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SPRING 2011

UT SOUTHWESTERN

# Heart Beat

**“Best Hospital in  
Dallas-Fort Worth”**  
—*U.S. News & World Report*



**Brian Bethea, MD** Dr. Bethea earned his medical degree from the University of Oklahoma College of Medicine. He completed residency training at the Johns Hopkins Hospital in both general and cardiac surgery and joined UT Southwestern in 2008. Dr. Bethea specializes in aortic surgery, minimally invasive valve repair/replacement, endovascular surgery, and ventricular assist devices.

## Paradigm Shift: Introducing the Valve Sparing Aortic Root Replacement

By Brian Bethea, MD

### Increasing Prevalence

Thoracic aortic aneurysms are responsible for 30,000-60,000 deaths per year, although their true incidence may be much greater as they are often confused with myocardial infarctions and sudden cardiac death. Furthermore, recent epidemiology studies suggest the prevalence of thoracic aortic aneurysms is going to continue to increase, paralleling our aging population. Importantly for the clinician, however, is the patients' age of presentation can range from young children to the elderly and is determined by the etiology of the aortic pathology.

The more common disease processes that cause aortic aneurysms are quite varied: connective tissue disorders (Marfan syndrome, Loeys-Dietz syndrome), degenerative atherosclerosis, congenital disorders (bicuspid aortic



“There is no disease more conducive to clinical humility than aneurysm of the aorta.”

—Sir William Osler

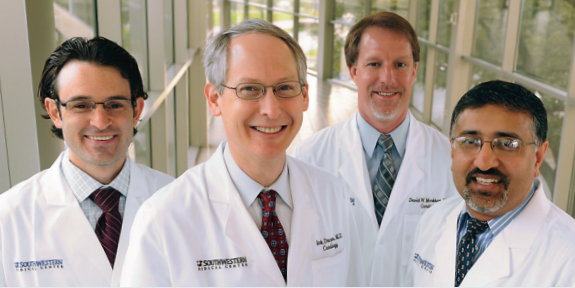
valves, coarctation), familial predisposition for thoracic aneurysm/dissection, and intramural hematoma/penetrating arterial ulcer. Marfan syndrome is the most common inherited connective tissue disorder and aortic rupture or dissection is the most common cause of premature death. Loeys-Dietz is similar to Marfan syndrome but can be distinguished by several phenotypic characteristics (wide-spaced eyes, bifid uvula), and these patients usually develop aortic root aneurysms

earlier in childhood. Bicuspid aortic valve disease and associated aortopathy has a prevalence of 1% in the general population and has been associated with both aortic aneurysms and dissection.



UT Southwestern Medical Center has been ranked the Best Hospital in Dallas-Fort Worth by *U.S. News & World Report*, with recognition in Pulmonology, Heart & Heart Surgery, and 12 other specialties.

**UT SOUTHWESTERN**  
Medical Center



## RESEARCH UPDATE

### Doctors lead new subspecialty boards

Four UT Southwestern doctors are now certified in the new American Board of Internal Medicine subspecialty of Advanced Heart Failure and Transplant Cardiology.

Drs. Mark Drazner, David Markham, Pradeep Mammen, and Joseph Mishkin all passed the new subspecialty board examination in November. Dr. Drazner is a professor of internal medicine and medical director of the Heart Failure, Left Ventricular Assist Devices (LVADs), and Cardiac Transplant Program. His colleagues are all assistant professors of internal medicine.

"I believe UT Southwestern has the largest contingent of board-certified physicians in this field at any single institution in Dallas, and possibly the state of Texas," Dr. Drazner said. "A growing body of research suggests that board-certified physicians deliver higher quality care than non-certified physicians, and the excellent outcomes that our advanced heart failure/transplant program has achieved undoubtedly will continue with the expertise of our contingent of board-certified advanced heart failure/transplant cardiologists."

Dr. Drazner said the Advanced Heart Failure and Transplant Cardiology subspecialty grew from recognition that specialized skills are needed for treating patients with advanced heart failure, including treatments with left ventricular assist devices or cardiac transplant.

