



PROVIDED BY CAROLINAEAST MEDICAL CENTER

Michael Halligan performs coronary artery bypass surgery at CarolinaEast Medical Center in New Bern. CarolinaEast Health System's Cardiovascular Center of Excellence offers the latest cardiac services.

Keeping the beat

*Cardiac care in North Carolina is improving,
thanks to better treatments and expanded services.*

David Fitzgerald and Zan Tyson want patients to go to the hospital only when it's necessary. A screening tool developed through a study conducted by the two cardiologists at High Point Regional Medical Center makes sure that happens.

Patients experiencing atrial fibrillation, the most common type of erratic heart rhythms, took part in the study. Emergency-department doctors and nurses evaluated 233 AFib patients with the risk-factor-based

screening tool, Fitzgerald says, and sent 73 to outpatient management — a High Point Regional practitioner or private-practice cardiologist — instead of a hospital bed. During the week following their emergency-department visits, none of them reported complications or were admitted for further care.

While the study results will make more patients happy, they'll put smiles on the faces of health-system and insurance executives, too. The costs to treat low-risk

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Opening next year, the heart and vascular hospital at UNC REX is an eight-story, 306,000 square foot, 114-bed facility located on the UNC REX Healthcare campus. The hospital will bring REX's heart and vascular services together in one location with advanced technology, the latest treatments and leading heart and vascular physicians for world-class care. Learn more about heart and vascular care at UNC REX, including our collaboration with UNC Medical Center, at rexheath.com.





PROVIDED BY UNC REX HEALTHCARE

UNC Rex Healthcare is building the North Carolina Heart and Vascular Hospital in Raleigh. Its eight stories and 306,000 square feet will consolidate services now offered at seven locations throughout the system.

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patients as outpatients, according to the study, were significantly less than sending them to the hospital: \$1,287 vs. \$5,666 per patient on average. Fitzgerald and Tyson presented their results at the American College of Cardiology symposium in April.

Heart disease is the No. 1 cause of death in the U.S., and it killed more than 17,500 North Carolinians in 2014, according to Atlanta-based Centers for Disease Control and Prevention. Raleigh-based N.C. Department of Health and Human Services says hospitals charged \$4.1 billion for heart-disease care in 2012. North Carolina doctors and hospitals are working to reduce the cardiac deaths by developing and implementing better technology and techniques, collaboration among medical specialties and new hospitals that feature increased capacity.

Better diagnoses are one way to keep cardiac patients from spending unnecessary time in a hospital. Minimally invasive procedures are one more. Take percutaneous coronary intervention, for example. It's better known as angioplasty,

an outpatient procedure. Cardiologists insert a catheter that controls a small balloon-like device that, once in the proper spot, expands a stent that props open a plaque-clogged artery.

Until recently, angioplasty was available only to patients with partial blockages. About 14% of patients with atherosclerosis — accumulation of plaque inside arteries — have a complete blockage, and the procedure has historically been considered too difficult and risky for them. And with only one artery affected, they weren't considered sick enough for open-heart bypass surgery, the only other way to restore blood flow around a clogged artery. "Aggressive medical therapy used to be the only remedy [for these patients]," says Islam Othman of Raleigh-based WakeMed. "Often these people are still living with chronic angina and shortness of breath, despite taking drugs such as aspirin, beta blockers and



PROVIDED BY MISSION HEALTH

Truven Health Analytics has named Asheville-based Mission Health a Top 50 Cardiovascular Hospital 10 times. It is one of only two hospitals in the Carolinas to receive the honor.

Beauty beyond a reflection

As a high school cosmetology teacher, Trina Jackson shows her students how to make people as beautiful on the outside as they feel on the inside. At 48, just a few months after a normal mammogram, Trina was surprised to find a lump during a breast self-exam.

Trina's primary care doctor quickly referred her to Dr. David Hetzel of the Mission Breast Program. She was diagnosed with triple negative breast cancer, a rare and aggressive form of cancer that mainly affects African-American women.

