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Bina Kassamali
Harvard Medical School

Et al.

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Teledermatology Before, During, and After Covid-19: A Vital Tool to Improve Access and Equity in Specialty Care

Bina Kassamali[1†], Alice J. Tan[2†], Ellen B. Franciosi[2], Mehdi Rashighi[2], Avery LaChance[1*]

[1]Department of Dermatology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

[2]Department of Dermatology, University of Massachusetts Medical School, Worcester, Massachusetts, USA

[†]Represents co-first authors

*Correspondence should be addressed to Avery LaChance; alachance@bwh.harvard.edu

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Abstract

Since the onset of the COVID-19 pandemic, telemedicine has rapidly expanded across the nation as medical systems have had to shift to providing care through virtual modalities to ensure the safety of patients and staff. Teledermatology, in particular, is well-suited for telemedicine, with literature supporting its efficacy, equitable quality and accuracy, and cost-effectiveness in comparison to in-person visits. Teledermatology holds great potential in continuing to increase access to patients and ensuring continuity of care, particularly for those from rural and underserved areas. Although introduced decades ago, the adoption of virtual visits has previously been limited by restrictive coverage policies, lack of reimbursement, and maintenance costs. While the Centers for Medicare and Medicaid Services and most private payers have ensured broad coverage for telehealth since the start of the pandemic, many of these policy changes are temporary and set to expire at the end of the public health emergency. Continued advocacy efforts and future studies highlighting teledermatology's impact, particularly on minorities and underserved patient populations, are critical for long-term legislative changes to occur and to provide coverage to our most vulnerable patients. In this article, we highlight the state of teledermatology prior to the pandemic, the legislative changes that permitted teledermatology to rapidly expand during the pandemic, and the importance of continued coverage after the pandemic.

Keywords: Teledermatology, Telehealth, COVID-19, Access, Policy, Advocacy, Equality

Introduction

The COVID-19 pandemic has placed unprecedented strains on our medical system as specialties have had to reconsider "essential" in-person services and find novel ways to remotely ensure continuity of care. One such modality of care includes telehealth services, which have experienced a rapid rise in utility with a reported 4,347% increase in telehealth visits from March 2019 to March 2020 [1]. Although used for decades, telemedicine has historically been limited by reimbursement, as well as systems adoption and maintenance costs. Physical distancing measures throughout the pandemic, however, necessitated essentially overnight adoption of insurance coverage in both public and private sectors. Dermatology is among the earliest and most well-suited specialties to adopt telemedicine given the visual nature of the specialty [2]. Since the onset of the COVID-19 pandemic, we have seen a radical uptake of teledermatology services across the nation. In this paper, we review the literature published to date highlighting the state of teledermatology prior to the pandemic, the policy changes that facilitated the rapid expansion of teledermatology services during the pandemic, and the impact this has had on our dermatologic practices now and moving forward.

Discussion

Teledermatology services can be delivered through two primary modalities: store-and-forward (SAF) technology, which entails transmission of images to a provider for review in an asynchronous manner, or live interactions, including video visits or audio call [3]. Benefits of SAF teledermatology include greater image resolution and patient convenience as appointment times are not required. Alternatively, live video visits permit the clinician to view lesions in real time from different angles and allow for direct patient-provider interactions. While this modality allows patients to interact directly with their providers, it does necessitate the presence of high-speed internet access [4].

The diagnostic and treatment accuracy of teledermatology is well supported by evidence in the literature [5-13]. Teledermatology services were found to have high rates of concordance to in-person evaluations and inpatient triaging consultations [14-16]. Clinical outcomes and skin-related quality of life measures are also similar for patients evaluated via teledermatology compared to in-person visits [17-21]. Additionally, patients report high levels of satisfaction with the quality of care maintained through teledermatology services. A recent 2020 survey study in the Department of Dermatology at Yale School of Medicine found that patients were almost 50 times more likely than faculty to agree that the quality of care received during a teledermatology visit was equal to an in-person visit (odds ratio: 48.28, 95% confidence interval: 19.55-128.40, p<0.001) [22].

Not only is the quality of care sustained through these technological innovations, but patients are also significantly more likely to maintain essential appointments which helps mitigate delayed diagnoses and treatment [23-31]. Telehealth patients also benefit from saving travel costs and time, which incurs financial savings from work absenteeism and transportation fees [23-30]. Several studies within the literature have found greater patient satisfaction with teledermatology [24,25,32-34]. According to a qualitative study on SAF teledermatology services among veterans in the Pacific Northwest, 66% of patients favored teledermatology over in-person visits, and 83% would recommend the service to others [33].

Some studies have reported clinical and financial benefits with telehealth services such as improved efficiency and remote patient access [28,34-36]. Our healthcare system financially benefits from these remote services as well. A cost analysis study for SAF teledermatology consults in underserved areas of Philadelphia demonstrated a reduction of in-person visits by 27% and of ER visits by 3.3% [37]. Greater access to and consistency in care can help better manage dermatologic diseases at earlier and less financially burdensome phases of disease progression.

