



Telemedicine Lessons Learned During the COVID-19 Pandemic

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Abstract

Purpose of Review Prior to the SARS-CoV-2 novel coronavirus (COVID-19) pandemic, access and utilization of telemedicine in the USA was negligible, with very little interest from both the public and healthcare sectors. Since that time, telemedicine technology and services have undergone explosive growth and investment and are poised to change the way healthcare is delivered now and in the future. But has telemedicine truly changed the way healthcare is delivered or is it merely a temporary fix for a temporary pandemic?

Recent Findings This global public health emergency has exposed vulnerabilities in our healthcare system and telemedicine has proven to be an effective tool to help increase access to care and improve affordability for patients across all racial, economic, geographic, and technological demographics.

Summary Looking back on the last 20 months or so since the pandemic started, this review attempts to summarize what has gone well and what has not in the telehealth space and concludes that while far from perfect, telemedicine is here to stay.

Keywords Telemedicine · Telehealth · eConsults · COVID-19 · Pandemic

Introduction (How the Pandemic Changed Telemedicine)

As far back as 2015, most physicians recognized telehealth as a promising tool to improve access to care, but only 15% of 1557 physicians surveyed at that time used telehealth services in their practices [1]. Reimbursement seemed to be the largest barrier to acceptance with ~90% of both users and nonusers (of telemedicine) in the survey saying they would use telemedicine if they were properly reimbursed [1]. The discrepancy of accessibility was apparent in Health Center Program Data from 2019 where 43% of health centers were able to provide telemedicine services compared with 95% utilizing telehealth during the COVID-19 pandemic [2]. Telemedicine and remote patient monitoring

expanded rapidly in the first few months of the pandemic with more widespread use as insurers, healthcare providers, and policy makers rushed to increase remote access to help curb the spread of the novel coronavirus. In addition to increasing access to care and reducing risk for transmission of SARS-CoV-2, the quick adoption of telemedicine helped to conserve scarce medical supplies like masks and helped to reduce strain on an increasingly overwhelmed healthcare system. At the beginning of the pandemic, significant financial and employee investments were allocated by hospitals and private practices to quickly accelerate existing telehealth services or create new ones. Not all healthcare systems embraced this shift in focus as hospitals that lacked electronic clinical documentation, were unaffiliated with a hospital system, were investor-owned, or were in a rural area had lower odds of adopting telehealth while non-profit hospitals, affiliated hospitals, major teaching hospitals, and hospitals located in micropolitan areas were more likely to adopt telehealth [3, 4]. This discrepancy in access is even more pronounced when looking at a worldwide scale with nearly 3.7 billion people remaining offline [5]. While the urban-rural technology gap is small in developed countries like the USA, in developing countries, urban access to the Internet was 2.3 times as high as rural access [5]. These differences are even more pronounced in Africa with 28% of

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urban households having access to the Internet compared to only 6.3% in rural areas [5].

Changing the Rules to Expand Access

To accommodate the growing demand for remote services, coverage was wildly expanded with substantial changes in policy at both the state and national levels. With improving reimbursement from insurers and loosening of HIPAA requirements by the Office for Civil Rights at the Department of Health and Human Services, telemedicine has gained mainstream acceptance in a very short timeframe. The federal government eased many requirements for telehealth in the Medicare program allowing payees from any geographic location to access services from their homes. These mandates were soon adopted by state governments who expanded Medicaid access for telehealth services while relaxing state-level restrictions around provider licensing, online prescribing, and written consent [6]. Telemedicine reimbursement policies for private insurers are more heterogeneous and can vary by state, but historically have been significantly lower than in-person visits serving to disincentive telehealth visits [7, 8].

While there are certain medical conditions that require in-person care, many non-emergent health-related issues can be addressed virtually and devaluing telemedicine services by not reimbursing properly threatens to derail the progress that has been made during the pandemic. Evidence suggests that the enactment of telehealth parity legislation has led to significant increases in the utilization of telehealth outpatient services and suggests that further expansion of private telehealth insurance coverage may encourage increased utilization [9]. In response to these trends, an increasing number of states and the District of Columbia have passed parity laws for telemedicine which requires private payers to reimburse for telemedicine care in the same way they would for in-person care. Even in states that do not currently have telemedicine parity laws, commercial payers are focusing on reducing or eliminating cost sharing, broadening coverage of telemedicine, and expanding in-network telemedicine providers as they see the potential long-term cost-savings covering this service provides. To make some of these changes more permanent, many healthcare systems and provider groups are pressuring federal regulators and Congress to permanently expand coverage for telehealth visits even after the COVID-19 public health emergency ends. Despite progress made over the last year, several big insurers are pulling back some of their telehealth coverage for non-COVID-19-related issues leading to concerns that without financial incentives, providers will be less inclined to offer telehealth services moving forward [10].

