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CARDIAC CARE

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Eric Janis, a cardiologist affiliated with UNC Health Care, demonstrates a device implanted in patients that allows physicians to watch for symptoms of congestive heart failure. It's one way technology is helping health care providers battle heart disease.

Pump it up

Health care providers add technology, treatment centers and outreach to slow heart disease, the second-leading cause of death in North Carolina.

There's a killer on the loose in Nash County. Rocky Mount-based Nash Health Care Systems reported in August that heart disease is the No. 1 cause of death of county residents. "People are sicker here because they don't go see their doctor," says Sarah Heenan, executive director of the system's hometown Nash Heart Center. "They can't go see their doctor, and they can't pay their copay. This is not a community that's easy to care for, but this is our community."

The Nash Heart Center opened in 2011 with 12 chest-pain observation units, a 12-bed pre- and post-catheterization unit, stress-testing rooms and emergency services to streamline care for residents who arrive at the emergency

department's doors in some stage of heart attack. Heenan says it is a lifesaver. "We used to have to ship eight to 10 people a month [to other hospitals], so that's the frequency of heart attacks in our community. Now, we have cardiologists who are here 24/7. Because of that, we have people who are alive today. If you come to the [emergency room] and you're having chest pains, we barely even register you and worry about the insurance later."

Nash County's situation isn't unique. The American Heart Association Inc. says heart disease was responsible for nearly 21% of deaths in North Carolina in 2015, slightly behind cancer, the leading cause of death. Health care providers statewide are standing strong in the face of these frightening statistics. They are working to reduce them by



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Raleigh-based UNC Rex Healthcare opened its 306,000-square-foot North Carolina Heart & Vascular Hospital in March. Its patients have access to the latest treatments and lessons for living heart-healthy after returning home.

adding hospitals, offering outreach programs and developing increasingly intricate surgical techniques and technology.

The cardiology team at Winston-Salem-based Wake Forest Baptist Heart and Vascular Center uses the latest tools to overcome heart abnormalities. The Watchman, for example, prevents strokes in patients with irregular heartbeats — atrial fibrillation — by rerouting blood through the heart. “Look at [the heart] like a room in a house, with a little pantry,” says David Zhao, the center’s executive director. “You have the front door and the back door, but you’re not using the pantry. The blood comes in the front door, but instead of going out the back, it stays in the pantry a long time and forms a clot. The Watchman closes that side door and makes sure nothing goes in the pantry.”

Technology also improves reliability. The Micra Transcatheter Pacing System,

which is half the size of an AAA battery, is the world’s smallest pacemaker. The self-contained device, which received FDA approval in April 2016, is implanted in the patient’s heart via a catheter. “The old [style] pacemaker sits under the collarbone, and an electrical wire directs it to the heart,” Zhao says. “But those wires from time to time can have problems, just like the wire to a house. With this, there are no big incisions, and it goes up through a vein in the leg.”

Catheters also are used to perform transcatheter aortic valve replacement. It helps patients whose aortic valves have narrowed, which can cause pain, dizziness and death. “In the past, open-heart surgery was the only way, and now we can do it in one hour,” Zhao says. “You used to be a week in the [hospital], and now you go home the next day.”

It’s one of the most common heart procedures and the only option for patients

too sick for open-heart surgery. Interventional cardiologist Steven J. Filby, radiologist Michael Edwards, cardiothoracic surgeons Peter Ellman and Art Edgerton, and an anesthesiologist from Pinehurst Anesthesia Associates completed the 100th successful TAVR in February at Pinehurst-based FirstHealth of the Carolinas Inc.’s hometown Moore Regional Hospital.

Lumberton-based Southeastern Health Heart and Vascular is adding lasers to the mix. “While we currently offer pacemakers and other rhythm devices, we are working to expand into procedures that will enable us to perform ablation therapies,” says Chad Carpenter, Southeastern’s administrative director. “These procedures are performed much like cardiac catheterization.” One therapy targets leg veins that can no longer return blood to the heart. Once inserted, a burst of light from the laser disables them, reducing the patient’s pain.

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FIRSTHEALTH OF THE CAROLINAS

Pinehurst-based FirstHealth of the Carolinas Inc.'s Moore Regional Hospital completed its 100th successful transcatheter aortic valve replacement earlier this year. The procedure is the only option for those needing a new aortic valve and too sick for open-heart surgery.

At Raleigh-based WakeMed, Islam Othman created the Complex PCI/CTO Program for patients suffering from a nearly or completely blocked coronary artery, which could lead to a heart attack. It uses a stent to restore normal blood flow. Most patients who undergo the procedure go home that day or the next. He teaches the minimally invasive procedure to interventional cardiologists nationwide.

Wake Forest's Zhao says technology will make prediction and prevention easier in the next decade. "Many diseases are genetically coded. Some [people] are prone to have heart disease. Some are prone to have cancer. Some people, with a drop of blood, we can tell you if they're at risk for a heart attack. We really have no way to precisely say [currently], but we are at the cusp of being able to predict."

Raleigh-based UNC Rex Healthcare opened its eight-story, 306,000-square-foot North Carolina Heart & Vascular Hospital in March. "UNC Rex is committed to innovation that improves patient care and makes the delivery of that care more efficient," says

Ravish Sachar, the hospital's physician in chief. "The new hospital will incorporate the latest technology for the treatment and prevention of cardiovascular disease. We will offer patients a wide range of clinical trials and research. And dedicated education space will make it easier for UNC Rex physicians to continue training physicians from across the country and around the world and expand educational programs available for patients and the community."

