

Rapid Adoption of Telehealth by Primary Care Clinicians in Southeastern U.S. States During the COVID-19 Pandemic

EXECUTIVE SUMMARY

Researchers at Morehouse School of Medicine's (MSM's) National Center for Primary Care (NCPC), in partnership with the United Health Foundation, conducted the Digital Health Tools Study (DHTS) from October 2019 to July 2021. The DHTS assessed adoption and use of digital health tools by more than 1,200 primary care clinicians working in underserved communities in four Southeastern states: Georgia, Kentucky, North Carolina, and Tennessee. The study found the following related to clinicians' use of telehealth:

- ▶ Nearly two-thirds (66%) of primary care clinicians in these Southeastern U.S. states reported using or planning to use telemedicine in their practice
- ▶ Almost 80 percent of primary care clinicians using telehealth reported implementing it because of the COVID-19 pandemic
- ▶ Over half (52%) of primary care clinicians who were using telehealth reported that their first use of telehealth was during the pandemic
- ▶ Primary care clinicians in the Southeastern U.S. who used telehealth were more likely to be younger, non-physician, specializing in family medicine, and working in a federally qualified health center (FQHC). They were also more likely to be full owners rather than employed by the FQHC and were less likely to participate in a quality payment program.

Widespread federal and state policy changes during the COVID-19 public health emergency (PHE) served as catalysts for rapid adoption and improved access to telehealth in primary care practices in the Southeastern U.S., especially for clinicians serving racial and ethnic minoritized populations and rural communities. Increased adoption of telehealth provided opportunities to make telehealth access more equitable, though sustaining its use requires overcoming existing challenges due to cost and integration of telehealth into clinical workflows. Policy and practice changes are needed beyond the COVID-19 PHE to sustain and maximize the equity impact of telehealth in primary care practice moving forward. These changes include nationwide expansion of audio-only telehealth services; continued expansion of the originating site and geographic locations; investments in broadband and telecommunications infrastructure; and payment parity.

“As telehealth rapidly expands and ensures access to care even when primary care practices are closed and people are self-isolating, many older Americans, low-income families, rural communities, and racial and ethnic minorities are unable to access care and suffering from the consequences of delayed treatment.”

NASEM Report: “Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care”

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Telehealth is 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.² Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications. Telehealth's broad scope includes remote health care services, including telemedicine which refers to the provision of clinical services through digital technology.

INTRODUCTION

Telehealth¹ is an important mechanism for improving access to care for rural and underserved populations—defined as people facing health, financial, educational, and/or housing disparities, making it difficult to get health coverage and basic health care services³—and minority communities.^{4,5} Despite early uses of hospital-based telehealth since the late 1950s,⁶ clinician and patient adoption of telehealth was low prior to the COVID-19 public health emergency (PHE).⁷ Less than a third (28%) of physicians nationwide in 2019 used telehealth, according to the American Medical Association (AMA).⁸ Patient portal messaging features, email, texting, and other clinician messaging services were the digital health tools most used by patients in 2019, with only four percent of US adults reporting use of videoconferencing for health care appointments.⁹

Researchers at Morehouse School of Medicine's (MSM's) National Center for Primary Care (NCPC), in partnership with the United Health Foundation, launched the Digital Health Tools Study (DHTS) in 2019 and completed data collection in July 2021. The DHTS builds on prior research conducted by the NCPC, which highlights the disproportionate impact of the pandemic on racial and ethnic minoritized and other socially vulnerable communities^{10,11,12,13}, as well as limited adoption of digital health tools by primary care clinicians serving these communities.¹⁴ Prior to the COVID-19 PHE, electronic health record (EHR) adoption lagged by clinicians in small primary care practices and among clinicians serving predominantly Medicaid populations,¹⁴ and use of telehealth among Medicaid enrollees remained low.¹⁵ These disparities and gaps in adoption and use of digital health tools among primary care clinicians that serve racial and ethnic minoritized populations may exacerbate existing health inequities in health care access and outcomes.

The DHTS assessed adoption and use of digital health tools by primary care clinicians working in underserved communities in four Southeastern U.S. states: Georgia, Kentucky, North Carolina, and Tennessee. The southern region of the United States is racially and ethnically diverse—people of color make up 42 percent of the population—and people are more likely to experience poor health outcomes and chronic diseases, as well as have more limited access to health care coverage and services.¹⁶ Over a third of Georgia residents identify as Black,¹⁷ and 41 percent of residents in Kentucky live in rural areas.¹⁸ Georgia, Kentucky, North Carolina, and Tennessee were all ranked among the 20 worst performing states in terms of overall health system performance prior to the PHE, and all performed below the U.S. average in health care access and affordability.¹⁹ All four states ranked below the all-group median for health system performance for Black and Hispanic populations.²⁰ In addition, many individuals in these four states lack access to internet and needed technology at home (Appendix Exhibit A).

In understanding adoption of telehealth by primary care clinicians in these states, the DHTS highlights opportunities to make telehealth access more equitable among racial and ethnic minoritized and rural communities served by clinicians.

THE DIGITAL HEALTH TOOLS STUDY (DHTS)

Participating primary care clinicians: Family medicine, general internal medicine, general practice, pediatrics, geriatrics, obstetrics/gynecologists, nurse practitioners, physician assistants, and certified nurse midwives

Participating States: Georgia, Kentucky, North Carolina, and Tennessee

Digital Health Tools: Telemedicine, home/remote monitoring, patient portal, health information exchange, electronic health records, prescription drug monitoring programs, wearable devices, mobile applications, and other technologies used in health care settings

Data Collection:

- ▶ **Digital Health Tools Survey:** 1,215 primary care clinicians
- ▶ **Focus groups:** 7 focus groups consisting of 25 total primary care clinicians
- ▶ **Time frame:** October 2019 to July 2021

¹The terms telehealth and telemedicine are used throughout the report to reflect the way corresponding questions were framed in the survey and according to the framing of findings within research literature.

