In the medical world, a lot has happened over the past 10 years. But one of the most significant events in the Dallas/Fort Worth Metroplex, and perhaps the most far-reaching, has been the start-up and ongoing work of a major heart study conducted at UT Southwestern Medical Center (UTSW). The early results of that study are transforming cardiovascular risk factor identification and management for UTSW physicians and leading to better care for patients.

In 1999, UTSW was selected as the first recipient of a nationally competitive award from the Donald W. Reynolds Foundation, initially receiving $24 million over four years to create broad-based programs in basic, translational, clinical, and population-based research focused on improving cardiovascular health. The grant funded, in part, the creation of the Dallas Heart Study (DHS), led by Helen Hobbs, M.D., and Ron Victor, M.D., now associate director for clinical research at the Cedars-Sinai Heart Institute. The groundbreaking cardiovascular study, the largest ever performed in North Texas, featured more than 6,000 ethnically diverse participants from Dallas County. To start, research subjects visited UTSW where they underwent extensive imaging of the heart and blood vessels using CT and MRI. Since then, UTSW researchers have focused on identifying risk factors as well as genetic and biomarker “signatures” that can detect preclinical cardiovascular disease (CVD).

Although relatively new among large epidemiology studies, the DHS has rapidly become notable due to several major discoveries and the publication of more than 80 papers that have implications for CVD prevention.
How can you mend a broken heart?

Perhaps with stem cells from the heart itself, say three UT Southwestern Medical Center researchers, who were recently awarded a $2 million grant from the American Heart Association (AHA) to study the development and mechanisms of generating new cardiac muscle cells.

The UT Southwestern researchers—Jay Schneider, M.D., Ph.D.; Joseph Hill, M.D.; Ph.D.; and Eric Olson, Ph.D.—say their investigations could significantly help advance the understanding of stem cells’ role in heart disease and repair, leading to new ways to care for patients with heart attacks or congestive heart failure by stimulating heart cell regeneration.

“The goal is to use small molecules and microRNAs as probes to understand the barriers that prevent the human heart from repairing itself after injury,” says Dr. Schneider. “By doing so, we hope to develop new therapeutics that will overcome these barriers and induce the human heart to regenerate after injury.”

UT Southwestern was one of only three institutions nationwide to receive the AHA grant.

Don’t blame it on the C-Reactive protein.

Heightened levels of C-reactive protein (CRP) in the blood help identify people with heart disease, but they are not the cause of heart problems, according to a study recently published in the Journal of the American Medical Association (JAMA).

“This study puts the nail in the coffin… in the question about C-reactive protein: does it cause cardiovascular disease?” says James de Lemos, M.D., of UT Southwestern Medical Center, who co-authored an editorial in JAMA about the study: “It clearly does not.”

CRP is secreted by the liver and signals tissue inflammation and a risk for heart attack or stroke.

Though the study concluded it would be “fruitless” to develop drugs aimed at lowering C-reactive protein to prevent heart disease, there still could potentially be value in testing for CRP maintains Dr. de Lemos. “If CRP increases in response to other inflammatory triggers, it may still be a useful tool for personalizing selection of anti-inflammatory therapies, including statins, he and a colleague wrote.
For most individuals, cardiovascular risk could be reduced by losing a few inches around the waist.

Body Size and Shape: In the DHS, we found that subclinical atherosclerosis was much more strongly associated with measures of body shape, such as waist-to-hip ratio (WHR) and waist circumference (WC), than with body mass index (BMI). An important limitation of BMI is its failure to differentiate between varied body compositions. Centrally distributed or abdominal obesity is specifically associated with adverse effects on metabolism, dyslipidemia, and insulin resistance. In addition, BMI can be falsely elevated in the presence of increased lean body mass (such as in trained athletes), and low BMI values are associated with chronic conditions leading to loss of lean body mass. The present findings suggest that WHR and WC may be preferred measures of the cardiac risk associated with obesity. From a public health standpoint, the most important implications of the DHS analyses are that the associations between WHR and WC are linear and do not demonstrate a threshold effect. This suggests that for most individuals, cardiovascular risk could be reduced by losing a few inches around the waist, even if body weight is considered “normal.”

