

With its faster speeds and greater capacity, 5G holds promise for important healthcare use cases such as telehealth and virtual care services.

5G: Improving the Telehealth Experience for Healthcare Providers and Patients

August 2022

Written by: Lynne A. Dunbrack, Group Vice President, IDC Health Insights, and Jason Leigh, Research Manager, Mobility

Introduction

In response to the global pandemic and the heightened need to build business resiliency, healthcare organizations and consumers wholeheartedly embraced telehealth and virtual care. These technology-enabled services allow healthcare providers to continue to deliver care and address patient concerns while mitigating the risk of coronavirus exposure among clinicians, staff, and patients. According to IDC's *U.S. Consumer Healthcare Survey* (January 2022), 58.5% of U.S. consumers are concerned or very concerned about COVID-19 and 34.2% deferred or postponed care.

Telehealth services will benefit from the rollout of 5G networks, particularly by extending the reach of services to rural and underserved areas. 5G brings faster and more reliable connectivity, which in turn can support increased use of telehealth services featuring videoconferencing to improve the overall experience. The 5G networks being deployed by U.S. carriers can more quickly and economically reach areas with lower population density with telehealth services than wired options, and 5G delivers a higher-speed, reliable connection needed for a more consistent telehealth video experience. 5G also provides flexibility to support telehealth when the patient or provider is on the move via the traditional mobile phone/tablet or in a more static scenario with 5G fixed wireless tied to a home or business location. Additionally, 5G's improved access to telehealth enables a fundamental democratization of healthcare, where patients aren't limited to service and staff at their regional medical center or hospital. Patients can gain access to the top medical professionals and specialists in their field, whether they reside in the next county over or across the ocean. These are among the top reasons why providers will be implementing 5G technology (see Figure 1).

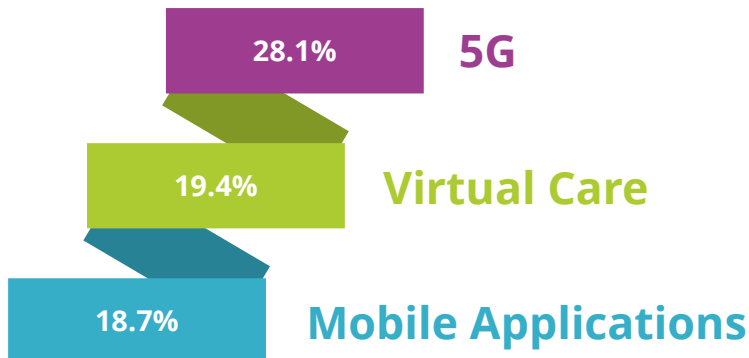
AT A GLANCE

KEY STATS

- » 19.1% of U.S. consumers plan to continue utilizing virtual visits in the future and nearly 50% plan to consider virtual visits under specific circumstances, according to IDC's *U.S. Consumer Healthcare Survey* (January 2022).
- » Two out of three providers have made or are making the requisite investment in 5G-enabled devices to deploy a wide range of 5G use cases in the next one to three years, according to IDC's *U.S. Healthcare Provider Technology and Connected Health Survey*, (January 2022).

WHAT'S IMPORTANT

The key aspects of 5G to enabling telehealth and building resiliency are ultrahigh speeds/data rates, low latency, and high density.

FIGURE 1: **Providers' Most Important Technology for the Next Five Years**

n = 204

Source: IDC's U.S. Healthcare Provider Technology and Connected Health Survey, January 2022

Industry Definition and Core Attributes

Telemedicine, telehealth, and virtual visit services are terms often used interchangeably. While all are related to providing care at or over a distance using telecommunications technology, there are nuanced differences. For the purposes of this document:

- » **Telemedicine** is the provision of *care* by a physician or other healthcare professional across geographic distance via audio and/or video connection. Telestroke, teleradiology, and other forms of teleradiology are subsets of telemedicine. In the early days of telemedicine, the technology consisted of expensive, proprietary point-to-point connections between facilities. Today, voice over IP, internet-based videoconferencing, and cellular and Wi-Fi connectivity have made telemedicine more accessible.
- » **Telehealth** is a more broadly defined term and includes the transmission of *health education information* to consumers and clinicians using telecommunications technology. Online health coaching for consumers or continuing medical education courses for clinicians fall under this definition.
- » **Virtual visits** between healthcare professionals and patients use technology readily available to consumers for a scheduled visit with their primary care physician or specialist. Such a visit can also be used for an on-demand visit initiated through a virtual care service provider that has a technology platform as well as contracts with a network of healthcare professionals licensed to practice telemedicine in multiple states.

Note: 5G is the fifth generation of cellular network technology currently being rolled out in the United States and many parts of the world. It is designed to deliver faster speeds, lower latency (eventually), and greater connection density that will enhance traditional mobile phone service and enable new services beyond the mobile phone when combined with other technologies such as augmented reality, robotics, and artificial intelligence.

Key Business Priorities: Increased Growth Leads to Greater Business Resiliency

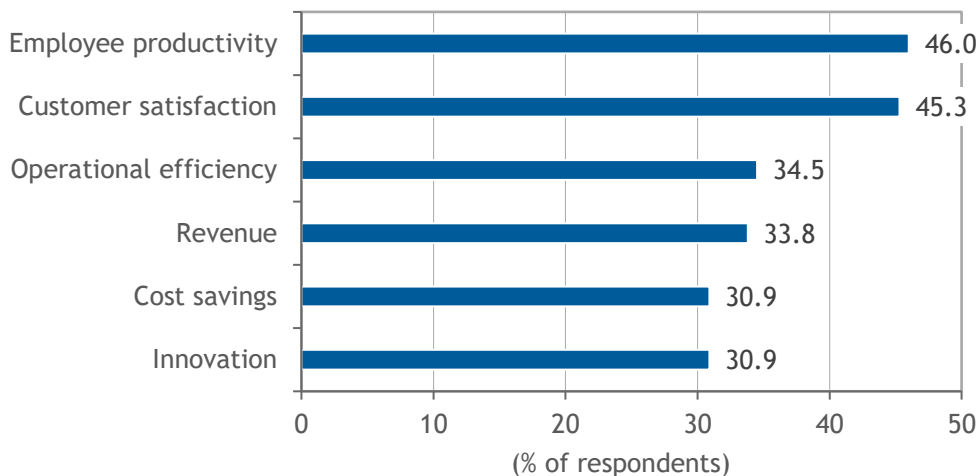
During the early phases of the pandemic in 2020, healthcare organizations were focused on business continuity and cost optimization. Patient volumes had dropped precipitously because elective procedures were deferred while hospitals ramped up for the initial surge of COVID-19 patients, and patients stopped seeking in-person care because they were afraid of contracting the coronavirus. While patients have become more comfortable seeking out in-person care, 16.5% of consumers still report deferring routine care, with 8.5% and 5.5% continuing to defer cancer screenings and emergency care, respectively, according to IDC's *U.S. Consumer Healthcare Survey* (January 2022). When patients finally did receive these critical, time-sensitive services, there was a greater likelihood that their health condition had declined or their cancer had spread (e.g., stage 1 in which the cancer is small and localized versus stage 4 in which the cancer has metastasized), leading to a potentially poorer outcome that is life altering and more expensive to treat.

To address patient health needs and the financial health of the institution, healthcare organizations quickly pivoted to providing virtual care services. These digital replacements to in-person visits provided safe access to care for healthcare providers and patients alike. The uptake in these services was significant as they provided an alternative to in-person care, and both healthcare providers and patients appreciated the convenience. Nearly 20% of respondents to IDC's *U.S. Consumer Healthcare Survey* (January 2022) would like to continue with virtual visits in the future, while another 48.8% said they might continue to use virtual visits under certain conditions.