BACKGROUND

Federal and state policies expanded access to telehealth for clinicians and patients during the COVID-19 PHE. The Secretary of Health and Human Services (HHS) waived Medicare telehealth payment requirements around originating sites and restrictions on audio-only telehealth services, expanding telehealth beyond rural sites.²¹ HHS also increased flexibility for allowable telehealth technologies previously restricted by the Health Insurance Portability and Accountability Act (HIPAA).²² The Consolidated Appropriations Act of 2021 (CAA) and American Rescue Plan Act of 2020 expanded telehealth services to behavioral health²³ and loosened restrictions around prescription of controlled substances.²⁴ The Centers for Medicare and Medicaid Services (CMS) expanded telehealth services covered by Medicare fee-for-service (FFS) and granted states authority to make similar changes to Medicaid and the Children's Health Insurance Program (CHIP).²⁵ Exhibit 1 summarizes changes to telehealth policies during the PHE.

EXHIBIT 1: TELEHEALTH POLICY CHANGES DURING THE PUBLIC HEALTH EMERGENCY

<p>Payment & Cost</p> 	<ul style="list-style-type: none"> ▪ Enhanced reimbursement rates for telehealth ▪ Established payment parity with in-person visits ▪ Reduced or waived cost-sharing for patients
<p>Access</p> 	<ul style="list-style-type: none"> ▪ Established new or expanded coverage of telehealth services ▪ Removed origination site restrictions to allow telehealth visits to occur outside of a provider's office (e.g., from the patient's home, from the provider's home) ▪ Recognized federally qualified health centers and rural health centers as provider site in a telehealth visit ▪ Allowed clinicians to serve out-of-state patients ▪ Increased flexibility in technology modes used to deliver telehealth ▪ Allowed telehealth visits for new, not only established, patients
<p>Covered Services</p> 	<ul style="list-style-type: none"> ▪ Authorized new providers to offer telehealth (e.g., behavioral health providers, physical therapists) ▪ Expanded access to types of services available via telehealth (e.g., allowed qualified clinicians to prescribe controlled substances via telehealth, crisis intervention services)

States implemented new requirements for coverage of telehealth services, waived or limited cost sharing for patients, required reimbursement parity for telehealth and in-person services, and expanded options for delivery of telehealth services, including the four Southeastern U.S. states in the DHTS (Appendix Exhibit B).²⁶ They also increased access to audio-only visits and relaxed state-level restrictions around clinician licensing.²⁴ Some commercial insurers voluntarily reduced or eliminated cost sharing, broadened coverage, and expanded telehealth clinician networks.²⁴

Adoption and use of telehealth accelerated during the COVID-19 PHE. Telehealth claims nationwide rose more than 12-fold, to over 12 million in mid-April 2020 from less than 1 million in December 2019.²⁷ Telehealth visits reported by four of the largest telehealth clinicians increased by 50 percent during the first quarter of 2020 compared with the same period in 2019.²⁸ Telehealth claims in private insurance rose 2,980 percent by September 2020 compared with the same month in 2019.²⁹ Medicare Part B visits conducted via telehealth increased 63-fold in 2020 to 5.3 percent from less than one percent in 2019.³⁰ Over 12.1 million Medicare beneficiaries—over a third (36%) of people with Medicare fee-for-service (FFS)—received a telemedicine service between mid-March and mid-August 2020.²⁵ Services delivered via telehealth increased more than 20-fold in Medicaid and CHIP between February and April 2020.³¹ This increase also coincided with a steep decline in in-person visits driven by temporary moratoria on elective health care services³² and individual decisions to delay or avoid care.^{33,34,28}

Telehealth can increase access to care, improve quality of care, and reduce health costs;³⁵ however, there are disparities in its use based on age, income, race/ethnicity, health and digital literacy, and English proficiency.³⁶ Individuals identifying as older, Black, and with lower levels of education were more likely to report their health care clinicians did not offer telehealth or they were not knowledgeable on how to use the technology in 2020, prior to the PHE.⁹

Recognizing that digital health tools, including telehealth, could facilitate care continuity during the PHE, the DHTS sought to understand whether the clinicians serving these communities have the tools and resources they need to provide high-quality and equitable care that is accessible to all. This brief presents findings from the DHTS around clinicians' use of telehealth.

“As made clear by patients' experiences using telehealth to access care during the COVID-19 pandemic, digital health can increase existing disparities if it is not implemented intentionally to address barriers related to lack of community trust, language needs, Internet access, e-mail use, device capabilities, and an individual's comfort with using digital health and electronic communication platforms.”

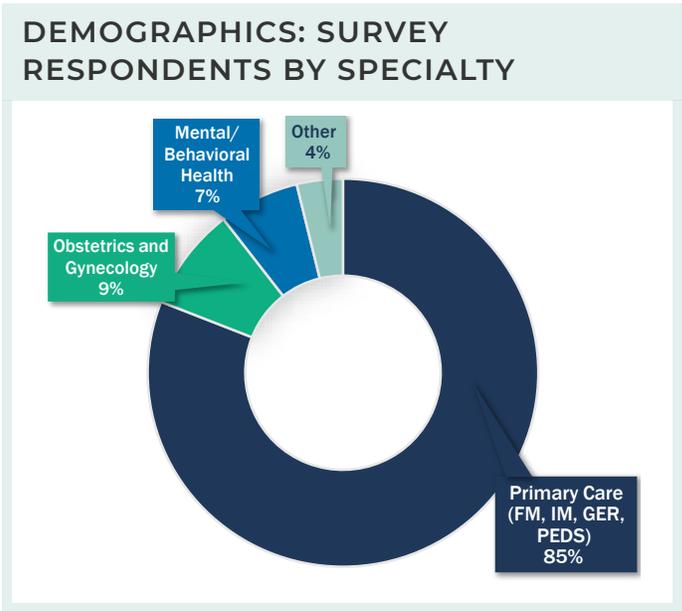
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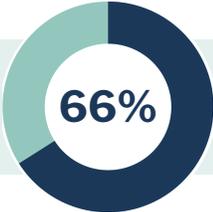
“Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care”

FINDINGS

More than **1,200 primary care clinicians** in the Southeastern U.S. completed the DHTS survey and 25 clinicians participated in focus groups.

