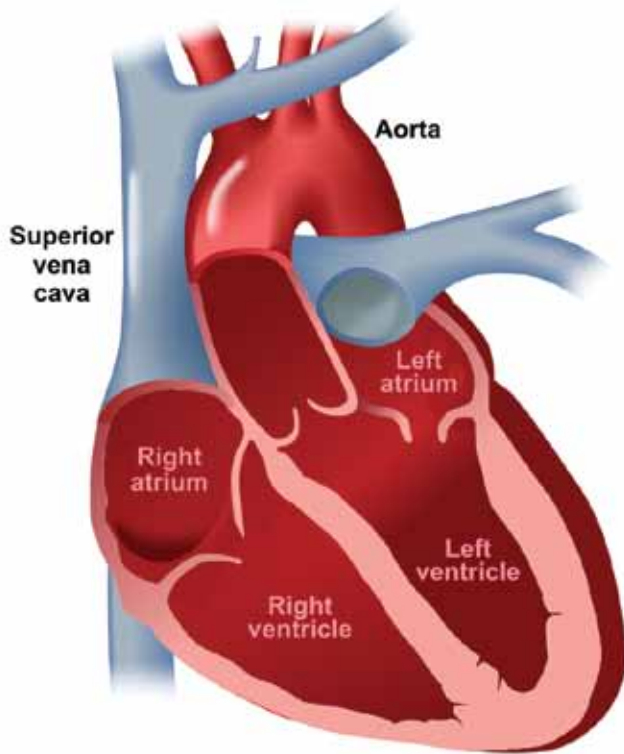
From the bench research side, these novel experimental methodologies are, by definition, high-risk, meaning that there is no guarantee that they will work at first and often need significant development time. "I have earmarked the proceeds from the Gootter Chair to fund only my most creative and cutting edge work; it is a tremendous advantage for this program," says Dr. Tardiff.

HCM Clinic on the Horizon

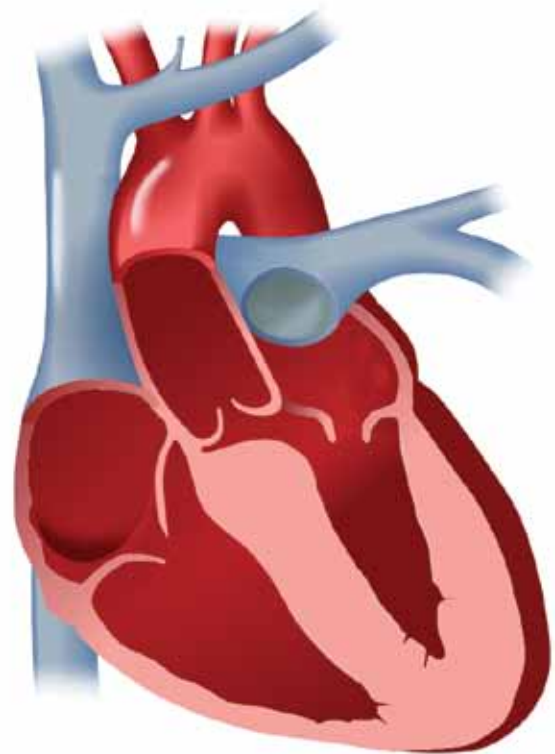
Dr. Tardiff's inspired thinking doesn't end in the lab, but extends to the dream of establishing a clinic that focuses on HCM patients. "While HCM is a common disorder that affects one in 500 people, there is no dedicated HCM program in the Southwest and while developing such a comprehensive program is a daunting goal, we already have a growing Congenital Heart Disease Clinic in conjunction with Pediatric Cardiology. Given that HCM remains one of the most common genetic causes of sudden cardiac death, the establishment of such a program, where entire families can receive cutting-edge care, is a great fit with both the stated goals of the Steven M. Gootter Foundation and the College of Medicine's goals of increasing the academic efforts where the next generation of doctors can learn to diagnose and treat HCM," says Dr. Tardiff. ♥

Hypertrophic Cardiomyopathy

By Gordon A. Ewy, MD



Normal Heart



Hypertrophic Heart

In this issue, we announce the appointment of Jil C. Tardiff, MD, PhD, as the *Steven M. Gootter Endowed Chair for the Prevention of Sudden Cardiac Death*. Steven was a young, vibrant, witty, athletic husband, father, son and businessman who left his house one morning for a jog. He was struck by out-of-hospital cardiac arrest (OHCA). No one witnessed this, so he was a victim of sudden cardiac death.

