Governance Studies
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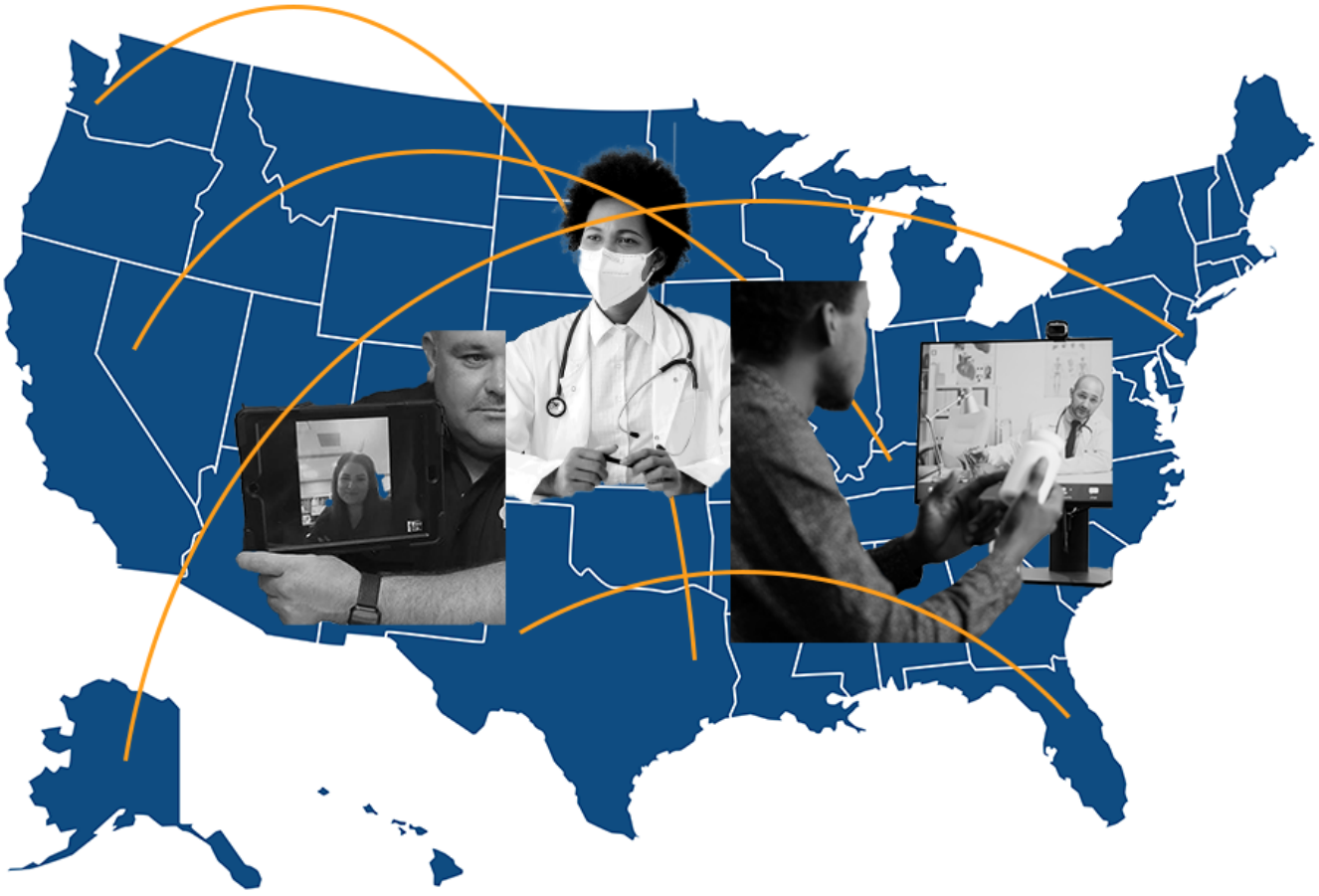
REPORT
JULY 2022

THE ROADMAP TO TELEHEALTH EFFICACY:

CARE, HEALTH, AND DIGITAL EQUITIES

Nicol Turner Lee, Niam Yaraghi, and Samantha Lai



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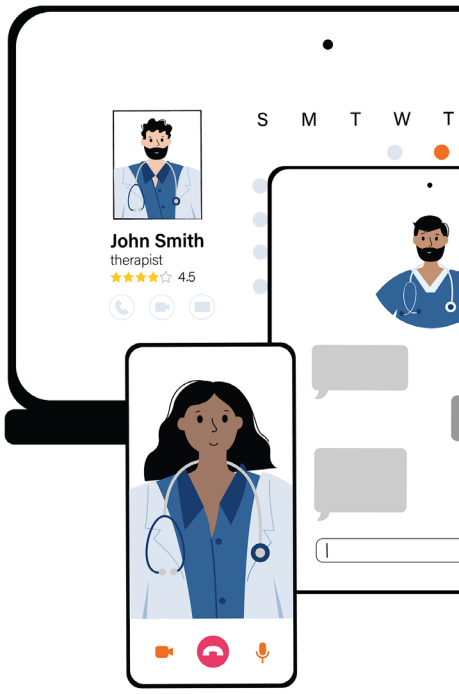
NICOL TURNER LEE is a senior fellow in Governance Studies and the director of the Center for Technology Innovation.

NIAM YARAGHI is an assistant professor of Business Technology at Miami Herbert Business School at the University of Miami and a nonresident senior fellow in the Center for Technology Innovation.

SAMANTHA LAI is a research analyst for the Center for Technology Innovation.



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ACKNOWLEDGEMENTS

The authors acknowledge the expert contributions of telehealth and health care professionals in the development and review of the report. We also acknowledge the research assistance of Emily Skahill and Brooke Tanner.

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I. EXECUTIVE SUMMARY

> The United States has long struggled with a health care system that is both expensive and often inaccessible when it comes to providing certain populations with equitable care.

The White House and Congress acted quickly to transition patients to telehealth during the height of the COVID-19 pandemic. However, the future adoption and use of telehealth will depend on how the U.S. health care system addresses coverage and reimbursement, medical licensure, and service modalities. Equally important is policy coherence, or a "telehealth 2.0 roadmap", to effectively harmonize the goals of value-based care, health disparities, and digital access. This approach to telehealth can improve patient outcomes, offer more inclusive telehealth adoption, and increase ways in which health care is delivered and received as the nation continues to mitigate the public health crisis. In this paper, we propose flexibilities within the current health care system that accommodate the changes imposed by new technologies, as well as continued government incentives to drive more competitive options and alternatives for health care delivery. In the end, we argue that government must continue to promote the use of remote health care and leverage national investments in broadband infrastructure to drive the complementary use of telehealth with traditional health care. We also propose that current modality flexibilities remain in place, especially as the nation undergoes efforts to close the digital divide. Finally, telehealth must be positioned and implemented in coordination with value-based payments to ensure patient access to meaningful care that can be bolstered and not substituted by existing and emerging health care technologies.

"Equally important is policy coherence, or a 'telehealth 2.0 roadmap', to effectively harmonize the goals of value-based care, health disparities, and digital access."