Over a third (36%) of survey participants practiced in Georgia, 28 percent in North Carolina, 16 percent in Kentucky, and 15 percent in Tennessee. The remaining participants practiced outside of these four states or state of practice was unknown. In addition, 45 percent of survey respondents practiced in family medicine, 21 percent in internal medicine, 11 percent in pediatrics, and 9 percent in obstetrics/gynecology (OB/GYN). The remaining respondents practiced in geriatrics, mental health or behavioral health, or another specialty. Additional DHTS findings by state are available in Appendix Exhibit C.



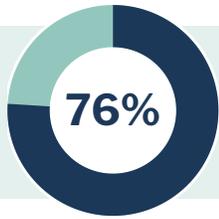


Nearly two-thirds (66%) of primary care clinicians reported using or planning to use telemedicine in their practice.

At least half of clinicians surveyed in each DHTS state reported using telemedicine, and at least half in each state were satisfied with their telemedicine use. Survey participants described cost (51%), time (53%), and limited workflow integration (40%) as the most common barriers to adoption of digital health tools more broadly. At the same time, survey participants reported that ease of workflow integration (58%), meeting patient needs (55%), improving patient health (50%), convenience/increased efficiency (47%), enabling care coordination (45%), and engaging patients (45%) as factors supporting their adoption of digital health tools.

“...our telehealth program is mostly phone. And for a variety of reasons, but mostly because it’s easier for everyone and we can get paid for it. So, the benefit is having that flexibility to do phone.”

Focus Group Participant



Over three-quarters (76%) of primary care clinicians who used any digital health tools reported using telehealth because of the COVID-19 PHE.

In addition, 54 percent of clinicians who used telehealth reported that their first use of telehealth was during the pandemic. A majority of clinicians used or plan to use telehealth for treatment of COVID-19 negative (66%) and positive (63%) patients. Over a third (39%) of survey respondents also used or plan to use telehealth for training and 10 percent used it for other reasons including chronic disease management, follow-up appointments, behavioral health treatment, medication monitoring, and to reduce risk of clinician-patient COVID-19 exposure.

PROFILES OF TELEHEALTH USERS IN THE SOUTHEASTERN U.S.

Primary care clinicians in the Southeastern U.S. who used telehealth were more likely to be younger, non-physician, in family medicine, and be part of a federally qualified health center (FQHC), according to the DHTS. They were also more likely to be full owners rather than employees and were less likely to participate in a quality payment program.



Primary care clinicians using telehealth for the first time during the pandemic were more likely to be relatively young.

First time users of telehealth were more likely to be aged 21 to 29 compared with clinicians aged 30 to 49, according to the DHTS. Focus group participants described that the next generation of clinicians are being trained and going through residency using telehealth and the latest technology, leading to their adoption of telehealth in their practice. However, previous generations of clinicians were traditionally trained using “pen to paper.” For some, use or lack of use of telehealth results from a personal preference for “the old way of doing things.”

Similarly, a 2019 physician survey by American Well found that younger physicians are more willing and less unsure about telehealth than older physicians.³⁷ However, the same study described that “newer physicians (aged 25-34) were somewhat less willing to use telehealth compared to other young physicians (aged 35-44), possibly because these physicians are still learning their craft and thus less confident about new technology.”³⁷ Another study prior to the COVID-19 PHE also found that younger clinicians were more likely to use telehealth in the future.³⁸ However, a recent study of factors that predict telemedicine adoption among U.S. physicians found that a greater number of years in practice was associated with a greater percentage of telemedicine use for physicians.³⁹



Telehealth users were less likely to be physicians (MDs or DOs).

Telehealth users in the DHTS were three times more likely to be nurse practitioners (NPs), physician assistants (PAs), or certified nurse midwives (CNMs) than to be physicians. In addition, physicians were less likely to be first time users of telehealth.

Some NPs and PAs in primary care practices were already engaging patients via virtual visits prior to the COVID-19 PHE through remote monitoring for patients with chronic conditions, such as diabetes, hypertension, and asthma, according to research.⁴⁰ States eased scope of practice laws as early as 2017, allowing more NPs and PAs to care for patients independently.⁴⁰ Further loosening of NP practice restrictions in 2020, such as expanded flexibilities in licensing and credentialing^{41,42,43} to maximize the availability of clinicians who could treat patients during the COVID-19 PHE allowed physicians to provide care across state lines via phone, radio, or the internet.⁴¹ Primary care clinicians in states that have enacted these policy reforms may delegate medical visits to NPs and PAs.⁴⁰

“[Telehealth], has just added hours of work. We had a very good paper system. We had templates. We had forms. I could do a visit and document a visit in 30 seconds maybe... now [telehealth] is just part of our life, but it is such a burden especially for those of us who are used to and prefer paper... Maybe if you’ve never had paper, you don’t realize how effective it was.”

Focus Group Participant



Telehealth users were more likely to practice family medicine.

Users of telehealth during the COVID-19 PHE were more likely to practice family medicine than internal medicine, obstetrics/gynecology, geriatrics, or pediatrics, according to the DHTS.

In contrast, a 2016 physician survey by the AMA shows that general internal medicine practitioners were more likely to use telehealth compared to family/general practice or pediatrics prior to the COVID-19 PHE.³⁵ Surgical specialists, specifically those in OB/GYN, were the least likely to use telehealth prior to the COVID-19 PHE. Over 76 percent of clinicians in each primary care specialty said their practice provided visits through videoconference, according to the 2020 AMA Physician Practice Benchmark Survey.⁴⁴ Pediatricians were also less likely than family/general practice physicians and general internists to provide visits by telephone, according to the survey. Similarly, they were also less likely to use telehealth to manage patients with chronic disease or to provide preventive care.



Telehealth users were more likely to practice in an FQHC.

