

# Forging Rural Health Care Links

By DONNA FARRIS

**F**or the nation, virtual care is the care of the future. For Avera Health, virtual care is the care of the present. Situated in America's northern plains, Avera Health over the last two decades has grown its own telemedicine solutions to many of the challenges of rural health care. As a result, Avera eCARE, a far-reaching and innovative system of technology, may serve as a national model for health care delivery.

"As we move into accountable care organizations, the more we can treat patients where they live, the better our reimbursement models will be and the better it will be for the patient," said Deanna Larson, Avera Health's senior vice president of quality and eCARE.

Avera eCARE also is becoming a diversified revenue source — essentially its own business — for the non-profit, Catholic-sponsored health care system based in Sioux Falls, S.D.

South Dakota's western side is known for the beauty of the Black Hills and Mount Rushmore. On the eastern side, it is known for agriculture and the state's largest city, Sioux Falls, population 160,000. Sandwiched in between are vast stretches of farm- and ranchland dotted by small communities. With the exception of its major cities, Sioux Falls and Rapid City, the South Dakota landscape is rural and the population sparse. Avera's goal is to offer access to health care throughout the region, rather than ask patients to drive hundreds of miles to a hospital or specialty clinic, Larson said.

What's more, "If you take health care out of the community, you are diminishing the local workforce and driving all revenue to the urban center, and this is not having a positive impact on the communities we serve," she said.

Avera eCARE harnesses interactive video and computer technology to extend specialty care

from a "virtual hospital" in Sioux Falls throughout a 545,000-square-mile area across eight states. Since its inception in 2004, eCARE has reached more than 210,000 patients at 209 locations. The efficiencies of this system have saved an estimated \$143 million in health care costs.

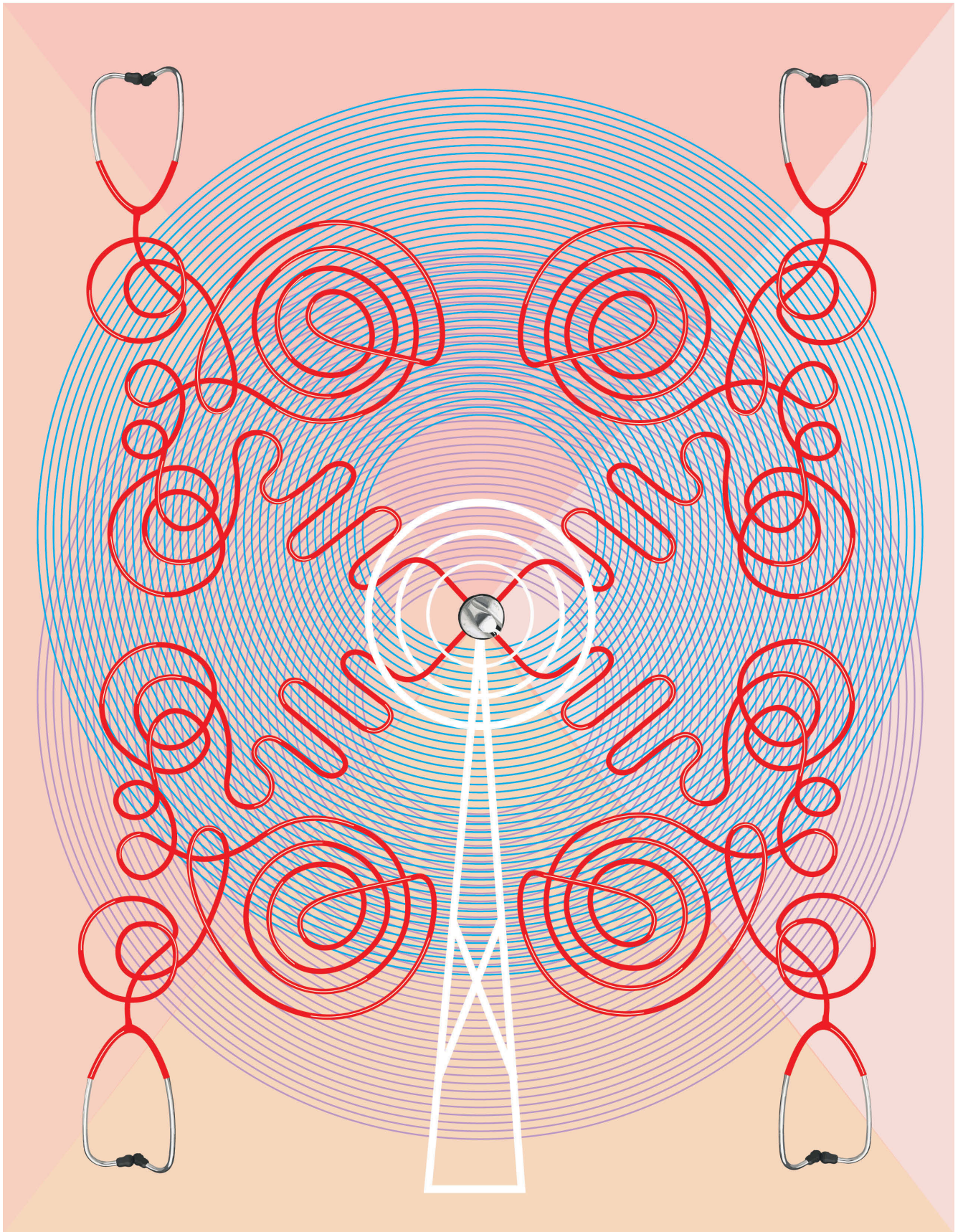
"To our knowledge, no one else in the world is doing what we're doing in a rural setting," said Larson.