II. INTRODUCTION

The United States has long struggled with a health care system that is both expensive and often inaccessible when it comes to providing certain populations with equitable care. Compared to other high-income countries such as Canada, France, and Germany, Americans spend more on our health care system but have some of the worst health outcomes for a developed country.[1] In 2020, the COVID-19 pandemic further revealed the unequal access to quality health care in the U.S. as the virus overtook populations that were already disproportionately disconnected from clinicians and hospitals, including Black, Latino, Indigenous, and low-income patients from rural, urban, and tribal areas. Analyzing data from the Centers for Disease Control and Prevention (CDC), research from Kaiser found that people of color were almost three times more likely to die from COVID-19 and about four times as likely to be hospitalized as white people."[2] While higher rates of infection have lowered for people of color, Hispanics and American Indian or Alaska Native populations are at 1.5 times greater risk of COVID-19 infection compared to white people.[3]

In March 2020, the White House and Congress quickly appropriated $8.3 billion through the Coronavirus Preparedness and Response Supplemental Appropriation Act, which included $500 million for Medicare providers to waive the adoption and use of telehealth services in both rural and urban areas.[4] The bill also allocated $990 million to the CDC for tribal health service providers.[5] Congress also introduced a barrage of complementary bills to ensure insurance coverage and reimbursement for previously restricted telehealth services, including the ability of patients to receive care from home and from medical practitioners beyond state lines.[6]

In this paper, we define telehealth as "the delivery and facilitation of health and health-related services, including medical care, provider and patient education, health information services, and self-care via telecommunications and digital communication technologies."[7] Throughout the paper, the concepts of telehealth and remote health care are used interchangeably.

Historically, the main functions of remote health care focused on the treatment of common and contagious illnesses and other medical conditions that kept patients with non-threatening life conditions in the home. During the COVID-19 pandemic, medically underserved populations greatly benefitted from remote care, including the elderly and residents in rural and urban areas who were not sufficiently connected to quality primary and secondary care providers. More vulnerable populations also have smartphones and other mobile devices at their disposal, providing additional means to access remote health care while reducing the additional expenses of transportation to and from a provider's office. While some patients from medically underserved communities veered away from the traditional modalities of telehealth over the course of the COVID-19 pandemic, like video communications with doctors and other practitioners, they heavily relied on audio communications, asynchronous, or archived medical conversations, to navigate through their concerns.

But despite such use by vulnerable populations and the surge in telehealth adoption as part of COVID-19 mitigation, progress in medical care may revert, especially if some of the political will wears thin. That is why the U.S. urgently needs a forward-thinking roadmap with additional coherence among federal, state, agency, and local leaders to drive telehealth adoption and use. Further, ongoing debates around reimbursement, medical licensures, and modalities remain poignant to the future use of telehealth, which is why we offer a framework that harmonizes deployment, adoption, and use of telehealth services. Taken together, such an approach can effectively address equities in value-based care, health disparities, and digital access. The complement of telehealth to traditional health care can improve patient outcomes, deliver more inclusive telehealth adoption, and expand how health care is delivered and received in the U.S.

"Without digital transformation of the current health care delivery process, existing analog models will restrict potential opportunities to address long-standing challenges more generally present among patient and clinicians."

To date, telehealth's future rests on a finite perspective and application in the broader health care ecosystem. Our paper's recommendations, which rely on the expertise of traditional and telemedicine practitioners, policymakers, government, and civil society leaders, focus on greater utilization and management of telehealth resources. We recommend continued

flexibilities within the current health care system to accommodate the changes imposed by new technologies, as well as ongoing government incentives to provide more competitive options and alternatives for health care in the U.S. Flexibilities include more reimbursable telehealth services, expanded eligible modalities, and increased funding for internet-supported health care delivery from the public and private sectors, including new programs for closing the digital divide for patients desiring to access telehealth services.

The continuation of an expanded and flexible telehealth framework beyond the pandemic must be part of the nation's health care imperatives. Without digital transformation of the current health care delivery process, existing analog models will restrict potential opportunities to address long-standing challenges more generally present among patients and clinicians.

The next section of the paper (Section III) will delve deeper into a definition of telehealth with particular attention to synchronous and asynchronous modalities. Section IV will explore the role of federal and state governments as the arbiters for health care policy before diving into how the pandemic altered existing regulatory models (Section V). The final sections (Section VI and VII) will outline the triaged approach to remote health care and conclude with recommendations that potentially can help codify a "telehealth 2.0 roadmap".

III. DEFINING TELEHEALTH

Telehealth is one of many delivery mechanisms for health care. The U.S. Health Resources Services Administration defines it as:

> "…the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications."[8]

Telehealth differs from telemedicine as it refers to a broader scope of remote health care services, including non-clinical services, such as provider training, administrative meetings, continuing medical education and clinical services. Meanwhile, telemedicine refers specifically to remote clinical services. A report on telemedicine published by the World Health Organization in 2010 follows a similar definition, describing telemedicine as:

> "[t]he delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research, and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities."[9]

While telemedicine is restricted to service delivery by physicians only, telehealth refers to "services provided by health professionals in general, including nurses, pharmacists, and others."[10] For this paper, we focus on telehealth, or remote care, to be more encompassing of diverse care methodologies.

Distinctions between telehealth and digital health

We would be remiss in this paper if we didn't indicate how telehealth and digital health practices are different.[11] The Food and Drug Administration (FDA) defines telehealth as a form of digital health, but encompasses categories such as mobile health, health information technology, wearable devices, and personalized medicine.[12] Examples of digital health include internet-enabled wearable and other medical tracking devices that rely upon vitals and other self-logged patient data. While digital health offers empowering consumer platforms to provide patients with additional means to access health data and engage in self-monitoring, the arguments in this paper primarily focus on telehealth and the use of telecommunications for health-related services.

Synchronous versus asynchronous platforms and services

During the pandemic, service modalities were, and continue to be, fluid, providing both synchronous and asynchronous formats. Synchronous telehealth refers to telehealth such as videoconferencing and real-time audio calls. Asynchronous telehealth, meanwhile, allows patients and providers to communicate at times most convenient for them. Asynchronous telehealth is seen in the forms of "store-and-forward" videoconferencing (transmission of a recorded health history to a health practitioner) and remote patient monitoring (RPM), "the use of connected electronic tools to record personal health and medical data in one location for review by a provider in another location, usually at a different time."[13] Both RPM and remote therapeutic monitoring services (RTM) are covered by Medicare.[14] However, authorizations of store-and-forward services differed depending on the state, which is an area that should be more welcoming and inviting of various modalities that meet patients where they are at when it comes to remote doctor communications.[15]

The growth in telehealth uses over the COVID-19 pandemic demonstrated that office visits are not the only way to access health care. Going forward, telehealth and remote patient monitoring should be used to promote the transition to value-based care, which will be more effective and efficient methods in monitoring various illnesses. Telehealth enables an expansion of appropriate care methodologies, placing the focus on patient wellness instead of the number of office visits patients are expected to make. This, in turn, enhances care equity, improving the quality of health care patients receive while decreasing costs.

Both modalities of care also include the use of artificial intelligence (AI) in health care. Research has shown that AI is increasingly used in patient monitoring, handling health care information technology such as scheduling appointments and tracking patient records, collecting medical information for intelligent assistance and diagnosis, and information analysis and collaboration in medical research and academic trainings.[16] In Boston, Mass General Brigham hospital deployed an AI pre-hospital triage solution to better match patients with resources they needed, and to help reassure the "worried well."[17] Startups such as Qure.ai developed lung-screening tools to help detect COVID-19 when PCR testing capacities were limited and have since signed partnerships with hospitals in the U.S. Mexico, Italy and more.[18] These deployments in telehealth have been helpful to patients and have overcome inefficiencies in the quality of services provided. During the pandemic, when the health care system was stretched thin, AI allowed health care institutions to expand their capacity to serve people in need, and for patients to access quality care. The extent to which existing and emerging telehealth practices encased in AI are seen as both permissible and eligible for reimbursement will soon be amplified among practitioners and patients who desire more control and intimacy with their health care.