Despite the numerous benefits of teledermatology, prior to this pandemic, the most significant barrier to widespread teledermatology implementation was the lack of reliable systems for reimbursement and insurance coverage, particularly for the most vulnerable patients [30,38,39]. Obstacles hindering proactive policy changes included lack of universal payment through the Centers for Medicare and Medicaid Services (CMS), varying coverage for Medicaid patients across states, lack of universal private payer parity, and adoption and maintenance costs for individual systems [30]. These restrictions prevented many underserved populations from receiving much-needed care, especially the elderly, disabled, and American Indian populations, for whom geographic and physical limitations pose major barriers to in-person care [30].

As COVID-19 cases continued to rise, the necessity for legislative changes to optimize access to care became overwhelming. On March 17, 2020, the CMS issued a 1135 Waiver, which greatly expanded telehealth coverage by ensuring broad reimbursement for telehealth services, eliminating out-of-state licensing restrictions, and Health Insurance Portability and Accountability Act (HIPAA) compliance limitations [40-42]. During this public health emergency, Medicare reimbursed the same rate for a telehealth visit as it would for an in-person visit [43]. CMS also expanded telehealth coverage to all Medicare beneficiaries, not just those living in rural areas, and added 135 allowable services. Geographic restrictions on originating sites were also removed, allowing Medicare beneficiaries to receive telehealth services in the comfort and safety of their own homes [30,41,43].

For Medicaid, prior to the pandemic, states variably reimbursed for live-interactive telehealth services, and only 11 states reimbursed SAF services [30]. Currently, all 50 state Medicaid programs and that of Washington DC provide reimbursement for some form of live video telehealth services [39,42,44]. However, reimbursement for SAF technology and remote patient monitoring continues to lag, with only 18 and 21 states providing reimbursement, respectively [42,44]. Originating site restrictions for Medicaid coverage were also lifted, with 27 states now explicitly and permanently allowing the home to serve as an eligible originating site under certain circumstances [42]. Additionally, 26 states and DC now reimburse telehealth services delivered in a school-based setting [42].

Across the nation, private insurance plans in 43 states and DC have changed their policies to expand telehealth coverage for patients [42]. Blue Cross Blue Shield (BCBS) of Massachusetts processed over a million telehealth claims within nine weeks of changing its policy to expand coverage [45]. These telehealth services are similarly reimbursed at the same rate as in-person visits for the duration of the public health emergency. Other insurance companies, such as Centene, are expanding access to telehealth for those in rural and underserved communities through disseminating smartphones and tablets to enable patients to conduct telehealth visits [45]. BCBS of Arizona reported a 3,200% spike in telemedicine visits and enhanced benefit payments at 100% for telehealth and COVID-19 claims [45]. Blue Cross of Idaho estimated that their number of Telehealth claims between April 6th and April 19th, 2020 was 118 times their typical weekly average [45]. Some insurances have expanded access to virtual healthcare services and waived the member cost share for telehealth visits [45]. As such, patients face $0 out-of-pocket costs. However, the majority of private insurance companies mark an end date, such as March or April 2021, to these telehealth cost sharing waivers and other temporary expansions on telehealth coverage granted during the pandemic.

In the wake of these widespread changes to coverage and reimbursement, telehealth has rapidly expanded during the COVID-19 pandemic, with over 24.5 million out of 63 million Medicare beneficiaries receiving a telehealth service from March 2020 to mid-October 2020 [46]. Telehealth private insurance claims have similarly increased by a reported 8,000% from April 2019 to April 2020 [47]. Likewise, teledermatology has been expanded in an expedited fashion. Across 12 clinics affiliated with Massachusetts General Hospital, SAF asynchronous teledermatology accounted for 1 in 5 of all dermatology visits in April 2020 [48]. A web-based, global survey found that the use of teledermatology increased three-fold during the pandemic (26.1% vs. 75.2%), and that more than two thirds of respondents (68.6%) expect to continue teledermatology use in the future [49]. Unfortunately, many of the policy changes ensuring broad coverage for telehealth services covered under the pandemic are temporary, expanding only to the end of the public health emergency. To remain a viable modality of care, telehealth must be supported by ongoing state and federal legislation that ensures long-term Medicaid, Medicare, and private payer coverage at a reasonable fraction of in-person visits. For our most vulnerable and underserved populations, ongoing adoption of telemedicine may be vital to reducing disparities in access to care.

Many of the barriers to in-person care (i.e., low income and health literacy, insurance coverage, living in under-resourced and underserved areas) disproportionately affect those who are already at a higher risk for dermatologic disorders. Minorities, people of low socioeconomic status, and the uninsured are reported to have greater incidences of atopic dermatitis and poorer prognoses for skin cancer, among other disparities in care [50]. These underserved populations may have become even more vulnerable during the pandemic as many free or student-run safety-net clinics were forced to shut down [51].

