The Impact of Connectivity on Rural Hospitals and the Promise It Holds

The Quadruple Aim of healthcare identifies four overarching goals for healthcare providers: (1) improving patient experience; (2) applying evidence-based care to treatment; (3) reducing costs; (4) and improving the care team's experience. As healthcare organizations seek to achieve these goals, they also have to contend with an evolving healthcare ecosystem that has become increasingly dependent on technology and connectivity.

In order to deploy technology-based initiatives that help achieve the goals of the Quadruple Aim, providers need robust, reliable network connections. This is particularly true for rural healthcare providers who, coincidentally, often have fewer options for low-latency, high-quality network connections than their urban peers.

Spectrum Enterprise recently engaged HIMSS Analytics to survey rural healthcare providers and analyze their perceptions around the adequacy and importance of connectivity to their current and future priorities. The study, *Rural Healthcare IT Connectivity and Telecommunication Research*, October 27 2017, identified rural providers' priorities, the hurdles to implementing those priorities and the resources to help providers achieve their connectivity goals.

be re-evaluated."

The preparedness gap: Are you ready?

Four of five respondents (79 percent) indicated they are satisfied with their current network connectivity. However, as new technologies continue to emerge, respondents feel less sure about the adequacy of their connectivity to support new initiatives. "We are asking hospitals to do more and more, and the data needs are changing all of the time," said Bryan Fiekers, Senior Director of Research Services at HIMSS Analytics.

The study showed that rural providers generally feel adequately prepared to address areas such as patient satisfaction and telemedicine. But they feel less prepared to address emerging initiatives such as analytics, population health and precision medicine (Figure 1).

"We don't expect that rural healthcare facilities today are going to be at the leading edge of precision medicine," said Fiekers. "But as those expectations shift over time, and that technology comes down from those academic medical centers into the rural health facilities and Critical Access Hospitals, those needs around connectivity are going to need to
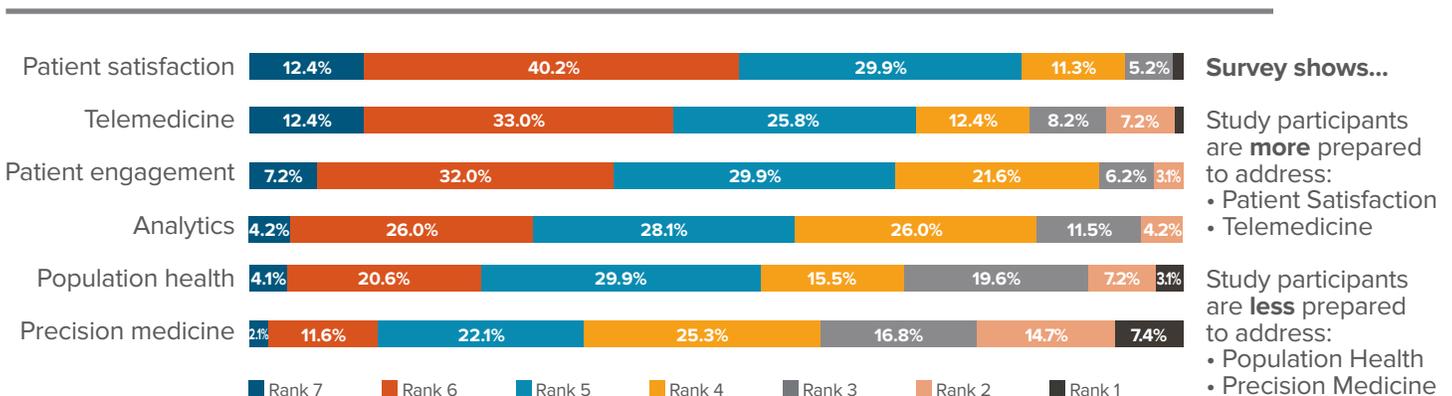
The challenges to gaining better access

A majority of respondents (67 percent) identified "budget availability" as their organization's top barrier to enhancing current processes, adopting new models of care and applying new care delivery models. One survey respondent — a network administrator in West Virginia — said: "It's mostly just about budget. There are some things that we would really like to do, but we're part of a small organization and we're independent, so it's not like we can just reach out and get capital funds."

The second most referenced response to the question about barriers to applying new delivery models was "clinician buy-in," cited by 56 percent of respondents. Network reliability can significantly impact clinician buy-in to new models of care. "If clinicians don't feel like their technology has a positive impact, they're just not going to use it," said Fiekers. "What good is a digital record if you lose access to your EHR intermittently?"

Providers were also asked about the obstacles they needed to overcome in order to move to fiber network connectivity.