"Startups such as Qure.ai developed lung-screening tools to help detect COVID-19 when PCR testing capacities were limited and have since signed partnerships with hospitals in the U.S., Mexico, Italy, and more.[18] These deployments in telehealth have been helpful to patients and overcome inefficiencies in the quality of services provided."

Types of telehealth services

One final point to make in the general overview of telehealth is that prior to the temporary waivers implemented as a result of the COVID-19 pandemic, only patients in designated rural areas had access to telehealth through Medicare.[19] The "home" as a place for medical care was not considered an eligible originating site, and patients would have to physically travel to eligible sites such as rural health clinics (RHC), federally qualified health centers (FQHC), or critical access hospitals (CAH). Only a limited number of services were approved to be delivered through telehealth, and real-time video and audio was necessary.[20] The software used also had to be HIPAA-compliant.[21]

The COVID-19 pandemic temporarily changed the incentives, especially among state and local governments, allowing for the removal of existing barriers to telehealth use and adoption, and eradicated restrictions on coverage areas, originating sites, and allowable telehealth and audio-only services. These changes allowed patients across the U.S. to not only access telehealth services with insurance coverage, but also attend appointments from their homes, even for those with providers across state lines. Such changes resulted in an increase in telehealth services, 78 times from February to April 2020. Despite in-person options becoming more available in many states, telehealth use continues to stay at 38 times that of pre-pandemic usage.[22] Telehealth adoption has also been most common for psychiatry, where 50 percent of appointments are conducted remotely, and substance use treatment, where 30 percent of appointments are conducted through telehealth platforms.[23] Many seeking remote treatment were from rural areas and were able to access necessary treatment made accessible by telehealth.[24]

What these statistics reveal are the crucial lifelines of telehealth for those with chronic and other health conditions over the COVID-19 pandemic. Six in ten adults in America have a chronic disease, with people with such conditions accounting for 81 percent of hospital admissions, 91 percent of all prescriptions filled and 76 percent of all physician visits.[25] Hospital readmission is also common, often stemming from preventable reasons such as limited means to self-monitoring and suboptimal adherence to treatment plans. During the pandemic, patients with diabetes, hypertension, thyroid diseases, and other chronic conditions were treated via telehealth and other remote patient monitoring options. For example, diabetic patients benefitted from the timely sharing of blood glucose levels using telehealth, increasing the collection of medical data over conventional care models.[26]

These are some of the reasons why telehealth's future is critical to the modernization of traditional health care. With many of the states' emergency orders coming to an end, certain telehealth services could face limitations based on state lines, as well as around permissible and reimbursable modalities.[27]

Reimbursable verus non-reimbursable remote services

Before the public health crisis, the reimbursement of telehealth services widely varied among federal and state governments. The federal government runs health insurance programs for groups that include veterans, seniors, and others, groups that represent around 15 percent of the American population.[28] Meanwhile, states regulate private-payer plans and Medicaid, accounting for the regulation of over three-quarters of health insurance plans.[29]

Even when services are reimbursable, the amount reimbursed was often less than the same services provided in-person within a doctors' office, which made the case for greater parity over the course of the pandemic.[30] In the case of federal reimbursement policies, they are centered on Medicare, which have limitations on what services are provided, how providers are billed, and where telehealth services could be provided. On the contrary, Medicaid laws were more progressive. As of October 2018, 49 states and DC Medicaid programs had live video reimbursement, and 11 had reimbursement for remote patient monitoring.[31]

"Even when services are reimbursable, the amount reimbursed was often less than the same services provided in-person within a doctors' office, which made the case for greater parity over the course of the pandemic.[30]"

Compared to the federal government, states were more likely to push for private payers to provide reimbursements for telehealth. Before the pandemic, 35 states required coverage for telemedicine; 22 states required insurers to limit cost sharing; and 15 states required payment parity for both telemedicine and in-person visits.[32] Audio-only telemedicine reimbursements were covered by only three states.[33] However, state policies on reimbursement also contained "their own qualifiers, limitations and restrictions,"[34] making them difficult for providers to handle. According to the American Well Telehealth Index: 2019 Physician Survey, 77 percent of physicians surveyed stated that reimbursement uncertainty was a significant barrier to telehealth adoption.[35]

As part of the Coronavirus Preparedness and Response Supplemental Appropriations Act, the 1135 waiver allowed Medicare payment for telehealth services by any health care providers eligible to bill Medicare.[36] States also sought to expand Medicaid services to cover telehealth reimbursements.[37] For private payer insurance plans, state-level emergency orders were passed across the nation, requiring health insurance issuers to provide coverage for telehealth services over the COVID-19 emergency period.[38] On a federal level, the CARES Act, which was enacted as part of the pandemic response, also required a telehealth coverage pre-deductible on High Deductible Health Plans (HDHP).[39]

IV. LACK OF HARMONIZATION BETWEEN FEDERAL AND STATE LAWS AND REGULATIONS

Despite loosening reimbursement and regulatory requirements during the pandemic, federal and state laws on telehealth still sometimes conflict, with Medicare guidelines imposing stricter controls on telehealth modalities and reimbursements compared to most state laws and policies. Notably, Medicare continues to require two-way audio-video technology for a visit to qualify as telehealth.[40] In 1997, Congress created Medicare's Telehealth Benefit.[41] The benefit, which was authorized in 2001, required benefactors to reside in rural areas and seek telemedicine in authorized "originating sites" and has remained unchanged ever since.[42] While these requirements have been waived due to COVID-19, they are slated to be reinstated after the end of the pandemic.[43] Medicare also continues not to reimburse for asynchronous health care with the exception of RPM and remote therapeutic monitoring services (RTM), as its definition of telehealth only covers synchronous services, which creates some unevenness with its sister agency.[44]

Partisan gridlock has also made mass health care reform more difficult at the federal level. A notable example involves the controversies, filibusters, and court battles surrounding the Affordable Care Act since its passage in 2009.[45] Such limitations make state-level legislation more appealing and more effective in encouraging innovation.[46] However, state telehealth policies also tend to vary greatly.[47] States also rarely work together in exchanging lessons learned from successful or unsuccessful health care policies.[48]

Going forward, telehealth will require coordination between federal and state governments, who often act as the de facto regulators for American health care, and have established the guidelines for health care delivery, payments, and reimbursements, as well as parity in care. Governments must be instrumental in maintaining and funding telehealth provisions of care to make it more sustainable.

V. THE POLICY LANDSCAPE AND TELEHEALTH

The policy landscape continues to focus on telehealth services and reimbursement, licensures and modalities, which are described below.

Telehealth provision and reimbursement

Before COVID-19, only 43 percent of health care centers were capable of providing telemedicine, with other providers limited by a range of financial and legal barriers and uncertainty in reimbursements.[49] All states and the District of Columbia provided some degree of telehealth coverage in Fee-for-Service (FFS) Medicaid.[50] However, most services were not reimbursed as fully as those provided in-person, leaving most physicians with a strong preference for providing in-person care.[51] Only 19 state FFS Medicaid programs allowed patients to have home as an eligible "originating site."[52] Certain legal barriers also stood in the way of telehealth adoption. Only HIPAA-compliant software could be used for telehealth prior to the pandemic.[53] This increased the cost of participating in

telehealth for health care providers, as they would have to set aside money for investing in HIPAA-compliant video communication products.

