Telehealth and the Digital Divide

Telehealth holds the promise of reducing health care costs and improving health outcomes. However, inadequate broadband in both rural and urban areas prevents telehealth services from reaching those who most need them.

By Craig Settles / *Gigabit Nation*

The internet enables patients to be more educated about and participate more in their own health care and enables doctors to be more knowledgeable. As telehealth gains in popularity, it is discussed most often in terms of rural health care. However, quantitative and qualitative research suggest that telehealth is not only a rural issue. No doubt, rural broadband and health care (and by extension, telehealth) urgently need help. But broadband and telehealth in urban areas need help, too.

Telehealth advocates often cite the technology's benefits to patients in rural areas two or three hours away from the nearest medical facility. However, travel-time issues plague urban areas as well because of the redlining inadvertently caused by public transportation. "In North Omaha, the public transportation systems are inadequate, so a person trying to get to the main hospital in downtown Omaha may take two hours or more for what should be a 20-minute car ride," states Jennifer Amis, CEO of Encounter Telehealth.

It's easy to cast broadband and telehealth challenges in a way that pits urban against rural interests. However, a thorough needs analysis may find that rural and urban communities face similar hurdles – and rewards – and that community-owned broadband can address these issues. For example, the rural digital divide is even more troubling for rural Americans of color. A recent study by Free Press shows that 63 percent of the people living in rural blocks in which people of color make up 90 percent or more of the total population have no wired provider offering 25 Mbps or higher downstream speeds, yet only 39 percent have no provider at this speed threshold in rural blocks where the population is more than 90 percent white.

RURAL AND URBAN DIGITAL DIVIDES

Communities cannot have telehealth without reliable, fast broadband. Telehealth vendors try to compensate in areas with sketchy broadband by condensing their applications to perform better on cellular networks. However, this strategy doesn't solve the problem. "Our platform works well over cellular," says Amis. "However, if an area has bad broadband, it probably has bad cell phone reception as well."

There is ample data about the lack of good broadband in rural areas. For example, only 58 percent of rural Americans have broadband installed in their homes, according to the Pew Research Center, and those who do often pay exorbitant prices for sluggish speeds.

But what about urban areas?

"The public has been misinformed," said Eric Brown, president of California Telehealth Network (CTN). "Often in the public discourse, when telehealth is discussed, rural health gets the headlines. There's no doubt that the rural areas need assistance. But there's a lot of work still needed in urban areas – more than people think."

What about articles that say only 4 percent of urban residents don't have broadband

access? First, that's not quite true. Service providers can call a census block covered when only one house has internet access and use marketing language such as "up to x speed" though residents rarely get the maximum speed. Second, broadband is unaffordable for many urban residents. For all these reasons, the Pew Research Center finds that only 67 percent of urban residents have home broadband connections – better than in rural areas, but not anywhere near good enough.

Statistics from the most disconnected large and mid-size U.S. cities paint a stark picture of just how serious the digital divide is in urban areas.

Using data from the 2016 American Community Survey, the National Digital Inclusion Alliance lists the total numbers and percentages of households without fixed broadband (cable, DSL, fiber) in the 10 least-connected cities.

COMMUNITY BROADBAND AND TELEHEALTH

The gigabit network in Chattanooga, Tennessee, and EPB, the public utility that runs the city's network, are extremely popular, and EPB's commitment to telehealth reflects its devotion to innovation on behalf of subscribers. Dr. Laurie Davis and her staff at their practice, In Good Health, use EPB broadband in the office and their homes. They are part of a pilot test for Docity telehealth products conducted by EPB.

Even with older infrastructure, community-owned broadband can be a net positive for telehealth delivery in urban areas. For example, the neighborhood of Old Brooklyn in Cleveland, Ohio, built a free Wi-Fi network. The Center for Health Care Research and Policy, part of MetroHealth Medical Center in Cleveland, compared 10,619 Old Brooklyn residents who accessed a patient portal (telehealth) using the free Wi-Fi coverage with 62,508 residents throughout Cuyahoga County, where Cleveland is located, who accessed the same portal without free public Wi-Fi.

"There was a 50 percent higher portal use with free Wi-Fi," reports Adam Perzynski, associate professor

of medicine and sociology at Case Western Reserve University, for which MetroHealth is a teaching hospital. "They were 13 percent more likely to make an appointment via the portal and 15 percent more likely to check their lab results. We can infer that, if you have telehealth set up in areas with free or affordable broadband, you will have more telemedicine usage."