Another lingering question that has continued to evolve as telemedicine gains more traction post-COVID surrounds the rules and regulations regarding intrastate telemedicine and the need for licensing and credentialing. Most states require physicians to be licensed in the state in which they perform telemedicine. Physicians interested in practicing telemedicine to treat or diagnose patients located in another state should check with that state's licensing board for updated licensure and state law information. The most recently updated information provided by the Federation of State Medical Boards (FSMB) provides the following information [11]:

- 49 state boards plus the medical boards of District of Columbia, Puerto Rico, and the Virgin Islands require that physicians engaging in telemedicine are licensed in the state in which the patient is located.
- 12 state boards issue a special purpose license, telemedicine license or certificate, or license to practice medicine across state lines to allow for the practice of telemedicine.
- 6 state boards require physicians to register if they wish to practice across state lines.

Patient and Provider Satisfaction with Telemedicine During the Pandemic

Telemedicine is generally defined as synchronous or asynchronous, with synchronous “real-time” patient visits encompassing most scheduled visits during the pandemic. Many patients who had no previous experience with telemedicine were quickly transitioned to virtual platforms, including both video and telephone encounters. Despite this rapid transition, several studies demonstrated that patient satisfaction was similar with in-person, video, and telephone encounters during the pandemic [12, 13, 14]. Similar outcomes in physician satisfaction were found with most care providers expressing positive attitudes regarding the adoption of telemedicine with care comparable to in-person visits [15, 16]. Preparing clinicians for the implementation of telemedicine at the onset of the pandemic was not without its challenges. A minority of practices and physicians were already familiar with virtual care and were well equipped to handle the quick transition. Most caregivers, however, had no experience in this arena and had to adapt quickly to implement telemedicine programs that delivered secure, high-quality care. Understanding how to appropriately integrate virtual services into a traditional clinic workflow proved invaluable as practices struggled to find a balance scheduling in-person and virtual visits. In addition to establishing a feasible telemedicine workflow, caregivers had to reexamine how virtual visits were conducted to assure that

the telehealth experience mirrored traditional in-person visits as closely as possible. Proper online etiquette became essential as providers attempted to navigate the nuances of videoconferencing. Starting with a high-quality webcam and telemedicine software platform with a strong internet connection is the cornerstone of any telemedicine program. From there, providers should focus on setting up the webcam at eye level, dressing in a professional manner, and utilizing a quiet space free of distractions to conduct visits. While many of the above lessons were learned through trial and error over the last year, the next generation of practitioners should be well versed in conducting virtual visits through rigorous training during their medical school, residency, and fellowship tenures. Many medical schools have already started integrating telemedicine into their educational curriculum so that their students are able to responsibly use these technologies and meet a growing need for telehealth services [17•, 18].

Increasing Access to Specialty Care Using eConsults

Asynchronous or “store-and-forward” applications like electronic consultations (eConsults) are another facet of telehealth that benefited from the pandemic as hospital systems and private companies attempted to address and capitalize on the troubling lack of access to specialty expertise, especially in underserved and geographically isolated regions [19•, 20]. While not suitable for emergency care, eConsults provide a convenient way for specialists and primary care providers to collaborate on difficult cases despite differences in locations or time zones [21•]. Several studies have demonstrated virtual visits improved access to specialty care while reducing wait times [22–24]. In one study, only 11% of 1258 dermatology referrals resulted in a confirmed appointment with a median wait time of 77 days. After implementation of eConsults, 44% were seen virtually, and of those 16% required an in-person visit with a median wait time of 28 days [25]. By avoiding unnecessary referrals, improving care coordination, and reducing costs, eConsults have the potential to streamline the referral process and provide access to specialty expertise that was previously overextended or unavailable.

Is Telemedicine Here to Stay?