Today, driving growth and making targeted investments are key priorities because they will lead to greater business resiliency. Specifically, healthcare organizations responding to IDC's *Future Enterprise Resiliency and Spending Survey, Wave 9* (October 2021) identified employee productivity and customer satisfaction as their top business priorities (see Figure 2).

FIGURE 2: **Top Provider Business Priorities**

Q What are your organization's top 3 business priorities?



n = 139

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 9, October 2021*

To address these priorities, healthcare providers are expanding their virtual care initiatives to offer new programs to a broader patient population than they could serve with in-person visits. Examples include offering virtual second opinions as well as behavioral and mental health services and chronic condition management programs via virtual visits.

These services require enhanced connectivity not only onsite at the facility but also at the endpoints used by the healthcare providers if they are working from home and the patients wherever they may be located.

Healthcare facilities will also turn to 5G to ensure their organizations remain competitive. According to IDC's *Future Enterprise Resiliency and Spending Survey*, 37.9% of healthcare providers are adapting new approaches to connectivity like 5G to enable pervasive reach and exploit changing market conditions. And it's not just about 5G. Connectivity as a whole is being viewed as a strategic component for healthcare providers. Some 76.9% of survey respondents view investments in connectivity programs — network infrastructure, 5G, Wi-Fi, mobile apps, and devices — as either a priority or a top priority over the next two years. And 30% of healthcare organizations plan to increase their spending on connectivity services — both 4G and 5G — in 2022. Telehealth will be the early proof point for 5G's ability to drive efficiencies and transform how healthcare is delivered. With an eye toward future proofing the organization, investments today will form the foundation for development and adoption of more advanced and complex healthcare use cases in the future (IDC's *Future Enterprise Resiliency and Spending Survey*, February 2021, August 2021, October 2021).

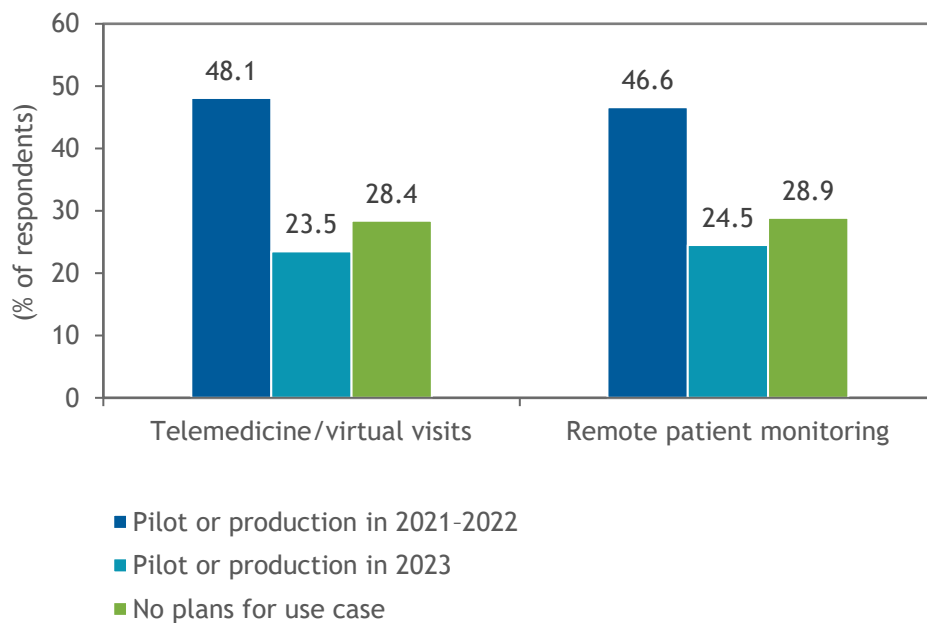
Providing Virtual Services Will Drive the Need for Faster Connectivity

