



Virtual health delivery

COVID-19 raised new concerns about the sustainability of current health care models, particularly fee-for-service systems. By its nature, fee-for-service means waiting for patients to get sick, which can be expensive for providers and potentially harmful for patients. The pandemic revealed how quickly fee-for-service systems can be overwhelmed.

At the same time, the pandemic demonstrated new ways that remote interactions can improve patient care and lower costs for providers — in both everyday care and potentially during the next health crisis. Virtual health offerings — which range from technology that enhances care coordination and patient education to telehealth and care-at-home — incorporate digital capabilities that address a range of challenges confronting the health care ecosystem, including health equity, the rising cost of care, and workforce shortages. In addition, virtual health capabilities have the potential to transform care delivery worldwide.¹

More importantly, COVID-19 has accelerated the health care sector's interest in — and the public's acceptance of — virtual health, largely out of necessity. Mental health is a good example. The pandemic pushed many mental health treatments to virtual settings, and it turned out many patients preferred that.

In the future, interconnected systems and always-on data collection will enhance collaboration among health care participants, and treatments will become more precise yet less complex, less invasive, and less expensive.²

Investment in this new future of health care has already begun. Spending on virtual health was expected to rise by 39 percent in 2022, based on a survey of industry CIOs and technology executives, as providers look to focus health care on outcomes and value.³

While patients' appetite for virtual health tools has increased steadily in recent years, some physicians are unsure about how to best use the technology in a clinical setting. Others worry about losing the human connection that is integral to in-person care and patient-doctor relationships. Quite simply, virtual health has the potential to inform, personalize, accelerate, and augment people's ability to care for one another.

Virtual health can only be effective if it retains a human element to care delivery. Patients must see it as an enhancement to care, rather than an impersonal impediment. Striking this balance will require input from physicians, frontline clinicians, and patients.⁴

The potential of virtual health

Virtual health delivery care goes beyond simply enabling video visits or teleconferencing appointments. It can complement or even substitute for, in-person care. Its primary goals are to expand patient and physician access to critical health services, improve clinical outcomes, increase consumer engagement, enhance care coordination, reduce costs, and improve efficiency across the continuum of care.

These can include direct interactions between providers and patients (direct-to-patient care) and technology such as telestroke, e-ICU, and specialist consultations in which information is shared among providers (provider-to-provider care).⁵

One of the first steps toward embracing virtual health is the adoption of electronic health records (EHR), which can provide a more comprehensive picture of population — as well as individual — health.

However, the health care sector must build on this foundation and leverage additional technologies to improve health care delivery and drive innovation. Virtual health offers the potential to provide patients with better access and preventive care that can keep them from getting sick.

In addition to improving delivery and patient health, virtual health solutions have the potential to address some of the biggest challenges facing health care, including:

- **Health equity.** Virtual health can be intentionally designed to offer more equitable access to diagnosis and treatment for vulnerable and underserved groups.
- **Cost of care.** Remote monitoring for prevention and early intervention can slow or reverse mounting care costs.
- **Environmental impact.** A virtual setup can reduce the need for single-use products. Virtual health has the potential to adapt to changing environmental circumstances while providing optimal care. By reducing the need to transport patients to different locations, it can reduce waste and pollution.
- **Workforce.** Highly skilled clinicians and specialists can reach a broader base of patients and operate at the top of license by allowing them to focus on care and shed administrative duties. In the short-term, virtual health can address clinician burnout. Remote work can allow providers to diagnose and treat many conditions in a work-from-home environment, which can reduce job-related stress. In the future, hospitals can provide care via remote clinical and non-clinical staff.
- **Regulatory.** Virtual health and emerging technologies can improve regulatory outcomes, such as the vaccination monitoring used by regulators during the COVID-19 pandemic. At the same time, the digitalization in health care facilities and the shift to EHRs will come with increased scrutiny. In the US, data storage vendors must demonstrate a specified level of latency and responsiveness. Other countries require that patient data cannot be stored beyond their sovereign borders.

