

Yesterday, Today, and Tomorrow

Seeds of Virtual Healthcare Planted Decades Ago

Author: Pam Malinoski

Although COVID-19 put telehealth initiatives into overdrive in 2020, many of the seeds of providing healthcare remotely were planted decades ago. The goals of minimizing travel and exposure for sick patients, ongoing remote monitoring for the chronically ill, maximizing the reach of specialty resources, and providing care for those living in rural America are not new. However, it took a global pandemic to bring many of these priorities into the spotlight.

The coronavirus crisis, in combination with rapidly advancing technology and the relaxation of rules, regulations, and reimbursements due to the national emergency, promises to be a major turning point in future telehealth programs and initiatives.

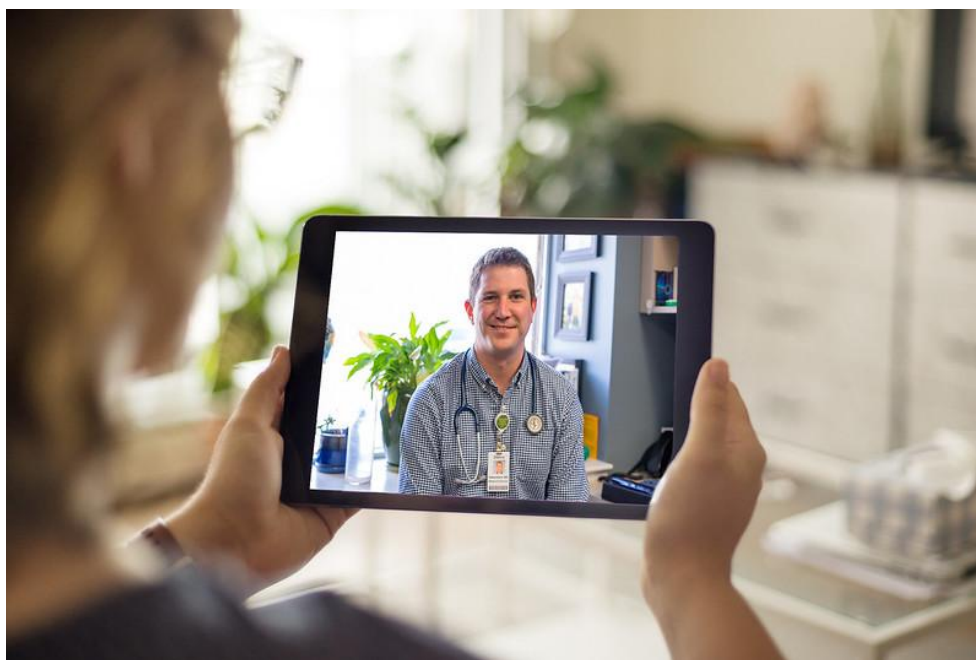


Photo description: Video visit

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Minimizing Travel and Exposure

No one likes to leave their home when they are ill in order to go see a doctor, and many are somewhat worried about being exposed to other diseases and illnesses in order to seek medical treatment.

In fact, home-based healthcare has a long history. Dr. Thomas S. Nesbitt cited in his article "[The Evolution of Telehealth: Where Have We Been and Where Are We Going?](#)" that an 1879 story in the *Lancet* discussed using the telephone to reduce unnecessary office visits, and the cover of a 1925 issue of *Science and Invention* magazine showed a doctor diagnosing a patient by radio.

Recently, the rapid spread of COVID-19 and the unknown effects of this new disease created a new level of caution within the healthcare world.

Emily Maass, a nurse practitioner at the internal medicine clinic at Montgomery County Memorial Hospital (MCMH) in Iowa, explained that new telehealth options were established at the beginning of COVID-19 to help minimize exposure for both patients and staff.

"If patients had symptoms that were not too severe, it was better for them to schedule a virtual appointment," Maass said. "They could do it from the comfort of home, and we could reduce exposure levels for everyone."

