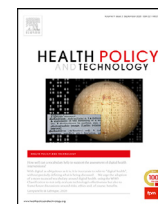




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Original Article/Research

## Telemedicine, COVID-19, and disparities: Policy implications

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### ABSTRACT

While the rapid expansion of telemedicine in response to the COVID-19 pandemic highlights the impressive ability of health systems to adapt quickly to new complexities, it also raises important concerns about how to implement these novel modalities equitably. As the healthcare system becomes increasingly virtual, it risks widening disparities among marginalized populations who have worse health outcomes at baseline and limited access to the resources necessary for the effective use of telemedicine. In this article, we review recent policy changes and outline important recommendations that governments and health care systems can adopt to improve access to telemedicine and to tailor the use of these technologies to best meet the needs of underserved patients. We suggest that by making health equity integral to the implementation of telemedicine now, it will help to ensure that all can benefit from its use going forward and that this will be increasingly integral to care delivery.

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### Introduction

One of the key changes implemented by health systems throughout the world in response to the COVID-19 pandemic has been the rapid expansion of telemedicine. Many outpatient visits have been converted to virtual modalities, either by telephone or video. Patients have been given tablets to interact with team members while admitted in the hospital and minimize the use of personal protective equipment (PPE). In order to allow providers to be reimbursed for this new form of care, many outmoded policies have been updated or relaxed [1]. Yet, there are no guarantees that these new policies will be maintained so that the gains achieved thus far will be long-lasting. Importantly, the sustainability of telemedicine must come alongside a strong commitment to equity. In this article, we assess recent policy changes promoting telemedicine among underserved populations and offer further recommendations for ensuring equity is upheld.

For underserved patients, including racial/ethnic minorities, patients who live in rural areas, patients with limited English proficiency (LEP), with low literacy, or low income, telemedicine is often less accessible [2]. Populations lacking technology access tend to be from the same underserved populations that have worse health outcomes and would benefit most from ongoing telemedicine enabled care [3,4]. This lack of access to care is reflected in the significant disparities emphasized by the COVID-19 pandemic. At an academic primary care practice, though overall telemedicine visits increased significantly after the onset of the pandemic, the proportion of visits for those at the highest risk of limited digital access / literacy decreased [5].

Notably, this is not just a concern for the United States (US) but has implications for the expansion of telemedicine in other countries with large digital divides. For example, in Italy, where hospital transmission was thought to play a key role in spreading COVID-19, the use of telemedicine to minimize in-person visits was hampered by a limited information technology infrastructure [6]. These challenges are even more significant in low to middle income countries in Africa and Latin America [7].

For this manuscript, a team of doctors well versed in health policy and digital health equity reviewed existing and proposed policies related to expanding access to telehealth and assessed the

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strengths and weaknesses of each to identify recommendations. In our current environment, inequitable access to telemedicine is driven by three main barriers: (1) disparities in access to broadband internet and related technology, (2) financial barriers to the reimbursement of telemedicine, and (3) lack of institutional commitment to equity in telemedicine. We believe disparities in access to broadband connectivity and mobile technologies represent a social determinant of health now to an even greater extent than before the COVID-19 pandemic, and propose the following opportunities to address them.

#### Lack of internet access

As demonstrated by other countries, access to reliable internet can be crucial in combating COVID-19. For example, South Korea utilized remote digital tools to manage the spread of the pandemic by developing a mobile app that allowed for symptom reporting and contact tracing using location data. This effort was critical for monitoring disease exposure and flattening their transmission curve. Importantly, this was dependent on the widespread access to the necessary technology. Broadband connectivity and access to technology in South Korea is significantly more widespread and equitable than in the U.S., with nearly 100% of households having access to broadband internet, and close to 95% of residents owning a smartphone [8–10].