Figure 1. How prepared is your organization to currently address the following areas?
Please rate on a 1 to 7 scale: 1 = not at all prepared, 7 = extremely prepared

	Rank 7	Rank 6	Rank 5	Rank 4	Rank 3	Rank 2	Rank 1
Patient satisfaction	12.4%	40.2%	29.9%		11.3%	5.2%	
Telemedicine	12.4%	33.0%	25.8%	12.4%	8.2%	7.2%	
Patient engagement	7.2%	32.0%	29.9%	21.6%	6.2%	3.1%	
Analytics	4.2%	26.0%	28.1%	26.0%	11.5%	4.2%	
Population health	4.1%	20.6%	29.9%	15.5%	19.6%	7.2%	3.1%
Precision medicine	2.1%	11.6%	22.1%	25.3%	16.8%	14.7%	7.4%

Survey shows...

Study participants are **more** prepared to address:
• Patient Satisfaction
• Telemedicine

Study participants are **less** prepared to address:
• Population Health
• Precision Medicine

The majority of providers (73 percent) cited "implementation cost" as the primary barrier, followed by "lack of services available in the area," cited by 57 percent of respondents.

Connectivity advances the Quadruple Aim

The Quadruple Aim is an extension of the Triple Aim framework, which was developed by the Institute for Healthcare Improvement (IHI) in 2007. The purpose of the Triple Aim framework is to optimize health system performance by focusing on three priorities: (1) the health of a population; (2) the experience of care for individuals within that population; (3) and the per capita cost of providing that care.[1] Some organizations have added a fourth priority, focused on improving the care team's experience.

"Theoretically, any investment made in healthcare should be focused on one or more of these basic constructs," said Fiekers. In fact, the technology-based initiatives identified as organizational priorities by rural providers align with the priorities expressed in the Quadruple Aim (Figure 2).

A majority of providers (55 percent) identified telemedicine initiatives as an organizational priority. Telehealth initiatives such as telemedicine, extending access to care and extending access to specialists are especially important in rural communities. Telehealth enables rural providers to enhance patient access to specialized services by providing virtual access to those services. Along these same lines, providers identified "real-time remote examination, consultation and monitoring" as a primary strategic driver for improving fiber connectivity.

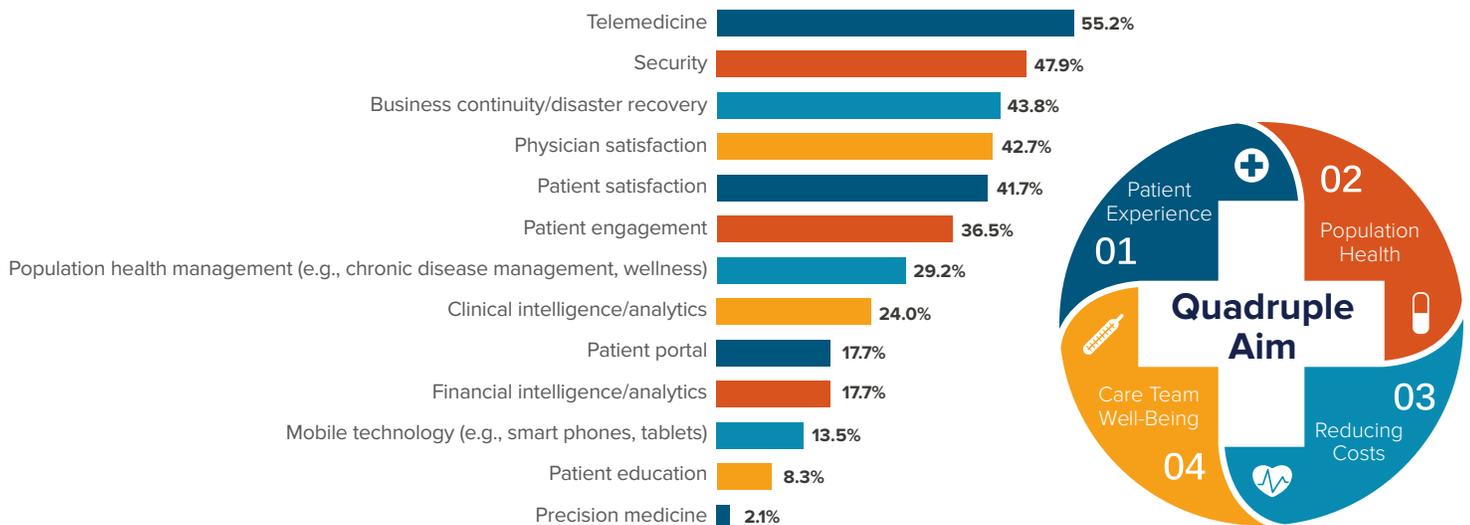## Resources help providers access funding for connectivity

Providers who have been successful in overcoming budget barriers to improving fiber connectivity cited collaboration and partnerships as key. An administrator in Louisiana suggested his organization succeeded in developing connectivity by developing partnerships with other organizations and then creating hubs where patients can receive services. Likewise, a CIO from Indiana said that the Indiana Rural Health Association played a critical role in bringing "a whole lot of fiber carriers to the table."