In The Next Issue  
*Vascular Surgery*

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### New blood test could detect heart disease in people with no symptoms

A more sensitive version of a blood test typically used to confirm that someone is having a heart attack could indicate whether a seemingly healthy, middle-aged person has unrecognized heart disease and an increased risk of dying, UT Southwestern Medical Center researchers have found.

In a study in the Dec. 8 print issue of the *Journal of the American Medical Association*, researchers found that a new, highly sensitive test for a protein called cardiac troponin T (cTnT) could detect the protein in about 25 percent of blood samples supplied by more than 3,500 individuals. The study also found that people with detectable levels of troponin T were nearly seven times more likely to die within six years from heart disease. The outcomes were validated in a companion paper published in the same print issue of *JAMA*.

"This test is among the most powerful predictors of death in the general population we've seen so far," said Dr. James de Lemos, associate professor of internal medicine at UT Southwestern and lead author of the study. "It appears that the higher your troponin T, the more likely you are to have problems with your heart, and the worse you're going to do, regardless of your other risk factors."

Although previous work has shown an association between cTnT levels and heart disease, standard tests for the protein can detect cTnT in only a very small percentage of the population, limiting the test's utility for assessing risk in people with no symptoms of heart disease. The more sensitive test, however, can detect circulating cTnT levels in almost everyone with chronic heart failure and chronic coronary artery disease.

The current work with cTnT built on previous findings by Dr. de Lemos from the Dallas Heart Study, a groundbreaking investigation of cardiovascular disease that first involved more than 6,100 Dallas County residents.

Other UT Southwestern researchers involved in the study were Dr. Mark Drazner, professor of internal medicine; Colby Ayers, biostatistical consultant in internal medicine; Dr. Amit Khera, assistant professor of internal medicine; Dr. Anand Rohatgi, assistant professor of internal medicine; Dr. Ibrahim Hashim, professor of pathology; Dr. Jarett Berry, assistant professor of internal medicine; Dr. Sandeep Das, assistant professor of internal medicine; and Dr. Darren McGuire, associate professor of internal medicine. Researchers from the University of Oslo and Brigham and Women's Hospital also participated in the research.

The research was funded by the Donald W. Reynolds Foundation and by the National Institutes of Health. The present study also was supported by Roche Diagnostics.



## Faculty Awards & Appointments

### Jessen appointed chairman of cardiovascular and thoracic surgery



Dr. Michael Jessen, a cardiac surgeon with clinical, academic, and administrative leadership experience, has been appointed chairman of cardiovascular and thoracic surgery.

A UT Southwestern faculty member since 1990 and previous vice chairman of the department, Dr. Jessen said now is an exciting time to lead, especially considering the medical center's direction.

"Our department is largely clinical, although we also have a research emphasis and an important teaching mission, so we fit well with the university's renewed focus on clinical excellence," Dr. Jessen said. "Also, the institution is renowned for basic research, and this is the place to be when our translational work brings new developments to fruition."

Dr. Jessen said his goals for the department include increasing clinical volumes and developing faculty to focus on discrete areas of cardiothoracic surgery.

Dr. Jessen has directed the thoracic surgery residency program since 1998 and has been a member of the university's promotions and tenure committee and its heart and lung transplant team.

Dr. Jessen is also chief of the cardiothoracic surgery program at the Veterans Affairs North Texas Health Care System and site director of numerous clinical studies on coronary artery revascularization.

A recipient of the Lyndon Baines Johnson Research Award from the American Heart Association, Dr. Jessen earned his medical degree from the University of Manitoba, Canada, where he also completed a surgery internship and residency, followed by a fellowship in surgical research and a residency in thoracic surgery at Duke University Medical Center.

### Valentine to head vascular surgery division



Dr. Rawson James "Jim" Valentine has been appointed chairman of the division of vascular surgery in the Department of Surgery at UT Southwestern. Dr. Robert Rege, chairman of surgery, said the appointment follows a nationwide search started in 2009 when Dr. G. Patrick Clagett announced his intention to retire this year.

"For 15 years, Dr. Valentine has administered the largest surgical residency program in the United States, and distinguished the program by maintaining greater than 97 percent general surgery board pass rates—one of the highest in the country," Dr. Rege said.