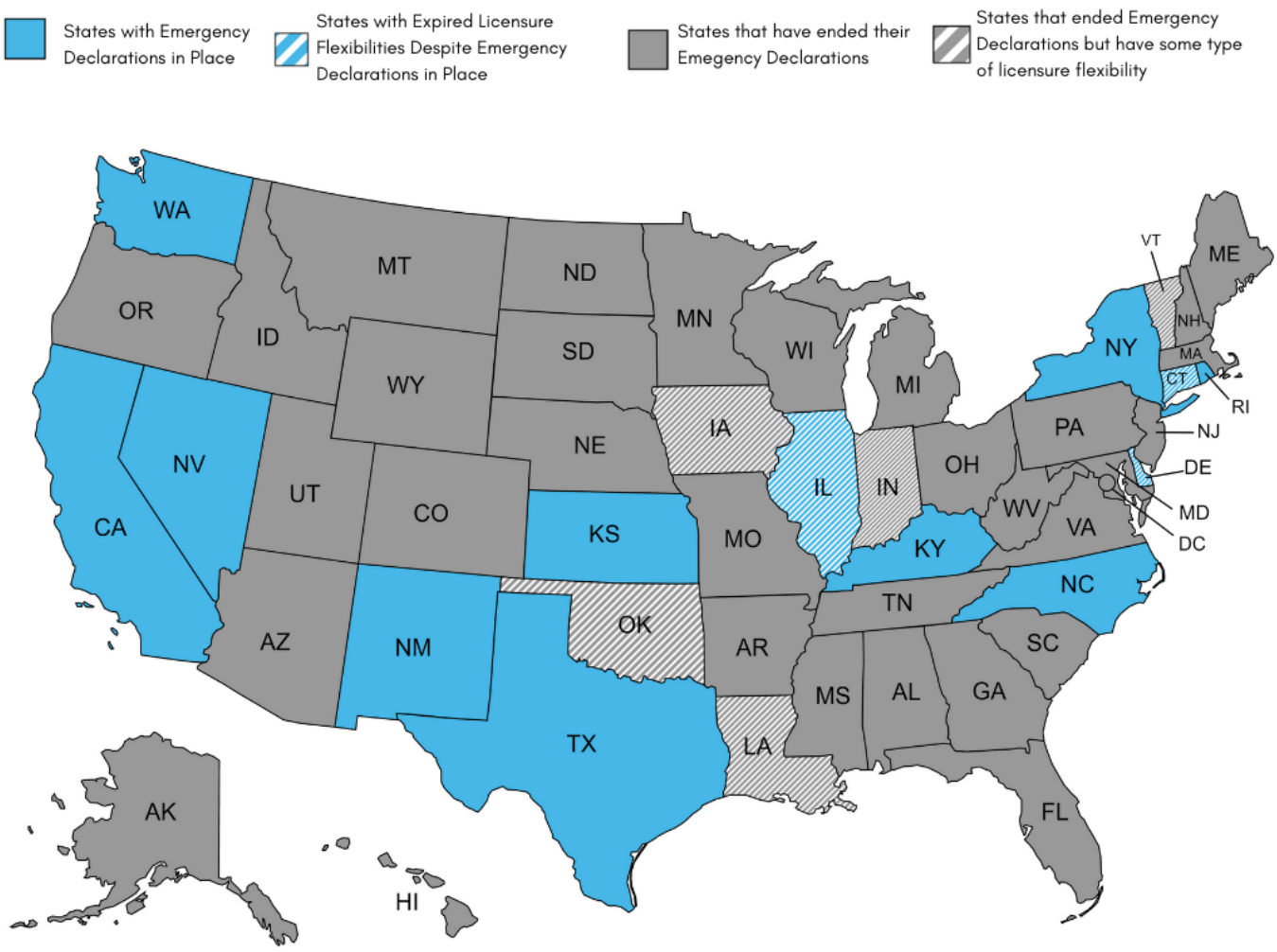
The government's role was also broadened to cover issues that heretofore weren't in order to ensure the availability of telehealth resources, particularly through legislation, such as the CARES Act and the Coronavirus Preparedness and Response Supplemental Appropriations Act of 2020, which sought to expand the immediate use of telehealth.[54] Ongoing efforts to expand telehealth beyond the pandemic persist in pending bills, such as the Telehealth Extension Act, Cures 2.0 Act, and the Protecting Rural Telehealth Access Act, all of which seek to make existing telehealth flexibilities permanent.[55] Many of these bills have bipartisan support through co-sponsors, like the Telemental Health Care Access Act of 2021 and the Expanded Telehealth Access Act.[56]

States have also worked on making telehealth accessible with some of the COVID-19 changes still intact through proposals from both Democratic and Republican legislators. Out of the 50 states and Washington D.C., forty-four have continued telehealth coverage and reimbursement for Medicaid and private payer policies with the seven others providing telehealth coverage for Medicaid only.[57] Many states, recognizing the benefits of telehealth, have been working to consolidate telehealth into the existing medical system. In June 2021, Idaho governor Brad Little signed Executive Order No. 2020-13, making permanent over 150 emergency rules enacted over the COVID-19 pandemic.[58] Connecticut governor Ned Lamont signed into law legislation that would relax telehealth service provisions for another two years.[59] Meanwhile, Colorado Senate passed SB20-212, appropriating funds for telemedicine expansion services and prohibiting health insurance carriers from imposing restrictions on telehealth reimbursements. Yet at the same time, some states have also been rolling back pandemic-era telehealth waivers and licensure flexibilities, cutting off much-needed care for vulnerable populations. For example, states including Alaska, Iowa, Maryland, and many more have rolled back interstate licensure waivers, requiring providers to have local licenses to provide services to those residing in their states. Figure 1 outlines statewide activities on telehealth support.

"Many states, recognizing the benefits of telehealth, have been working to consolidate telehealth into the existing medical system."

Figure 1. Map by the Alliance for Connected Care highlighting the status of COVID-19-era telehealth and licensure waivers state-by-state.

Updated as of June 15, 2022.[62]



Changes in state licensure

State licensure laws continue to impede physicians' abilities to offer their services in other states. However, the onset of the COVID-19 pandemic increased needs for the flexible provision of health care, and all states approved temporary flexibilities in licensing rules to allow the provision of health care across states.[63] The federal government also removed Medicare requirements for reimbursement around provider licensing, allowing providers to bill for services provided outside the state they are licensed in.[64] On January 28, 2021, the Department of Health and Human Services (HHS) amended the Declaration under the Public Readiness and Emergency Preparedness Act (PREP Act) to allow licensed health care providers to administer vaccines anywhere in the U.S.[65] In the early days of the pandemic, states passed various emergency orders to allow physicians not licensed within their state to practice telehealth.[66]

However, with the expiration of emergency orders, states have taken different actions in determining whether to extend state licensure agreements. Fourteen states and four U.S. territories have allowed long-term or permanent cross-state licensure waivers for telehealth providers.[67] State legislatures have passed bills such as Alaska House Bill No. 265 and Vermont House Bill No. 654 to allow out-of-state providers to practice in-state.[68] Other states, including Oklahoma, Kansas, and more, have allowed short-term waivers contingent on emergency orders expiring later this year.[69] Florida, New Jersey, and a few other states have set up out-of-state telehealth registries to expedite the registration process for out-of-state providers.[70] Beyond activities within state legislatures, the Interstate Medical Licensure Compact was also established to give physicians expedited pathways in other states and have been joined by over 35 states.[71]

"State licensure laws continue to impede physicians' abilities to offer their services in other states."