Not surprisingly utilization of telemedicine services was widespread during the initial lockdown, but as restrictions lifted, many patients resumed in-person visits preferring face-to-face encounters. In a national study of commercially insured patients, growth in telemedicine use offset roughly two-thirds

of the decline in in-person visit volume during the COVID-19 pandemic. While the weekly rate of telemedicine visits increased at the onset of the pandemic period, these visits peaked the week of April 15, 2020, before declining by the week of June 10, 2020 [26]. Follow-up data supports these ongoing trends with interest in telehealth services declining as much as 37% from peak-pandemic highs in some states [27]. After factoring in total telehealth visits and the discrete number of unique individuals who used telehealth, further analysis suggests that only about 13% of Americans used telehealth services during the pandemic with the majority being used for behavioral health by commercially insured women between the ages of 20–49 [27]. The sharp decline in telehealth utilization appears largely to be driven by the shift back to in-person visits at hospitals and other healthcare settings as patients become more comfortable navigating these settings. The only area where telehealth has not seen decreased usage is in the mental health arena with virtual visits for mental health conditions steadily rising nationally in every region [28]. While the number of patients currently utilizing telemedicine services far exceed those prior to the pandemic, there still seems to be a large disparity between those that prefer remote visits (the minority) vs. those that still prefer to be seen in-person (the majority). The reasoning behind these preferences have not been well described, but it seems like the demand for telemedicine appointments mirrors surges in COVID cases. When infectivity rates increase, interest in remote visits follow suit. When cases drop, so does interest in remote visits. This pattern was born out in data collected by the Centers for Disease Control and Prevention (CDC) during the timeframe of June 26–November 6, 2020, that showed telehealth visits declining as the number of new COVID-19 cases decreased but then plateauing as the number of cases increased [29]. Now that most offices have a robust telehealth infrastructure in place, they can accommodate these frenetic shifts in patient preferences and plan accordingly. In my office, we have seen similar trends with most patients preferring in-person visits unless local COVID infectivity rates spike. This trend is likely due to patient and physician preference for face-to-face interaction over remote monitoring, especially for more complicated patients. There also seems to be a bias for in-person visits at a practice level given the continued poor reimbursement rates garnered for telemedicine visits. Until rates more closely mirror in-person visits, telemedicine will continue to linger at the periphery.

Despite the decline in telehealth use, virtual care companies continue to make big investments in the telehealth space as they continue to compete for patients. Telehealth investment hit an all-time high of \$4.2 billion in the first quarter of 2021, almost doubling the \$2.2 billion raised in the same quarter in 2020 with several mergers and acquisitions spurring this growth including the merger of Doctor on Demand and Grand Rounds, Cigna’s Evernorth acquiring MDLive, and Accolade’s acquisition of virtual primary care company PlushCare [28]. Retail giants Amazon and Walmart

are attempting to gain a foothold in the 3 trillion-dollar healthcare market as well, partnering with companies like Crossover Health and MeMD to further their reach. By leveraging their superior technology and operational expertise, these companies are creating their own virtual healthcare platforms that are poised to change the landscape of virtual care. Over the summer of 2021, Amazon Care expanded its telemedicine platform to companies and Amazon employees in all 50 states marking Amazon's first foray into direct patient care on a national scale. Services provided include video care, in-app text chat with clinicians, mobile care visits, prescription delivery, and even in-person care with medical professionals dispatched to a patient's home for services ranging from routine blood draws to listening to a patient's lungs [30]. With major healthcare systems like Cleveland Clinic and Mayo Clinic building telehealth capabilities internally, it will be interesting to see how these hospitals compete for patient loyalty against the onslaught of established consumer brands like Amazon and Walmart in this space. Many analysts are betting on the retail giants given the shifting attitudes towards medical treatment. While traditional medicine values personal relationships and experiences, telehealth is increasingly becoming a commodity-type service. With consumers putting more emphasis on convenience and cost, these massive consumer brands and telehealth companies will likely have the advantage as healthcare and digital technologies continue to evolve.

Conclusions

While telemedicine is not poised to replace in-person care, it is a useful adjunct when faced with disasters and public health emergencies by providing healthcare workers the flexibility to quickly transition care from clinics to homes seamlessly and without interruption. Barriers to access still exist, however, and are more pronounced in rural, minority, and technologically underserved communities. While there has been a steady return to in-person healthcare visits across the U.S., the spread of variants like Delta and Omicron have proven that ongoing community transmission of SARS-CoV-2 will likely continue to hamper efforts to resume normal pre-pandemic levels of in-person care. Sustaining expanded use of telehealth services both during and after the pandemic will require a concerted effort at both the state and federal levels and will likely be fueled by the ongoing interest from the private sector with the increased commoditization of healthcare. Whether the entry of companies like Amazon and Walmart into the telehealth marketplace will be good for healthcare has yet to be determined. There is little doubt that their presence will be a disruptive force as they attempt to leverage superior data and technology to improve health engagement, equity, and outcomes.

Compliance with Ethical Standards

Conflict of Interest Justin Greiwe declares speaker bureau and advisory board fees from AstraZeneca, Sanofi Genzyme, and Regeneron outside the submitted work.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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