Avera eCARE has several distinct arms that serve varied needs: eICU, eConsult, eEmergency, ePharmacy, eLTC and eUrgent Care-Correctional Facilities.

"If there could be a physician of every specialty in every location, that would be optimal for the patient. Unfortunately, that's not reality. The best

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we can do is to have a virtual physician presence providing the expertise to improve outcomes for the patient. That's what we're doing through Avera eCARE," said Donald Kosiak, MD, Avera eCARE's medical director.

Avera eCARE's roots date back to the beginnings of telemedicine in the 1990s and a pilot project between Avera McKennan Hospital & University Health Center in Sioux Falls and a small community partner hospital in Flandreau, S.D. A telemedicine network between specialists and local providers soon developed. EConsult now offers virtual visits with specialists at 133 sites, and the consultations exceed 7,900 per year.

An eConsult visit mirrors an in-person clinic visit whenever possible. The patient goes to his or her local clinic and enters an exam room equipped with a camera and flat-screen monitor. A video and audio link allows the patient to meet and consult with a specialist in Sioux Falls, assisted in the exam room by a clinic nurse, advanced practice provider or physician. Medical equipment such as a stethoscope can be attached to the system. The consulting physician has earphones, and the nurse or advanced practice provider at the remote site places the bulb on the patient. There also is an otoscope and an "exam cam" for a larger-than-life view of the skin or a body part — especially helpful for dermatological or infectious disease visits.

A total of 133 of Avera's rural hospitals and clinics are equipped with eConsult technology. Frequently accessed specialties include infectious disease, behavioral health, oncology, pulmonology, cardiology and pediatrics.

In health care circles, the word "telehealth" carries a certain amount of baggage, Larson said,

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because organizations got excited about the technology, invested in it, but never used it to its full advantage. "There's a lot of telehealth equipment in storage cabinets that people are not using," she remarked.

Avera found that by putting eConsult equipment at specialty clinics throughout Sioux Falls instead of designating a single "telehealth room" on the hospital campus, use skyrocketed. "Once

we decentralized, we doubled the number of consults," Larson said.

Physicians are satisfied because they can see more patients and spend less time on the road for outreach visits and less unreimbursed time on the phone.

Patients — most of whom are Medicare age and not necessarily technologically savvy — are 98 percent satisfied, according to an eCARE survey. They love not having to drive to Sioux Falls to see a specialist; instead they can go to a familiar facility, yet also receive the specialty and subspecialty care that's typically available only in an urban setting.

### **eICU**

In 2002, Avera partnered with the technology firm VISICU, Inc., to create Avera eICU® CARE. Dave Kapaska, DO, regional president and CEO of Avera McKennan, was in on the ground floor of the project through its planning stages and then implementation in 2004.

"It's basically air traffic control for intensive care patients," he said. "It's the ability to be everywhere at once, to see the entire picture, to have trends reported through the computer and draw doctors' attention to the exact things that need to be looked at for that patient. It is extraordinary, and the capabilities of the system are well beyond the capabilities of the human mind."