Expanded telehealth services may help alleviate the healthcare burdens of some of these populations, giving them a fighting chance to equal access to care. While several articles have noted the potential for teledermatology to increase access for underserved patients since the onset of the pandemic [27,38,51,52], limited data exists regarding which populations have since specifically benefited. Beyond broadening overall access to dermatologic care, the recent rise in teledermatology has particularly improved access for rural and minority populations, as observed in a retrospective study comparing telehealth to in-person visits [53]. Additionally, teledermatology has been associated with decreased patient no-show rates when compared to in-person visits, especially in Black or African American, LatinX, and primary non-English speaking patients [31]. Teledermatology visits also served a greater percentage of Medicaid enrollees compared to clinic visits, however this may reflect the age-dependent differences in comfort levels with telehealth visits [31]. Although early data evaluating the impact of telehealth expansion has highlighted the potential role for this technology to improve health equity and minimize disparities, additional research must be done to fully understand how teledermatology has impacted all patient populations.

Most academic and private practices have adopted some form of teledermatology since the start of the COVID-19 pandemic, mainly through increased implementation of both SAF asynchronous and live synchronous video appointments. Several other models of teledermatology have since emerged. At the start of the pandemic, recommendations for outpatient teledermatology practices included using existing platforms, prioritizing high-risk or urgent visits, and deferring non-essential visits [52]. Now, most ambulatory practices have transitioned to more hybrid practices, offering both in person and virtual visits, allowing dermatologists to focus virtual visits on specific skin conditions (i.e., acne, psoriasis, eczema, rashes, and rosacea) that have been shown to be more amenable to teledermatology [53,54]. In terms of inpatient dermatology, telehealth may be valuable in determining those who need an in-person visit versus those who can be successfully seen through telehealth, which can also help to conserve personal protective equipment [55]. Additionally, teledermatology can be utilized to triage inpatient consults to differentiate patients who need an isolation room, who can be managed outside of an isolation room, or who can be managed outside of a hospital [55,56].

While teledermatology holds great promise in increasing access to care for our most vulnerable populations, it is critical to consider and anticipate the ways in which telehealth may also exacerbate current disparities in order to address them. At the very least, telehealth services require access to a digital device (i.e., smartphone, computer, tablet), a reliable internet connection, and a private space to conduct the visit. It is important to keep in mind that these require a certain level of technology literacy. The U.S. Federal Communications Commission reports demonstrate significant differences in household income between those with and without broadband internet, potentially widening the socioeconomic disparity in healthcare access during the pandemic [57]. Teledermatology specifically requires high-quality and well-positioned images with good lighting, which may further pose a strain on the patient and their internet usage [58]. Solutions that have been proposed include using more SAF technology compared to video visits, adding clinical hybrid appointments for patients without devices, and distributing refurbished devices [58]. Of note, smartphone ownership has become more ubiquitous in the U.S., with rates nationally increasing from an estimated 35% in 2011 to 81% in 2019 [59]. Moreover, 70% of people with an income lower than $35,000 per year owned smartphones in 2019, demonstrating a trend decreasing the digital divide [59].

As telehealth adoption continues to grow and becomes more integral to how we deliver equitable quality care, other tools may also be implemented to optimize teledermatology services particularly in areas where a shortage of dermatology services exists. The implementation of "home dermoscopy" serves as a low-cost and simple method to improving image quality [60]. Artificial intelligence, such as a deep learning system (DLS), may also assist general practitioners and increase diagnostic accuracy of skin conditions. With current technology, DLS is able to assess images and leverage the patient's medical history and demographics to identify several of the most common skin conditions referred for teledermatology consultations while also providing differential diagnoses [61]. With the advent of new technologies and increased adoption of telehealth services, the effect on malpractice insurance coverage remains unclear as policies vary by state and by insurance company. While the Federal Tort Claims Act provides malpractice liability coverage to all healthcare providers who work at federally qualified health centers, guidelines related to telehealth liability have not yet been outlined [62].

Future studies highlighting the impact of telehealth expansion are crucial for long-term legislative changes to occur and to effectively broaden coverage to those most vulnerable. These research studies need to be diversified to involve more minorities and underserved patient populations so that the data better elucidate true socioeconomic and racial disparities in dermatologic care. As the U.S. population becomes more diverse, the academic literature needs to reflect that shift to help bridge the gaps in dermatologic healthcare access. Continued advocacy efforts are equally as critical to promoting telehealth implementation and guaranteeing equitable access without compromising quality of care.

Conclusion

Since March 2020, telehealth has drastically expanded across the nation with current literature supporting its efficacy, equitable quality and accuracy, and cost-effectiveness. As the Medicare and Medicaid populations continue to rapidly expand amidst a relative shortage of physicians, the need to embrace technological innovation to improve care access, especially in rural and underserved areas, is greater than ever. However, until payers and policymakers implement more reliable and long-term methods for reimbursement, the full potential benefits and cost savings associated with teledermatology remain to be realized. It is imperative for policymakers to acknowledge the capability of technology in enhancing access and to formulate regulations through which these services can prudently assist routine dermatological care.

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