Old Brooklyn's Wi-Fi network is eight years old, which is old in the technology world. A community building a network today has an array of wireless infrastructure technology options at its disposal.

COOPERATIVES AND TELEHEALTH

Co-ops increasingly are building broadband networks in rural communities and assessing the possibilities for telehealth. "There seems to be a need for proactive telehealth intervention, and the broadband connections have to be up for that," says Robert Hance, president and CEO of Midwest Electric Cooperative. "We're creating a list of possibilities because it's easy to gather or hire the knowledge necessary to make these telehealth applications work."

Hance goes on to say, "Having the telehealth services helps us preserve the rural lifestyle. If these folks can't

find adequate health care locally, they'll have no choice but to move into more urban [areas]. However, that just puts more strain on the urban infrastructure. Everybody loses."

North Georgia Network Cooperative (NGN), whose members include Habersham Electric Membership Corporation, Blue Ridge Mountain Electric Membership Corporation and NGN Connect, has fiber connected to 10,000 homes, libraries, schools, and hospitals in north Georgia, and recently added 100 Gbps capacity to its fiber backbone. This offers a great opportunity for telehealth.

"We linked 300 schools with a 10-gig connection to create an education exchange," says Michael Foor, NGN's vice president of market and member services. "All the schools share digital education resources. We can do the same thing with a telehealthcare network. If talented telehealth providers come to us that can make our communities healthier, we are open to that."

Kevin Short, general manager of Anza Electric Cooperative in California, says, "For telehealth, you need to build the same broadband capacity we put into the schools to handle multiple video, multiple simultaneous users, 24/7 reliability and phenomenal service quality. Eventually you have to deliver this capacity to

CITY	HOUSEHOLDS WITHOUT BROADBAND	PERCENTAGE WITHOUT BROADBAND
Brownsville, TX	33,711	67%
Detroit, MI	147,067	57%
Hialeah, FL	42,258	56%
Shreveport, LA	38,200	51%
Memphis, TN	126,428	49%
Cleveland, OH	81,757	49%
Laredo, TX	33,077	47%
Miami, FL	81,424	47%
Jackson, MS	30,351	47%
Topeka, KS	23,775	46%

Source: National Digital Inclusion Alliance

Table 1: The 10 least-connected U.S. cities

people's homes." As more devices are connected within homes, even more broadband capacity will be required.

THE VENDOR COMMUNITY WEIGHS IN

Vendors agree that better broadband is needed to realize the promise of telehealth. "We funded several telehealth companies with consumer products, and they have relied on existing broadband networks because they are mostly targeting cities," says Vic Gatto, CEO of Jumpstart Foundry, a venture capital fund. "If you want to market to the rural towns, in places where there isn't good broadband, you have to build a network alongside the telemedicine application."

Telehealth vendors are speaking out more about the inadequacies of rural broadband and how this prevents them from serving patients. Amis is frustrated every time Encounter Telehealth partners with a facility that can't meet its basic bandwidth requirement. She

says, "One prospect's connection was so poor the audio was always out of sync. It was a group of 15 facilities, and we weren't able to connect with any of them. I'm sure all those patients need specialized care they can't get."

Telemedicine offers potential revenue to community broadband owners because health care is expensive to deliver and the internet can reduce those costs. What's more, health care is a critical service everyone cares about nationwide.

To support telehealth, however, community broadband infrastructure should be well planned. Isak Finer, chief marketing officer at COS Systems, which offers software to help communities plan and operate broadband networks, advises communities, "Do not build only the fiber ring for an open-access network; own the infrastructure to the premises. [If you leave the last-mile build to ISPs,] it'll be hard finding competitors

after the first ISP because it's too expensive to overbuild infrastructure." And with a single ISP, subscribers are unlikely to have a choice of telehealth vendors. Finer asks, "What happens if subscribers in a neighborhood want or need one telehealth product and the ISP has a partnership with a different telehealth vendor?"

Telehealth deployment and adoption require extensive needs assessments. Some broadband teams may not want to be involved in applications, but health care and telehealth are important and complicated. Constituents may very well demand that their community broadband team take the lead in facilitating telehealth deployment. ❖

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