Cautions about C-reactive Protein (CRP): In Dallas County, African Americans have higher CRP than non-African Americans, and more than twice as many women as men have CRP levels above the CDC’s recommended high-risk cutoff of 3 mg/L. The strongest association observed was between obesity and CRP, with a particularly notable correlation observed in women. These findings may be particularly relevant in light of the findings of the JUPITER* trial, which will lead some cardiologists to suggest that CRP levels should be used as a trigger for initiation of statin therapy. The DHS data suggest that such a strategy would lead to more statin usage among women than men, despite markedly lower cardiovascular risk in women. **

*Justification for the Use of Statins in Prevention: an Intervention Trial Evaluating Rosuvastatin (JUPITER)
In recent decades there has been a marked decline in death rates from cardiovascular disease. Nevertheless, cardiovascular disease, including coronary heart disease (CHD) and stroke, remains the number one cause of death in the U.S. New therapies and more aggressive applications of conventional therapies are now being used, but one of the greatest challenges to clinicians is determining who is at highest risk. Tests are emerging which may improve our ability to do that.

One of the most widely used imaging tests for CHD risk is coronary artery calcium (CAC) scanning, which is performed in less than one minute using conventional CT scanners. Numerous studies have shown that higher CAC scores are strongly related to the risk of cardiovascular events. People with high scores (>400) have an almost ten-fold increased risk compared to those with no detectable CAC. Researchers at UT Southwestern are analyzing CAC data from the Dallas Heart Study to determine how to more effectively use these tests to screen for CHD risk.

Advanced lipoprotein testing using NMR and other methods may be particularly valuable for patients with insulin resistance, high triglycerides, and low HDL levels. Other blood tests referred to as biomarkers are also promising new tools to assess CHD risk. Biomarkers that assess for low levels of inflammation including C-reactive protein (CRP) and LP-PLA2 have been shown to predict a higher likelihood of heart disease among healthy individuals. In fact, a recent study of more than 17,000 older-aged people who had normal to low cholesterol levels—but who also had elevated levels of CRP—had a 50 percent reduction in heart disease events. A major challenge is to discover genetic variants that consistently and reliably predict risk. One genetic variant to meet this test, the 9p27 mutation, was discovered by researchers at UT Southwestern.

Although emerging tests hold great promise, two major questions remain: Who should be tested, and what should be done with the results? Investigators from the UT Southwestern Program in Preventive Cardiology are actively studying these questions using data from the Dallas Heart Study. Current guidelines generally support using tests in intermediate-risk patients where the physician and patient are undecided about treatment, or where traditional risk factors may underestimate risk. Interpreting these tests can be complicated as results are generally not “positive” or “negative” and various tests may provide conflicting results. As such, the scientific expertise and multidisciplinary approach offered by physicians and staff at UT Southwestern give patients an advantage when trying to prevent cardiovascular disease.

The out-of-pocket cost to the patient for each vascular screening at UT Southwestern’s vascular lab is $50, which is comparatively priced to other screening programs in the community. Generally, patients do not need a physician referral for a vascular screening; however, a final report of the findings will be sent to their primary care physician upon request. When screening is performed due to a referral, a preliminary report is prepared by the examining technician and expedited to the referring physician. The examination is then read by a board-certified vascular surgeon, who provides a final interpretation of the screening. The decision to perform further testing remains in the hands of the primary care physician.

Some screenings may require a physician referral, particularly if the screening is performed on a new Medicare enrollee. Since 2006, Medicare has included the abdominal aortic ultrasound screening as part of the “Welcome to Medicare” physical examination to qualified individuals. When a patient enrolls in Medicare and has a history of smoking, or a family history of aortic aneurysm, an aortic screening ultrasound to evaluate the aortic diameter is a covered expense. Otherwise, vascular screenings are generally not covered by most insurance companies.
Our dedicated Physician Outreach Team can help you navigate the many programs and resources that are available at UT Southwestern by facilitating your access to experts in more than 62 medical subspecialties. Our staff can help with:

- Patient appointments
- Complimentary maps
- Assistance with patient admissions
- Accessing patient status reports and medical records
- Continuing Medical Education events
- UT Southwestern clinical programs and services
- Clinical trials information
- Hotel information for out-of-town patients and family
- Questions about accepted health care plans
- Information about affiliated hospitals and clinics

If you would like to know more about UT Southwestern Medical Center and how we can meet your patient care needs, please schedule a visit with one of our knowledgeable physician liaisons. If you have any problems with your patient referral, please do not hesitate to contact us. You can reach a physician liaison by calling 214-645-2942.

The University Hospitals of UT Southwestern include:

University Hospital-St. Paul and
University Hospital-Zale Lipshy

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