While initially some states had allowed their emergency orders to expire, temporarily limiting exceptions granted over the COVID-19 pandemic, they attempted to tweak these changes as cases rose with new variants. Both Virginia and New York rolled back state licensure flexibilities after the expiration of their executive orders. However, when the Omicron variant posed new pressures in January 2022, Virginia issued

Executive Order 84 to continue telehealth exceptions, while New York declared another public health emergency to reinstate licensure waivers.[72] On a federal level, attempts have been made to expand telehealth access with limited effect. In June 2020, Sen. Ted Cruz (R-TX) introduced the Equal Access to Care Act, but the bill never received a vote.[73] The Temporary Reciprocity to Ensure Access to Treatment (TREAT) Act, filed in February 2021, sought to temporarily authorize interstate telehealth over the COVID-19 emergency but was also not voted on.[74]

Modality flexibilities

Before the pandemic, standards around modality were set. Only three states required coverage for audio-only telehealth.[75] However, to improve telehealth accessibility over the COVID-19 pandemic for those with limited internet access, telehealth services expanded to cover audio-only visits. Such services were popular, increasing patient satisfaction and decreasing no-show rates. During the week of April 12-18, 2020, Medicare claims data indicated that there were 500,000 audio-only telehealth claims filed.[76]

However, variations in modality eligibility for reimbursements are increasing among states with the end of emergency orders. Only 29 state Medicaid programs allow for telephone reimbursements. Meanwhile, store-and-forward services are reimbursed by 25 Medicaid programs.[77] On a federal level, the 2021 Medicare Physician Fee Schedule (PFS) rolled back pandemic-era expansions for audio-only telehealth but provided check-in codes for audio-only check-ins.[78] The 2022 PFS, however, seeks to end coverage of audio-only telehealth for evaluation management services at the end of the public health emergency. It anticipates allowance in the use of audio-only telehealth for mental health services, with mandates on patients attending in-person within six months prior to starting telehealth, then attending an in-person appointment at least once a year.[79]

The incongruence in modality requirements is largely due to many disparate state-led regulations. Some states like Nebraska, Oklahoma, and New York have passed bills allowing audio-only telehealth.[80] Seeking to standardize telehealth modality options, the federal government introduced pending bills, such as the “Ensuring Parity in MA and PACE for Audio-Only Telehealth Act of 2021,” or the “Creating Opportunities Now for Necessary and Effective Care Technologies (CONNECT) for Health Act of 2021.”[81]

Services provided still vary across states

But once again, remote care still differs in terms of defined uses and formats across state lines – which feels like a reversal in progress and disruption to the U.S. health care system. Let's take for example a comparison of *Virginia* and *Mississippi* telehealth laws:

- Virginia's Medicaid requires synchronous use of audio and visual connections for a telehealth appointment, with some plans allowed to reimburse for store-and-forward and remote patient monitoring at their description. Meanwhile, Mississippi supports video consultation, asynchronous store-and-forward platforms, and patient monitoring, with restrictions on reimbursement for phone, email, or fax.

- Virginia does not have cross-state telemedicine licensing and requires providers to have a VA license. Meanwhile, Mississippi has joined the Interstate Medical Licensure Compact, which facilitates licensing processes for medical professionals. That is, if out-of-state physicians already have established relationships with patients, they are also authorized to practice within Mississippi without a license.[82]

Such discrepancies in state laws facilitate unequal access to different modalities, depending on a patient's state of residence, which can potentially defeat the purpose of remote medicine and care.

Does the U.S. really want to return to a fragmented, unilateral health care system?

Throughout the recent evolution of telehealth, the federal government has played a major role. For example, the Center for Medicare and Medical Services (CMS) permitted the expansion of the eligibility codes for telehealth reimbursement at the start of the public health crisis, automatically making remote health care an acceptable form of care.[83] The Office of Civil Rights at HHS followed suit by removing penalties against the use of video communications that were not HIPAA compliant, which made telehealth resources even more accessible to both patients and clinicians.[84] These actions, among others, precipitated the highest use of remote health care, even if the volume of patients was artificially inflated by a public health crisis.

Generally, federal interventions significantly increased telehealth uses from 42.74 percent of health care facilities before the start of the pandemic to 99.05 percent during the pandemic's peak.[85] Insurance claims from medical providers for telehealth services also grew from 0.38 percent of all filed claims in February 2020 to an all-time high of 13 percent in April 2020.[86] With the return of in-person doctor visits later in the pandemic lifecycle, telehealth adoption and use remained steady with eligible reimbursement claims at 4.3 percent as of August 2021, over 10 times higher than pre-pandemic levels.[87]

As mentioned, pre-pandemic health care limited telehealth through federal and state regulatory barriers that made it difficult to utilize compared to traditional modes of health care delivery, from the licensing of medical providers to caps on eligible and reimbursable services.[88] While many of these policy differences have not been completely resolved, they were temporarily overridden to accelerate telehealth's deployment and adoption, especially between 2020 and 2022.

The pandemic mitigation strategies also benefitted from the previous modernization and increase in interoperability for health information systems. The interoperability efforts necessitated the establishment of the Office of the National Coordinator (ONC) for health technology within the Office of the HHS Secretary. Through the Health Information Technology for Economic and Clinical Health (HITECH) Act, communications between regional health systems were strengthened by more than $35 billion in incentives to promote and expand the adoption of electronic health records (EHRs) by eligible hospitals and health care professionals.[89] While the challenges of implementing and maintaining EHRs will be discussed later in the paper, their rapid adoption and use resulted in significant shifts to health technologies that facilitated both better patient outcomes and coordination among multiple providers, and other caregivers.

"Generally, federal interventions significantly increased telehealth uses from 42.74 percent of health care facilities before the start of the coronavirus pandemic to 99.05 percent during the pandemic's peak.[85]"

Most notably, the availability of EHRs helped in the management of the pandemic response. The National COVID Cohort Collaborative (N3C), which was funded by the National Institute of Health (NIH), turned the electronic health records data from COVID-19 patients into effective treatment models and predictive analytic tools.[90] But those electronic records would not have been accessible if the technologies were not fully utilized as a complement to existing health care systems, and not in competition or exclusion of mainstream systems.

Like EHRs, telehealth was rapidly accelerated by government incentives in funding and rule changes that made it more permissible and reimbursable among providers.[91] But given that pandemic mitigation and resources are dwindling, the fate of telehealth is again under review even with temporary support from the Consolidated Appropriations Act of 2022 for a set window of time.[92] And in fact, the type of care risks oblivion compared to EHRs because of the lack of a long-term policy roadmap on its utility and integration into a fragmented health care system. Gradual declines in attention toward the public health crisis may potentially revert the health care system to old standards and practices of health care delivery and devalue the adoption, use, and benefits of telehealth services. This is despite the variable fluctuations and returns in COVID-19's susceptibilities.

"At an opportune time, telehealth proved itself one of the drivers for more equitable internet access, particularly for communities with low to no broadband penetration, or with limited device ownership."

Such regression of telehealth's use can reopen the pre-existing gaps that impeded upon full, or somewhat full, access to competitive health care options, which could improve the value proposition around the delivery of care for millions of medically vulnerable patients. The retractable gains of telehealth will result in the removal of complementary systems for existing health care delivery, especially among patients with access to the internet now and into the future.

