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Getting to the heart of cardiac care

Carilion Clinic and LewisGale Regional Health System have expanded their cardiac services to capture more patients and remain competitive within the region.

By [Sarah Bruvn Jones](#)

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When Vickie Hoffer awoke from a 10-day coma at Carilion Roanoke Memorial Hospital, she discovered she needed a surgery that the hospital had never performed before.

Hoffer, 62, had to have a mechanical pump attached to the left ventricle of her heart. Without it, her severely damaged heart would not function properly and she would die. Already, she was hooked up to a temporary pump that was keeping her alive while her body recovered from the heart attack she had on Jan. 24.

"It was the size of a whole 18-wheeler tire," she said of the temporary pump.

The new pump would allow her to leave the hospital and spend her life doting on her seven grandkids, three daughters and husband of 42 years. Instead of being bound to the temporary pump, her heartbeat would be controlled by a battery-operated external computer box secured inside a fanny packlike device around her waist.

The procedure is one of many additions to Carilion Clinic's expanding array of cardiac services. In the past five years Carilion has spent \$13.5 million to buy equipment and do renovations to support its cardiac services.

Carilion hasn't been alone in its quest to capture patients for cardiac care. Its chief competitor, LewisGale Regional Health System, has spent \$6 million since 2008 in renovations and equipment for its cardiac services. LewisGale has recruited doctors and added services at both its flagship hospital in Salem and its surrounding regional hospitals.

Cardiac services are among the biggest aspects of both hospitals' total inpatient business. Nearly 15 percent of all patients admitted to Roanoke Memorial are there for cardiac care, while nearly 13 percent of cases at LewisGale Medical Center are heart patients, according to the latest data from Virginia Health Information.

And Roanoke Memorial is the busiest hospital in the state for several inpatient heart-related treatments and procedures.

It's a lucrative business for the providers, with cardiac care being some of the most expensive services offered. The device implanted into Hoffer's body costs about \$85,000, said Charlene Cole, Carilion's senior director for cardiothoracic and vascular services.

The entire procedure runs about \$200,000, she said.

Open-heart surgery is among the most expensive procedures at both hospitals, with the average charge for such a surgery totaling more than four times the average cost for all inpatient services combined, according to VHI. Charges don't reflect what patients or insurers pay, but is the measure used by VHI.

Charges were 30 percent higher at LewisGale Medical Center than at Roanoke Memorial; VHI said LewisGale's charges were higher than expected and Carilion's lower than expected.

Both health systems say their recent expansions have helped them stay up to date on the latest patient care needs and provide the best quality of treatments.

It's about saving lives, they say — heart disease is the leading cause of death in the United States.

But officials at both also note that the updates are needed to stay competitive not only within the region, but also with larger institutions that may be drawing patients from the area.

'Cutting-edge patient care'

Until Hoffer's case, Carilion had sent patients in need of a left ventricular assist device to other hospitals, with the University of Virginia Medical Center and Duke University Medical Center the most common choices.

But a team of Carilion cardiologists, surgeons and nurses had recently trained in the surgery and were prepared to treat Hoffer. She consented, and on Feb. 29 she became the first patient to have the device implanted at Carilion.

Originally the device was intended for patients waiting for a heart transplant. But more recently, it has been proven in studies as a viable option for treating sick hearts in people who aren't necessarily on the list for a transplant. While Hoffer wasn't on the transplant list at the time of surgery, she was added last week by UVa, she said, adding she was cautioned that it could take as long as a year for her to get a heart transplant.

While Carilion officials say they aren't interested in becoming a transplant center, they do want to help heart attack patients like Hoffer who can benefit from the device.

And as Carilion has sought to build on its already busy cardiac services, adding the procedure made sense, said Dr. Paul Frantz, the medical director for cardiac services at Carilion.

"We've always been interested in the technology aspect of things that allows us to provide cutting-edge patient care," Frantz said. "This is part of that."

Carilion, which recently built a new \$3 million operating room that provides space for both cardiac catheter procedures and open-heart surgeries, began another new procedure last month.

The procedure, transcatheter aortic valve implantation, or TAVI, was approved by the Food and Drug Administration in November. Anticipating the approval, Carilion had been preparing to provide the service, which Frantz called "a real watershed."

A team of doctors received training on the TAVI procedure, then came back to Roanoke and performed the first case on May 24 and a second on May 31.

In TAVI, the malfunctioning valve is replaced from inside the heart using a catheter. TAVI is billed as an alternative to major surgery for patients whose main aortic valve needs to be replaced. It is approved only for patients who are so sick that the risk of surgery is too great.

Carilion also has poured money into bringing in more doctors who specialize in cardiac care, including recruiting people to the area and, in 2008, acquiring the region's largest cardiology practice. More money has been spent to send physicians for training in the new procedures, Frantz said.