The benefits of virtual health

The virtualization of care has both changed the nature of care delivery itself and attracted new market participants. Larger providers have been investing in small health firms. The Mayo Clinic and Kaiser Permanente invested \$110 million into Medically Home Group, a hospital-at-home venture company.⁶

At the same time, virtual health has drawn the attention of technology and retail giants, including consumer electronics retailer Best Buy, which in November 2021 paid \$400 million for Current Health, a virtual care solutions provider.⁷ Apple⁸ collaborated with Zimmer Biomet to develop remote sensors that work with smartphones and smart watches to track patients' recovery from knee replacement surgery.⁹

As more digital health technology is incorporated into clinical processes through cloud computing, machine learning, and internet-connected devices, it can significantly reduce care costs. In one study, an insurer found that digital health technology reduced emergency-room utilization by 9 percent and inpatient admissions by 17 percent, resulting in overall savings of \$641 per member each month.¹⁰

In addition, technology offers a solution to the shortage of critical care physicians. Japan's Showa University Hospital, for example, is using e-ICU intensive care units with remote care centers via on-demand, two-way, audio-visual communication. The connection allows patients' bedside care team to consult with the e-ICU clinical team.¹¹

Similarly, in 2021, Deloitte collaborated with Haryana’s Karnal district located in India to reduce the burden on the health system through an “extend the hospital ward” program that provided virtual, in-home care facilities for people in rural areas who demonstrated mild COVID-19 symptoms.¹²

Technology also creates greater flexibility. Patients and providers can choose a hybrid delivery model that combines the attributes of in-person and at-home care. In an innovative primary care model, an advanced care team of clinicians with two or three medical assistants conduct in-person patient visits, which allows providers to use clinicians more efficiently. In early demonstrations, patient, staff, and physician satisfaction has increased.¹³

In Switzerland, where home care is well established, providers are experimenting with the next level of remote care: Hospital at Home. Under this model, patients with an illness that usually requires hospitalization are treated at home. They receive round-the-clock monitoring and supervision through wearable sensors and devices, doctors communicate via telemedicine technology, and specializing nursing staff provides in-person visits as needed.

Hospital-at-Home technology also can complement existing treatment, such as major surgery that still must be done in a conventional hospital (Figure 1). By offering patients the option of recovering from major surgeries at home, the service improves the healing process for patients and reduces the cost of long hospital stays for providers.¹⁴ The entire process is conducted in collaboration with pharmacies, insurers, and other stakeholders.

Figure 1. Climate change is a universal comorbidity

Hospital at Home is an extension of standard home care: Patients with an illness that usually requires hospitalization are treated in their home environment. The decentralized concept places the patient at the center and requires cooperation between different stakeholders such as hospitals, doctors, pharmacies, and insurance companies.



Source: Deloitte analysis.

At-home monitoring systems may also help curtail a flood of demand from an aging global population. For instance, linking technologies such as smartwatches to remote sensors and monitors could allow this population to age in place, helping reduce ER visits and improve patients’ mental health and quality of care. As a result, the global market for remote monitoring devices is expected to grow to more than \$101 billion in 2028 from about \$30 billion in 2021, or 18.9 percent annually.¹⁵

