Predictions for Telehealth in 2021: We Cannot Wait for It!

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Lyle Berkowitz

Telehealth services peaked in 2020, with over 50% of all outpatient care being delivered virtually at one point due to coronavirus disease (COVID) restrictions, improved reimbursement and positive regulatory changes. While we may not touch that ceiling again for a long time, it has certainly created a new floor, with many estimating that at least 20–30% of all care will be delivered via telehealth in 2021 and beyond.

To understand more about what might differ in 2021 compared with 2020, we asked a diverse group of telehealth experts to share what they

think will be different across people, process, and technology.

Some telehealth experts stressed the importance of nurses and other paramedical personnel using telehealth more aggressively in 2021, especially for chronic care and remote monitoring. Many emphasized that telehealth will grow to become part of normal practice among a larger number of specialties. Interestingly, this may already be happening more than we realize because of the extent of non-reimbursable care being delivered virtually post-procedure and between visits.

Other experts pointed to the importance of political, regulatory, and other process changes that are still needed to expand telehealth services. Of course, everyone hopes that reimbursement will continue and/or expand for all forms of virtual care.

The majority of predictions, however, center on the continued advancement of technology to improve the access, speed, efficiency, and quality of telehealth services for all. Our futurists see a world of virtual care powered by remote device integration to increase the capture of important data, augmented reality (AR), and virtual reality (VR) to make a distant visit seem closer, and by incorporation of artificial intelligence (AI) and machine learning to help with efficiency and quality in so many ways.

Here comes 2021, and we can't wait for it!

Shayan Vyas

In 2021, aside from significant adoption of telehealth for chronic disease management, there will be a proliferation of non-physicians adapting telehealth. In addition, sub-specialties will make telehealth the standard of care and medical delivery direct to a patient's home.

Remote patient monitoring (RPM) and other tools will advance a clinician's ability to expand telehealth offerings and improve healthcare outcomes. This will push in-patient visits to become second, or third, or even the last option for meeting patient needs.

In addition, RPM will greatly expand the ability of telehealth to provide care for patients with chronic diseases, as well as the overall healthcare experience. For long-term and episodic telehealth, we start to see the "final mile experience" with home delivery of pharmaceuticals, durable medical equipment, and even direct-to-consumer lab testing.

Nurses—the guardians of healthcare—as well as other vital non-physicians clinicians, will adopt telehealth services to enhance engagement with patients. This will result in improved medical outcomes and healthcare experience, overall. RPM and nursing's role within telehealth will expand as the Centers for Medicare & Medicaid Services (CMS) continues to embrace "hospital-in-the-home." Meanwhile, sub-specialties will continue to embrace and offer telehealth post-COVID 19 pandemic.

One more prediction: surgeons will make telehealth a standard offering when caring for post-surgical patients.

Igor O. Korolev*

In 2021 and the near-term—with lessons from the COVID-19 pandemic—healthcare systems, medical practices, and payers will increasingly promote telehealth services as a convenient, efficient, and safe approach to addressing routine and low-acuity health concerns.

With increased adoption of telehealth services, healthcare providers will be able to prioritize face-to-face visits for patients under high-acuity health conditions or those requiring timely intervention. The use of telehealth services will continue to grow among rural and undeserved patient populations. Healthcare providers and payers will increasingly recognize the value of telehealth services for chronic management of both medical and mental health conditions. In addition, reimbursement for telehealth services will continue to improve.

Telehealth services will become more data-driven and user-friendly. Telehealth platforms will increasingly integrate data collected from wearables or mobile devices and sensors, automate medical record data entry and billing processes, and provide clinical decision support tools.

Finally, I am optimistic that synergistic integration of telehealth services with big data, AI-powered algorithms and information from wearables or mobile devices will have the greatest positive impact on healthcare and its outcomes over the next 2–5 years (more than any digital technology alone). Telehealth and digital health technologies will transform healthcare to become more human-centered, accessible, personalized, and intelligent.

Paul De Raeve
As the pandemic has negatively affected access to healthcare services, including for chronic conditions, nurses are becoming key facilitators for citizens' access to the healthcare systems—including for prevention. This implies that EU and United Sates politicians must support nurses.

We must move from the traditional medical-dominated model toward a more holistic approach to healthcare systems and data governance. All relevant stakeholders, including the nursing profession, must be involved and engaged from design to decision-making to implementation to monitoring and evaluation.