On any given day, 24/7, intensivists at the eCARE hub are monitoring up to 93 patients at 29 sites through eICU.

"What we're after is a smooth landing for those passengers," Kosiak said. "We're in the background to support the local team, through decision-support software and patient monitors. If a change in a patient's health status triggers an alert, we can look into the patient room via two-way video, or intervene from afar."

### **eEMERGENCY**

In 2006, Larson assumed administrative oversight of Avera eCARE, and began exploring how this technology could extend beyond eICU and telemedicine consults to address other pressing needs, including access to emergency expertise across Avera's vast region.

Larson wrote a grant application through the U.S. Health Resources and Services Administration (HRSA) to develop a program that involved virtual emergency care provided through a central hub in Sioux Falls, staffed 24 hours a day

by emergency physicians. HRSA funding was received, and eEmergency was implemented in October 2009.

At the touch of a red button on the wall of a local emergency room, staff can be in contact with emergency medicine specialists within a matter of seconds. The eEmergency system serves 88 hospitals in eight states — South Dakota, North Dakota, Minnesota, Iowa, Nebraska, Wyoming, Montana and Kansas — including a number of non-Avera sites.

“Our goal is to support and maintain care locally, but also quickly identify those patients who need transfer to a tertiary facility,” Larson said. Cases handled by eEmergency commonly involve cardiac arrest and arrhythmia, stroke, respiratory distress and traumatic injury.

Using eEmergency helps avoid a transfer 20 to 25 percent of the time.

“Local towns may have only one provider, or maybe two that are sharing calls, and burnout is high. By inserting a specialty team to support that provider and offer transfer support, that’s where the magic is,” said Kosiak.

Kosiak joined eCARE full time after serving as an emergency physician at Avera McKennan. “My father was a rural practitioner, and I know that being the last line of defense in critical situations can be very scary; eCARE allows us to build a virtual hospital around those practitioners at the push of a button,” he said.

The hardest thing to get used to, he said, was directing emergency care without being able to use his own hands. “It’s like I’m the one standing in the corner with my arms crossed,” he said.

If a very ill or injured patient arrives at a local emergency room, the doctor on call might be 15 minutes away. The eEmergency link provides direction to the nurse or advanced practice provider in the ER until the doctor arrives. Then, eEmergency staff can help arrange for the patient’s transfer, if needed, while the care team can give their undivided attention to the patient.

Kapaska told of a myocardial infarction patient writhing in pain in a rural emergency room. “Yet he looked up at the physician on the TV screen and said, ‘That’s [expletive] amazing.’ If patients, at their worst moments, can recognize the value of having experts present that wouldn’t normally be there, it tells the whole story,” Kapaska said. “By the way, he survived to tell me this story.”

## PHARMACY

In November 2008, ePharmacy was implemented thanks to a grant from the state of South Dakota. A federal requirement mandates pharmacist oversight of any new medicine before it is administered, so that factors such as age, weight, medical allergies and possible drug interactions can be taken into account. This is easier said than done in

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a rural facility lacking a pharmacist on duty 24/7.

The ePharmacy service provides virtual pharmacist oversight, any time of the day or night. The virtual pharmacist sends an order to a local medication dispensing device which allows only the drawer containing the correct medication to open. The service covers 58 hospitals in South Dakota, North Dakota, Minnesota, Iowa, Nebraska and Wyoming. It has circumvented an estimated 22,000 adverse drug events. This number is calculated by counting the number of interventions that ePharmacists have documented for such key categories as allergy issues, anticoagulation issues, dosing issues, drug interaction, inappropriate abbreviation and therapeutic duplication. Without intervention, these issues have the potential to become an adverse drug event. Based on an estimated cost average per adverse event of over \$2,600, the estimated cost savings is \$58 million.

“The Institute of Medicine estimates that as many as 98,000 lives are lost each year due to medication errors. EPharmacy is really the unsung hero of our eCARE program,” Larson said.

## LONG-TERM and URGENT CARE

“After we gained traction with our eCARE business strategy, folks started coming to us, asking if we would consider other programs,” Larson said. Avera developed virtual urgent care for long-term care and correctional facilities to fulfill niche needs.

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For both settings, transfers of patients to the emergency room are difficult and expensive. The eLTC link serves 15 sites in South Dakota, Iowa, Minnesota and Nebraska, and eUrgent Care-Correctional Facilities serves four sites within the South Dakota Department of Corrections.