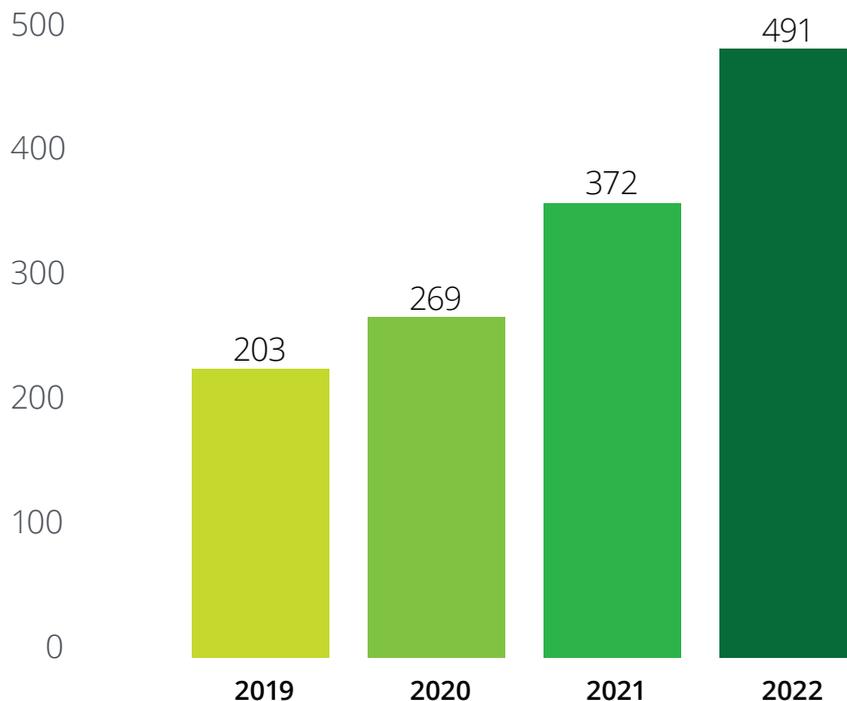
By 2024, Deloitte predicts that almost 440 million consumer health and wellness wearable devices will ship worldwide – as health care providers become more comfortable using them. These numbers include both smartwatches, which are marketed to and purchased by consumers, and medical-grade wearables—typically called “smart patches”—that are both prescribed by health care professionals and available off the shelf.¹⁶

While mental health services were seen at the forefront of virtual health during the pandemic, they also are finding a growing following among mobile users.¹⁷ Apps are seen helping to manage mental health conditions such as anxiety or depression, and they can work in conjunction with more traditional therapies by providing a channel for accessing support from a mental health professional through live chat, video, or telephone. These apps also help improve general well-being by encouraging behavior change, such as practicing mindfulness and meditation.

As many as 20,000 mental health apps currently are available, and many mental health app developers are launching collaborations with other online services and apps, such as Snapchat and Bumble, which will expand their reach with consumers.¹⁸

Deloitte predicts that global spending on mobile mental health applications, which surged 32 percent annually — to \$269 million in the first 10 months of 2020 from \$203 million for the same period in 2019 — will continue to increase at about 20 percent a year (Figure 2).¹⁹

Figure 2. Global Spending on mental health and well-being mobile apps, 2019-2022, US\$ millions



Note: Spend estimates for 2021 and 2022 are predictions.

Source: SensorTower, Mobile Wellness Market Trends 2021.

Implementing virtual health

If virtual health is going to transform how care is delivered, it must be developed with input from clinicians. Virtual health must be more than just a tool, it must represent a new, interactive, comprehensive, and expansive approach to care delivery.

Before the industry can fully embrace the benefits of virtual health, however, it must better assess overall population health and improve collaboration among institutions to build and share data more quickly. Part of the reason for the delay of this fundamental step is a lack of agreement on who should lead the efforts — government agencies, insurers, or private companies?

In addition, providers must have the incentives to make the necessary investments, which will require them to determine additional revenue from those investments. In addition, if virtual health is going to transform how care is delivered, it must be developed with input from clinicians. Virtual health must be more than just a tool, it must represent a new, interactive, comprehensive, and expansive approach to care delivery.

However, there is one ingredient that essential to any form of digital engagement, and it's vital for virtual health: trust. The health care industry has historically struggled to achieve a consistently high level of trust, especially among racially and ethnically diverse populations. Providers can enhance trust in virtual health by partnering with community organization to ensure care delivery is meeting the needs of local populations. Care delivery should be designed with input from diverse populations, and it should rely on delivery channels that can reach those populations.²⁰

In the future, these emerging technologies will combine into a tier-based system of care, with each level designed to address different degrees of medical acuity.