These shifts can further deepen health inequities, especially among those from older and impoverished populations. At an opportune time, telehealth proved itself one of the drivers for more equitable internet access, particularly for communities with low to no broadband penetration, or with limited device ownership. That is why we argue in the paper that conversations on telehealth

are critical to the success of the Biden-Harris Infrastructure Investment and Jobs Act (IIJA), or the Bipartisan Infrastructure Bill, that plans to accelerate high-speed broadband access that can, in turn, modernize existing health care delivery infrastructure.[93]

The Bipartisan Infrastructure Bill

On November 6, 2021, Congress passed the historic Bipartisan Infrastructure Bill that allocates $65 billion to broadband funding, making that the largest ever digital infrastructure investment that seeks to increase affordable, high-speed broadband access and digital inclusion programs.[94] Like electricity, water, and other key infrastructure components mentioned in the bill, improving health care access through broadband must also be considered as part of improving the nation's critical infrastructure.

The National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission (FCC) are primarily responsible for disbursing this new funding through a range of programs. The IIJA allocates $42.45 billion to state deployment, granting each state at least $100 million to provide broadband to unserved and underserved areas, in addition to community anchor institutions. Through increasing broadband service in communities that currently lack access to the internet, this program increases connectivity for vulnerable populations, patching existing gaps in telehealth provision where people are unable to access the service due to a lack of connectivity at home.

An additional $14.2 billion has also been allocated to the Affordable Connectivity Program, which replaces the Emergency Broadband Benefit established over the COVID-19 pandemic to provide discounted broadband services and devices to low-income households. This, in addition to the $2.75 billion allocated to the Digital Equity Grant Program, seeks to increase broadband access equity for those affected by the digital divide.

The infrastructure bill also includes support for a series of other allocations for expanding rural broadband access. This includes the Middle Mile Infrastructure Grant Program, a $1 billion allocation for broadband providers to build out middle mile infrastructure; the Tribal Broadband Connectivity Program, a $2 billion funding program for broadband infrastructure deployment on tribal lands; the $1.926 billion ReConnect Program and $74 million additional funding for the USDA's Rural Broadband Program, both of which seek broadband access in rural areas.

Separately, the FCC has also been making its own investments in improving telehealth capacities. In April 2020, the institution created the Connected Care Pilot Program, providing up to $100 million from the Universal Service Fund (USF) over three years to support health care providers seeking to provide telehealth services.[95] In addition, they established a COVID-19 Telehealth Program, with $200 million appropriated as part of the CARES Act, to help eligible health care providers maximize their provision of connected care services.[96] Over the COVID-19 pandemic, the FCC also waived gift rules in Rural Health Care programs and increased rural health care funding with a carry-forward of $197.98 million in 2020.[97] They also established the Connect2Health Task Force, the Broadband Cancer Collaboration and Beyond the Beltway Series, to better map broadband health throughout America.[98] They have also signed a memorandum with the HHS and the Department of Agriculture to work on the Rural Telehealth Initiative.[99] These current policy investments are of tantamount importance to telehealth and a more equitable health care model, which is why future conversations need to be focused on the totality of care equity, health equity, and digital equity.[100]

"When we think about healthcare in the U.S., it is not often perceived as critical infrastructure. Yet, the Bipartisan Infrastructure Bill suggests the importance of universal broadband for the purposes of telehealth, education, job applications, and beyond."

VI. WHY WE NEED A TRIAGED APPROACH TO TELEHEALTH

When we think about health care in the U.S., it is not often perceived as critical infrastructure. Yet, the Bipartisan Infrastructure Bill suggests the importance of universal broadband for the purposes of telehealth, education, job applications, and beyond. The bill also recognizes that telehealth and health care provision are an integral part of citizen welfare and development and fit it in with the larger agenda to expand broadband access and close the digital divide. But before delving into our final

recommendations, the U.S. must adopt some tenets to facilitate more ubiquitous and robust telehealth adoption and use that include:

1. **Telehealth adoption and use are invaluable benefits to improving care equity among all patients.**

Definitively, telehealth is a factor in the improvement of care equity, which centers a value-based care approach to 21st century health care. As opposed to the conventional fee-for-service health care mode, in which a health care provider is paid a fee for each service rendered, value-based care ties payments to the quality of care provided instead.[101] Such permissions incentivize health care providers to utilize resources in a more efficient manner and to be more resourceful when it comes to helping patients diagnose and manage chronic diseases and other hospital readmissions. Value-based care is meant to reduce health care spending while increasing quality of care.[102] In 2015, HHS reported that Accountable Care Organization (ACO) programs have successfully helped Medicare save $417 million, while reducing 30-day hospital readmissions by 14 percent.[103] 2020 data shows that savings have since increased to $4.1 billion over the last five years.[104]

Over the course of the COVID-19 pandemic, value-based health care providers were uniquely able to utilize telehealth creatively to improve care management programs and limit community spread while resources were scarce. Value-based models allowed more flexibility in services provided compared to other provision models, ensuring comprehensive care for their patients. Listed below are examples of how value-based organizations have rolled out programs to alleviate pressures of the pandemic:

- Oak Street Health (Chicago, IL): Launched a remote care program with telephone wellness checks. Individuals could then be triaged to a COVID-19 hotline as necessary, or enrolled into their COVID-19 Care Disease Management Program.

- Carillon Clinic (Roanoke, VA): Used data to identify high-risk patients, used outreach programs to contact these individuals and provided information about COVID-19 assistance with chronic conditions and addressing needs.

- Central Ohio Primary Care (Westerville, Ohio): Reached out to over 4,000 high- risk patients to screen for COVID-19 and other needs.[105]

Going forward, value-based care and telehealth should be part of the full delivery approach and provide better and more efficient ways to improve patient health outcomes.

2. Telehealth can mitigate health disparities by harmonizing delivery strategies and avoiding strict limitations on modalities.

Health disparities in the existing health care system disproportionately affect vulnerable groups, including those living in rural areas and people of color. Telehealth should be used to bridge these gaps and address disparate health equity, providing underserved communities with much-needed care. While about 20 percent of Americans live in rural areas, less than one-tenth of physicians practice there.[106] The shortage of health care providers in rural areas is further compounded by the growing elderly population. While older patients comprise 37 percent of hospital admissions in urban settings, they make up over one-half in rural communities.[107] Rural populations lack access to health care in "proximity, affordability, and quality."[108] The geographical inconveniences of seeking health care mean that many in rural communities often opt to substitute local primary care providers for subspecialists. Others postpone or forego care altogether.[109] This, in combination with existing inequalities in economic opportunities, lead to shorter life expectancies for those in rural areas, [who reportedly] die two years earlier than those in urban areas.[110] Some rural residents also face greater mortality risks from a multitude of diseases including cancer, cardiovascular disease, and drug-related injuries compared to those living in urban communities.[111]

"The geographical inconveniences of seeking health care mean that many in rural communities often opt to substitute primary care providers for subspecialists. Others postpone or forego care altogether.[109]"

People of color struggle with significant health inequities. Black and Hispanic-majority communities often have fewer hospitals and health care providers because of residential segregation. Many of these providers also provide lower-quality care.[112] Historic economic inequities also mean that Black Americans are more likely to be essential or frontline workers and are more likely to be uninsured. Many are

faced with high amounts of medical debt and are likely to struggle to afford health care.[113] As a result, Black Americans tend to have worse health outcomes.