Trina began treatment immediately and was confronted with hair loss, fatigue and other side effects from radiation and chemotherapy. She kept her strength with help from her family, a desire to get back to her students and the support she received from her exceptional care team.

Whether you're trying to be well, get well or stay well, Mission Health offers you and your family access to the best people, resources and advanced technology to help you beat your cancer.

To hear more personal stories like Trina's, visit mission-health.org/TrinaBNC



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**Turns out you don't
need a heartbeat
to be full of life.**

Take Tonya Moore's pulse after a few laps around the roller rink and you won't feel the familiar BA-DUM, BA-DUM. In fact, you won't sense anything at all. That's something Tonya gladly sacrificed when she turned to the Cone Health Heart and Vascular Center for the life-extending and thoroughly innovative procedure of having a battery-powered pump attached to her great big heart. Meet Tonya and some of the people who helped her at *ExceptionalCare.com*.



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nitrates.” There may be hope on the horizon for them.

Over the last 10 years, Othman says, interventional cardiologists, radiologists and medical-device developers have collaborated to successfully and safely treat people with total coronary artery blockages. A big step forward was the development of a tiny catheter called the CrossBoss, which enables stents to be inserted into a totally occluded artery. In April, Othman performed the 100th such procedure at WakeMed. The clinical success rate is 94% at the hospital, compared with rates between 50% and 80% at hospitals nationwide.

New procedures also are helping patients suffering from severe heart-valve problems. Hundreds of them have participated in clinical trials at Charlotte-based Carolinas HealthCare System’s hometown Sanger Heart and Vascular Institute, where they underwent a relatively new procedure called trans-catheter aortic valve replacement. During a TAVR, doctors use a catheter-guided stent to wedge an artificial valve into the damaged aortic valve. TAVR is for about 30% of patients with severe symptomatic aortic stenosis — narrowing of the aortic valve opening. The traditional open-chest surgery needed to replace a valve is a very risky or unavailable option to them, so they are often offered only oxygen and drugs to relieve symptoms.

First FDA-approved for the sickest and oldest patients in 2012, TAVR is on its way to being approved for an “intermediate”— healthier and younger — class of patients, some of whom participated in Sanger’s trials, says Michael Rinaldi, an interventional cardiologist and the institute’s director of clinical research. TAVR entails fewer complications, shorter hospital stays and generally better outcomes, he says, so it’s poised to overtake conventional valve replacement surgery as the go-to choice for all patients with aortic stenosis. “Aortic stenosis is a horrible disease that has a high mortality rate.”

TAVR isn’t without risks. It can cause heart arrhythmias in some patients predisposed to them, Rinaldi says, and it is

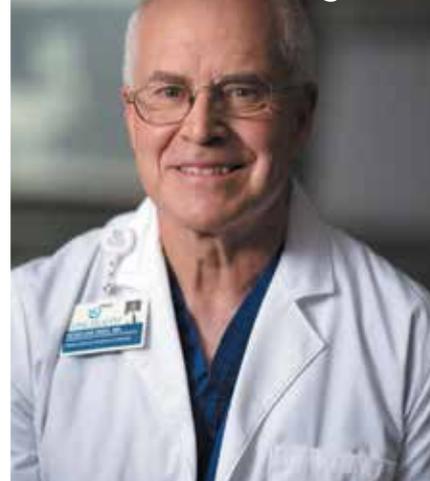
generally only available at large medical centers, like those in most of North Carolina’s major cities, which staff cardiologists, interventional cardiologists, cardiac surgeons and imaging specialists.