Questions for providers

Assessing where providers stand today in terms of embracing virtual health is essential in building predictive tools to define and investment to fund future capabilities. Executives must ask themselves key questions, such as:

- How do we best integrate with EHR companies?
- How can virtual health needs integrate with the patient record and the patient and clinician experience?
- Is patient choice the correct strategy? What if patients never want to come back to the doctor?
- Can we use second opinion choice to expand internal care offerings?

Questions for health leaders to consider in adopting virtual health delivery

Virtual health delivery is not a substitute for traditional care. Instead, it offers new ways of care delivery that were not possible in the past. In adopting virtual health, organizations should consider the following steps:

- Educate, support, and equip physicians to infuse the human element of care in virtual health encounters
- Rethink existing care models and assess how to prioritize virtual health investments for future care models
- Ensure virtual health is accessible to, and meets the needs of, all patient populations
- Develop a thorough understanding of the human experience of receiving and providing care, apply a thoughtful approach to workflow redesign, technology applications, and the use of care teams, and follow a careful change management plan
- Involve physicians, patients, and other care team members, and value their input while designing and implementing human-centered virtual health offerings and workflow processes
- Consider regulatory and policy issues that may impact your model, advocate for flexibility in virtual health design, and support associated adequate reimbursement

Contacts

Dr. Stephanie Allen

Global Health Care Sector Leader
Deloitte
steallen@deloitte.com.au

Dr. Kulleni Gebreyes

Health Care Consulting Leader
Deloitte United States
kugebreyes@deloitte.com

Dr. Andy Wiesenthal

Global Clinician Leader
Deloitte
awiesenthal@deloitte.com

Bill Fera

Principal
Deloitte United States
bfera@deloitte.com

Interested in learning more about virtual health delivery and its impact on global health care? Check out these Deloitte publications:

Care delivered in hospitals today will be delivered in the community and at home tomorrow

New business models in health care

Tapping virtual health's potential

Redefining how health care is delivered

Smart cities and digital health

Advancing health through alternative sites of care

Acknowledgements

We would like to thank the following individuals for their contributions to this chapter: Dr. Stephanie Allen, Dr. Andy Wiesenthal, Dr. Kulleni Gebreyes, Bill Fera, Matt Cox, and Urvi Shah.