Conversely, in the US, many underserved populations are the victims of an ever-growing digital divide. For example, at least 21 million people in the United States (US) lack fixed broadband internet access – though it may be many more than that – and thus rely on mobile devices as a primary means of online access [11,12]. Data from the Pew Research Center indicate that 79% of White individuals are home broadband users, compared to 66% of Black and 61% of Hispanic individuals [4]. Consequently, 25% of Hispanic and 23% of Black individuals are reliant on smartphones for internet access, compared to only 12% of White individuals [5].

The expansions to our existing broadband infrastructure have been underway for many years but have been reemphasized during the current pandemic. On a national level, the Federal Communication Commission (FCC) announced \$200 million in funding, appropriated by the CARES Act, to be dedicated to telehealth services for its Covid-19 Telehealth Program [13], which adds financial support to clinics in underserved communities. The FCC has also introduced a wide range of initiatives to maintain and expand broadband access during the pandemic [14]. On a local level, cities, such as Boston, MA have created resources, such as low-cost WiFi hotspots for patients lacking broadband access [15] and broadband providers have also taken steps to address these digital divides. For example, Comcast made their Internet Essentials program, aimed at low-income families, free for 60 days for new customers [16].

The advantages of implementing policies at the federal level include having a unified national effort for improving the broadband infrastructure, which has bipartisan support, and directing national funds toward this important issue. However, as the FCC's Connect America Fund has shown, national efforts are difficult to implement locally as they do not fully capture the regions in need of service coverage, leaving many areas at risk of falling through the cracks [17]. Federal efforts are also unable to engage the unique stakeholders most relevant for local settings and have little ability to ensure accountability of local broadband companies. State and local policies offer the advantage of being able to work with local stakeholders, identify areas of the community in greatest need of broadband development and target policies that overcome local barriers to implementation.

As healthcare providers, we believe it's critical to understand and advocate for policies that promote broadband expansion as research continues to demonstrate that greater broadband availability is associated with greater telemedicine use in the areas that need it most [18]. Improvement in access to reliable broadband

internet requires commitments from both federal and local governments. Going forward, the FCC should extend its current initiatives and incentivize multi-stakeholder efforts to make equitable broadband access sustainable. For instance, nearly 800 broadband providers signed on to the FCC's Keep America Connected Pledge, for which they agreed to defer service terminations, waive late fees, and open Wi-Fi hotspots to all Americans [14]. While this pledge will expire at the end of June, Congress can take steps to enact legislation that extends this public-private partnership for the coming months and make pandemic-specific interventions deployed by the FCC long-lasting solutions.

On a local level, research from the Pew Research Center has identified a set of the most successful state-level practices for expanding broadband connectivity to underserved regions, which can serve as a model for other programs going forward [19]. Local governments can also work to make temporary internet solutions permanent, such as providing wireless internet to rural and underserved communities using portable hotspots, similar to interventions implemented in Georgia to facilitate completion of the 2020 census [20]. Finally, future investments should promote collaboration with existing community organizations (e.g. libraries, community centers). Computers and internet access at libraries are particularly used by African Americans, Hispanics and those in lower-income households, and therefore supporting these entities can continue to bridge the technology access gap [21].

#### (1) Financial barriers to the reimbursement of telemedicine

Both in the US and abroad, expanding reimbursement of telemedicine has played a key role in increasing access to care and disease monitoring [22]. In response to the COVID-19 pandemic, the Chinese national health insurance system began reimbursing for virtual visits, which led to a significant increase in their use. Similarly, the United Kingdom, Canada, India, and Germany have also eased previous restrictions on virtual care allowing for the development of new care models [23]. In the US, governmental policies have been introduced to enable broad expansion and rapid implementation of telemedicine, which have been a major stimulant to healthcare organizations and industry. The Centers for Medicare & Medicaid Services (CMS) announced that Medicare will reimburse care delivered through telehealth, including audio, video, and web portal communications. The inclusion of audio communication is meant to address technology access and literacy barriers faced by underserved patients. Similarly, almost every state implemented temporary policies to expand the telehealth services covered by Medicaid and issue guidance for private payers. Finally, CMS now allows the use of non-HIPAA vendors to provide telehealth services, decreasing the barrier to use [24]. While this allows for greater access, it also raises many concerns about data security and privacy and the need for re-evaluation of HIPAA policies for telemedicine [25].