Prabhakaran Dorairaj
Empowering physicians with necessary information to make evidence-based decisions will go a long way toward augmenting caregiver satisfaction and improved quality of care. To this end, digital tools that help in remote patient evaluation and trained bridge personnel may offer some relief. Embedding machine learning and artificial intelligence in telehealth can further improve triaging, as well as diagnostic and prognostic predictability.

With regards to the patient, the "doctor's touch" may not be replaced by telehealth. However, patient expectations and needs have changed over the last couple of months. It is important that patients are informed and made aware of the possible benefits of using telehealth solutions.

Better use of telehealth services can result not only in improved health but it is also an important public health measure aimed at resource optimization and public safety.

Sergio Pillon
There will be strong improvement in telehealth services and related data use. We are familiar with having health records on the computer screen while the patient sits in front of us. Going forward, we will have a health data record on the computer monitor, as well as a microphone, a camera, and a button to call the patient. Following are the possible effects of using telehealth solutions:

- Electronic health records (EHRs) will be integrated with telehealth utilities.

- The hospital computers will be renewed or empowered.
- Healthcare facilities connectivity will be enhanced.
- We will face security problems and lack of training of healthcare personnel.
- Digital therapies will become an increasingly widespread reality.

Matthew Sakumoto

In 2021, telehealth and virtual healthcare services will follow the rideshare industry trajectory as both are enabled by mobile technology and have parallel barriers to (1) safety, (2) access or reliability, and (3) cost.

To address safety concerns, I remember my first Lyft ride in San Antonio, Texas, thinking, "this is crazy getting into a car with a stranger!" Similarly, patients are starting to shift from wanting to see "MY doctor in the office" to being able to see "a doctor" sooner. And with each encounter, they realize virtual care is still a good safe approach.

For access, just as riders can summon a car instead of waiting on the sidewalk hoping a cab rolls by, telehealth services increase reliable access, and patients can have their medical concerns evaluated in less than 24 hours.

Finally, rideshare companies bent the cost curve to the point where riders can stop paying high monthly parking fees (aka insurance premiums) and continue to get low-cost, safe, reliable transportation (aka virtual visits) when needed. Therefore, telehealth will follow the rideshare roadmap…or maybe we will just merge industries.[2]

Ingrid Vasiliu-Feltes

Over the past few years, we have witnessed a significant increase in telehealth adoption and expansion. For 2021, I predict that we will witness not only a high degree of integration with EHR and health information management systems but also integration with other emerging technologies.

I predict that one of the most predominant trends will be the dual power of *VR*, AR and mixed reality (*MR*).

"Tele-XR-Health" (a *telehealth* clinic with VR powered *medical* treatments) has the potential to redefine and reshape medical education, medical training, virtual healthcare delivery, and virtual clinical trials.

One major barrier that must be overcome is the high cost for state-of-the-art extended reality (XR) technology. However, as historical trends have shown with other emerging technologies, the global landscape can change quickly and trigger large-scale adoption.

Liz Ashall-Payne

To meet the need for digital health during the COVID-19 pandemic, the healthcare industry has adapted itself by digitizing face-to-face appointments and offering remote consultations. In the future, we will take a step further. The future of healthcare will see a rise in the replacement of elements of health and care pathways with digital tools and services.

Clinicians, for example, will recommend digital health products for diagnostics, such as apps that help detect skin cancer. Such apps will begin to supersede the face-to-face diagnosis element of some care pathways. There will be digitizing of some diagnostics, with increasing efficiencies.

In the telehealth industry, there will also be a rise in the adoption and use of digital therapeutics for

prevention and management of health conditions. As such, digital health will not simply enhance health intervention, but will replace elements of the care pathway.

The Organisation for the Review of Care and Health Applications (ORCHA) expects to see an uptake in adoption of its Digital Health Libraries and Pro Accounts, especially with healthcare professionals recommending quality-assured digital health products to their patients and service users. Thus, digital health products and services will become increasingly embedded into care pathways.

There is, however, a fundamental flaw. Of the many thousands of health and care apps we have reviewed at ORCHA, still, only around 20% meet our quality threshold for being clinically safe and safe with patient data. We have to build this industry on truth and trust—that is my personal mission in 2021 and beyond.