Endnotes

1. Asif Dhar, "2022 Outlook for Health Care and Life Sciences," Deloitte Health Forward Blog, January 27, 2022, <https://www2.deloitte.com/us/en/blog/health-care-blog/2022/outlook-for-health-care-and-life-sciences.html>
2. Neal Batra, David Betts, and Steve Davis, "Forces of change," Deloitte Insights, April 30, 2019, <https://www2.deloitte.com/us/en/insights/industry/health-care/forces-of-change-health-care.html>
3. Pooja Singh, "2022 CIO Agenda: A Healthcare Provider's Perspective," Gartner, <https://emtemp.gcom.cloud/ngw/globalassets/en/information-technology/documents/2022-cio-agenda-cuts/2022-cio-agenda-ebook-healthcare.pdf>
4. Bill Fera, Ken Abrams, Urvi Shah, and Hemnabh Varia, "Tapping virtual health's full potential," Deloitte Insights, September 8, 2022, <https://www2.deloitte.com/us/en/insights/industry/health-care/virtual-health-survey.html>
5. "Telemedicine vs. Virtual Care: Defining the Difference," Teladoc Health, <https://intouchhealth.com/finding-the-right-term-for-modern-digital-healthcare/>
6. "New \$110 Million Round of Funding," Medically Home Group, January 10, 2022, <https://www.medicallyhome.com/new-110-million-round-of-funding/>
7. Heather Landi, "Best Buy shelled out \$400M for Current Health as it ramps up health strategy," Fierce Healthcare, November 29, 2021, <https://www.fiercehealthcare.com/digital-health/best-buy-shelled-out-400m-for-current-health-as-it-ramps-up-health-strategy>
8. "Deloitte Global's 2023 Global Health Care Outlook is an independent publication and has not been authorized, sponsored, or otherwise approved by Apple Inc."
9. "Zimmer Biomet and Apple Collaborate to Launch Major Clinical Study Detailing Patient Experience and Improving Joint Replacement Journey," Zimmer Biomet, October 15, 2018, <https://investor.zimmerbiomet.com/news-and-events/news/2018/10-15-2018>
10. "Does digital health work?" Wellframe, <https://www.wellframe.com/industry-insights/does-digital-health-work/>
11. Catherine Sturman, "Philips launches a tele-intensive care eICU programme in Japan," Healthcare, May 17, 2020, <https://healthcare-digital.com/digital-healthcare/philips-launches-tele-intensive-care-eicu-programme-japan>
12. "Deloitte and Haryana Government launch innovative initiative to 'expand the hospital ward' in Haryana," Deloitte press release, May 24, 2021, <https://www2.deloitte.com/global/en/pages/about-deloitte/press-releases/deloitte-and-haryana-government-launch-innovative-initiative-to-expand-the-hospital-ward-in-haryana.html>
13. Victoria Bailey, "Virtual Care Visits Improve Patient Satisfaction, Engagement Levels," mHealth Intelligence, July 12, 2021, <https://mhealthintelligence.com/news/virtual-care-visits-improve-patient-satisfaction-engagement-levels>
14. "Hospital at Home — A model with a future," Deloitte, <https://www2.deloitte.com/ch/en/pages/public-sector/articles/hospital-at-home.html>
15. "Remote Patient Monitoring Devices Market Size, Share & COVID-19 Impact Analysis," Fortune Business Insights, February 2022, <https://www.fortunebusinessinsights.com/remote-patient-monitoring-devices-market-106328>
16. Jeff Loucks, Duncan Stewart, Ariane Bucaille, and Gillian Crossan, "Wearable technology in health care: Getting better all the time," Deloitte Insights, December 1, 2021, <https://www2.deloitte.com/us/en/insights/industry/technology/technology-media-and-telecom-predictions/2022/wearable-technology-healthcare.html>
17. Kenny Walter, "Mental Health at the Forefront During COVID-19 Pandemic," HCP Live, April 25, 2020, <https://www.hcplive.com/view/mental-health-covid-19-pandemic>
18. Brooke Auxier, Ariane Bucaille, and Kevin Westcott, "Mental health goes mobile: The mental health app market will keep on growing," Deloitte Insights, December 1, 2021, <https://www2.deloitte.com/us/en/insights/industry/technology/technology-media-and-telecom-predictions/2022/mental-health-app-market.html/#endnote-8>
19. Ibid.
20. Heather Nelson and Julius Tapper, "Can equity-centered design narrow the digital health divide?" Deloitte Health Forward Blog, April 5, 2022, <https://www2.deloitte.com/us/en/blog/health-care-blog/2022/can-equity-centered-design-narrow-the-digital-health-divide.html>



About Deloitte's Global Life Sciences & Health Care Industry Group

Life sciences and health care is transforming and moving at an unprecedented rate of change. From strategy to delivery, Deloitte's life sciences and health care industry group combines cutting-edge, creative solutions with trusted business and technology acumen to help navigate, define and deliver tomorrow's digital business, today. Our capabilities, together with industry insights and experience across the health care ecosystem, can help guide organizations to stay ahead of health care transformation and prepare for the Future of Health™.

About this publication

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms or their related entities (collectively, the "Deloitte organization") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in the communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.

About Deloitte

Deloitte refers to one or more of the Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities (collectively, the "Deloitte organization"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respects of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omission, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.