For patients with chronic heart failure — the heart’s inability to pump effectively — Sanger-based clinical trials are investigating two treatments, and both are sparking optimism. The invention and approval of implantable, battery-powered pumps about 30 years ago marked a giant leap forward in the management of chronic heart failure. They replace a regimen of drugs, including diuretics, and give patients a life closer to normal, especially if they weren’t good candidates for a heart transplant, the only real cure for chronic heart failure. The most common pump is the left ventricular assist device. LVADs consist of a tube from the left ventricle — the heart’s strongest chamber, which pumps oxygenated blood throughout the body — to a pump and then another tube connected to the aorta — the body’s largest artery. The pump is implanted near the patient’s heart and wired to a CD-sized control that’s worn outside the body.

Medical-device companies such as Framingham, Mass.-based HeartWare International Inc. and St. Paul, Minn.-based St. Jude Medical Inc. have introduced next-generation LVADs, some of which use pumps equipped with magnets. They reduce mechanical friction, which improves the pump’s durability and blood flow and reduces complications. Sanger is one of several research centers nationwide testing next-generation LVADs, says Sanjeev Gulati, a cardiologist and medical director of the center’s advanced heart failure and transplant program.

LVADs will continue to play a vital role in helping those with heart failure survive until they receive a transplant, and they’ll make life comfortable for patients who are terminal or ineligible for a transplant, Gulati says. “In the last decade, [the U.S. has] only done 2,000 to 2,500 heart transplants, but there are 250,000 people a year looking for transplants.” In contrast, he says, about

Peter Van Trigt, MD
Cardiothoracic Surgeon



Cone Health is the first non-transplant hospital in North Carolina to offer mechanical heart pump implants to those facing advanced heart failure. Feisty, determined Tonya Moore was the first recipient. Since her breakthrough procedure in 2013, twenty more area residents are living longer lives because of the Cone Health Heart and Vascular Center’s Ventricular Assist Device (VAD) team led by Dr. Peter Van Trigt. Learn more about this innovative program and some of the remarkable people involved at ExceptionalCare.com



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PROVIDED BY JOHNSTON HEALTH

Both of Smithfield-based Johnston Health's medical centers are accredited by the Society of Cardiovascular Patient Services as Chest Pain Centers. Cardiac care includes a quick diagnosis and trip to the catheterization lab, if needed, to reopen clogged arteries.

4,000 patients receive an LVAD at Sanger each year.

Stem cells may provide help to chronic heart failure patients in the near future. Sanger is involved in a small clinical trial that is exploring their ability to regenerate disease-damaged ventricular tissue. Stem cells are taken from a trial subject's bone marrow and then injected into the heart muscle. Similar trials conducted elsewhere have yielded some promising results. Doctors at Los Angeles-based Cedars Sinai Medical Center reported in the April edition of medical journal *The Lancet* that heart-failure patients treated for one year with ixmyelocel-T — a multicellular therapy manufactured from the patient's bone marrow — experienced 37% fewer

deaths, heart-related hospitalizations and unplanned doctor visits to treat heart failure compared with a control group. While larger trials are needed before this stem-cell therapy becomes standard heart-failure treatment, the prospect holds promise. "A couple of years ago, I would have looked at this as science fiction, but not anymore," Gulati says.

Several North Carolina hospitals are expanding and renovating in order to offer more cardiac-care services under one roof. Raleigh-based UNC Rex Healthcare, for example, is building its North Carolina Heart and Vascular Hospital in Raleigh. The eight-story, 306,000-square-foot hospital consolidates services now offered at seven locations throughout the system. The tower will be home to Rex's cardiol-

ogy practice that was created when Wake Heart & Vascular and Rex Heart & Vascular merged in 2013. It will have 114 patient rooms, 20 diagnostic testing rooms and 60 private prep and recovery rooms.

The new building, projected to cost \$235 million and be complete in early 2017, represents the largest capital project in Rex Healthcare's history, which was acquired by Chapel Hill-based UNC Healthcare in 2000. It was designed by Houston-based architectural firm WHR Associates. Its open, airy, state-of-the-art treatment rooms, patient rooms and public spaces will increase staff efficiency and patient satisfaction, UNC Rex Healthcare Department of Cardiology chief James Zidar told the *Triangle Business Journal*. ■



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