COLUMBUS C.E.O.
November, 2008

High-Tech Help

By Jennifer Wray

Telemedicine allows doctors to treat patients remotely, cutting down on costly medical transports. But financial stumbling blocks have limited the field's growth.

A high-definition, two-way video-camera connection between Nationwide Children's Hospital in Columbus and Adena Medical Center in Chillicothe has helped physicians such as Dr. Rachel Brown make better-informed decisions about whether patients should be transported for treatment.

Stacie Traylor was frightened. Her daughter Emilie, born five weeks premature, was ill. Doctors had delivered her early because of complications from gestational diabetes. But from the moment she was born, Emilie struggled to breathe. An X-ray revealed a hole in her lung, which had partially collapsed, pressing on her heart and filling the left side of her chest with air.

For days, Traylor and her husband, William, watched and waited. Emilie, who was born in April at Adena Regional Medical Center in Chillicothe, was on oxygen for five days before she could breathe well enough to go home. The hole in her lung closed on its own, though the air had to be removed with a catheter. "We cried a lot," Traylor says. "We have two other daughters, and that didn't happen with them, so it was very, very hard."

Doctors initially considered sending Emilie to Nationwide Children's Hospital in Columbus for treatment and observation. "The first thing I thought is, this must be really serious for them to have thought about that," says Traylor. She also worried about her other children. Traveling to Columbus every day would take time away from them. It also would mean lots of money spent on gas and hotels. And travel would be hard on Traylor, who was recovering from a Caesarean section.

Ultimately, Emilie was able to stay at Adena, where doctors consulted remotely with neonatologists and other specialists at Children's. Such "telemedicine" arrangements are growing in popularity. Proponents say the concept allows smaller hospitals, which often lack specialists needed for serious medical problems, to provide a higher level of patient care and reduce expensive medical transports.

The partnership between Adena and Children's, struck in early 2007, allows doctors to collaborate in real time, reviewing relevant medical information and discussing treatment plans.

"It was nice that they were able to keep her down here and give her the same medical treatment that they would have given her if she had gone up there," Traylor says of Emilie. "They did a great job with her—all the doctors did. And they came in every day and talked to us, and let us know how she was doing, and let us know what Columbus was saying. It reassured us."

Positive Outcomes

Adena is Children's largest referring hospital outside of Central Ohio. Referred patients' stays are usually brief. "A lot of these babies, their length of stay in Columbus was really very short," says Dr. John Fortney, Adena's senior medical director.

Often, doctors, erring on the side of caution, sent infants who possibly could have stayed at Adena to Children's, which boasts the nation's largest division of neonatology and treats more than 2,100 babies annually. "It's always a struggle to make sure that you get the right patients in the right beds," says Marcus Bost, Adena's chief information officer.

Now, a high-definition, two-way video-camera setup transmits images of Adena's sick infants to Children's. Using a remote control, a doctor in Columbus can zoom in on areas of concern, or pan from side to side and up and down. The consulting physicians can view not just the baby, but also echocardiograms, X-rays and any lab work, to make informed treatment decisions. Should an infant require transport to Columbus, her mother (who may not have medical clearance to make the trip) can periodically observe her baby at Children's.

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Prior to implementing the program, Adena made about 170 transfers to Children's each year. "We have seen a decrease of 50 percent in our referrals," Fortney says, thanks to both telemedicine and improved obstetrical care for expectant mothers. Dr. Rachel Brown, an assistant professor of neonatology at Children's, agrees: "We have been able to decrease the number of transports and, I think, have more appropriate transports."

Fewer patient moves also means fewer bills; it costs about $5,000 to transport a patient to Columbus. "That's money that stays in someone's pocket, whether it's the customer, the government, an insurer or a business," Bost says.

Users say implementation of telemedicine has been quick and hassle-free, even for the staunchest of technophobes. "This is very high-quality equipment, but it's not sophisticated in difficulty," says Stan Ahalt, executive director of the Ohio Supercomputer Center, which provides the hospitals with a high-speed optical network of ample bandwidth to transmit high-definition images in real time.

"We actually have been surprised by how well and how smoothly this has gone," says Brown. Fortney says the first time he used the system, "I walked up, the nurses turned it on, there was somebody there, and I talked to them. … It's really very simple—it's no different than booting up your computer."

Doctors use the telemedicine equipment about once a week, Brown says. A majority of the exams involve respiratory issues, although sometimes there's a need to evaluate an infant's rash or conduct an orthopedic consultation. Soon, they'll test a "virtual stethoscope" to check for cardiac anomalies such as murmurs.

Fortney says the arrangement between Adena and Children's "is just the tip of the iceberg." According to Children's, an estimated 3,400 infants born each year in Ohio will need delivery room resuscitation by medical personnel who aren't specifically trained in neonatal medicine. Children's hopes to bring telemedicine technology to other rural hospitals in Southeastern Ohio and West Virginia, including a Zanesville launch as soon as year's end. Officials also plan to expand the program to other specialties.

The Children's-Adena project was financed partly by a $115,000 grant from the Ohio Department of Health, Housing and Human Services and the Ohio Board of Regents. The funding lowered the cost of the network to about $600 a month over 10 years, says Pankaj Shah, senior director of technology infrastructure at the Ohio Supercomputer Center and director of its networking division. "That was a very big incentive," he says. Otherwise,

"The monthly costs would have been high enough for both of the parties to not come to the table." An additional $100,000 from the same grant paid for the high-end, high-definition equipment, Shah says.

Indeed, the greatest obstacle to the spread of telemedicine appears to be finances. The reason is simple, experts say. "In the state of Ohio, there are no [Medicaid] reimbursements for phone consultations, and that's what telemedicine has been lobbed into," Bost says. Medicare isn't much better, providing only partial reimbursement, and only in rural areas. And if Medicare and Medicaid won't pay, neither will insurance providers.