The global pandemic has had a profound impact on how healthcare organizations deliver care and how patients access services. IDC expects a number of these new approaches to become standard practice among healthcare providers, including:

- » **Continued demand for connected health technology.** The pandemic created a pivotal moment for connected health technology to enable digital-first interactions between patients and healthcare organizations. In 2020, there was an accelerated demand for and deployment of chatbot assessments, telehealth and virtual visits, and remote health monitoring to safely respond to the surge in COVID-19 patients. The benefits of these technologies — infectious disease control and prevention, improved access to care that overcomes physical barriers and transportation issues, and reduced costs — have been clearly demonstrated, and their ongoing use will fundamentally transform healthcare. For example, a missed physician visit costs a medical practice on average \$200 per appointment. Patients are less likely to miss a virtual visit than an in-person visit, which requires them to take time off from work for several hours or more to travel to and from their physician's office.
- » **Continued reliance on videoconferencing.** With the shift to work from home, healthcare professionals who could treat patients remotely became more reliant on videoconferencing for virtual care and clinical collaboration. IDC Health Insights anticipates that this practice will continue in the new normal. This trend is also true for clinician collaboration while at the hospital. Virtual rounds, team huddles, and tumor boards, for example, replaced in-person meetings to minimize contact and mitigate the risk of exposure among critical frontline staff. In the future, virtual clinical collaboration opportunities will enhance medical training and education.
- » **Promoting telehealth and virtual care to ensure successful deployment.** Educating patients and healthcare professionals about the continued availability and benefits of telehealth services will go a long way to ensuring that virtual care programs provide a positive experience for all involved and meet key clinical and financial performance metrics. This is also true for using videoconferencing solutions for clinical communication and collaboration. While telehealth, virtual care, and videoconferencing will never completely replace in-person visits, they do play an important role in reducing the physical barriers to care delivery and care team collaboration.

- » **Increased provider investment in 5G technology.** The continued demand for connected health technologies, including telehealth and virtual care services using videoconferencing, will require more reliable and faster connectivity. According to IDC's *Future Enterprise Resiliency and Spending Survey* (October 2021), more than 6% of healthcare organizations plan to increase spending on 4G and 5G connectivity services by more than 10% in 2022 and another 21% will increase spending on connectivity as much as 10%. Continuing that investment trend in future years will be an integral part of allowing healthcare organizations to achieve their top business priorities.
- » **Evolving use cases for 5G in healthcare.** Telehealth is the entry point as far as 5G's role in healthcare. There is tremendous potential for 5G to accelerate digitization and automation and improve accuracy and quality in healthcare delivery, and providers are looking to embrace 5G over the next couple of years to realize those improvements (see Figure 3). Despite the fact that 5G is available today, timelines for those advanced use cases remain distant. In the near term, 5G use cases in healthcare include rural healthcare, remote consultations, teleradiology, Internet of Medical Things, remote health monitoring, and autonomous robots for disinfecting rooms and performing mundane tasks such as bringing supplies to the various hospital units. Future use cases that will become mainstream in the next five to 10 years include EMS-telemedicine, robotic surgery, augmented reality, and virtual reality to enhance medical training and education.

FIGURE 3: **Anticipated Provider Deployment Timelines for Telemedicine/Virtual Visits and Remote Patient Monitoring**



n = 204

Source: IDC's U.S. Healthcare Provider Technology and Connected Health Survey, January 2022

Considerations

Healthcare organizations faced numerous challenges before the global pandemic. However, 5G technology can help address these systemic challenges in new and innovative ways that were not possible without expanded, fast, and reliable connectivity.

Rapid Pace of Change

Shifting industry reimbursement models — moving from fee-for-service reimbursements that reward volume to value-based reimbursements that focus on improving patient outcomes — brought about rapidly evolving business operations, requiring new technology and applications. Improving the healthcare provider and patient experience became increasingly important to achieving the quadruple objective of improving patient outcomes, enhancing the patient experience, increasing healthcare provider operational efficiency, and reducing costs. The pandemic further accelerated the pace of change experienced by providers as they embraced digital-first strategies to interact with patients virtually.