Dr. Valentine said he wants to build on the current clinical structure by recruiting faculty to all three hospitals, establishing a second vascular service at the university hospital, establishing separate centers of excellence in aortic and venous diseases within the next three years, instituting new educational training pathways in vascular surgery, and continuing to stress academic productivity.

After earning his medical degree from Emory University in Atlanta, Dr. Valentine completed his general surgery residency and vascular surgery fellowship at UT Southwestern in 1986. Upon completing a four-year tour of active duty in the Navy, Dr. Valentine returned to the medical center as an assistant professor in 1990. He became a tenured professor in 1999.

Dr. Valentine's accolades include receiving the national Parker J. Palmer Courage to Teach Award for 2009, given by the Accreditation Council for Graduate Medical Education, and the Laycock-Snyder Faculty Teaching Award. He also is a director of the American Board of Surgery and past president of the Southern Association for Vascular Surgery and Association of Program Directors in Surgery, and he has been selected multiple times as a Best Doctor in Dallas and in America.

### VP Rutherford honored for cardio activities, teaching



Dr. John Rutherford, vice president of clinical operations, will receive the 2011 Gifted Educator Award given by the American College of Cardiology (ACC) in recognition of his innovative, outstanding teaching characteristics and compassionate qualities.

"This reflects on the educational activities in cardiovascular disease at UT Southwestern, where we have excellent programs at the graduate and postgraduate level and a very dedicated cardiovascular teaching faculty," said Dr. Rutherford.

Dr. Rutherford also has held leadership positions with the ACC, a nonprofit medical society with more than 39,000 members. He has participated in committees that planned strategic educational programs, and he led a UT Southwestern/ACC extramural postgraduate program that examined all aspects of cardiovascular disease using case studies to teach cardiologists and cardiovascular surgeons. The book *Cardiology Core Curriculum: A Problem-Based Approach*, published in 2003, resulted from that collaboration.

A native of New Zealand, he came to UT Southwestern as a professor of internal medicine in 1993. He's held several appointments with UT Southwestern and its affiliated hospitals, including serving as president of the medical staff of Parkland Health & Hospital System from 1998 to 2000 and as the executive coordinator of the Clinical Services Initiative at the medical center.

Dr. Rutherford's previous honors include the George W. Thorn Award for Outstanding Contribution to Clinical Education, given by the medical house staff at Brigham and Women's Hospital; the Distinguished Physician Award in recognition of outstanding individual contribution to Parkland Memorial Hospital; and the Health System Information Resources Founders Award from UT Southwestern. He has been selected as a Best Doctor in Dallas and in America on numerous occasions.

# Paradigm Shift: Introducing the Valve Sparing Aortic Root Replacement

By Brian Bethea, MD



continued from front cover

## Indications for Operation

Most patients who have aortic root aneurysms are generally asymptomatic but can present with chest pain and/or the signs or symptoms of aortic insufficiency. The workup generally involves a multimodality approach utilizing CXR, transthoracic echocardiography, CT scan, and MRI/MRA. It should be noted that a CXR that appears normal is not sufficient to rule out either a thoracic aortic aneurysm or dissection. When there is concern for aortic dissection, one should proceed with the most readily available imaging modality, which is usually an echo or CT scan. The gold standard for diagnosis of a type A dissection is still the transesophageal echo but this can easily be performed in the operating room while the patient is prepped and draped.

are: any symptomatic aneurysm regardless of size, connective tissue disease and aneurysm >4.5cm, bicuspid aortic valve in need of replacement and aneurysm >4.5cm, bicuspid aortic valve not needing replacement and aneurysm >5.0cm, all aneurysms >5.5cm, any aneurysm with moderate to severe AI, all acute or chronic dissections, increase in growth rate when aneurysm >5.0 cm, or contained rupture or false aneurysm.