Although many of these changes were set to expire at the end of the pandemic, telehealth advocates support the continuation of these policies. This includes extending Medicare coverage for all modes of health care (video, audio-only, store-and-transfer and remote-patient monitoring), for all geographic and originating sites and for both synchronous and asynchronous care. Additional policy recommendations support ensuring that all health services, including mental and behavioral health, as well as physical, occupational and speech therapy are reimbursed. For all of these, there is large support for payment parity for all telehealth services. Many have also called for state Medicaid programs to align their policies with these implemented for Medicare nationwide.

These policy recommendations have several advantages. Overall, they will lessen disparities. They will also be politically feasible to implement given that there is a great deal of momentum for telehealth as a result of the pandemic and because much of initial

legislation is already in place, such as the CONNECT Act [26]. Given that telemedicine has the potential to decrease costs, they are also likely to have bipartisan support, an important factor for the adoption of telehealth policies [27,28].

On the other hand, the heterogeneity of responses by individual states to expand the telehealth policies covered by Medicaid may leave many vulnerable patients with high out of pocket costs. Additionally, states that have chosen not to expand Medicaid will invariably end up having populations that cannot access this emerging resource [29]. Unfortunately, these are largely the same states with higher prevalence of chronic conditions such as obesity, which disparately affect underserved populations. Expanding coverage will not completely mitigate disparities, as has been shown in countries with universal health coverage, in which equity still remains a concern because disparities are often rooted in health and systemic related factors [30].

Based on our review, we recommend making the federal changes outlined above permanent and suggest that the federal government urge states to do the same. As it did with the Medicaid & CHIP Telehealth toolkit, CMS can provide recommendations about sustainable expansions for Medicaid to help better connect underserved populations to telemedical care [31]. Further, to help the uninsured or underinsured gain better access to medical care, we recommend Congress allocate grant funding from the COVID-19 Telehealth Program to community clinics that are trying to increase their telemedical services to care for this vulnerable population.

### Data Privacy and Integrity

Given the rapid expansion of telehealth to include previously consumer-only platforms such as Zoom and Skype, it will be important to develop policies which ensure support for existing HIPAA regulations that prioritize patient privacy. This is particularly important for vulnerable communities who may already be distrustful of the healthcare system. For example, data regulations pertaining third party systems are not clearly delineated. Though business associate agreements make some stipulations, patients may still be at risk of data breaches or sharing with governmental agencies. These privacy lapses make patients hesitant to use telemedicine platforms. Some clinical encounters have even occurred over Google or Facebook platforms. These companies have previous histories of lax privacy policies (additional reference below). To promote telemedicine use across all populations, policies must ensure patient privacy and safety in these remote clinical encounters.

1. Woodhams S. COVID-19 Digital Rights Tracker [Internet]. TOPVPN. 2020 [cited 2020 Aug 17]. Available from: <https://www.top10vpn.com/research/investigations/covid-19-digital-rights-tracker/>

Finally, given the rapid expansion of telehealth to include previously consumer-only platforms such as Zoom and Skype, it will be important to develop policies which ensure support for existing HIPAA regulations that prioritize patient privacy. This is particularly important for vulnerable communities who may already be distrustful of the healthcare system.

#### (1) Institutional commitment to equity in telemedicine

Hospitals and health systems also play an important role in enabling telemedicine, including supporting patient use, implementing flexible tools that adapt to varying patient needs, and monitoring the equity of these interventions in real-time as they are implemented.