The average age of adults in the United States with cardiac arrest is the mid-60s, so many like Steven, who either are not witnessed or not promptly treated,

succumb at a relatively young age. In individuals over age 40, the most common cause of out-of-hospital cardiac arrest is coronary artery blockage, leading to a heart attack (myocardial infarction). So to prevent this tragedy, one addresses the classic risk factors for coronary artery disease: high cholesterol, high blood pressure, smoking, diabetes and stress. In contrast, there are many genetic causes of sudden death in younger individuals (under age 40). The most common in the United States is a disease called hypertrophic cardiomyopathy (HCM).

Jil is one of the rare, but

important breed of academic physicians who have expertise in both basic research (thus the PhD) and clinical medicine (thus the MD). Her genetic expertise in HCM is critically important as this is an inherited condition of the heart that occurs in approximately one in 500 people.

Diagnosing HCM

In HCM, the muscle of the pumping chambers of the heart becomes abnormally thick (Figure, right). It may or may not cause symptoms. It is equally distributed among males and females. It can develop in susceptible individuals

at any age (which may make the diagnosis difficult). So even if one has the genetic predisposition to the disease, their heart muscle thickness may be normal for years before it begins to thicken or enlarge. It predisposes the patient to sudden cardiac death and is the leading cause of sudden death in the young in the United States.

So why don't we just do genetic testing on everyone for HCM? More than 700 different genetic abnormalities have been identified in patients with HCM, so which ones do we test for? However, if someone in the family has this condition, the specific genetic abnormality of that individual can be identified, and others in the family can and should be tested to see if they are at risk of developing the disease.

The other problem is that individuals with hypertrophic cardiomyopathy may not have any symptoms, or symptoms may be non-specific. However symptoms, such as shortness of breath, chest pain or discomfort with exertion, dizziness or lightheadedness, fainting and palpitations, while not specific for HCM, do bring up the possibility of a cardiac condition. Unfortunately the first recognized symptom of HCM may be cardiac arrest or sudden cardiac death.

The genetics of HCM are caused by an inherited gene from parent to child. If a parent has HCM, his or her child will have a 50-percent chance of inheriting one of the HCM genes. However, the presence of the gene does not mean that the individual will have the disease. One family member may develop severe symptoms,

while another family member with the same gene may never develop any or only mild clinical signs of HCM. Conventional non-genetic family screening includes an annual electrocardiogram and echocardiogram for children under 18 years of age and every five years for adults over 18 years of age.

Treating HCM

Once discovered, the treatment of HCM depends upon its severity and the associated symptoms. In many patients the first line of treatment usually consists of medical therapy.

Patients at high risk are those who have a family history of sudden death, episodes of fainting, abnormal blood pressure in response to exercise, abnormal heart rhythms and excessive thickness of the heart muscle. Such patients often are treated with implanted cardioverter defibrillators (ICDs), so they can be rescued promptly from a life-threatening arrhythmia.

One of the characteristics of HCM is that part of the heart muscle (the part between the right and left ventricles) may become abnormally thick, causing a resistance of the blood being pumped from the left ventricle and leading to symptoms that cannot be managed by medical therapy. In these cases, the condition can be treated by either open heart surgery (removing part of the thickened septum) or in the cardiac cath lab (injecting alcohol into the septum to reduce its size).

Patients with HCM who wish to engage in sports should first closely work with their cardiologist

to develop a regimen that is tailored to their risk profile, especially in regards to any potentially strenuous activities such as football, basketball, soccer, running, bodybuilding, singles tennis, ice hockey, scuba diving, windsurfing or racquetball. They may engage in milder forms of exercise, such as walking or bowling.

An HCM Clinic

Although rare, if HCM runs in your family, it becomes a very important condition. Dr. Tardiff plans to begin a hypertrophic cardiomyopathy (HCM) clinic in conjunction with our excellent pediatric cardiologists at The University of Arizona Health Network to offer specialized care for such patients and their families. ♥

Is Your Family at Risk for HCM?

