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

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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 Consumer Experiences Survey (September 2020), 51.5% of U.S. consumers are concerned or very concerned about going to a hospital or other healthcare facility.

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. Deploying 5G is more economical than using wires or fiber for providing connectivity in areas with lower population density, and it 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.

AT A GLANCE

KEY STATS

- 51.5% of U.S. consumers are concerned or very concerned about going to a hospital or other healthcare facility according to IDC’s Consumer Experiences Survey, September 2020
- 42% of providers report that they are in the initial planning stages of their 5G initiatives, and another 33.5% are in the development stage, according to IDC’s 2020 Industry IT & Communications Survey, July 2020

WHAT’S IMPORTANT

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

- **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 telediagnoses 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 video conferencing, plus cellular and Wi-Fi connectivity has 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 U.S. and many parts of the world. It is designed to deliver faster speeds, eventually lower latency, and greater connection density that will enhance traditional mobile phone service and enable new services 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 delaying routine care is worrisome, more concerning is that 24.8% of patients reported putting off emergency care until symptoms became more severe, and 18.3% put off routine cancer screenings, according to IDC’s Consumer Experience Survey (September 2020). 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 vs. stage IV 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. Approximately one out of three respondents to IDC’s Consumer Experience Survey would like to continue with virtual visits after the COVID-19 pandemic is over.
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 & Spending Survey, (February 2021) see revenue and profit topping their high-level business priorities in 2021 (see Figure 1).

**FIGURE 1: Top 3 Provider Business Priorities in 2021**

**Q. What are the top 3 high-level business priorities for your organization in 2021?**

![Graph showing top 3 provider business priorities in 2021]

- Revenue growth: 39.6%
- Increased revenue from new markets, products, or customers: 29.8%
- Profit growth: 28.7%

*n = 65*

*Source: IDC’s Future Enterprise Resiliency & Spending Survey Wave 1, February 2021*

To achieve these financial imperatives, 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 opinion, behavioral and mental health, and chronic condition management services via virtual visits. These services require enhanced connectivity not only on site 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 63% of survey respondents view investments in connectivity programs – network infrastructure, 5G, Wi-Fi, mobile apps and devices – as either a priority or top priority over the next two years. Telehealth will be the early proof point for 5G’s ability to drive efficiencies and transform how healthcare is delivered. With an eye towards futureproofing the organization, investments today will form the foundation for development and adoption of more advanced and complex healthcare use cases in the future.
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 now as the industry evolves to the new normal. Among the trends IDC expects to persist in the new normal are the following:

» **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 video conferencing.** 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 ensures successful deployment.** Educating patients and healthcare professionals about the continued availability and benefits of telehealth services, virtual visits 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 these 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 video conferencing, will require more reliable and faster connectivity. As 5G becomes more widely available, healthcare providers are exploring and planning for how they will use it. According to IDC's 2020 Industry IT & Communications Survey (July 2020), 19.1% of providers classify their 5G activities as in the idea generation-only stage, 42% are in the initial planning stage, and 33.5% are in the development stage.

» **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. 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, autonomous robots for disinfecting rooms and performing mundane tasks like 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, and AR/VR to enhance medical training and education.
**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-services 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 care provider and patient experience became increasingly important to achieving the quadruple objective of improving patient outcomes, enhancing the patient and healthcare provider experience, 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*. Nearly 38% of provider respondents ranked 5G in their Board of Directors’ top three most strategic areas of interest to ensure their organization remains competitive or seeks to exploit changing marketing conditions in the next three years.

**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 COVID-19 hospitalizations surged and hospital intensive-care 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 out sick because they were exposed to or had COVID-19). The American Hospital Association projected that hospital and health system losses were expected to be at least $323.1 billion through 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 it 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 challenges for providers’ IT teams. When asked about their organization’s biggest concern about supporting work at home/remote working, 23.2% of healthcare respondents to IDC’s *COVID-19 Impact on IT Spending Survey* (April 2020, Wave 2) cited privacy and security while 11.9% ranked insufficient bandwidth for remote work as their top concern.

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-highly secured personal broadband services. 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, 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 care pairings (e.g., 5G vs. 4G vs. Wi-Fi vs. Wired vs. LPWAN). Not every use cases 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 costs savings.

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 more timely fashion.

5G Innovation Comes with Costs

Another important consideration is 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 address patients’ and staffs’ concerns about catching COVID-19 during an in-person visit and to help mitigate the devastating financial losses suffered by institutions as a result, 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; 32.4% of consumers would like to see virtual visits continue after the pandemic according to IDC’s Consumer Experiences Survey.

5G’s bandwidth and eventual low-latency gains can result in 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 can be hundreds of miles away. Over the next two to four years, 5G use cases will center on enhancing connected health technologies including telehealth, virtual care services, and remote patient monitoring. 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, emergency medical services-based telemedicine, and diagnostics using AR/VR technology.

About the Analysts

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