While this can be partially attributed to existing socioeconomic inequalities impacting affordability of care, Black Americans also tend to receive worse care in general. A 2016 study found that racial biases continue to impact doctors' pain assessment, with many physicians perpetuating racist beliefs of biological differences between Black and white people.[114] In turn, this affects the quality and type of care Black patients receive. A 2020 study found that medical professionals were 10 percent less likely to admit Black patients into the hospital compared to white patients. Meanwhile, Black patients were also 1.26 times more likely to die in hospitals.[115] Latino populations also struggle with reduced access to health care.[116] They are three times as likely as white people and nearly twice as likely as Black people to be uninsured, making health care unaffordable for most and resulting in worse health outcomes.[117] Americans living on tribal lands are further impacted by health disparities in coverage and treatment. These indigenous, tribal populations and Alaska Natives have life expectancies 5.5 years less than the rest of the U.S. population and continue to die at higher rates in categories including chronic liver disease, diabetes mellitus, chronic lower respiratory diseases, and more.[118] Further, these populations are primarily served by Indian Health Service hospitals, chronically underfunded institutions in which the death rates for preventable diseases are three to five times higher for indigenous, tribal populations than for other races combined. Government data shows a quarter to half of health care provider positions in these facilities were vacant.[119] For many living on tribal lands, these health care institutions are also miles away, often unable to provide help when necessary.[120]

What telehealth has been able to do throughout the COVID-19 is mitigate some patient costs associated with a doctors' visit, including travel time, travel costs, and lost income due to time away from the workplace.[121] Research of five Penn Medicine hospitals in Philadelphia found that telehealth allowed increased access to care, improving post-discharge primary care visit completion rates from 62 percent in January 2020 to 72 percent in June 2020. Much of this increase was driven by Black patients, whose visit completion rates increased from 52 percent to 70 percent, while white patients experienced little change.[122] In addition to overriding barriers in geographic access, more Black patients also were able to complete their post-discharge visits and access needed follow-up

health care. While more must be done to democratize health care more generally, telehealth can help expand provider options for people of color, allowing individuals – regardless of who they are and where they live – to find health care providers to best address their needs.

That is why health equity is a significant and topline driver for telehealth, alongside care and digital equities. Throughout the COVID-19 pandemic, the FCC launched a range of programs to expand the reach of telehealth to make affordable the provision of connected care services for health care providers more affordable.[123] Now, these programs must be combined with those supported by the Bipartisan Infrastructure Bill to finally address urgent health disparity concerns for the medically un- and under-served.

3. **Telehealth is critical to national efforts to close the digital divide. To talk about telehealth involves conversations on digital equity because without internet access, the future applications of remote health care will be futile.**

For example, community health centers in the South and rural areas continue to report the lowest average percentage of weekly telehealth visits, according to the CDC.[124] Low rates of telehealth adoption could be attributed to the rural-urban digital divide and lack of digital literacy in rural communities. According to the Pew Research Center, 28 percent of rural residents lack home broadband access, compared to 21 percent of suburban residents.[125] Among urban residents, low-income households are also adversely affected by the digital divide. According to a Pew Research study, while 24 percent of low-income adults do not own smartphones,[126] almost double (41 percent) do not have access to a desktop or laptop computer.[127]

Along the lines of race, Black and Latino adults are less likely than white adults to have broadband access and device ownership. According to the Pew Research Center, eight in ten white adults report owning a desktop or laptop computer, compared to 69 percent of Black adults and 67 percent of Hispanic adults. Eight in ten white adults also report having a broadband connection at home, compared to 71 percent of Black adults and 65 percent of Hispanic adults.[128] For communities of color in rural areas, this issue is compounded, with the percentage of people with internet access decreasing to 62 percent, according to a report published by the Joint Center for Political and Economic Studies.[129] Barriers to broadband

access do not stop there. Even those with broadband access may struggle to afford data plans. A 2021 study estimated that 18.1 million unconnected households have access to the internet but cannot afford low-cost broadband plans.[130]

Government programs such as the Affordable Connectivity Program (ACP), Emergency Connectivity Fund, and E-Rate (which primarily connects schools and libraries) have sought to make broadband more affordable while distributing needed devices throughout communities.[131] The ACP has helped bridge the digital divide and facilitate telehealth adoption by providing discounts to households and making it easier for low-income households to acquire devices and broadband services. Resolving these digital inequities is essential to making telehealth more accessible to our most vulnerable populations.

In the meantime, modality neutrality is essential as it could incentivize increased telehealth use among those who are impacted by the digital divide. Older patients, who may be less comfortable with video technologies, may be more inclined to use audio-only telephone calls instead. Rural residents with limited broadband connectivity may benefit from store-and-forward technologies that are more feasible compared to real-time audio-visual telehealth visits.

"A 2021 study estimated that 18.1 million unconnected households have access to the internet but cannot afford low-cost broadband plans.[130]"

Flexibility in digital devices used to access health care is also essential, as historically underserved groups are least likely to have a full range of devices that could accommodate video-only telehealth. Versatility in modality ensures digital equity and telehealth access for those of need. Beyond that, people of color with access to digital devices should be allowed to choose their preferred modality. An examination of telehealth utilization demographics has indicated that Black patients are more likely to opt for an audio-only telehealth visit as opposed to a full audio-video visit.[132] If keeping their video off contributes to better care, that should be strong enough incentive for increased telehealth adoption and use and be honored among various state regulators. In the end, modality neutrality may help with the lack of digital equity, which should not be a barrier to telehealth use for the disconnected.

VII. PROPOSED RECOMMENDATIONS

At the core of telehealth's future is long-term sustainability and impact in the broad health care landscape. We conclude with recommendations for policymakers, clinicians, and patient advocates interested in advancing a forward-thinking, telehealth 2.0 roadmap. These recommendations were discussed during a Brookings roundtable that convened representatives from the public, private, and government sectors.[133]

1. Federal and state governments must continue telehealth availability and use in a post-pandemic environment through codifying its use, especially in legislation.

Federal and state actors must act to make telehealth flexibilities permanent. Existing Medicare flexibilities for telehealth, such as allowances for non-rural residents to use telehealth and the allowance of qualified originating sites to include a beneficiary's home, needs to be extended through legislation. The CMS should also extend or make permanent flexibilities to expand the list of covered telehealth services and modalities. States might also move away from payment and coverage parity models to reduce costs and encourage the use of telehealth services, especially by giving clinicians some room to innovate how they institute remote care in their respective practices. As parity laws mandate same rates of reimbursements for telemedicine and in-person visits, the worry is that this may stagnate the abilities of physicians and patients to embrace a wider range of technologies and modalities for eligible services that could be more cost-efficient or stray from traditional practice models. As delivery of telehealth tends to be leaner, lower prices are in-line with highlighting telehealth's cost-effective nature. Whereas coverage parity laws may have worked throughout the pandemic, it can work either way for providers who are opening their doors to more in-person visits.[134] Further, the pandemic has demonstrated that telehealth enables a more effective triaging of resources, improving risk mitigation measures during times when infectious diseases spread resources thin. It's time for Congress and other state regulators to permanently incorporate telehealth into the

health care system to provide more cost- and time- efficient health care for patients, especially those in need or with limited financial or geographic resources.

2. Modality neutrality must become a standard practice to adequately address digital disparities, and ensure full use of remote health care.