Telehealth users in the DHTS were more likely to practice at an FQHC than to be solo practitioners or employed by a large group practice, hospital, academic medical center, or the Department of Veterans Affairs (VA).

Telehealth users among family physicians were more likely to work in safety net clinics such as FQHCs, though overall there was limited adoption prior to the PHE—only 15 percent of family physicians reported having used telehealth services.⁴⁵ FQHCs were also more likely than public hospitals, rural health clinics, and smaller private practices (fewer than 10 clinicians) to have adopted EHRs pre-PHE, and funds were available to assist FQHCs with EHR implementation and adoption of other health IT infrastructure.¹⁴ During the PHE, the Coronavirus Aid, Relief, and Economic Security (CARES) Act Distant Site Provision allowed FQHCs to provide and be reimbursed for Medicare services as a distant site clinician via telehealth at payment rates similar to that of the national average of the service-type.⁴⁶ These services can be provided from any location, including the clinician's home. These existing trends and new policies may have led to FQHCs being more likely to use telehealth during the COVID-19 PHE.



“Telehealth is something that can’t just be for everybody. It has to be shaped and formed for different people individually, as well as culturally.”

Focus Group Participant



Telehealth users were four times more likely to be full owners versus employees.

Full owners were four times more likely than employees to use digital tools and adopt telehealth, according to the DHTS.

Research by the AMA supports these DHTS findings. The AMA Digital Health Survey found that, before the PHE, employees and full owners used almost the same number of digital tools, on average (2.3 tools for full owners and 2.4 tools for employees). However, full owners were over two times more likely to report feeling responsible to adopt digital health solutions in their practice (72%) compared to employees (32%).⁴⁷



Telehealth users were less likely to participate in Medicare quality and EHR incentive programs.

The DHTS findings suggest that pandemic-related policy changes encouraged telehealth use among clinicians that were not participating in existing programs that incentivized the use of digital health tools, including the Medicare's Chronic Care Management (CCM) Fee Program, Quality Payment Program (QPP), Hospital Inpatient Quality Reporting Program, and the EHR Incentive Program. The CCM Fee program offers reimbursement for remote on-going care management of patients with chronic conditions.⁴⁸ Medicare's QPP and EHR incentive programs, which precede the COVID-19 PHE, aim to improve quality of care for Medicare beneficiaries through incentives and penalties, including use of health information technology (IT) such as certified EHRs and telehealth.⁴⁹ The QPP adjusted its program to encourage ongoing participation throughout the pandemic (i.e., to not penalize clinicians for pandemic-related performance issues);⁵⁰ it also encouraged participation among clinicians in rural and underserved areas.⁵¹ A 2019 study of participation in the first year of QPP (2017) found that the majority of primary care clinicians nationwide and those in non-metropolitan areas (i.e., rural) areas did not participate, either because they were not eligible based on thresholds of Medicare patients served or Medicare spending, or chose not to participate.⁵² CMS does not report on participation rates by region.⁵³ The DHTS indicates that pandemic-related policy changes—and perhaps necessity due to pandemic-related closures and social distancing—encouraged telehealth use in ways that these other incentive programs did not.

“This article is a comprehensively critical contribution to highlighting the policy advancements made since the COVID pandemic designed to improve access to care while supporting care delivery. The data shared and the recommendations offered emphasize the importance of telemedicine as a strategic tool to improve access to care while enhancing clinical efficiencies.”

Richard Gooden, MBA

Telehealth Program Director, Department of Family Medicine,
Morehouse School of Medicine

DISCUSSION

Widespread federal and state policy changes during the COVID-19 PHE catalyzed rapid adoption of and improved access to telehealth in the Southeastern U.S., especially among primary care clinicians serving racial and ethnic minoritized and rural communities. All four states expanded their telehealth policies; nearly two-thirds of primary care clinicians in these states reported using or planning to use telehealth, with almost 70 percent reporting using telehealth because of the COVID-19 PHE. Over half (54%) reported that their first use of telehealth was during the PHE. Federal and state policies during the COVID-19 PHE waived restrictions to and expanded access to telehealth for clinicians and patients.

At least half of clinicians surveyed in DHTS reported being satisfied or very satisfied with their telemedicine experience. DHTS participants in all four states cited improved access for patients as one of the most common reasons for continued use of digital health tools beyond the PHE. Increasing telehealth among clinicians in these states may improve access to care for racial and ethnic minoritized and rural communities. For example, Medicare waiving telehealth payment requirements for originating sites beyond those designated as rural likely had significant implications for access to care for racial and ethnic minoritized communities in urban areas. Medicare enrollees' use of telehealth was higher in urban areas compared to rural areas in 2020, emphasizing the importance of expanding telehealth across geographic locations and in urban areas.³⁰

Despite widespread adoption of telehealth during the COVID-19 PHE, sustaining its use requires overcoming existing challenges due to cost and integration of telehealth into clinical workflow.

► **Implementation of telehealth is time- and resource-intensive.** The most common barrier to adoption of digital health tools reported by primary care clinicians in the DHTS was cost (51%). Costs to upgrade or buy new technologies, hire needed workforce, and pay for trainings, liability insurance, and other resources can be expensive.^{24,31,24,54} For smaller and less-resourced practices—usually individually-owned and serving predominantly Medicaid populations—the financial and workforce investments needed to offer and sustain telehealth are difficult.^{24,55,31} Solo and smaller practices were less likely than FQHCs to report adoption of telehealth in the DHTS. Payment of audio-only telehealth visits and HIPAA flexibilities to use affordable technologies could have helped clinicians sidestep some cost challenges during the COVID-19 PHE.²⁴

► **Clinicians need time to integrate telehealth and other digital health tools into their workflow and train staff and patients on new technologies.** Primary care clinicians in the DHTS reported that time (51%) and limited workflow integration (40%) were also common barriers to adoption of digital health tools. Practices had to redesign clinical care models to incorporate telehealth, including training staff and/or patients, managing patient flow, integrating telehealth with their EHR systems, ensuring sufficient bandwidth to support both virtual and in-person care, and troubleshooting IT issues.²⁴ Clinicians need time and resources to design operational workflows that work with their practice to make the use of telehealth seamless for both clinicians and their patients.⁵⁵ Fifty-eight percent of primary care clinicians in the DHTS noted that ease of workflow integration was a factor promoting adoption of digital health tools.