Not all sudden cardiac deaths are documented as such. If you have someone in your family who died suddenly, maybe from a car accident or even a drowning, ask people about the circumstances. Researchers suspect that some accidental deaths may be attributable to primary cardiac arrest that led to death during these types of activities.

Investigator Awards Provide Stepping Stones to Advanced Research

When a medical researcher is intrigued by a question that may lead to a breakthrough in knowledge and treatment, the first step is often the most difficult: obtain funding to collect data to prove the research shows promise. The UA Sarver Heart Center's Investigator Awards provide a stepping stone between bright ideas and promising proof.

Award recipients have gone on to receive major national grants and provide information that has led to improved protocols for patient care. Here are first steps that are being funded this year—all thanks to generous support to the Sarver Heart Center from families and individuals. ♥

Pediatric and Congenital Heart Disease Awards

The Stephen Michael Schneider Investigator Award is named in honor of Mr. and Mrs. Frederick Schneider's son, who passed away at a young age. This award was created to advance research in the area of pediatric cardiology.



Raymond Runyan, PhD, professor of cellular and molecular medicine, is studying a specific molecule that causes valve calcification. Knowledge of this protein will direct the development of specific therapies for both children and adults, and will show whether adult valve disease is due to a misregulated developmental process. ♥

The William J. "Billy" Gieszl Endowed Award for Heart Research was established by the Gieszl family in memory of William Gieszl to advance diagnosis, treatment and prevention of congenital heart disease.

Kevin Englehardt, MD, pediatric resident, is working to identify the potential health benefits of a high school cycling program. Particularly in the gap between childhood and adulthood, adolescents may benefit from a cycling spin class. ♥

Atherosclerotic Cardiovascular Disease Research

Edward and Virginia Madden Awards

In memory of loved ones who had heart disease, Mr. and Mrs. Madden committed through their estates to make a difference in the lives of those suffering from cardiovascular disease by funding critical research, such as these two awards:

Maria Altbach, PhD, associate professor of radiology, is working with Aiden Abidov, MD, PhD, to develop a technique that uses MRI technology to identify “myocardium at risk” without being as invasive as current procedures. This will impact the management of patients suspected of acute coronary syndrome as a result of atherosclerotic disease. ♥

Hussein Yassine, MD, assistant professor of medicine, is studying HDL or “good cholesterol,” and the mechanism of how it protects against atherosclerosis and cardiovascular disease. Using the UA’s advanced proteomics facility, the research team hopes to better understand the structure of this cholesterol and gain ideas to develop and improve therapies to decrease atherosclerotic cardiovascular disease. ♥



Research Project Awards – Cardiovascular Disease and Medicine

Frank C. Iatarola Award

Mr. Frank Iatarola’s family directed gifts to the Sarver Heart Center in his memory and as a tribute to his life.

Lauren Biwer, BSEd, a research technician in the basic sciences, is conducting research to gain a greater understanding of the mechanisms responsible for the effect of excessive collagen deposit (also known as fibrosis) on heart rhythms. These abnormal rhythms can lead to sudden cardiac death. Additionally, they are looking at rats with genetically high blood pressure and the persistent effects of blood pressure medication, even after the drug treatment is stopped. ♥



Walter and Vinnie Hinz Award

Walter Hinz, through a provision in his estate, honored his late wife, Vinnie, and his good friend, Peg Barrett, by creating this award.

Christopher T. Pappas, PhD, postdoctoral research associate in cellular and molecular medicine, is studying the role of a newly

described muscle-specific protein that has been proposed to play an important role in setting up and regulating the molecular machinery involved in muscle contraction. ♥

Darlene and Kalidas Madhavpeddi Award

Kalidas Madhavpeddi, Sarver Heart Center Advisory Board Chair, and his wife established this award with hopes to recognize and advance talented researchers.

Daniela Zarnescu, PhD, assistant professor in molecular and cellular biology, aims to model heart disease in *drosophila*, a fruit fly that has heart cells that bear structural similarities to those of vertebrates. The fruit fly has a particular protein that will aid in better understanding of heart failure in human hearts. Dr. Zarnescu is collaborating with Dr. Carol Gregorio to study the same protein in mice; however, the fly has the advantage of rapid and easy genetics that can give clues about genes involved in heart disease. ♥

The William and Dorothy Bramble Shaftner

Award for Heart Research was established through the estate of Mr. and Mrs. Shaftner to support projects that “are in the area of most compelling need for heart disease research.”