Long-term care involves a vulnerable population that tends to be underserved. “A nurse may have called the doctor about a concern earlier in the day, but because the doctor didn’t respond until the next day, the patient ends up in the emergency room that night,” Larson said.

“By providing virtual urgent care services for these two settings, we have reduced transfers to the emergency room by 30 to 40 percent. Saving dollars and providing quality care is the win-win that everyone looks for,” said Kosiak.

### **eHELM**

The Leona M. and Harry B. Helmsley Charitable Trust has been a funding partner with Avera eCARE since 2009, when it awarded two large grants totaling \$11.5 million to implement eEmergency and ePharmacy.

In total, grant funding of more than \$80 million has been awarded to eCARE projects, either directly to Avera or to the rural sites. In addition to the Helmsley Trust, eCARE has received funding from federal and state sources.

With Helmsley funding, Avera opened eHelm in October 2012 — a Sioux Falls site that creates a “virtual hospital” with centers for eICU, eEmergency, ePharmacy, eLTC and eUrgent Care. To facilitate transfers more easily, Avera’s Careflight dispatch center is housed in the same location.

Instead of hallways of patient rooms, the virtual hospital is marked by computers with multiple monitors, interactive video cameras and phones.

Staffing includes emergency medicine specialists, intensivists, pharmacists, advanced prac-

tice providers, and nurses with specialty certification in emergency room and critical care.

“Our physicians are privileged and credentialed at every facility and licensed in each state in the network, so they can give orders to the local nurse who can in turn act on them,” Larson said. Avera eCARE has its own medical credentialing staff, departments of quality and finance, legal support, IT experts and sales/account managers.

“eHelm is a unique place. It is very similar to a tertiary center, yet the patients are all virtually based. It takes a bit of practice and thinking outside the box, but the care is the same,” Kosiak said.

### **BUSINESS TO BUSINESS**

Since the inception of eCARE programs, Avera has offered the services to Avera and non-Avera facilities alike.

Larson gave the example of eEmergency. “The Avera footprint has 32 hospitals. For sustainability of our program, we knew we needed to push out beyond that to at least 50 in order to pay for it,” she said. Yet now, eEmergency has surpassed the 50 mark to 88 sites. “How do you say ‘no’ when there is a need and we have the ability to fulfill the need? We are in nearly 90 percent of critical access hospitals in North Dakota,” Larson said.

With the exception of eConsult, which is billed to the patient as a provider visit, facilities pay a fee to offer eCARE at no extra cost to the patient.

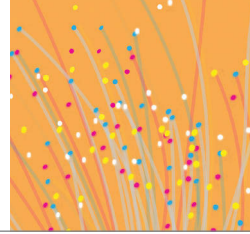
The investment pays dividends in numerous ways. By supporting local providers, eCARE

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reduces burnout and increases retention. Larson told of medical residents who chose one rural hospital over another, and physicians who had planned to retire, but extended their career because eCARE support was available in a particular community.

The eCARE service reduces transfers, preventing lost revenue for the hospital as well as the local economy. The eICU link reduces length



of stay, as well as costly complications, while the case rate remains unchanged for reimbursement. It increases confidence in local providers. People in rural locations are coming to understand that should they or a loved one suffer a heart attack or stroke, their local emergency room is supported by specialists in Sioux Falls, delivering the same high level of care closer to home.

“The ability to be present in a multitude of places instantaneously is unparalleled. Even with any kind of automobile or plane, you can only be present in one place. With this leveraged activity, you can be present in multiple places at once to bring the services that are needed at that point,” Kapaska said.

Large health systems have traveled to Sioux Falls to check out eCARE. “Their first reaction is, ‘we could do this too.’ Yet it’s not something that can happen overnight,” Larson said.

Health systems that try e-services on a small scale often run into the roadblock of availability of providers. Numerous facilities offer connectivity with a doctor who is covering the emergency room. Yet when that doctor gets busy, the remote sites have to wait. “They soon lose the trust of those rural sites,” Larson said. “We have a hub of specialists available, 24 hours a day, at 30 seconds’ response time. No one else is doing this.”

“With the changes that are coming through health care reform, we will be paid based on quality, not quantity. What we need to do is change the way health care is done in the United States, and we believe eCARE provides a very viable model,” Kosiak said.

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