

# Telehealth Initiatives Show Promise

Telehealth is beginning to prove its worth as a means of delivering better health care at lower cost. Better broadband is needed to make the promise of telehealth a reality.

By Jordana Barton / *Federal Reserve Bank of Dallas*

**I**ncreasingly, health care systems are pressured to deliver cost-effective, quality care to more people. To meet this demand, health care systems often rely on digital health information and tools to enhance continuity of care and increase efficiency, timeliness and reach. One promising tool, telehealth, is a platform that can be deployed to address access-to-care issues for both underserved urban and rural populations. However, broadband infrastructure and access gaps, particularly in low- and moderate-income (LMI) and rural communities, are barriers to unleashing telehealth's full potential.

Those who find themselves on the wrong side of the digital divide – including low-income people, those with little formal education, rural populations, the elderly and minorities – suffer further economic, social, political and health disparities resulting from disconnection. For example, U.S. households making \$25,000 or less have a broadband adoption rate of 47 percent, while those making more than \$100,000 have an adoption rate of 92 percent.

According to the FCC's 2016 Broadband Progress Report, 34 million U.S. residents lack access to fixed broadband at speeds of at least 25 Mbps for downloads and 3 Mbps for uploads. Rural areas have the least connectivity with 39 percent – 23 million people – lacking sufficient access to high-speed broadband. Given this gap, the use of telehealth can be stymied because broadband is the basic infrastructure for reaching people through this tool. Thus, a sizeable portion of the U.S. population is missing out on a transformative, necessary platform for accessing health care.

The speeds necessary for different types of telehealth activities vary. 100 Mbps may suffice for a videoconference between a primary care physician or specialist and a patient; 200 Mbps may suffice for the transmission of some patient records such as CT scans or heart images; and 25 Mbps may allow remote monitoring through a mobile phone for a diabetes patient. However, for medical schools and health systems to conduct advanced research, for surgeons to perform remote operations or for a specialist to remotely assist in a surgery, 1 Gbps or higher is required. Additionally, telehealth applications often require download and upload speeds to be symmetrical, as two-way data sharing is common.

The first three telehealth case studies described here use satellite technology for internet access on mobile service vehicles because they operate in locations with limited or no broadband infrastructure. Satellite technology remains the most expensive form of broadband access and has limitations related to speeds, data caps and latency because of the time it takes data to travel to and from the outer atmosphere.

The last two case studies are based in San Antonio and Houston respectively, urban areas where there was sufficient broadband fiber optic infrastructure to enable wireless solutions for the programs to operate. It should be noted, however, that San Antonio and Houston ranked among the “worst connected” of the 75 cities in the United States with 100,000-plus households, each with 38.2 percent of households without fixed broadband. If not addressed, this digital divide could limit the use of telehealth.

## HEALTH ON WHEELS

The Texas border region, a mix of urban and rural geographies, is one of four persistent poverty areas of the United States. Approximately 48 percent of people on the Texas-Mexico border live at or near the poverty line. An even larger percentage of residents in the periurban and rural colonias, 62 percent, live in or near poverty. The colonias have been a public health focus of government agencies, community advocates, elected officials and residents for more than three decades because of the lack of basic infrastructure and substandard housing and the impact of those conditions on health outcomes.

An organization serving the colonias, La Union del Pueblo Entero (LUPE), is partnering with a regional hospital system to use telehealth to improve access to care. LUPE's grassroots connection with the communities it serves has helped create access to valuable programs and services that have improved the quality of life in the border region.

Health on Wheels (HoW) is a telehealth program administered by LUPE in partnership with Methodist Healthcare Ministries of South Texas Inc., the Valley Baptist Legacy Foundation and Doctors Hospital at Renaissance to broaden access to health care in low-resource communities.

HoW offers

- Mobile health clinics
- Community health workshops focused on preventive care led by University of Texas Rio Grande Valley medical school residents and other health advocates
- Leadership training for certified promotoras (community health educators) through the Texas A&M Colonias Program.