Mitch B. Parker

I believe that the application programming interfaces (APIs) developed for the CURES Act Final Rule will lead to additional use in facilitating additional telehealth options. Instead of just applications for patients to download data for their personal health record, we foresee Internet of Medical Things (IoMT) devices to send and receive patient telemetry data. We also foresee a shift in care from within the four walls of a hospital to outside as much as possible. The economic drivers for care of numerous COVID patients and maintaining expensive physical space will continue to be drivers of this change.

The year, 2021, looks to be a great continuation of 2020; however, we must be careful in how we execute to reduce the security risk to patients and caregivers. To this end, there is an

excellent foundation to build upon. My greatest concern is that we are going to rush these products to use without good security testing or standards, and this is going to open numerous classes of cyberattacks. We must develop and implement commensurate protections at the API, network, device, interface, and electronic medical record (EMR) layers to protect adequately against these new attacks.

We must also develop excellent identity management and proofing processes to ensure that only verified users send correct data to the right place. The potential for data mismatches is great.

Brendan Smith**

My prediction is that there will be a dramatic shift in the delivery of virtual clinical video teleconferences (CVTs). Recent events have thrust telemedicine or virtual care into the spotlight and provided safe access to care when many healthcare facilities were forced to close.

A virtual "face to face" CVT using a computer, laptop/tablet, or smartphone provides a convenient and timely access to a healthcare provider. However, the remote providers' virtual examination is limited or challenged by the two-dimensional modality of today's platforms consisting of a camera and video display. These platforms also limit the healthcare provider in interpreting the patient's complaint and determining diagnosis by questions and answers, thereby potentially requesting the patient to move the camera to different areas of the body, which is clumsy and distracting. This can reduce patient and provider satisfaction and can reduce the quality of care.

I predict a breakthrough of new sensing and visualization technology that gives providers the ability to easily observe or scan a patient's area of

complaint without he or she moving the laptop or camera or contorting his or her body toward the camera. In addition, AR technology will play a role in providing visualization of near real-time patient health data from remote monitoring devices, lab results, and electronic health records.

Allison Viola

The introduction of the COVID-19 virus in 2020 upended healthcare as we know it. We may never transition back to the way we have come to know and understand United Sates healthcare.

This epidemic has created a mental health crisis that requires new thinking and new approaches to stem the tide of suicides and drug overdoses. Lockdowns have caused vulnerable populations (e.g., individuals with mental health issues, substance abuse disorders, and others) that traditionally required in-person counseling to shift toward a new paradigm of care delivery. Telehealth services and other forms of telepsychiatry will experience a massive increase in patient needs and interest to receive mental healthcare or behavioral care in the comfort of patients' homes where, prior to COVID, this might have been unthinkable. We will experience an increased access to mental healthcare through virtual modalities, which will become part of treating the whole patient and meeting his or her mental health needs.

Rafael J. Grossmann

After decades of discussing telemedicine as a way to connect and communicate among ourselves and with patients, facing sometimes unsolvable hurdles and difficulties, it took a global pandemic to make us realize that this is another way to enhance provision of healthcare.

My predictions are simple: telehealth services will become another accepted tool in the armamentarium of the medical provider. It will cohabitate with in-person visits, phone calls, emails, letters, texting, and (even) faxing medical information. It will never be a substitute for the physical visit. Rather, it will be a complement or an alternative to them, used when an in-person visit is not necessary.

My second prediction is that the payers will universally accept and reimburse telemedicine as part of the medical act, equivalent to a physical visit, as long as the billing criteria of the interaction are adequately met.

Srikanth Velamakanni

In 2021, we will see a continued rise in adoption of telemedicine by doctors and patients, globally. Remote digital screening will continue to grow leading to the rise of AI-assisted healthcare. Providers will invest in their own telemedicine platforms or subscribe to the emerging options in this space.

Non-communicable diseases (NCDs) will be an area of focus in telemedicine, considering it has been disrupted during the COVID-19 pandemic. The relative convenience of digital consultation platforms (no driving, no waiting) will result in more regular doctor consultations for managing chronic health conditions, especially NCDs. We expect that 25% of all outpatient visits will be virtual in 2021.

