

News and Perspective

Bridging Rural America's Digital Divide in Health Care

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Key Takeaways

- The three pillars of digital health care access are infrastructure, affordability, and adoption.
- Electric cooperatives and telephone companies can provide inexpensive access to health care technology.
- Rural health care settings can draw inspiration from creative solutions in the education sector.
- On-the-ground support makes digital health care more easily adoptable.

Even as the digital world shapes almost every aspect of our modern society, many Americans have been left behind because of disparities in digital access—a widening “digital divide” [1].

This lack of access to high-quality broadband intensifies an already persistent socioeconomic divide, especially for those living in rural America, where connectivity is often antiquated and expensive [2,3], but researchers are developing strategies to close the gap and provide those excluded with more access to reliable internet and all that comes with it—including, most critically, health care.

The Three Pillars of Digital Connectivity

In the United States, digital connectivity requires three pillars of access: infrastructure, affordability, and adoption [4]. In a country the size of the United States, access is often dictated by geography, where sparsely populated areas are less likely to have multiple internet providers. What's more, affordability has long been a crucial hindrance to service, with around 43% of low-income American families saying that they struggle to pay for any internet access [5].

“Many parts of the country are served by one or two providers which means there's no incentive to lower prices or upgrade technology,” said Natassia Bravo, a PhD candidate at Cornell University, whose research focuses on rural broadband policy in the United States [6].

Lack of digital literacy, meaning the ability to use and understand digital technology [6], is another roadblock when it comes to internet adoption. Those who tend to have lower digital literacy—including, for example, older Americans and those from groups that have been economically and/or socially marginalized [7]—may be less likely to purchase devices or reliable internet service without support. The Trump administration's decision to not release grant funding from the Digital Equity Act [8], which was designed to help people who lacked basic internet skills, has also stagnated adoption of digital health care tools.

“For many Americans, not being able to navigate this technology means they don't have access to essential services, many of which are going online,” said Bravo.



Natassia Bravo, PhD Candidate

Implementing Rural Connectivity Through Telephone and Electrical Cooperatives

One federal program—The Broadband Equity, Access, and Deployment (BEAD) Program [9]—is a US \$42 billion investment to fill in connectivity gaps in rural and underserved communities. The program offers grants to all 56 states and territories to provide “affordable, reliable, high-speed broadband.”

Still, as the gold standard—the fastest and most reliable internet—broadband fiber optic is also the most expensive to install, and it takes time for federal and state governments to allocate funds through BEAD. For rural communities in desperate need of service, it isn't happening fast enough. As an alternative, and instead of trying to convince major commercial internet providers to expand their services, local communities may partner with existing

infrastructure providers like telephone companies and electric cooperatives. A partnership called Upcountry Fiber is a great example. Through a partnership between the West Carolina Rural Telephone Cooperative (WCTEL) and the Blue Ridge Electric Co-op (BREC), nearly 13,000 underserved individuals in Anderson County, South Carolina, will now have broadband internet [10].

Cooperatives are member owned, in contrast to national public internet companies, so they answer to their local communities rather than their investors. Both electric cooperatives and telephone companies have smaller geographic regions and can often update their existing infrastructure rather than having to install it. While expensive, upgrading the technology allows them to enter the broadband market and helps to fill in the gaps when national providers are unwilling to make the initial financial investment.

Creative Infrastructure and Affordability Solutions From the Education Sector

In addition to expanding infrastructure to support connectivity, rural health care settings may draw inspiration from creative solutions in the education sector.

Local communities and school districts are often better equipped to identify gaps in service and address them creatively. Many school districts, for example, have moved to providing internet hotspots in their parking lots or other outdoor venues so that students can download assignments after hours [11].

School districts have found other helpful ways of providing students with internet access. Berkeley County School District and Charleston County School District, both in South Carolina, provide students with maps of places where free internet is offered in their area, such as coffee shops, hotspots, and public libraries [12].

Coachella Valley School District in California has a Wi-Fi on Wheels program [13] where kids can access the internet via their school bus. After the bus is done with its route, it parks in underserved neighborhoods overnight so that kids can access the internet in the evening when it's time to do their homework.

Similarly flexible, community-based solutions to the problem of digital access can be applied in rural health care settings: for example, setting up device-lending programs, providing free Wi-Fi in clinic and hospital parking lots, or setting up Wi-Fi-enabled mobile health units.

Tools for Filling Digital Health Care Adoption Gaps

The third pillar of digital connectivity—adoption—often requires additional tools to bridge gaps. Digital navigators can play an important role in assisting community members with individualized support for accessing affordable connectivity

along with necessary devices and tools for promoting digital literacy [14].

Houston Methodist's Telestroke Network, for example, relies on local nurses and staff to initiate teleconsultations to help patients get online, which is especially important for ensuring that patients who are unfamiliar or uncomfortable with the technology required don't have to navigate it on their own. If patients aren't sure how to access teleconsultations, a nurse or health care provider will reach out to them to help them get started.

Another program, this one at the University of Kansas Cancer Center, uses a teleoncology network to connect rural clinics with first-rate oncology specialists via secure video visits and remote chemotherapy check-ins [15]. If patients have questions about their chemotherapy symptom management, a telehealth visit keeps them from having to drive long distances when they might not be feeling well.

"This [telehealth programs with additional support] allows rural patients to receive high-quality cancer care without traveling long distances," said Stephen T Wong, PhD, a professor of Computer Science and Bioengineering in Radiology at Houston Methodist.

Mental Telehealth Therapy for Patients in Underserved and Rural Communities

Other digital tools facilitate adoption and engagement by delivering them via mobile device (rather than laptop or personal computer)—cellphone and smartphone ownership is more widespread, and many economically disadvantaged groups rely exclusively on mobile devices for internet access [16].

For example, one study published in 2024 in *JAMA* [17] documented the effective use of a self-guided cognitive behavioral therapy (CBT) app for young adults living with anxiety disorders. Being able to use a smartphone simplified the process. Another recent research protocol involves using a smartphone app to deliver treatment for substance use disorders in rural areas with otherwise limited access [18].

While using mobile apps can help address access gaps, they don't necessarily improve comfort navigating these tools for some groups [19].

"We know that these apps can be helpful in patients who use them, the challenge is that it does require engagement," said Adrian Aguilera, PhD, a professor in the School of Social Welfare at the University of Berkeley.



Adrian Aguilera, PhD

These apps are often much more effective if patients are able to check in with a professional to ensure they have the support they need to continue on their mental health journey. The Zuni Pueblo/Indian Health Service Tele-Behavioral Health Program, for example, delivers remote psychiatric evaluations, counseling, and addiction services to geographically isolated tribal communities with severe mental health workforce shortages [20].

“Addressing these infrastructure gaps requires thoughtful balancing of resource allocation and return on investment to ensure that digital innovations translate into meaningful improvements,” said Wong.

These tools and others are beginning to chip away at the divide, making it easier for those in rural America to access, adopt, and benefit from digital health care.

Keywords: digital divide; health equity; internet; telemedicine; digital health; health services accessibility; access to health care; broadband internet

Conflicts of Interest

None declared.

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