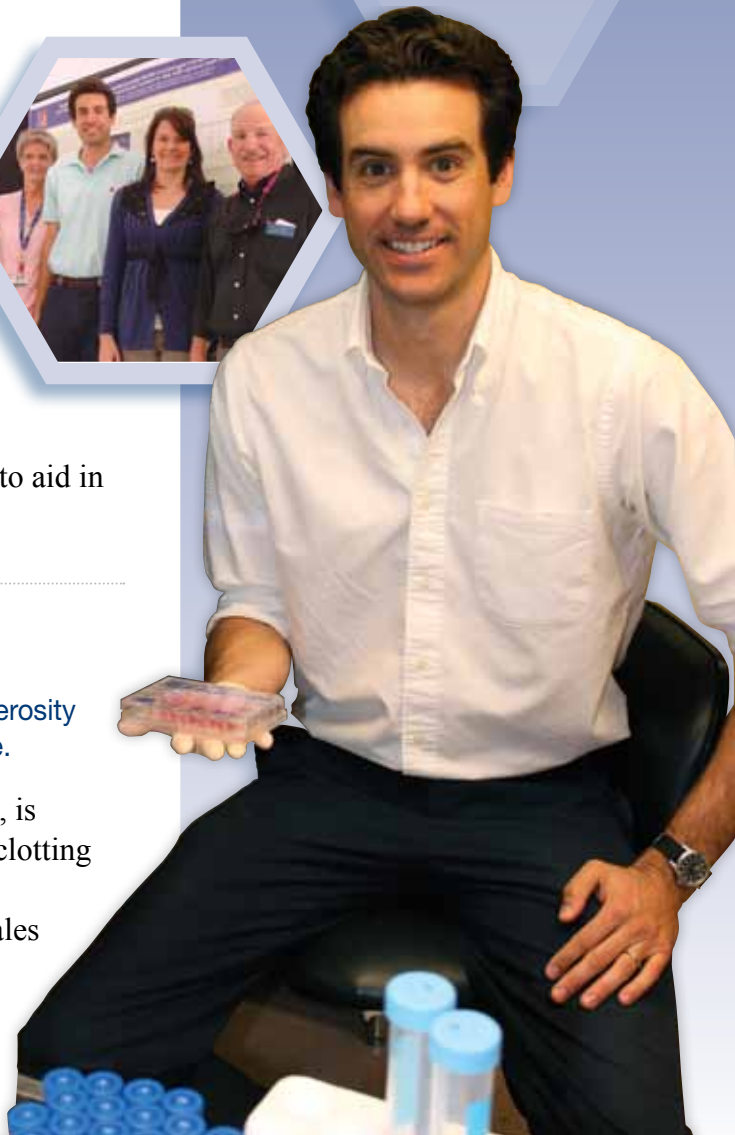
Jordan Lancaster, BS, graduate student in physiology, is working to develop implantable, cell-based matrix patches for treatment of heart failure. The patches contract spontaneously and rhythmically in culture and act as a delivery vehicle for heart muscle cells to aid in cardiac repair of an injured heart. ♥

Heart Disease in Women Grants

John T. and Janet K. Billington Award

Given in memory of her late husband, John, Mrs. Billington’s generosity seeks to advance technology in cardiovascular research and care.

Sasanka Jayasuriya, MD, assistant professor of medicine, is investigating the effectiveness of the drug used to prevent clotting after stent placement. Particularly, she is seeking a better understanding of cardiac outcomes amongst Hispanic females taking the medication. ♥



Jordan Lancaster

Sarver Heart Center's Youngest Investigator

For this year's science project, third-grader Drew Messing, a student at Castlehill Country Day School in Tucson, set out to answer the question, "How many kids does it take to save a life?"

Because his uncle, Steven Gootter, lost his life to sudden cardiac arrest, Drew is aware that the most important intervention after a cardiac arrest is performing chest-compression-only CPR. With this knowledge, Drew set out to educate his fellow classmates and discover whether or not together they could save a life. Drew's preliminary hypothesis concluded that larger students would be able to do more compressions and, because of the smaller students, it would require the combination of many students' efforts to save a life.