The most successful AI applications in healthcare will be those that seamlessly augment and improve the productivity of doctors without significantly changing the existing workflows. In 2021, we will have more AI diagnostic tools and algorithms getting the Food and Drug Administration approvals than any other year on record. In addition, the year 2021 should see at least one major AI-based breakthrough in medicine.

Finally, we expect digital health apps and devices to build new features (enabled by new sensors,

more data, and better algorithms) that provide superior tracking and coaching in health areas, such as sleep, exercise, mindfulness, meditation, mental health, and substance addiction management.

Chris Roberts

As telehealth volumes jumps to over 20% of healthcare delivered, it is important to remember that the EMR vulnerability problems and concerns that have been growing in hospitals and clinics will be easily translated to the new world of telehealth. In other words, we expect the following in 2021:

• Ransomware will still be running rampant.
• The Information Security industry will continue to make a killing fixing the problems it caused.
• We will still focus on blaming everyone else (i.e., nobody is going to be accountable).
• Everyone is still going to buy tech rather than invest in people.
• Y'all are going STILL ignore the simple fixes like standards, procedures, controls, basic computer hygiene, understand what you have, where it is AND who is using it… patching, passwords and all the simple things that we have been talking about for years.

As a result, the security industry has the opportunity to start helping the telehealth industry by addressing these challenges TODAY before it gets worse. The following are the four key things that the telehealth industry should insist on from their security drivers:

• Accountability challenges… let us be clear about who stores and who owns the data (between vendors, payors, providers, and patients).
• Focus more on PEOPLE (e.g., quality programs and training), THEN the process, and then tech IN THAT ORDER.
• Take the time to review a resume for more than a list of certificates and degrees earned,

and vet out actual accomplishments and successes IN THE FIELD.
• Make sure that your vendors and suppliers listen and understand your needs and do not let them start the conversation with something they think you ought to buy.

Amar Gupta

Exactly one year ago, in the conclusion of the predictions for 2020, I wrote: *Overall, 2020 will indeed be the takeoff year for telehealth in several countries but not universally.*[3]

COVID-19 has played a major role in making 2020 the takeoff year in many countries. In several cases, the ideas of telemedicine across states, countries, and continents that I have been professing for over 10 years have witnessed more progress during 2020 than during the preceding decade. This rapid pace must be complemented by a corresponding increase in attention to quality of telemedicine services and proper investigation of complaints related to telemedicine services across states and countries.

In the United States, a doctor disbarred from medical practice by three states was able to start practicing in a fourth state and establish a telemedicine company there. Urgent attention is needed to have strong systematic mechanisms of using patient-reported outcomes to authenticate the quality and services delivered by digital health products and services, which ensures that services are periodically retrained with recent data from the patients. Finally, the area of interoperability of health information becomes even more crucial in a telehealth environment. Such exercises must be conducted in a unified manner across the world.

Some of these critical needs will see preliminary action during 2021. Progress

in these areas will ultimately determine the overall acceptance and use of telehealth concepts. While new technologies and business processes may offer major benefits, it is important to remember that they can have huge adverse consequences. After 9/11, a decision was made that the cockpit of the plane must be kept locked during the flight and very few people had the key to open the door. Yet, a co-pilot with a history of mental problems deliberately crashed a Lufthansa plane with 150 persons aboard. While previous effort was focused on reducing the barriers to the introduction of telehealth processes, the year 2021 will see a growing pressure to address quality and safety aspects.

John D. Halamka

In January at Mayo Clinic, 4% of visits were virtual. By April, 90% were virtual. In December, today, we are at a baseline of 20% of visits in many departments.

Looking at organizations such as Kaiser Permanente and Atrius Health, I think we can predict a rise from that 20% across the United States, such that 80% of behavioral health visits will be virtual, 50% of primary care will be virtual, and 20% of surgical visits (largely pre-op and follow-up) will be virtual.

Remote RPM will increasingly move serious and complex care to non-traditional locations, such as the homes and hotels. New CMS evaluation and management (E&M) coding and waivers bring reimbursement parity to many novel virtual care models.

Increasing numbers of digital diagnostics will soon be available in the home, including home lab testing and algorithms that turn wearable signals or home-based device telemetry into treatment plans.

As referenced here, two reports led by MITRE Corporation, Mayo Clinic and Change Healthcare, Inc. offer us a glimpse of the 2020 changes.

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Supplementary link

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