The investments also aid in recruiting sought-after physicians in the field, Cole said.

"The tipping point for us was the decision to form the clinic and adding the opportunity for research at an academic institution," Frantz said, referring to Carilion's transformation, which included launching the Virginia Tech Carilion School of Medicine. "That was a landmark decision and implementing it has allowed us accelerate our efforts."

Similar services

At times, Carilion and LewisGale have added the same new services within a short span of each other.

For instance, LewisGale is looking into building a hybrid operating room similar to Carilion's new one, said Dr. Ben Barton, chairman of cardiovascular services at LewisGale.

As at Carilion, Barton said a hybrid operating room would allow the hospital to provide the TAVI procedure and other types of cardiovascular care.

"There are multiple uses for a hybrid lab," he said. "It is one of those things that if you build it, they will come."

Similarly, last year Carilion began a new protocol of cooling the body temperature of patients in cardiac arrest. A few months later, the procedure, called induced hypothermia, was also in place at LewisGale.

In 2010, LewisGale and Carilion engaged in a very public battle for state approval over the ability to perform a rare, and expensive, diagnostic test for patients who have an increased risk for heart attacks.

The result ended with both hospitals being allowed to perform the test, which requires injecting the radioactive isotope N13-ammonia into a patient and then using a PET/CT scan to take pictures of arteries.

Most recently, LewisGale has concentrated on upgrading the cardiac catheterization laboratories at its Salem hospital, spending \$2.2 million on the new equipment and renovations, said spokeswoman Nancy May.

LewisGale also has sought to make cardiac catheterization, which involves putting a thin flexible tube into the right or left side of the heart, more accessible to patients living in more remote areas.

The health system has begun to offer elective procedures for angiograms and stenting for a single blood vessel at LewisGale Hospital Montgomery in Blacksburg. Patients who need the procedure done on multiple blood vessels still must travel to Salem, May said.

"It's part of our effort at capturing patients sooner and quicker at our outlying facilities," said Cathy McDowell, interim vice president for cardiovascular services at LewisGale. "It's also more convenient for patients."

Outreach efforts

Both hospitals say Southwest Virginia's population warrants stepped-up resources to fight heart disease.

Nearly 23 percent of all deaths in Virginia in 2010 were from heart disease, according to the latest statistics published by the Virginia Department of Health.

And people are more likely to die of heart disease in Southwest Virginia than elsewhere in the commonwealth. Taking into account the differences in age distributions throughout the state, 22 out of every 10,000 deaths in the

health planning district that includes Roanoke and Salem were attributed to heart disease. Statewide, heart disease accounted for 17 out of every 10,000 deaths.

But both hospitals are also drawing patients from a wider region, including reaching into West Virginia.

Frantz said the high volumes at Roanoke Memorial are attributed to Carilion's success at marketing itself as the "go-to" hospital for cardiac care. Carilion has received patient transfers for cardiac care from 36 hospitals, including three in West Virginia.

The number of transfers to Roanoke Memorial is climbing, according to the hospital's own data. Last fiscal year, the hospital received 1,839 heart patient transfers. For the first six months of the current fiscal year, the hospital has had 1,025 transfers.

LewisGale officials said its flagship Salem hospital receives heart patient transfers from 14 hospitals.

Carilion also has relied heavily on its growing Life-Guard air ambulance service to fly patients to Roanoke for care.

Likewise, LewisGale has relied on bringing in patients from outside the area to Salem, McDowell said. And while she wouldn't elaborate, she said LewisGale is preparing to roll out a new component of its hospital transfer services that would affect cardiac patients.

The result for both is more cardiac patients. From 2006 to 2010, both saw slight increases in their share of the Southwest Virginia market, according to the VHI inpatient data.

Statewide, more medical cardiology, invasive cardiology and catheterization procedures are done at Roanoke Memorial than at any other single hospital in the state, according to VHI.

Based on VHI definitions, invasive cardiology includes cardiac catheterization, pacemaker insertion, balloon angioplasty and placement of stents.

In 2010, Roanoke Memorial did more than 700 catheterizations — 8 percent of all cases done at 46 Virginia hospitals, and 100 more than the hospital with the next highest number.

Frantz credits Carilion's outreach efforts. He visits other hospitals. So do Life-Guard crews and cardiac nurses, he said.

Additionally, Carilion developed its HeartNet of the Virginias educational program, which includes an annual professional conference and consultation services for the region, he said.

"We've had a pretty fast build-out the last couple of years," Frantz said. "We're at a pause and reflect moment. ... But if we're going to be in the game we have to get in the game and we strive to be a top-notch medical center for cardiac care."

LewisGale's Barton also noted that the emphasis for him is on quality.

"The footprint I want to put down is being the top quality program in the region, if not the state," Barton said. "As word gets out, we will have incremental volume increase."

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