As part of his procedure, Drew enlisted help from Sarver Heart Center staff members Clint McCall and Melissa Ludgate to train the entire third- through fifth-grade classes in chest-compression-only CPR. After this, he collected students' ages, heights and weights along with their grade levels. Then all the students tried performing CPR for one minute while Drew measured the number of adequate compressions they could perform. After this first session, the top students from each grade were assembled in pairs. Two students alternated adequate CPR each

minute for six minutes, which is the average response time in Tucson for EMS to arrive. Drew's results revealed that the oldest and heaviest students performed the best compressions, and height and grade level were not factors. Most importantly, two kids working together are enough to save a life! Drew won first place for grades three through five in the Biomedical Exhibit from the Pima County Medical Foundation. It's important to remember that it is never too early to start thinking like a scientist! ♥

Drew Messing took first place for his grade level at the regional science fair. Below he demonstrates chest-compression-only CPR to Melissa Ludgate and his class.



Heart Health Updates from UA



At the Gootter Grand Slam, tennis pros Mikael Pernfors and Murphy Jensen, join UA Football Coach Rich Rodriguez to demonstrate the “3Cs” of chest-compression-only CPR in the event of sudden cardiac arrest: Check... Call... Compress.

Be A Lifesaver Tucson Campaign Provides Nostalgic Glimpse of March Madness

With a lot of help from dedicated community partners, including the Gootter Foundation and Kaimas Foundation, and a proclamation from the City of Tucson, the UA Sarver Heart Center engaged in “Be A Lifesaver Tucson” month. Public education activities began Feb. 23 at the UA men’s basketball game against USC, with University of Arizona Medical Center donating its game sponsorship.

Before the game, volunteers from the Rincon/University High School boys basketball team placed 14,000 “3 Points/3 Steps” cards on each seat in McKale Center. During a time-out, a 30-second public service announcement was shown to fans in the arena as well as the TV audience. The PSA featured UA basketball legend Steve



Wildcat Lifesavers Wilma, Karl B. Kern, MD, and Wilbur show their “3 Points/3 Steps” cards at UA McKale Center.

Kerr, training people to recognize sudden cardiac arrest and to respond with the three Cs: check, call 911, compress.

Through March 25, the date of the Gootter Grand Slam, people were encouraged to visit www.BeALifesaverTucson.com to watch a 2-minute video featuring Kerr. Research by Bentley J. Bobrow, MD, member of the UA Sarver Heart Center Resuscitation Research Group and director of the AZ SHARE

program, shows that people who watch a brief video obtain a strong understanding of how to respond in the event of sudden cardiac arrest. If you missed Arizona excitement during March Madness, you can get a championship glimpse by visiting the website: www.BeALifesaverTucson.com. ♥

Sarver Heart Center Members

Debra Bowles Receives Bateman Service Award

Debra Bowles, graphic designer with the Arizona Health Sciences BioCommunications, has received the annual Brian Bateman Superb Service Award for her consistently creative support to the UA Sarver Heart Center Development and Communications Team. The award recognizes staff members who go above and beyond the call of duty for patients and friends of the UA Sarver Heart Center. Clint McCall, director of development at the Sarver Heart Center, says of Debra, “I

don't think that Debra has the word 'No' in her vocabulary. Anytime our team calls for assistance with a project, Debra always responds quickly and creatively. Her graphic designs of the newsletter, invitations and materials for our education and outreach programs make Sarver Heart Center look great.” ♥



Broken Hearts Affect Men, Too

Sarver Heart Center doctors often have spoken about the prevalence of the “broken heart syndrome” in women and a recently published study in *Circulation* shows that men's hearts also are at risk during times of emotional stress. The study, considered the first to focus specifically on the likelihood of a heart attack in the immediate period after the death of someone close, has found a staggering 21-fold increased risk in the first 24 hours of bereavement compared with other times.

“I have often said that men are like clods when it comes to emotions, but this study indicates that men are deeply affected by the death of a spouse. In fact, we typically watch closely patients who lose a spouse. While this study

indicates the first 24 hours as being critical, I've seen patients experience problems up to six months out,” says Gordon A. Ewy, MD, director of the UA Sarver Heart Center.