## Replacement Options

Patients are generally offered two options for aortic root replacement. The gold standard is the modified Bentall operation, which involves resection of the aortic valve leaflets and the aortic sinuses, and replacement of the valve with a composite valve (usually mechanical) graft, with reimplantation of the coronary arteries. The modified Bentall operation is a very durable operation with low operative mortality, but because patients receive a mechanical valve, which subsequently requires the blood thinner Coumadin, it does carry a low risk of bleeding, thromboembolism, and endocarditis (approximately 1% per patient year). Recently, we have now been able to offer patients valve-sparing aortic root replacements, where the patient's native aortic valve is "spared" while the aortic aneurysm is resected and replaced with a graft that has built-in aortic sinuses. These neo-sinuses are believed to prevent wear and tear of the native valve leaflets and facilitate reimplantation of the coronary arteries. The valve-sparing root replacement also appears to be a durable repair, and since the patient's native aortic valve is "spared," it carries a lower risk of bleeding, thromboembolism, and endocarditis.

## Multidisciplinary Approach

Patients with thoracic aortic aneurysms often have associated problems that require multiple specialists in order to provide complete care. Here at UT Southwestern, we are very proud to be the only center in North Texas to provide these patients with a full-service line and are even capable of having patients and their families meet with each specialist in a single day. This was made possible when a multidisciplinary group of campus experts came together and formed the connective tissue and familial aortic disease interest group, consisting of adult and pediatric cardiologists, geneticists, ophthalmologists, and cardiac and vascular surgeons. In doing so, we have placed the patient at the center of a 360-degree approach to their care and also guaranteed that they will never be lost to follow-up. From a cardiac surgery standpoint, we are pleased to offer patients minimally invasive aortic valve replacement, aortic root replacement (including valve sparing aortic root replacement), and thoracic endovascular aortic repair (TEVAR) for descending aortic aneurysms and dissections.

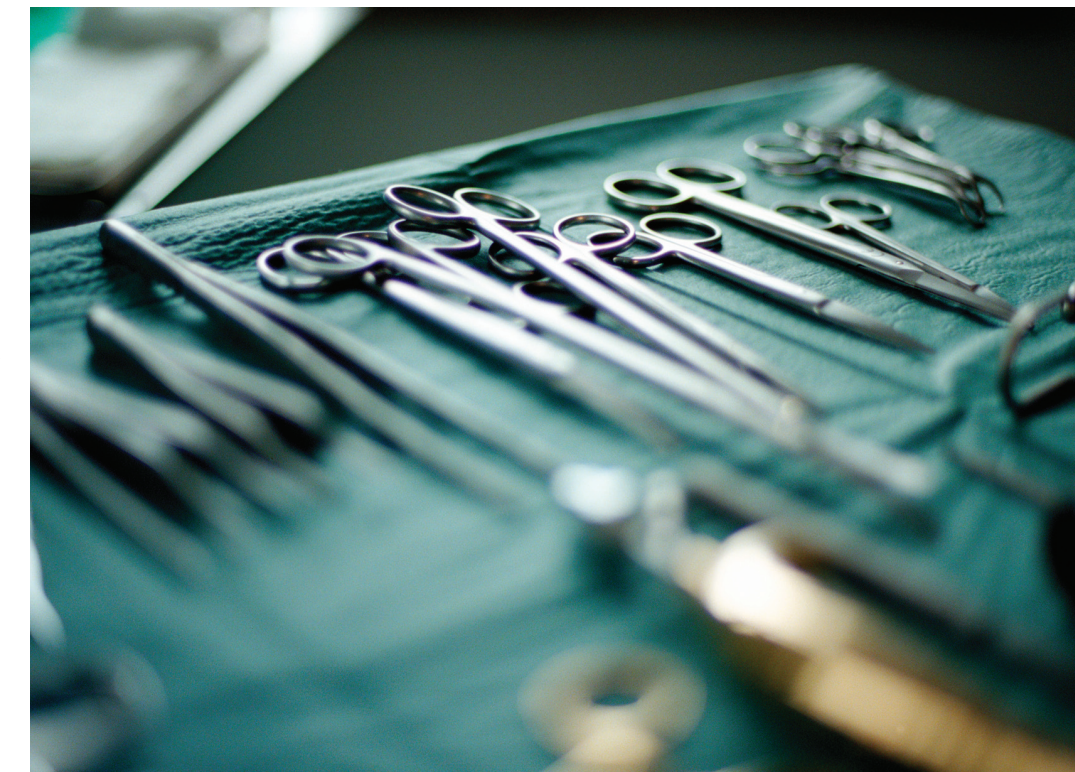
To refer a patient, call UT Southwestern's Patient and Physician Referral Services at 214-645-8300, Monday through Friday, 8 a.m.–5 p.m. Online referral requests are available at [utsouthwestern.edu/patient-care/referral](https://utsouthwestern.edu/patient-care/referral).