Both synchronous and asynchronous telehealth delivery systems must be part of the future of telehealth, as both have unique value-adds to the existing health care system. It should not be positioned as either / or depending on the circumstances of the patient. Modality flexibility is essential to the future of telehealth, and future legislation should allow providers maximum flexibility to let providers and individual patients determine the technologies and services most suited for cases. As demonstrated in this paper, while synchronous telehealth has its benefits in cutting down on travel times and increasing the convenience of real time visits, asynchronous telehealth also has its uses by letting patients and providers communicate test results or other information at times of convenience. Modality neutrality also enables innovative uses of existing technologies to enhance health care services. For example, the further integration of AI in health care can improve efficiency in triaging patients.[135] Yet if providers will not be compensated or covered for utilizing new technologies, they are less likely to involve such technologies. Having the CMS recognize different technology-driven services, as they already have with RPM and RTM, allows providers more flexibility to incorporate technology into their service provision.

3. The U.S. must adopt a federal privacy standard to ensure patient/provider confidentiality and reduce risks to data.

As mentioned, the HHS Office for Civil Rights announced that it would allow the use of non-HIPAA-compliant software in telehealth, assuming that communication products were used in good faith.[136] Simultaneously, the pandemic increased the demand for various health care services, creating incentives for new actors to join the market and help bridge resource gaps. Walgreens and CVS expanded health care operations and played key roles in vaccine distribution across the U.S. Meanwhile, Amazon has begun to venture into prescription delivery and virtual care services, leveraging its speed and large consumer base. Walmart has also built out its health

clinics to provide low-cost services.[137] Many of these new entrants to the health care market have become well-established over a short period of time, due to their provision of much-needed services throughout the COVID-19 pandemic. Yet, these companies have also acted as data fiduciaries, leveraging their corporate capacity to collect and store large amounts of consumer data to market goods and provide health care services. Their entries into the market have challenged the competitiveness of traditional Health Information Exchange (HIE) markets, as they collect their own sets of patient data.[138] The lack of existing privacy legislation also means regulations outlining how patient data can be used is lacking.

Health data is sensitive data that, if utilized improperly, can cause great harms. As telehealth use increases, there will likely be the incorporation of digital health tools and new corporate actors, which also increases the risk of patient data misuse for the sake of corporate interests. Generally, increased data flows for the exchange of health data are by no means a bad thing, as it enables individuals more agency in switching between health care providers and increase access to services.[139] However, this must be accompanied by corresponding checks and balances to protect consumer interests. In addition to a national data privacy standard, perhaps a federal law that regulates the collection and use of private health data should be created, supplementary to HIPAA's existing guidelines and the National Institute of Standards and Technology's (NIST) Privacy Framework.[140] Such a framework could place emphasis on customer agency, through the transparency of corporations and applications' use of consumer data, by allowing people to opt out of sharing sensitive personal data while having stronger regulatory enforcements on the misuse of data already collected. Such actions will allow for the growth of telehealth and digital health services with much-needed data privacy safeguards.

4. The larger health care community must understand that they, too, are part of efforts to close the national digital divide through training, device availabilities, and online consumer engagement.

Digital equity is a core factor in the effective deployment of telehealth. Large and local health centers can be essential in assessing the online needs of patient populations. Community health centers can combine digital literacy training with patient education, provided they, too, are sufficiently connected to high-speed broadband networks and internet-enabled devices. Prior to the pandemic, in 2018, 43 percent of

health centers had already begun using telehealth for care delivery, with even higher use rates among rural communities.[141] Throughout the COVID-19 pandemic, they also played an integral role in COVID-19 prevention, testing more than 3.7 million patients and treating nearly 745,000 affected by the pandemic.[142] While community health centers have played an integral part in the health care system, they have consistently struggled with problems such as insufficient access to broadband, technical training, and assistance.[143]

The Bipartisan Infrastructure Bill should consider community health centers as anchor institutions, who would be afforded support after certain deployment requirements are met. Past efforts to distribute technologies in local communities have been most effective when programs were community-led.[144] Since health care providers are deeply embedded in their local communities, they can better equip patients to understand and use telehealth services.

5. States and localities must prioritize telehealth in their broadband plan and include local stakeholders.

Some states have already recognized the importance of telehealth as critical infrastructure. Using funds from the American Rescue Plan Act's Section 9817, which gave states a 10 percent increase in the federal medical assistance program for Medicaid home and community-based services, many states have sought to cooperate with federal efforts to improve telehealth service delivery.[145] Alabama's investment plan indicates that the state has been making investments in tech infrastructure to help health care providers cover telecommunications startup costs, in addition to providing broadband installation, equipment, and electronic visit verification equipment grants. The District of Columbia used the funding to create a technical assistance program to expand use of certified electronic health record technology and has encouraged the use of remote patient monitoring devices. States that include Georgia, Hawaii, Arizona, Minnesota, and more have taken similar paths.[146] The Bipartisan Infrastructure Bill provides historic amounts of funding to States and localities. When building their infrastructure plans, states must once again work to incorporate telehealth as part of their plans and increase telehealth access for vulnerable populations and developing new technologies for patients' needs.

6. Telehealth should be incorporated in value-based payment initiatives.

Before the pandemic, CMS was leading a national effort to transform payment systems in the health care system. Essentially, these efforts were focused on measuring quality of care and paying for the value of services rendered, rather than paying for the number of services. The expansion of telehealth shall not distract the agency from the original goal of shifting its payment system from a fee-for-service system to a value-based alternative. CMS can create funding opportunities for patient centered and value-based providers of care, such as Accountable Care Organizations, to provide them with financial and technical assistance needed to configure telehealth services in ways each individual organization deems most suitable given its patient population, needs, and strategies. These funds should help medical providers pay for the setup costs of telehealth services rather than paying a fee for services rendered through telehealth.

7. The incorporation of AI into telehealth must prioritize equity and fairness.

As technological developments in health care continue, it is important to address biases in the health care system's use of artificial intelligence to ensure that the technology is widely available and representative of various populations. Without proper regulation and oversight, biases in health care applications will continue, putting the lives of historically marginalized groups in danger. In recent months, the U.S. National Artificial Intelligence Advisory Committee (NAIAC), launched in April 2022, has highlighted combatting AI biases as part of the national AI strategy.[147] More comprehensive federal oversight on AI innovations, focusing particularly on the quality of data used, the diversity of design teams, and the measures taken to regularly audit and examine algorithms for biases, are essential. Such rigorous measures can allow federal agencies to regulate and penalize algorithms that perpetuate biases, creating incentives for developers to prioritize equity in algorithmic design.[148] As telehealth transitions into more AI-driven capabilities, reducing the culpabilities of these systems to discriminate is of great importance.

VII. CONCLUSION

Telehealth has become a part of the American health care system throughout the COVID-19 pandemic, increasing access while decreasing inefficiencies within the existing system. Going forward, the future of telehealth must incorporate equity in health, care, and digital access, to ensure better health outcomes and equitable access for the most vulnerable populations. State and local governments must loosen existing restrictions on modalities to encourage innovation and customization of technologies to the needs of individual patients, while establishing clearer privacy safeguards to protect patient interests. In addition, it is important to capitalize upon the significant investments enabled by the recent national broadband investments which, if utilized well, can make concrete progress towards closing the digital divide by arming vulnerable populations with devices needed to access health care, education, opportunity, and more. Technology has great power and potential to help bridge existing divides. Yet, without proper safeguards, it will continue to perpetuate existing inequities and allow exploitation. The future of telehealth must be carefully built, placing priorities on increasing access through digital remedies and prioritizing the unique health needs of individual patients.

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