That's one reason why some other Central Ohio providers who have tried telemedicine opted to discontinue it.

Cautionary Tales

In 2002, Larry Gabel, a professor of family medicine in Ohio State University's Department of Family Medicine, published research showing how telemedicine could serve nursing home and other populations. The pair of studies, one funded by the Columbus Compact Corp., the other by the Ohio Board of Regents, determined that medical outcomes via telemedicine were the same or better than those where patients were treated face-to-face. Gabel also found—as Children's, Adena and others are experiencing—that all the parties involved (consulting physicians, nursing home staff and patients) were satisfied with the treatment vehicle.

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Based on these findings, Gabel saw tremendous potential in telemedicine. For instance, one of the nursing homes in his study was located just a stone's throw from University Hospital East. If a nursing home patient needed a checkup at the hospital, it cost $400 to transport him across the street. While that's not a large figure, the numbers add up quickly when dealing with an elderly, frail population. In fact, Gabel found that using telemedicine in lieu of in-person doctor visits could save Ohio's Medicaid system about $98.5 million annually—not exactly chump change. Still, Medicaid and Medicare aren't budging on their reimbursement policies in the Buckeye State.

Ohio Presbyterian Retirement Services experienced these and other financial difficulties when it attempted to integrate telemedicine into Senior Independence, its home-and-community-based division, in 2002. While grants absorbed much of the $233,000 equipment and training costs, money became an issue when the technology became outdated, says Linda Artis, the nonprofit's executive director. As a result, the program was scaled back this year. "When you have no reimbursement attached to this technology, it makes it very difficult for organizations to stay current," Artis says.

"The bottom line is, Medicaid simply will not reimburse physicians for their efforts. So until we get a mechanism in Ohio where physicians are reimbursed for their work … it's not going to work," Gabel says.

That's not to say that Gabel has given up hope. Ohio's time for telemedicine will come, he predicts. He points to the 27 other states that have embraced telemedicine in one form or another—and that pay providers for its use. They're mostly rural locales in states such as Montana or Iowa, where doctors can be few and far between. "In those types of states, it's working very nicely," Gabel says.

While Ohio is relatively rich with doctors, the state does have many small towns with limited medical resources. "Anyplace where you've got people living in sparse areas, it's going to work simply because they could go to a nearby telemedicine site. And then this message can be communicated literally around the world, and they could be seen by an expert that could be in another state," Gabel says.

Those who could benefit most from telemedicine may be people in institutional settings, Gabel says: "The nursing home population has probably the biggest potential benefit—actually, any confined population could benefit." The state Department of Corrections, for example, has embraced telemedicine. "They provided quality care via telemedicine, and they didn't have to transport prisoners, so that addressed safety concerns," says Gabel. "That worked out great."

"The bottom line is, Medicaid simply will not reimburse physicians for their efforts. So until we get a mechanism in Ohio where physicians are reimbursed for their work … it's not going to work," says **Larry Gabel**, a professor in Ohio State University's Department of Family Medicine.

After a decade studying telemedicine, Gabel has turned his attention to other subjects. "I still hold out hope, but right now, I just have to move on to other things; I can't keep waiting," he says. "I am anxious for the future, but the future's not here yet in Ohio."

National Efforts

The American Telemedicine Association is busy lobbying government officials to convince them that the technology can provide improved access to medical care. The Washington, D.C.-based ATA also is leading efforts to develop clinical and industry policies and standards in telemedicine.

The field has grown substantially since the ATA was established in 1993, says Executive Director Jonathan Linkous. He credits the reduced cost of technology and telecommunications equip-

ment as well as increased acceptance from providers looking to ease health-care costs. "Some of the major medical organizations were really adamantly opposed to telemedicine 15 years ago, and now they're embracing it," Linkous says.

What changed? Instead of seeing it as a potential threat to their job security, doctors have begun to see that telemedicine can address staffing shortages in fields such as gerontology, where demand for services exceeds the supply of providers, Linkous says. He predicts that telemedicine will be "totally integrated into all the practices of medicine in the next 10 years.

"We've seen a lot of support for this in Congress and in state legislatures," Linkous says.

Already, telemedicine is making inroads around the country via the U.S. Department of Veterans Affairs, which hosts several telehealth programs for veterans and is the country's largest provider of remote services. Through a process the VA describes as "telemessaging," a book-sized electronic device is given to veterans who are receiving home health care.

Nancy Kosta, a registered nurse and care coordinator with the home telehealth program at the Chalmers P. Wylie Veterans Clinic in Columbus, says the device "asks questions every day about the symptoms they may be having, and then their information is downloaded to a care coordinator every day. And then we're able to tell who is at-risk for having any kind of complication."

The monitors are in 144 homes in Central Ohio. At about $600 each, they're a relatively inexpensive way to stabilize patients and help identify medical complications before they lead to emergency room or hospital visits, Kosta says. Users are "comforted in knowing that someone is aware of the status of their health, and that someone's able to intervene and advocate for them," she says.

More than six months after her daughter was born, Stacie Traylor remains thankful that someone was there to advocate for Emilie. Just 4 pounds, 6 ounce at birth, Emilie tipped the scales at more than 13 pounds as of late August. Her lungs are strong, and doctors have said her slight heart murmur should go away with time, her mother says.

"She's in perfect health now," Traylor says. "As parents, your main job is to protect your kids, and if they're sick, it hurts. We couldn't make her better—it was basically up to the doctors. And we put all of our faith and trust in them, and they did a good job." ◊

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