- ▶ **Low reimbursement and uncertainty around reimbursement can deter some clinicians from adopting telehealth and other digital health tools, specifically those in private practice.**⁵⁶ Some primary care clinicians in the DHTS noted that the lack of reimbursement by public (32%) and private (25%) payers were barriers to adoption of digital health tools. Though policies promoting payment parity between in-person and virtual visits were more widespread during the COVID-19 PHE, the future of these policies post pandemic remain uncertain. Over half of physicians in one survey noted that they would be less likely to offer telehealth if reimbursement for virtual visits were 15 percent lower than in-person visits.⁵⁵
- ▶ **Lack of sufficient clinician buy-in can be a barrier to telehealth adoption.** Telehealth has historically met resistance from clinicians who believe it will produce lower quality care for patients.^{37,57} Nationally, telehealth visits are already declining from levels at the start of the COVID-19 PHE,^{7,58} although telehealth rates remain elevated compared to pre-pandemic levels.²⁸ Some evidence finds that most physicians reported they expect to return to primarily in-person delivery models over the next year.⁵⁵ Understanding the access, quality, and cost implications of increased telehealth use during the COVID-19 PHE can help ensure continued clinician buy-in beyond the PHE. DHTS clinicians reported that meeting patient needs (55%), improving patient health (50%), convenience/ increased efficiency (47%), enabling care coordination (45%), and engaging patients (45%) were factors supporting their adoption of digital health tools. Notably, at least 61 percent of clinicians in the DHTS were satisfied or very satisfied with their telemedicine experience. Clinicians cited ease of workflow, ability to meet patient needs, and contribution to improvements in patient health as facilitators in the DHTS. Knowledge sharing, which emphasizes these experiences and perspectives, can potentially contribute to increasing clinician buy-in. Even if physicians expect to return primarily to in-person models, telehealth can complement existing systems to allow clinicians maximum flexibility to address patient needs in relation to their local contexts.

“Telehealth-enabled healthcare, driven by temporary regulatory and reimbursement flexibilities, enabled primary care physicians to treat their patients during the pandemic. Beyond the pandemic, digital health tools will be an increasingly important way to engage and manage population health especially in underserved areas. However, this will not occur until the operational and workflow processes are implemented to enable a hybrid practice (digital-physical). Too much friction currently exists for Providers to mainstream the flexible delivery of care across settings.”

Kristi Henderson, DNP

CEO, Optum Everycare and Board Chair of American Telemedicine Association

POLICY CONSIDERATIONS

Policy and practice changes are needed beyond the COVID-19 PHE to sustain and maximize telehealth opportunities moving forward.

Nationwide expansion of telephone and audio-only telehealth services. The Consolidated Appropriations Act of 2021 (CAA) expanded flexibilities to cover mental health and substance use audio-only visits permanently.⁷ Maintaining access to audio-only telehealth services can be a lever for advancing equity.²⁴ Policies should consider flexibilities for populations who may not have a reliable source of internet, thereby needing to depend on telephone and audio-only services.

Continued expansion of the originating site and geographic locations. Removing originating site restrictions prior to the PHE resulted in a number of claims from distant practitioners that exceeded the number of claims from originating sites, highlighting the need and demand for expanded telehealth care access.⁵⁹ The CAA permanently removed geographic restrictions for mental health and substance use services delivered over telehealth to a patient's home.⁷

Medicare enrollees also saw expanded benefits. During the COVID-19 PHE, people enrolled in Medicare living in urban areas could receive telehealth services, which was originally restricted only to those living in rural areas.³⁰ Overall, urban enrollees with Medicare coverage had a 140-fold increase in telehealth use for Part B FFS visits. While overall telehealth visits in urban and rural areas were higher across all racial and ethnic groups in 2020 compared to 2019, there is evidence of racial and ethnic disparities in the uptake of telehealth in 2020.³⁰ Hispanic and American Indian/Alaska Native Medicare enrollees had higher telehealth use than White individuals in urban and rural areas. However, Black individuals had lower telehealth use in urban and rural areas compared with White individuals. It is important to maintain flexibilities for originating sites, including keeping a patient's home as an originating site,^{24,60} and allowing FQHCs and rural health centers (RHCs) to serve as distant sites in telehealth encounters.⁶⁰

Investments in broadband and telecommunications infrastructure, particularly in underserved and rural communities and for smaller and less-resourced practices. As noted above, there is inequitable access to technology; some minoritized racial and ethnic populations, low-income populations, and patients in rural areas may lack access to smartphones, broadband, or computers.^{61,28,31} Sizeable portions of each of the four states' populations live in rural areas and lack internet access, emphasizing the need to support broadband and telecommunications infrastructure in order for expanded telehealth policies to be effective (Appendix Exhibit A). In addition, investments in telecommunications infrastructure for smaller, and less-resourced practices are needed.²⁴ Physicians in larger practices, as well as practices not owned by physicians, had higher use of telehealth.^{35,62} Likely, these practices may be better able to make the investments necessary to support telehealth, which can be a financial burden for smaller clinics.³⁵

Telehealth services and payment parity with in-person services. Payment parity laws can play a part in ensuring that patients can continue to see the same clinicians via telehealth as they did in person. Lack of parity was a disincentive for clinicians to use telehealth prior to the PHE, despite evidence of broad support for its use.⁶³ Adequate reimbursement for telehealth will be an important factor to maintaining broad adoption.²⁴ Payment parity facilitated health care clinicians to be reimbursed the same amount for telehealth visits as in-person visits.⁶⁴ Many states implemented temporary payment parity through the end of the PHE, but now, many states are implementing payment parity on a permanent basis.⁶⁴