The mobile clinics operate out of a motor home retrofitted with high-definition videoconferencing equipment and state-of-the-art medical devices to offer general medical services and vision and specialty care. Services include low-cost vision exams and eyeglasses, diabetes prevention and care, women's health care and mental health care.

Certified promotoras engage with the community to schedule appointments for the mobile unit, encourage attendance at health workshops and recruit future promotoras. Prior to partnering with LUPE, Doctors Hospital at Renaissance was unable to attract patients to its mobile clinic. However, once the hospital partnered with LUPE, its mobile unit became an effective way for border residents to receive health care.

HoW plays a critical role in the community by identifying unmet health needs and serving the uninsured. Indeed, 91 percent of patients served through the program lack any health insurance, and the mobile clinic is the only place that 13 percent of its patients receive medical care. The mobile clinics also serve as an important entry point into the health system – 34 percent of mobile clinic patients have been referred to other community clinics for follow-up care.

The HoW program illustrates an important lesson: Technological innovations can be coupled with innovative community development approaches to reach LMI populations. Telehealth is the tool, and the promotoras have gained the trust of the population.

## HEALTH CARE ACCESS FOR RURAL VETERANS

The Rural Veterans Coordination Pilot Program (RVCP), operated by Volunteers of America North Louisiana in partnership with the Overton Brooks VA Medical Center in Shreveport, Louisiana, provided psychiatric services to veterans in underserved areas by using telemedicine to complement services offered at the VA medical center. The \$2 million project, sponsored by the Department of Veterans Affairs (VA), outfitted a cargo van that served as a state-of-the-art mobile clinic using satellite technology. At the mobile clinic, telemedicine appointments were facilitated by an on-site nurse or social worker and were videoconferenced from Overton Brooks VA Medical Center.

"The program improved the quality of life for veterans and their families," said Bryan Byrd, executive vice president of innovation and new business development for Volunteers of America North Louisiana. "The RVCP has demonstrated savings of thousands of miles not traveled. The average mileage traveled by rural veterans to the Overton Brooks VA Medical Center is 145 miles per visit, with the program's average annual travel savings exceeding \$1,800 per veteran," he said.

The program also improved outcomes for the VA medical center, with a 59 percent reduction in in-bed days of care and a 35 percent reduction in hospital readmissions. Furthermore, the program reduced the number of missed appointments, improved veteran access to preventive care and reduced higher-cost emergency room use. The nonprofit applied for continued support from the VA, and it is looking to diversify funding by applying for grants from other sources. This will enable the organization to expand telemedicine services from a focus on psychiatry to include additional services such as dermatology, diabetes management, long-term care and post-acute care.

## EMERGENCY RESPONSE

During natural disasters and other emergency events, telehealth can make a big difference to both those in need of medical care and those providing the services. In these extreme situations where health facilities are destroyed or conditions restrict mobility, telehealth is a vital tool. Hurricane response activities in 2017 incorporated telemedicine to some degree and highlighted the need to integrate telemedicine into emergency response and disaster recovery plans across the country.

In August 2017, Hurricane Harvey hit the Texas Gulf Coast from Corpus Christi to Houston, causing widespread damage and flooding. As part of the emergency response, Children's Health in Dallas set up a telemedicine station at a major evacuee site in Houston. Children at the shelter were seen by emergency room physicians through a computer monitor, and doctors used

specially designed equipment on-site for measuring vital signs.

The telemedicine station was prepared to treat skin rashes and infections, asthma (exacerbated by mold in flooded homes), viruses and bacterial infections carried by floodwater, and behavioral health issues resulting from anxiety and depression caused by the traumatic event.

In the months following Hurricane Maria in Puerto Rico, telemedicine tools were used to help meet the huge demand for medical services. NewYork-Presbyterian/Weill Cornell Medical Center set up telemedicine equipment and dispatched emergency personnel to assist patients on the ground in Puerto Rico. This enabled consultations with specialists in New York.