The \$235 million hospital features a simulation lab and live-streaming video capabilities to train physicians worldwide. Patient floors have two nurses stations, each responsible for 12 rooms that feature a fold-out couch for family. The 114 patient rooms were designed to maximize natural light to encourage healing, and the hospital's chefs teach patients and their families how to cook and eat heart healthy. There's a resource library, 20 cardiovascular intensive care beds, 48 procedure prep and recovery beds, and eight catheterization, vascular and interventional radiology labs. Inpatient dialysis, a rehabilitation center

and pharmacy also are available onsite. The Kardia Café serves Mediterranean-inspired, heart-healthy food on the first level. "This exciting addition is part of UNC Rex's plan to regenerate our main hospital campus and evolve into a regional referral center offering specialized cardiovascular care, prevention and education for patients across eastern North Carolina and beyond," Rex President Steve Burriss says.

While it's important to build and staff well-equipped hospitals, it's just as vital to keep people from needing them. Nash's Heenan says personal interaction is strong medicine. "You're dealing with patients who may have to face that they almost died, and as a staff, you're dealing with them at the most important moment of their lives. We filmed a commercial with heart-attack survivors, and one man said, 'Not only do I get a chance to live, but I get a chance to live better.'"

Zhao agrees. "I think public awareness has made a huge impact, and the understanding of the signs of what causes a heart attack and becoming more knowledgeable about such things has helped. Smoking, for example, in the past no one would connect it with heart disease. So this is the knowledge we gradually gain. From a prevention standpoint, we're advanced but there still is a lot to do."

Heenan is taking that message beyond the hospital. Her public-speaking schedule is inspired by hope that her words will encourage members of her community, where heart disease risk factors, such as obesity, diabetes and lack of exercise, are common in the population. "I go out and speak — once or twice a month at least — to any organization that wants to hear about heart health or anything cardiac-related. I speak to the Methodist Men, the Methodist Women, the Rotary Club, the Rocky Mount professional networks. It's a huge need."

Heenan will soon have help. Nash Heart Center and Rocky Mount-based Nash Community College will partner in a health-and-wellness program, featuring adult education classes and speakers, this fall.



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PROVIDED BY MISSION HEALTH

Truven Health Analytics named Asheville-based Mission Heart one of the country's top 50 cardiovascular hospitals last year. It has received that honor 11 times since 2000.

Cardiologists face a similar situation 50 miles away at Smithfield-based Johnston Health, part of Chapel Hill-based UNC Health Care System. Heart disease is the leading cause of death in Johnston County, according to the hospital. "Reaching the public and educating them continues to be our biggest challenge," says Eric Janis, a cardiologist affiliated with Johnston, UNC Rex and UNC Health. "I'm amazed at how frequently patients will express surprise that eating fast food is not good for you. ... A biscuit with sausage is loaded with fat and salt and chemicals. Education starts in the schools and in community outreach, in our small communities, our churches, our civic clubs. Hearing it from some expert on the 6

o'clock news is not the same as hearing it in a gathering at your church."

Janis hosts a local radio show on which he discusses heart and vascular issues. The hospital's 12-week Healthy Kids Program shares those lessons at an early age. Participants ages 9 to 18 learn about exercise and nutrition from certified trainers, licensed dietitians and physicians. "I feel that we have had an epidemic of diabetes in the last 20 years, and a lot has been because of a change in our diets and exercise habits," he says. "So we reach out to parents and the kids in schools to try to encourage healthy behaviors."

It wasn't that long ago that Smithfield residents, who currently number a little

more than 12,000, would drive up to a couple of hours for care, Janis says. "But [Johnston Health has] eight cardiologists, and we do \$15 million in revenue a year, and we use ourselves as part of the community. I came out of Johns Hopkins [University in Baltimore], and I'm a highly trained doctor, and the aim was to take that and go into Johnston County and make things happen. People want to stay close to home, close to their church. We can come in and have an impact."

Johnston's hospital underwent a \$62 million renovation in 2009, when a five-story patient tower with 101 rooms was added and its operating suites and intensive care upgraded. "We have a new state-of-the-art cardiac cath lab as well as a procedure room for vascular care and electrophysiology care," Janis says. "So we now provide not only cardiac cath and stents but also advanced electrical work such as pacemakers and defibrillators. There are a host of new developments in cardiology coming out every few weeks. For coronary artery disease and the treating of heart attacks, we have continued to develop better stents, and that technology continues to evolve. Ten years ago, the risk of a stent closing up was 30% to 50%, and now it's less than 10%."

In the end, none of these advancements can stand alone against heart disease. They must work together, which is a tactic being taken by WakeMed and Durham-based Duke University Health System Inc. The independent health care systems announced a partnership — Heart Care Plus+ — on Valentine's Day. "As health systems continue to focus on improving the care and value we deliver to our patients, working together can help us all achieve greater coordination of care and clinical quality," says Donald Gintzig, WakeMed president and CEO. The collaboration will give WakeMed patients, for example, access to Duke's expertise, clinical trials and specialized treatments such as transplants. ■

— *Kathy Blake is a freelance writer who lives in eastern North Carolina.*

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