The study in the January 9, 2012 issue of *Circulation* notes that psychological stress, such as that caused by intense grief, can raise heart rate and increase blood pressure and coagulation—all factors that contribute to the risk of a heart attack. The bereaved also are more likely to experience less sleep, low appetite and high cortisol levels, and to neglect taking regular medications, all of which can contribute to a greater chance of heart attack.

Bereaved individuals and their family and friends should be aware of the heightened risk in the days and weeks after hearing of someone close dying. ♥

Cardiology Fellow Receives Honorable Mention for Research

Congratulations to Prakash Suryanarayana, MD, a Sarver Heart Center cardiology fellow who received an honorable mention from the American College of Cardiology in Chicago in the Young Investigators Competition for research he did under the mentorship of Mark Friedman, MD. “Prakash exemplifies what we seek as a program to foster in our fellows in the performance of high-quality research recognized at the national level for its excellence,” says Julia H. Indik, MD, PhD, associate professor of medicine at the UA College of Medicine, director of the Cardiology Fellowship Program, and Flinn Foundation and American

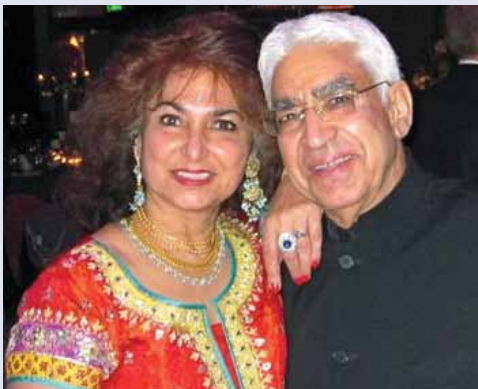
Heart Association Endowed Chair in Electrophysiology.

Dr. Suryanarayana's research focused on cardiac transplantation in African Americans. Studying the more than 800 cardiac transplants that have been done at The University of Arizona Medical Center since 1979, including 37 African Americans, data show poor survival compared to non-African American recipients. Besides Dr. Friedman, coauthors are Drs. Hannah Copeland and Jack Copeland. ♥



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Sethis Honored with 2012 Steven M. Gootter Philanthropic Award



Congratulations to **Dr. Gulshan and Neelam Sethi** who were honored as the recipients of the Steven M. Gootter Foundation Philanthropic Award at the 2012 Gootter Grand Slam. The Sethis have been married 41 years and have made a wonderful mark in Tucson through numerous philanthropic endeavors, including Angel Charity for Children, the Tucson Children's Museum, the University of Arizona and its Arizona Center for Integrative Medicine, and as benefactors of the Fox Theatre, where they produce the popular Bollywood at the Fox and BollyKids events. They have two children and five grandchildren. Dr. Sethi, a member of the UA Sarver Heart Center, is a professor of cardiothoracic surgery in the UA Department of Surgery.

"Gulshan and I are truly honored and humbled by this beautiful recognition. One does things in life to give back to the community where one lives, and hopefully to make a slight difference in that corner of the world," says Neelam Sethi.

"This recognition will involve us, in a very small way, to help get closer to achieving the goal of the Steven M. Gootter Foundation to determine the cause of and the treatment for sudden cardiac death. We are proud to be a part of this beautiful legacy honoring an amazing young man, who touched so many lives during his lifetime, and now, because of the wonderful support for research and education being carried out in his name, he will touch thousands more around the world." ♥

Save the Date

7th Annual

The Heart of the Matter

An Educational Luncheon on Heart Disease in Women

October 13, 2012

Doubletree Hotel at Reid Park, Tucson

It's all about women's unique heart health.

(Men can attend too!)

\$35 Register online beginning September 21

www.heart.arizona.edu

Been to the luncheon before? Good!

Should you attend this year? Definitely!

Research and advances in cardiovascular medicine make each year's lectures new and different. Don't miss this opportunity to stay informed. This program is open to all women and the men who love them, because knowing the right information might save a life.

This year we will look at "What's New in Heart Disease and Women?" from the vantage point of three different cardiovascular diseases:

Lori Mackstaller, MD
How Heart Disease Affects Women Compared to Men

Leslie Ritter, PhD, RN
What We're Learning About Stroke, Gender and Ethnicity

Betsy Dokken, NP, PhD
Controlling Diabetes: Are Men and Women Different?

For more information, please call 520-626-2901

Presented by the UA Sarver Heart Center Women's Heart Health Education Committee