Decisions about adapting new approaches to connectivity such as 5G have risen to the level of the board of directors, according to IDC's *Future of Enterprise Resiliency and Spending Survey*. Nearly 38% of provider respondents ranked 5G in their board of directors' top 3 most strategic areas of interest to ensure their organization remains competitive or seeks to exploit changing market conditions in the next three years (IDC's *Future of Enterprise Resiliency and Spending Survey*, February 2021).

Intense Financial Pressure

The vast majority of healthcare organizations, especially smaller hospitals and group practices, were operating in the red before the pandemic. For hospitals, the financial impact of COVID-19 was crushing. While hospitalizations surged and hospital intensive care unit (ICU) bed utilization rates were at or over capacity, lucrative elective surgeries and other nonemergency care were delayed due to forced shutdowns or slowed operations as a result of complying with social distancing requirements or staffing issues (e.g., furloughed staff, deferred staff to ICUs and field hospitals, or staff who were out sick because they were exposed to or had COVID-19). The American Hospital Association projects hospital and health system losses of at least \$54 billion for 2021, on top of the \$323.1 billion lost in 2020.

Most providers simply do not have the access to resources — human or financial — to experiment with new, often unproven, technologies. However, 5G's throughput benefits are largely known today, and they translate into immediate benefits as more consumers and facilities complement their existing connectivity with the technology. Establishing a 5G foothold now will provide savings as more-advanced medical use cases for 5G emerge over the next five years.

Increased Need for Secure Connections and Bandwidth for Work from Anywhere

The increased mobility of clinicians and work-from-anywhere strategies present inherent security challenges for providers' IT teams. When healthcare respondents to IDC's *COVID-19 Impact on IT Spending Survey, Wave 2* (April 2020) were asked to identify their organization's biggest concern about supporting work at home/remote working, 23.2% cited privacy and security while 11.9% cited insufficient bandwidth for remote work.

Providers can offer employees dedicated business-only broadband connection via 5G on which they can deploy robust policy and content controls that lessen the security risk that stems from shared and less secure home or public Wi-Fi networks. Additionally, for mobile employees accessing protected health information and other sensitive data via the public cell network, 5G's eventual network slicing feature will offer additional means of isolating and securing sensitive data.

Health Is a Highly Regulated Industry

Providers are subject to oversight from a variety of regulators and reporting agencies, covering everything from privacy to fraud and abuse, quality tracking, and billing/administrative requirements. 5G use cases in healthcare, particularly those operating outside the provider facility, may be more susceptible to security or regulatory compliance issues and must ensure sufficient protection and compliance protocols are portable to the wireless realm.

Identifying the Appropriate Use Cases for 5G

Healthcare organizations should take a holistic approach to connectivity and evaluating use case pairings (e.g., 5G versus 4G versus Wi-Fi versus wired versus LPWAN). Not every use case requires or benefits from 5G. Higher-quality telehealth video will benefit from 5G's higher bandwidth, but some remote health monitoring applications need neither the increased speed nor the reduced latency from 5G. Additionally, on-campus uses may best be served by the installed base of connectivity while work-from-home or fully mobile use cases could benefit from 5G. Optimizing the pairings between specific healthcare services and the connectivity used to operate or deliver those services will create efficiencies and cost savings.

Working with Industry Partners

Mobile operators have been very active in enabling telehealth solutions. For instance, T-Mobile has teamed up with Zyter to extend the reach of the latter's telehealth and remote patient monitoring services with T-Mobile's 5G network. Healthcare organizations can leverage willing partners in the 5G ecosystem to help connect, integrate, and innovate telehealth services for the benefit of their patients as well as for operational efficiency.