To learn more about our program, visit: [utsouthwestern.org/heartlungvascular](https://utsouthwestern.org/heartlungvascular)

## Indications for Operation for Aneurysms of the Root and Ascending Aorta

- Any symptomatic aneurysm regardless of size
- Connective tissue disease and aneurysm >4.5cm
- Bicuspid aortic valve in need of replacement and aneurysm >4.5cm
- Bicuspid aortic valve not needing replacement and aneurysm >5.0cm
- All aneurysms >5.5cm
- Any aneurysm with moderate to severe AI
- All acute or chronic dissections
- Increase in growth rate when aneurysm >5.0 cm
- Contained rupture or false aneurysm

The optimal timing for surgical intervention of aneurysms of the root or ascending aorta is a judgment decision based on the risk of the operation versus the risks of the complications from the aneurysm. In general, the likelihood of rupture, dissection, or death is related to size of the aneurysm and is markedly increased when it becomes 6cm or larger. Thus, the indications for operation for ascending or aortic root aneurysms



## Heart Transplant Program: A Regional Resource with a Tradition of Excellence



On Thanksgiving Day 2010, Sandra Childers (center) became the 400th adult patient to receive a heart transplant at University Hospital–St. Paul, thanks to the efforts of Dr. Steves Ring and the Transplant Team.

The heart transplant program at UT Southwestern Medical Center has a record of success and accomplishment since the program's establishment more than 20 years ago. Now, thanks to a renewed effort to inform physicians in Texas and the surrounding states of their access to this outstanding program, more patients with advanced heart failure are getting the treatment they need.

### Integrated Referrals

"The heart transplant program at UT Southwestern is active and growing," said Dr. Mark Drazner, professor of internal medicine and medical director of the Heart Failure, Left Ventricular Assist Devices (LVADs) and Cardiac Transplant Program. "Our outcomes are among the best in the country, and our program should be viewed as a resource for the community."

Dr. Drazner and his team have been

proactively reaching out to physicians to ensure that UT Southwestern's services are known locally and regionally as well as they are nationally. Internally, leaders have hired more staff and physicians and streamlined referral procedures, ensuring access for those who need their services.

"We've made a large effort to ease the process for cardiologists to refer patients who have advanced heart failure to UT Southwestern," Dr. Drazner said. "We provide excellent care for the patients and are equally committed to providing excellent service for their physicians. I believe these efforts have been noticed and appreciated, based on the dramatic increase in the number of referrals, not only from within North Texas, but also from a much larger region including West Texas, New Mexico, Oklahoma, Louisiana, Mississippi, and Alabama."

### LVAD Program

The heart transplant program as a whole has expanded, as well as the individual programs within it. For instance, the LVAD program has also had spectacular growth, and has allowed UT Southwestern to get patients eligible for transplant when, in the past, such patients may not have met qualifications.

"The LVAD program can allow the obese patient to lose weight or buy time for the sick patient to get well enough for transplant," Dr. Drazner said.

Sandra Childers was such a patient.

The 61 year old was diagnosed with a heart virus when she was 16. Although she had several defibrillators implanted, her congestive heart failure worsened and her private cardiologist referred her to UT Southwestern. Mrs. Childers expected an immediate transplant, but doctors said she first had to lose at least 60 pounds.

She was unable to exercise without getting winded, so doctors surgically implanted an LVAD. By cutting her portions at meals and walking on the treadmill she lost more than 80 pounds and became eligible for a heart transplant.

On Thanksgiving Day 2010, she became the 400th adult patient to receive a heart transplant at University Hospital–St. Paul.