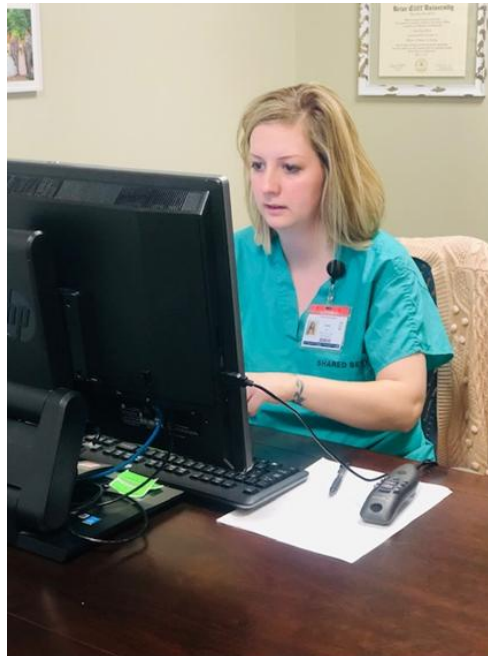


Photo description: Emily Maass, nurse practitioner at MCMH's internal medicine clinic, conducting a virtual visit

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Dr. Joseph Berg, physician champion for the telehealth program at Upland Hills Health, agreed. “We wanted to protect our high-risk patients--those over the age of 65 or those with existing medical conditions such as diabetes and hypertension--from unneeded exposure,” he said. “Others who were only experiencing mild symptoms could also be treated through a virtual exam and brief conversation without leaving their home.”

Maas has seen telehealth appointments increase as the weather has turned colder. “I can see us utilizing telehealth on an ongoing basis, particularly during the winter months, for our older patients to reduce exposure even past the pandemic,” she said.



Photo description: Upland Hills Health

Remote Monitoring for Chronically Ill

Being able to provide ongoing care from afar finds its initial roots in several programs developed by the [National Aeronautics and Space Administration](#) (NASA). In order to determine whether the lack of gravity would negatively affect circulation and respiration, NASA used medical monitoring systems to send test animals' biometric data from space to earth. This medical monitoring equipment was used in later human space flights to monitor both physiological or psychological effects of space travel on the human body.

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According to Nesbitt, the 100 million Americans with chronic disease account for about 75% of healthcare expenditures. “More than a decade ago, the VA (Veterans’ Affairs) developed a care management program that offered personalized education, monitoring, and feedback at home from a remote disease management support team,” Nesbitt wrote.

Today, remote monitoring programs are growing in popularity and demand. Altru Health Systems, based in North Dakota, began such a program in 2013 for its patients with chronic health problems. According to Sarah Rassier, RN and supervisor of population health at Altru, providers are able to regularly monitor seriously ill patients such as those with chronic obstructive pulmonary disease (COPD), sepsis or pneumonia, often bringing much needed peace of mind to the patients and their families.

During COVID-19, Altru extended this remote monitoring program to check in daily with those high-risk patients who tested positive. “We wanted to reduce the likelihood of hospital readmittance by better monitoring COVID patients remotely,” Rassier explained.



Photo description: Altru Health Systems Hospital

Proteus, a non-profit organization in Iowa that provides agricultural workers and their families with affordable health care, education assistance, and job training, also provided daily remote monitoring for individuals testing positive for COVID.

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“Once individuals tested positive, they were isolated,” explained Daniel Hoffman-Zinnel, CEO of Proteus. “Our staff checked in with isolated patients through telehealth appointments every day and directed them to hospitalization at the right time when needed. I think it made a huge difference.” Although Proteus had a few hospitalizations and a few patients in intensive care, there have been zero deaths.

As with other telehealth benefits, remote monitoring of chronically ill patients promises to boost care while helping to control costs. According to Nesbitt’s article, “Use of technologies for chronic disease care management has been associated with reductions in hospitalizations, readmissions, lengths of stay, and costs; improvement in some physiologic measures; high rates of satisfaction; and better adherence to medication. Studies of home monitoring programs have shown specific improvements in the management of hypertension, congestive heart failure, and diabetes.”



Photo description: Proteus team members

Maximizing Reach of Specialty Resources

In some areas, specialists in certain medical disciplines are rare and geographic distance between specialists, primary care providers, and patients are great. Historically, this has always been an issue in areas where the population is scattered geographically.

The Alaska Telemedicine Testbed Project (ATTP), funded by the National Library of Medicine, worked with the University of Alaska Anchorage (UAA) and the Alaska Native Health Board

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(ANHB) to deploy telehealth systems to 26 village clinics and four regional hospitals along the west coast of Alaska in 1996.

According to an article published in the [International Journal of Circumpolar Health](#), this project was designed to address the serious ear disease problems throughout the rural and remote villages. The telehealth project used video otoscopy as well as email-based image transfer. Simple digital cameras were also highly effective in the treatment of trauma, wounds, lacerations, rashes, and other maladies.