Connectivity Drives Staffing Efficiencies

The greater use of connected health technologies to provide virtual care enabled by 5G allows healthcare organizations to expand the populations they serve by extending healthcare delivery to rural and underserved populations. Staffing and resource allocation can also be improved. For example, many rural facilities lack MRI or CT equipment and are served by mobile imaging services. However, staffing mobile imaging vehicles with a dedicated radiologist can be cost prohibitive, and the constant travel creates inefficiencies. Enabling multiple mobile imaging vehicles to transmit high-resolution images for review by a radiologist from a single facility or home office increases the number of patients whose files can be read in a timelier fashion.

5G Innovation Comes with Costs

Other important considerations are the time and resources required to develop partnerships for use case development. With mobile network operators clamoring to develop 5G use cases to realize a return on their capex investment, there is no lack of partners to enlist in exploring healthcare-related use cases for the technology. However, even if the costs of development are largely borne by ecosystem partners, providers must still have capacity to dedicate staffing resources to support these initiatives. In addition, providers must consider whether the 5G use cases to be explored fit within the profile of the patients they serve.

Takeaways

To help mitigate the devastating financial losses suffered by institutions as a result of the pandemic, healthcare organizations turned to telehealth and virtual care services as a means of building business resiliency programs. Both are here to stay as patients and providers appreciate the convenience of care anywhere; 20% of consumers plan to continue using virtual visits after the pandemic, and nearly 50% would consider virtual visits under some conditions, according to IDC's *U.S. Consumer Healthcare Survey* (January 2022).

5G's bandwidth and low-latency gains deliver an improved telehealth experience by supporting higher-quality video and more consistent connectivity. Access to care is democratized by 5G by expanding broadband access across the United States, making care more accessible in rural areas where the nearest healthcare facility may be hundreds of miles away. Continuing over the next two to four years, 5G use cases will center on advancing and evolving connected health technologies (telehealth, virtual care services, and remote patient monitoring) beyond the improved connectivity they experience with today's 5G networks. As 5G becomes more widely deployed in urban, suburban, and rural areas, the next five to 10 years will see more sophisticated use cases emerge in the form of robotic surgery, EMS-telemedicine, and diagnostics using augmented reality and virtual reality technology.

5G's bandwidth and low-latency gains deliver an improved telehealth experience by supporting higher-quality video and more consistent connectivity.

About the Analysts



Lynne A. Dunbrack, Group Vice President, IDC Health Insights

Lynne Dunbrack is Group Vice President for Public Sector, which includes IDC Government Insights and IDC Health Insights. She manages a group of analysts who provide research-based advisory and consulting services for payers, providers, accountable care organizations, IT service providers, and the IT suppliers that serve those markets. Lynne also leads IDC Health Insights' Connected Health IT Strategies program.



Jason Leigh, Research Manager, Mobility

Jason Leigh is a Research Manager for IDC's Mobility team responsible for 5G and mobile operator research. Jason's research focuses on the strategic implications and market opportunities presented by the emerging 5G ecosystem, including commercial availability, installed base forecasts, regional adoption trends, content and services enablement, device impacts, 5G's role in the Internet of Things (IoT), and innovative use cases leveraging 5G.

MESSAGE FROM THE SPONSOR

Businesses like yours deserve an unconventional partner who provides everything they need to work smarter and grow faster. An incredible network, with exceptional support and value. Without any trade-offs.

T-Mobile is upending the status quo with America's largest and fastest, 5G network. At T-Mobile for Business, we broke from industry norms to organize our support around your success — from discovery through deployment. We bring together an elite ecosystem of partners to deliver solutions for healthcare institutions to improve your outcomes today.

**Fastest based on median, overall combined 5G speeds according to analysis by Ookla® of Speedtest Intelligence® data 5G download speeds for Q1 2022. See 5G device, coverage, & access details at T-Mobile.com.*



The content in this paper was adapted from existing IDC research published on www.idc.com.

IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494, USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2022 IDC. Reproduction without written permission is completely forbidden.