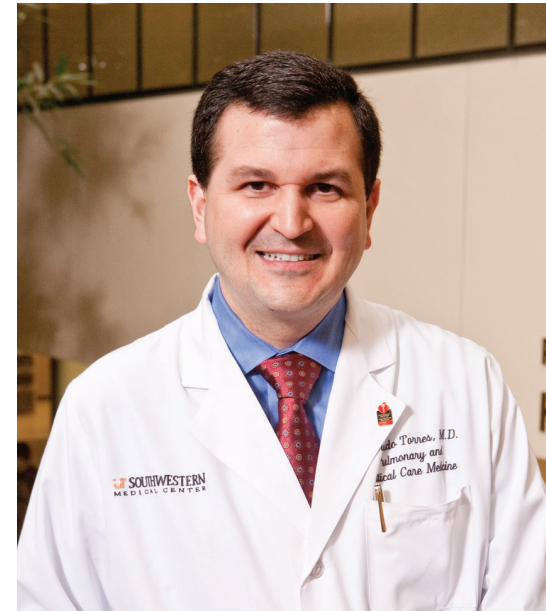
Dr. Drazner says the devices have additional benefits. "LVAD's also offer an option for patients with advanced heart failure who are not transplant candidates. This strategy, called destination therapy, is expected to be utilized increasingly in the coming years, given the improvements in the durability of LVADs."

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To learn more about our program, visit: [utsouthwestern.org/heartlungvascular](http://utsouthwestern.org/heartlungvascular)

## Lung Transplantation Program: Best Results in the State

By Fernando Torres, MD



**Fernando Torres, MD** Dr. Torres is Director of the Pulmonary Hypertension Program, Medical Director of the Lung Transplant Program, and Associate Professor of Internal Medicine–Pulmonary and Critical Care Medicine. He earned his medical degree from Cornell University Medical College and completed residency in internal medicine at UT Southwestern, followed by fellowships at the University of Colorado Health Sciences Center in pulmonary disease and critical care medicine, as well as lung transplant/lung volume reduction. He specializes in lung transplantation, pulmonary hypertension, and heart failure.

### Experience and Results

The Lung Transplant Program at UT Southwestern is celebrating its 20th Anniversary. Not only do we have the most experience performing this life saving surgical procedure in the region, but we also have the best results in the state of Texas.

During the past year, the program has grown significantly. The surgical team spearheaded by Michael Jessen, MD, chairman of cardiovascular and thoracic surgery, now has six transplant surgeons who perform this procedure routinely. This team of highly specialized surgeons is committed to the Lung Transplant Program at their flagship institution UT Southwestern University Hospital–St. Paul to provide the best surgical care and minimize our patients' time on the waiting list for lung transplantation.

### Top Survival Rates

The UT Southwestern medical lung transplant team has also grown to accommodate the increased demand in the Dallas/Fort Worth region for this procedure. The medical team now has three dedicated lung transplant physicians and a nurse practitioner providing state-of-the-art medical care to this fragile population. Our survival rate remains at the top of Texas at one, three, and five years, and the program has been busier than ever. On December 30, we performed the 25th lung/heart-lung transplant of year at University Hospital, completing the most transplants in a single year since the inception of the program in 1990. The 27-year-old patient, who was previously dependant on a machine to be able to breath, now has a new life with new lungs.

During the past year, University Hospital–St. Paul has also contributed to the growth

of the Lung Transplant Program. The clinics have added nurse coordinators, medical office assistants, and administrators to improve the patients' satisfaction and experience. UT Southwestern has formed dedicated hospital units for lung transplantation and conducts constant education of the nurse staff in those units, which includes their participation in our multidisciplinary weekly rounds.

As a premier medical center in the country, we have also advanced our research programs and now participate in multicenter clinical trials to improve the outcomes of our patients. The Lung Transplant Program supports translational as well as basic science research to better understand end-stage diseases and improve our patients' survivals.

Our commitment to education continues to be visible in our program. The pulmonary fellows, as well as the cardiothoracic surgery fellows, are an integral part of our team, and the program offers a unique opportunity for our patients to interact with young professionals. Our experienced medical and surgical team provides an experience to our patients that is unmatched in the region.

At 20 years, the lung transplant program at UT Southwestern, with its flagship hospital University Hospital–St. Paul, remains one of the best programs in the country.

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