Other policy considerations. There is also a need for additional research to understand the impact of telehealth on cost and quality outcomes.^{7,60} In addition, federal agencies should consider the role of HIPAA regulations and privacy implications of non-public facing technologies while balancing ease of use,⁶³ particularly the potential benefits of HIPAA flexibilities for non-public facing video conference platforms to maintain broad access for individuals with limited technology literacy. Furthermore, policymakers should assess the role of maintaining interstate licensures for treating patients across state lines. To ensure that people can continue receiving existing access to mental health treatments—and safely receive new treatments—policymakers will also need to assess the role of existing and new prescriptions of controlled substances via telehealth given rising mental health concerns during the COVID-19 PHE.⁶⁰

“Telehealth-enabled healthcare, driven by temporary regulatory and reimbursement flexibilities, enabled primary care physicians to treat their patients during the pandemic. Beyond the pandemic, digital health tools will be an increasingly important way to engage and manage population health especially in underserved areas. However, this will not occur until the operational and workflow processes are implemented to enable a hybrid practice (digitalphysical). Too much friction currently exists for Providers to mainstream the flexible delivery of care across settings.”

Caroline M. Jacobsen, MPhil

Principal Health Economist, Boston Scientific; Fellow (Alumni),
CEO Action for Racial Equity

APPENDIX

EXHIBIT A: DEMOGRAPHICS AND ACCESS TO INTERNET AND DIGITAL TECHNOLOGIES, BY STATE

Demographics and Household Characteristics	Georgia ⁶⁵ (Full profile)	North Carolina ⁶⁶ (Full profile)	Tennessee ⁶⁷ (Full profile)	Kentucky ⁶⁸ (Full Profile)	National
Total Population ⁶⁵⁻⁶⁹	10.5 million+	10.2 million +	7 million +	4.5 million +	331.8 million +
Percent Black ^{65-68,70}	33	21	17	9	12.4
Percent Hispanic ^{65-68,70}	10	10	6	4	18.7
Percent in rural areas ^{65-68,71}	17	21	22	41	14
Households without internet access, ^{%^{65-68,72}}	17	18	20	20	22.5
Households without broadband access, ^{%^{65-68,73}}	21	24	25	24	15
Households without any type of computer, ^{%^{65-68,73}}	11	13	15	16	8
Households accessing internet only through smartphone, ^{%^{65-68,74}}	6	6	7	7	15

EXHIBIT B: TELEHEALTH POLICY BY STATE, PRE AND DURING THE COVID-19 PHE

State	State Telehealth Policies	
	Pre-COVID-19 PHE	During COVID-19 PHE
Georgia ^{75,76}	<ul style="list-style-type: none"> ▶ Did not reimburse telemedicine services in the same way as in-person services ▶ Reimbursed for live video telemedicine, as long as service was medically necessary and appropriate ▶ Both patient and clinician needed to be at one of eligible sites during visit (not including home) 	<ul style="list-style-type: none"> ▶ Authorized health care clinicians to provide telehealth services and patients to receive health services from home ▶ Approved audio-only care in certain circumstances ▶ Prohibited the need for in-person consultation before receiving telehealth services ▶ Banned separate deductibles for telehealth services
Tennessee ^{77,78}	<ul style="list-style-type: none"> ▶ Coverage was guaranteed for live video telehealth for crisis-related services ▶ Did not specify the type of healthcare clinician allowed to practice telemedicine 	<ul style="list-style-type: none"> ▶ Amended its telehealth laws to authorize the practice of physical therapy and occupational therapy via telehealth ▶ Redefined store-and-forward technology, allowing patients and clinicians to engage in services even if they are not available at the same time ▶ Authorized certain out-of-state clinicians to provide telehealth services on a volunteer basis through a free clinic in the state.
North Carolina ^{79,80}	<ul style="list-style-type: none"> ▶ Reimbursed for medically necessary services delivered via live video telemedicine, with some restrictions and conditions on care, including prior approvals ▶ Required that telehealth clinicians obtain a full license specifically required for telemedicine in the state of North Carolina 	<ul style="list-style-type: none"> ▶ Expanded its telehealth services during the COVID-19 PHE by waiving the requirement that healthcare and behavioral healthcare personnel be licensed in North Carolina to provide healthcare services to individuals within the state. ▶ The North Carolina Medical Board adopted and implemented several emergency procedures and orders and the North Carolina Nursing Board loosening of existing licensure requirements.
Kentucky ^{81,82}	<ul style="list-style-type: none"> ▶ Medicaid did not reimburse for store-and-forward (asynchronous visits) 	<ul style="list-style-type: none"> ▶ Started creating new telehealth laws in 2018, and significantly expanded telehealth services during the COVID-19 PHE by issuing guidance to have telehealth services include remote patient monitoring, wellness visits, nutrition counseling, mental health counseling, among others

EXHIBIT C: DHTS FINDINGS BY STATE

	Georgia ¹⁷ (Full profile)	Kentucky ¹⁸ (Full Profile)	North Carolina ⁸³ (Full profile)	Tennessee ⁸⁴ (Full profile)
Telemedicine Use				
Clinicians Using Telemedicine, %	67	68	68	52
Clinicians Satisfied or Very Satisfied with Telemedicine Experience, %	61	72	57	70
Digital Health Tools Use				
Clinicians Using Digital Health Tools Overall, %	99.5	100	99.4	99.4
Clinicians Using Digital Health Tools due to COVID-19, %	89.6	90	89.6	89.8
Stated Reasons for Continuing Use of Digital Health Tools After the COVID-19 PHE ^{17,18,83,84}	<ul style="list-style-type: none"> ▶ Triage patients before visit to the emergency department (for COVID and non-COVID-related symptoms) ▶ Assessment of COVID-19 symptoms prior to referral to specialists and hospitals ▶ Chronic care management ▶ Continued access to care for rural and underserved communities 	<ul style="list-style-type: none"> ▶ Reducing barriers to access to care ▶ Providing access to substance use and mental health therapy ▶ Continuity of care for patients with or without COVID-19 	<ul style="list-style-type: none"> ▶ Assessment of behavioral and mental health, and therapy appointments ▶ Continued access for care for patients in communities with transportation barriers ▶ Medication management and refills 	<ul style="list-style-type: none"> ▶ Continuity of care with specialists and other health care professionals ▶ Expand access for patients to behavioral health services ▶ Management of opioid prescribing and pain management visits