As hospitals expand their telemedicine platforms, it is their responsibility to ensure patients have equitable access to these ser-

vices. Hospitals need to gather individual information on technology access, literacy, and privacy. These novel metrics could be monitored as part of a digital health equity task force that focuses on driving institutional effort to address disparities in digital care. The target of these efforts can range from information technology-related training and education, to subsidized access to internet options and even access to physical hardware with videoconferencing and/or audio capability. Many of these patient needs can be met by partnering with local organizations that offer technology training courses, access to subsidized services, and donations of mobile phones and other hardware (health monitoring wearables or devices).

The unprecedented challenges we are faced with in the COVID-19 pandemic call for creativity and flexibility as hospitals expand existing patient portal infrastructure to provide equitable, high-quality telemedicine. To help hospitals with these efforts, there are already resources available, including the AHA Digital Pulse, which hospitals can use to assess their telemedicine capabilities [32]. As hospital systems include telemedicine as a standard part of care, patients and providers need versatile, user-friendly, and culturally tailored tools. Telemedicine platforms should be developed through a user-centered design process that can adapt to a range of digital competency. Additionally, virtual systems that incorporate remote monitoring technology (aka “wearables”) may provide even further flexibility to obtain objective health information, such as vital signs and pulse oximetry, in patients who may not necessarily be able to audio or video chat. These technologies are already being piloted to remotely monitor COVID-19 patients, and this model can be extended to other conditions [33].

The advantages of the hospitals taking on the role of promoting digital access and literacy is that they are best able to assess the needs of their patient populations and can connect patients directly with the necessary resources. They also have a vested interest in ensuring that patients can access the telemedicine. Furthermore, by partnering with local organizations, they will further be able to capitalize on groups with local expertise who are best equipped to serve patients in their communities. The disadvantages of ascribing this role to hospitals is that it is an additional burden on the system at a time when many hospitals are overwhelmed with confronting the pandemic directly. Moreover, as hospitals have experienced significant financial difficulty during this time, some may struggle to allocate funds toward these efforts.

In summary, expansion of current national and state level support for health insurance coverage of telemedicine services with a focus on vulnerable populations is an important step to improving access to telemedicine. Furthermore, increasing partnerships with various stakeholders to provide access. Furthermore, increasing partnerships with various stakeholders to provide access and technology to patients for telemedicine services, assuring data privacy and integrity, and the initiation and improvement of services that monitor the equity of telemedicine services will be crucial for ensuring that telemedicine is sustainable and equitable going forward and technology to patients for telemedicine services, and the initiation and improvement of services that monitor the equity of telemedicine services will be crucial for ensuring that telemedicine is sustainable and equitable going forward.

### Conclusions

The current COVID-19 pandemic has pushed health systems around the world to develop and rapidly deploy telemedicine to address ongoing challenges. However, as we continue to adapt, and strive towards providing our patients with the high-quality care they deserve, we must do so with a firm focus on achieving and maintaining health equity. The models developed today have the potential to transform the future of healthcare, particularly as



telemedicine becomes standard care. If equity is made an integral part of telemedicine now, it will help ensure that all can benefit from these innovative technologies moving forward.

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## Competing interests

Numa Perez: DayToDay Health Inc. - Consulting fees for clinical consulting. In addition, I (Dr. David Bates) consult for EarlySense, which makes patient safety monitoring systems. I also receive cash compensation from CDI (Negev), Ltd, which is a not-for-profit incubator for health IT startups. I receive equity from the following: ValeraHealth which makes software to help patients with chronic diseases; Clew which makes software to support clinical decision-making in intensive care; MDClone which takes clinical data and produces deidentified versions of I; and AESOP which makes software to reduce medication error rates. I also receive research funding from IBM Watson Health. (My financial interests have been reviewed by Brigham and Women's Hospital and Partners HealthCare in accordance with their institutional policies.) The remaining authors have no conflicts of interest.

## Ethical approval

Not required.

## Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.hlpt.2020.08.001](https://doi.org/10.1016/j.hlpt.2020.08.001).

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