Well over half (60 percent) of respondents have financed connectivity improvements with support from the Universal Services Administrative Company's Rural Healthcare (RHC) Program. The RHC program helps rural providers increase connectivity to improve medical care. The program provides up to $400 million annually in reduced rates for broadband and telecom services.[2] Respondents have used RHC program funds to support installation, equipment, lit fiber leases and other essential components for managing broadband services.

One problem associated with RHC funding is that many respondents (42 percent) found the RHC funding process complicated to navigate. A second problem is that the window for the RHC funding opportunity is typically fairly short. (In 2018, for example, the funding window opens January 1 and closes April 30). This is where partnerships and collaborations can be extremely helpful for rural providers.

Figure 2. Investments are being made to improve patient experience, apply evidence-based medicine and reduce cost.

Which of the following clinical and/or technology-based initiatives would you consider a priority for your organization? (Select up to 4)

Initiative	Percent
Telemedicine	55.2%
Security	47.9%
Business continuity/disaster recovery	43.8%
Physician satisfaction	42.7%
Patient satisfaction	41.7%
Patient engagement	36.5%
Population health management (e.g., chronic disease management, wellness)	29.2%
Clinical intelligence/analytics	24.0%
Patient portal	17.7%
Financial intelligence/analytics	17.7%
Mobile technology (e.g., smart phones, tablets)	13.5%
Patient education	8.3%
Precision medicine	2.1%

Quadruple Aim
01 Patient Experience
02 Population Health
03 Reducing Costs
04 Care Team Well-Being

Respondents identified numerous third-party organizations, across multiple regions of the United States, that help rural providers navigate the RHC program funding application process. Examples include state hospital associations (e.g., Colorado Hospital Association, Iowa Hospital Association), cooperatives (e.g., Rural Wisconsin Health Cooperative), and local and regional rural health associations.
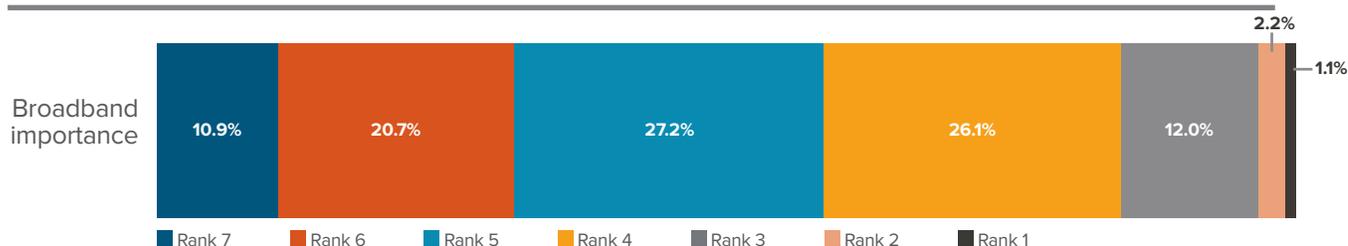
The future of rural healthcare lies in connectivity

Historically, conversations about social determinants of health have focused on issues related to physical access (having access to a car or public transportation to get to a healthcare provider) or financial access (having health insurance, being able to pay for healthcare). As healthcare evolves, virtual access — that is, connectivity — is becoming increasingly important. In fact, nearly two of three respondents (59 percent) agreed that broadband connectivity is an important social determinant of health (Figure 3).

The study findings support this assertion. Both the qualitative findings and the quantitative findings (follow-up interviews) highlighted the fact that rural providers with secure, robust network connectivity had positive experiences to share. Reliable network connectivity allows rural providers to leverage technology initiatives that increase patient access to care, with the potential to improve patient outcomes.

Fiekers said: "Whether it's providing access to a psychiatrist through telemedicine so you don't have to load up a van full of patients to drive them 35 miles to see one, or assembling data around patients from disparate sources to derive the correct diagnosis, or simply pushing care closer to home and keeping those patients engaged in their healthcare, connectivity is critical."

For an in-depth look at why connectivity is essential and how rural providers are achieving the connectivity they need, download the eBook Get Connected or Get Left Behind: Why Rural Healthcare Providers Need Robust Connectivity to Stay Relevant.

Figure 3. Broadband rates highly as a social determinant of health.

Rank 7	Rank 6	Rank 5	Rank 4	Rank 3	Rank 2	Rank 1

Broadband importance: 10.9% | 20.7% | 27.2% | 26.1% | 12.0% | 2.2% | 1.1%

[1] Institute for Healthcare Improvement (IHI). Retrieved from http://www.ihi.org/about/Pages/History.aspx.
[2] Welcome to The Rural Healthcare Program, Universal Service Administration Company, www.usac.org/rhc/.