REFERENCES

1. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. The National Academies Press; :360. doi:10.17226/10027
2. What is Telehealth? Official web site of the U.S. Health Resources & Services Administration. Published September 30, 2021. Accessed April 19, 2022. <https://www.hrsa.gov/rural-health/telehealth/what-is-telehealth>
3. Serving Vulnerable and Underserved Populations. <https://marketplace.cms.gov/technical-assistance-resources/training-materials/vulnerable-and-underserved-populations.pdf>
4. Frist W. Telemedicine: A Solution To Address The Problems Of Cost, Access, And Quality. *Health Affairs Forefront*. Published July 23, 2015. Accessed April 26, 2022. <https://www.healthaffairs.org/doi/10.1377/forefront.20150723.049490/full/>
5. Telehealth Programs. U.S. Health Resources & Services Administration. Published April 28, 2017. Accessed April 26, 2022. <https://www.hrsa.gov/rural-health/telehealth>
6. Lustig TA. *The Role of Telehealth in an Evolving Health Care Environment: Workshop Summary*. The National Academies Press; 2012:159. https://www.ncbi.nlm.nih.gov/books/NBK207145/pdf/Bookshelf_NBK207145.pdf
7. Lo J, Rae M, Amin K, Cox C. Outpatient telehealth use soared early in the COVID-19 pandemic but has since receded. *Peterson-KFF Health System Tracker*. Published February 10, 2022. Accessed April 25, 2022. <https://www.healthsystemtracker.org/brief/outpatient-telehealth-use-soared-early-in-the-covid-19-pandemic-but-has-since-receded/>
8. American Medical Association. *AMA Digital Health Care 2016 & 2019 Study Findings*. American Medical Association. Accessed April 20, 2022. <https://www.ama-assn.org/about/research/ama-digital-health-care-2016-2019-study-findings>
9. Fischer SH, Ray KN, Mehrotra A, Bloom EL, Uscher-Pines L. Prevalence and Characteristics of Telehealth Utilization in the United States. *JAMA Network Open*. 2020;3(10):e2022302. doi:10.1001/jamanetworkopen.2020.22302
10. Gaglioti A, Douglas M, Li C, Baltrus P, Blount M, Mack D. County-Level Proportion of Non-Hispanic Black Population is Associated with Increased County Confirmed COVID-19 Case Rates After Accounting for Poverty, Insurance Status, and Population Density. Published online May 2020. <https://www.msm.edu/RSSFeedArticles/2020/May/documents/County-Level-Proportion-of-AA-Case-Rate-of-COVID19.pdf>
11. Douglas MD, Respress E, Gaglioti AH, et al. Variation in Reporting of the Race and Ethnicity of COVID-19 Cases and Deaths Across US States: April 12, 2020, and November 9, 2020. *Am J Public Health*. 2021;111(6):1141-1148. doi:10.2105/AJPH.2021.306167
12. Baltrus P, Douglas M, Li C, et al. Percentage of Black Population and Primary Care Shortage Areas Associated with Higher COVID-19 Case and Death Rates in Georgia Counties. *South Med J*. 2021;114(2):57-62. doi:10.14423/SMJ.0000000000001212
13. Wen L, Sadeghi N. Addressing Racial Health Disparities In The COVID-19 Pandemic: Immediate And Long-Term Policy Solutions. *Health Affairs Forefront*. Published online July 20, 2020. Accessed April 25, 2022. <https://www.healthaffairs.org/doi/10.1377/forefront.20200716.620294/full/>
14. Mack D, Zhang S, Douglas M, Sow C, Strothers H, Rust G. Disparities in Primary Care EHR Adoption Rates. *J Health Care Poor Underserved*. 2016;27(1):327-338. doi:10.1353/hpu.2016.0016
15. Douglas MD, Xu J, Heggs A, Wrenn G, Mack DH, Rust G. Assessing Telemedicine Utilization by Using Medicaid Claims Data. *Psychiatr Serv*. 2017;68(2):173-178. doi:10.1176/appi.ps.201500518
16. Artiga S. Health and Health Coverage in the South: A Data Update. Kaiser Family Foundation. Published February 10, 2016. Accessed April 25, 2022. <https://www.kff.org/racial-equity-and-health-policy/issue-brief/health-and-health-coverage-in-the-south-a-data-update/>
17. Leveraging Digital Health Tools to Advance Health Equity-Georgia. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/GA_DHTS_Data_Brief_FINAL.pdf
18. Leveraging Digital Health Tools to Advance Health Equity-Kentucky. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/KY_Leadership_Roundtables_FINAL.pdf

