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Telemedicine reaches into the distant small towns of Texas to provide the best in medical care.

When Annette Reyna complained of an earache recently, her mom took her to the school-based health clinic in Hart, Texas. But the physician—who peered into the child’s inner ear, diagnosed her condition as otitis, and prescribed antibiotics—was in an office 66 miles away at the Texas Tech University Health Science Center in Lubbock.

This exam was made possible by technology known as telemedicine. Texas Tech has utilized telemedicine since 1989 to give folks living in one of the county’s most remote regions access to good medical care.

Telemedicine, simply defined, is the use of telecommunications equipment to deliver medical care. So a doctor talking with another doctor on the telephone qualifies as a telemedicine consultation in its most basic form. Sending medical test results over the Internet and faxing chart information represent other simple examples. At the “Star Wars” end of the spectrum is a physician in one place assisting microscopic laser surgery being performed thousands of miles away at that moment.

In Hart, population 1,210, a VSAT (Very Small Aperture Terminal) satellite dish sits atop a small metal building that houses the school district’s health clinic. The satellite links what are essentially two mini-television studios that enable doctor and patient to interact in real time on a television screen.

Picture telemedicine in action: Retta Knox, RN, the Hart school nurse, is in the exam room with the patient. She handles the combination of videoconferencing equipment and medical devices connected to tiny cameras so Texas Tech doctors can visit with the children every Friday afternoon.

“It’s just astonishing that they can do that,” says Annette’s mother, Norma.
“I actually see ears and throats better using this equipment than I do in regular exams, because of the magnification and lighting,” says Dr. Richard Lampe, chairman of the Department of Pediatrics at Texas Tech and physician who oversees the Hart Clinic telemedicine consultations.

Michael Phillips, associate vice president of Telecommunications and Computer Service at Texas Tech, describes this form of electronic medicine as simply “using technology to deliver medical services at the point of need, often where those services don’t exist.”

And in rural West Texas, physicians are scarce. Nearly 81,000 Texans live in counties where no primary care physicians practice. Another 180,000 people are in huge counties with only one or two doctors.

To serve these isolated citizens, Texas Tech last year provided hundreds of telemedicine consultations in 14 specialty areas, including orthopedics, dermatology, surgery, and internal medicine. So important is the technique that in 1999 the university launched the Telemedicine Research and Training Institutes to teach medical students how to use telecommunications to heal at a distance.

One of the earliest and most dramatic uses saved a baby born in the Big Bend community of Alpine. Barely an hour old, Aida Porras was laboring to breathe. A consultation with a neonatologist at the Health Sciences Center 312 miles away led to a diagnosis and emergency treatment plan that kept the premature infant alive.

While video-conferencing is not new science, Texas Tech has been at the forefront of finding creative applications for its use to deliver high-quality medical care to a variety of populations. For example, since 1994 the university has been using telemedicine to meet the medical needs of the 36,000 prison inmates in the western half of the state, which saves thousands of dollars.

“Telemedicine provides a high standard of care for this population, because it’s tough to find health-care providers who will work in prisons,” says Jon Phillips, director of Texas Tech’s Telemedicine Research and Training Institute. Texas Tech is also expanding telemedicine to care for elderly residents in nursing homes.

Yet another institution in Texas is equipped for telemedicine. The University of Texas-Houston Medical School has equipped its Medical Mobile Van with television cameras to offer higher level medical services to residents of Hidalgo County in South Texas.

As helpful as telemedicine is in delivering vital medical services to rural communities with minimal health-care resources, many towns are unable to take advantage of the benefits. Trans-