Although the ability to use telehealth was limited in Puerto Rico because of limited cell phone, internet and electricity services after the storm, as Bill Siwicki of Healthcare IT News notes, "... the use of telemedicine in Puerto Rico is in essence a proof of concept that digital health services can be of tremendous value in emergency and disaster response situations."

## TRANSFORMING DIABETES CARE

Methodist Healthcare Ministries of South Texas Inc. serves low-income patients who typically do not have health insurance, often struggle to find reliable transportation and sometimes live in rural areas with limited access to basic health care and specialists. Pete Otholt, with Methodist Healthcare Ministries of South Texas Inc., emphasizes "the importance of telemedicine as a means of providing integrated, responsive and cost-effective health care services to underserved populations. For diabetes patients, real-time support is especially important as many factors contribute to managing the disease."

As part of an initiative to provide integrated health care in real time, Methodist Healthcare Ministries of South Texas Inc. and Medtronic developed the Turning Point pilot program for diabetic patients with uncontrolled HbA1c (A1c) levels – a

measure of average level of blood glucose, or blood sugar, over three months. The six-month pilot program used a smartphone digital app to monitor diabetes progress and offer real-time support, without which many patients fail to manage the disease effectively.

For example, Philip Fisher, a San Antonio chef who plans and prepares meals for Outcry in the Barrio Ministry, was diagnosed with diabetes in 2014. Like many diabetes patients, Fisher was overwhelmed with managing the disease on his own, so he ignored it. When his doctor suggested he participate in the Turning Point program, Fisher had an A1c level of 10.9 percent, well above the 7 percent target A1c for people with diabetes set by the American Diabetes Association.

The Medtronic app helped Fisher keep track of his blood glucose levels, blood pressure, sleep patterns and weight. A Medtronic care coordinator completed Fisher's enrollment, helped with equipment troubleshooting, maintained open communication through in-person or phone check-ins, tracked Fisher's progress through the app, communicated health information to his physician in a timely manner to avoid further health complications and offered diet counseling.

Fisher experienced significant improvement. He brought his A1c level down 5 points to 5.9 percent, below the diabetic range. These results inspired Fisher to begin preparing healthier meals for the men he serves in his ministry.

Overall, the program was successful at improving patients' A1c numbers by an average of 2.0 points. Fisher and other patients lost weight, benefited from increased energy and became role models for others in their families and community. Positive health outcomes and patient satisfaction led to continuation of the program.

## DIVERTING HIGH-COST EMERGENCY ROOM VISITS

In 2014, the Houston Fire Department, in partnership with the Houston Department of Health and Human Services and 13 other community

organizations, began the Emergency Telehealth and Navigation Project (ETHAN) to ease emergency department overcrowding and overuse. The goal of ETHAN is to reduce the stress on emergency response resources by diverting nonemergency patients to other, less cost-intensive resources.

Paramedics connect patients with minor injuries or illnesses by video to an emergency physician using a wireless tablet device. The physician determines whether the patient needs to go to the emergency room (and if so, what mode of transportation is best suited to the patient's level of acuity) or whether the patient should see a primary care doctor instead. When an emergency room visit is not necessary, appointment arrangements and transportation are coordinated for the patient. In cases where ETHAN was used, 80 percent of unnecessary ambulance and emergency room visits were averted.

## CONCLUSION

An important step to unleash the potential of telehealth will be for rural and underserved communities to close the digital divide. Hospital systems can partner with local governments, nonprofits, broadband providers and others to achieve this goal. The significant role of broadband access in the provision of health services has led Mignon Clyburn, a former commissioner of the Federal Communications Commission, to call broadband access one of the social determinants of health. Clyburn recognizes that broadband is critically important to health outcomes and must be addressed along with the other social determinants of health: physical environment, socioeconomic factors, health care access and health behaviors. ❖

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