Montgomery County Memorial Hospital (MCMH) in Iowa has also found success in using telehealth technology to connect patients, primary care providers, and specialists. According to Shauna Bozwell, clinical nurse manager at MCMH. “We use telehealth to connect patients and providers with specialists in departments such as endocrinology and through a telestroke program. It allows us to reach those who may be geographically distant with a higher quality of care at the local level.”

Rita Jones, chief executive officer at Dundy County Hospital in southwest Nebraska, shares a story of how telehealth technology kept a rare urologist serving an outlying clinic. “Our urologist is older, and he travels four hours roundtrip once a month to see patients at one of our remote clinics,” Jones said. “It’s a grueling day because there simply isn’t enough time to see everyone. When we started doing telehealth visits, he said he’d postpone his planned retirement if he could shift some of his in-person appointments to telehealth to make his monthly visit more manageable.”

As connectivity and technological access issues continue to be addressed, telehealth solutions have the potential to bring specialty care to those who need it in a more regular and efficient manner.



Photo description: Shauna Bozwell, clinical nurse manager at MCMH

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Providing Healthcare in Rural America

In the 1970s, NASA built a terrestrial analog called the Space Technology Applied to Rural Papago Advanced Health Care, or STARPAHC. By working with groups like the Indian Health Service, the Papago (now Tohono O'odham) people of Southern Arizona, and the Lockheed Missiles and Space Company, NASA helped deliver healthcare services to an extremely rural population.

For decades, individuals in rural America have had limited healthcare options or extremely long travel times to reach needed medical providers. According to the U.S. Department of Health and Human Services (HHS) [Health Resources and Services Administration \(HRSA\)](#), “Telehealth is especially critical in rural and other remote areas that lack sufficient health care services, including specialty care.”

In 2016, HRSA received \$16 million to expand access to telehealth services in rural areas. As a result, the range and use of telehealth services as well as the role of technology in improving and coordinating care have expanded over the past decades.

Other organizations have also been created to promote telehealth technology and applications. The American Telemedicine Association was founded in 1993 as a non-profit organization designed to promote and expand telehealth technology companies as a way of increasing patient access to care.

The Great Plains Telehealth Resource and Assistance Center (gpTRAC) is a federally funded technical assistance center located at the University of Minnesota. It provides training, tailored consultations, and print and web-based resources to healthcare organizations of all kinds seeking to design, implement, grow, sustain, and evaluate telehealth services.

gpTRAC is part of the National Consortium of Telehealth Resource Centers (NCTRC), which is a collaboration of 12 regional and two national Telehealth Resource Centers (TRCs), committed to implementing telehealth programs for rural and underserved communities. It is funded by HRSA and is dedicated to helping organizations and practices overcome barriers, advance telehealth education, and provide resources.

Marvin Smoot, president of Physician Enterprise of Catholic Health Initiatives in North Dakota and Minnesota, sees telehealth as the new way providers can take their “black bag” into the rural patients’ homes. “If I drove in a circle to all our family practice hospitals and clinics, it would be 1,700 miles,” Smooth said. “We are perfectly situated to take full advantage of growing telehealth technology and applications to better serve our rural population.”

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Conclusion

Although telehealth only recently became a modern household word due to the COVID-19 pandemic, its seeds were planted and its roots have been growing for decades. The challenges that have arisen as a result of the coronavirus crisis have always existed: reducing exposure to disease, caring for the chronically ill, delivering specialty care broadly, and taking care of patients in rural locations. Perhaps this year is the turning point to using telehealth as part of the foundation of our future healthcare system.

Organization	Connection to the Great Plains Telehealth Resource & Assistance Center (gpTRAC)
Montgomery County Memorial Hospital	Member of gpTRAC's Program Advisory Council (PAC)
Upland Hills Health	Located in the gpTRAC region and has benefited from previous training conducted by Jonathan Neufeld, Director of gpTRAC
Altru Health Systems	Member of gpTRAC's Program Advisory Council (PAC)
Proteus	Member of the Iowa Primary Care Association, which has received training and consulting services from gpTRAC
Dundy County Hospital	Works with Nebraska's Office of Rural Health, which has participated with gpTRAC for years
CHI - Physician Enterprise	Physician Enterprise of CHI has visited with gpTRAC several times over the years

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