19. 2020 Scorecard on State Health System Performance. The Commonwealth Fund. Accessed April 27, 2022. <https://2020scorecard.commonwealthfund.org>
20. Achieving Racial and Ethnic Equity in U.S. Health Care. The Common. doi:10.26099/ggmq-mm33
21. Lowey NM. *H.R.6074 - 116th Congress (2019-2020): Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020.*; 2020. Accessed April 25, 2022. <https://www.congress.gov/bill/116th-congress/house-bill/6074>
22. HIPAA flexibility for telehealth technology. HHS Telehealth. Published January 28, 2021. Accessed April 25, 2022. <https://telehealth.hhs.gov/clinicians/policy-changes-during-the-covid-19-public-health-emergency/hipaa-flexibility-for-telehealth-technology/>
23. Consolidated Appropriations and American Rescue Plan Acts of 2021 telehealth updates. HHS Telehealth. Published September 8, 2021. Accessed April 25, 2022. <https://telehealth.hhs.gov/clinicians/policy-changes-during-the-covid-19-public-health-emergency/consolidated-appropriations-and-american-rescue-plan-acts-2021/>
24. Weigel G, Ramaswamy A, Sobel L, Salganicoff A, Cubanski J, Freed M. Opportunities and Barriers for Telemedicine in the U.S. During the COVID-19 Emergency and Beyond. Kaiser Family Foundation. Published May 11, 2020. Accessed April 19, 2022. <https://www.kff.org/womens-health-policy/issue-brief/opportunities-and-barriers-for-telemedicine-in-the-u-s-during-the-covid-19-emergency-and-beyond/>
25. Centers for Medicare & Medicaid Services. Trump Administration Drives Telehealth Services in Medicaid and Medicare. Centers for Medicare & Medicaid Services. Published October 14, 2020. Accessed April 22, 2022. <https://www.cms.gov/newsroom/press-releases/trump-administration-drives-telehealth-services-medicare-and-medicare>
26. State COVID-19 Data and Policy Actions. Kaiser Family Foundation. Published February 10, 2022. Accessed April 25, 2022. <https://www.kff.org/report-section/state-covid-19-data-and-policy-actions-policy-actions/>
27. Lloyd S. A Review of Telehealth Trends: Informing the Future of Virtual Care. Presented at: February 2021. <https://www.ama-assn.org/practice-management/digital/stacy-lloyd-mph-reviews-telehealth-trends>
28. Koonin L, Hoots B, Tsang C, et al. *Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic — United States, January–March 2020.* Centers for Disease Control and Prevention; 2020. Accessed April 22, 2022. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6943a3.htm>
29. Gelburd R. Telehealth Claim Lines Rise 2980% in One-Year Period Through September 2020. The American Journal of Managed Care. Accessed April 25, 2022. <https://www.ajmc.com/view/telehealth-claim-lines-rise-2980-in-one-year-period-through-september-2020>
30. Wong Samson L, Tarazi W, Turrini G, Sheingold S. Medicare Beneficiaries' Use of Telehealth in 2020: Trends by Beneficiary Characteristics and Location. Assistant Secretary for Planning and Evaluation. Published December 3, 2021. Accessed April 20, 2022. <https://aspe.hhs.gov/reports/medicare-beneficiaries-use-telehealth-2020>
31. Chu RC, Peters C, Lew ND, Sommers BD. *State Medicaid Telehealth Policies Before and During the COVID-19 Public Health Emergency.* Assistant Secretary for Planning and Evaluation; 2021:16. <https://aspe.hhs.gov/sites/default/files/2021-07/medicaid-telehealth-brief.pdf>
32. Mehrotra A, Chernew M, Linetsky D, Hatch H, David C, Schneider E. The Impact of COVID-19 on Outpatient Visits in 2020: Visits Remained Stable, Despite a Late Surge in Cases. The Commonwealth Fund. doi:10.26099/bvhf-e411
33. Poll: Nearly Half of the Public Say They or a Family Member Skipped or Delayed Care Due to Coronavirus, But Most Plan to Get Care in the Coming Months. Kaiser Family Foundation. Published May 27, 2020. Accessed April 25, 2022. <https://www.kff.org/coronavirus-covid-19/press-release/poll-nearly-half-of-the-public-say-they-or-a-family-member-skipped-or-delayed-care-due-to-coronavirus-but-most-plan-to-get-care-in-the-coming-months/>
34. Devitt M. COVID-19 Continues to Cause Some People to Put Off Care. American Academy of Family Physicians. Published August 6, 2021. Accessed April 25, 2022. <https://www.aafp.org/news/health-of-the-public/20211006delayedcare.html>
35. Kane C, Gillis K. The Use Of Telemedicine By Physicians: Still The Exception Rather Than The Rule. *Health Affairs.* 2018;37(12):8. doi:<https://doi.org/10.1377/hlthaff.2018.05077>
36. Dixit N, Van Seville Y, Crawford GB, Ginex PK, Ortega PF, Chan RJ. Disparities in telehealth use: How should the supportive care community respond? *Support Care Cancer.* 2022;30(2):1007-1010. doi:10.1007/s00520-021-06629-4

37. *Telehealth Index: 2019 Physician Survey*. Amwell; 2020:16. <https://static.americanwell.com/app/uploads/2019/04/American-Well-Telehealth-Index-2019-Physician-Survey.pdf>
38. Nies S, Patel S, Shafer M, Longman L, Sharif I, Pina P. Understanding Physicians' Preferences for Telemedicine During the COVID-19 Pandemic: Cross-sectional Study. *JMIR Form Res*. 2021;5(8):e26565. doi:10.2196/26565
39. Pierce BS, Perrin PB, Dow AW, Dautovich ND, Rybarczyk BD, Mishra VK. Changes in Physician Telemedicine Use during COVID-19: Effects of Practice Setting, Demographics, Training, and Organizational Policies. *Int J Environ Res Public Health*. 2021;18(19):9963. doi:10.3390/ijerph18199963
40. Finnegan J. Primary care using NPs and PAs to reach patients with virtual visits. Fierce Healthcare. Accessed April 19, 2022. <https://www.fiercehealthcare.com/practices/primary-care-using-nps-and-pas-to-reach-patients-virtual-visits>
41. Zolot J. COVID-19 Brings Changes to NP Scope of Practice. *American Journal of Nursing*. 2020;120(8):14. doi:10.1097/01.NAJ.0000694516.02685.29
42. Greenblatt A. States Loosen Medical Regulations Post-Pandemic. *Governing*. Published May 18, 2021. Accessed April 19, 2022. <https://www.governing.com/now/states-loosen-medical-regulations-post-pandemic>
43. Snyder EF, Kerns L. Telehealth Billing for Nurse Practitioners During COVID-19: Policy Updates. *J Nurse Pract*. 2021;17(3):258-263. doi:10.1016/j.nurpra.2020.11.015
44. Kane C. Telehealth in 2020: Survey Data Show Widespread Use Across Most Physician Specialties and for a Variety of Functions. Published online 2021. <https://www.ama-assn.org/system/files/2020-prp-telehealth.pdf>
45. Coffman M, Moore M, Jetty A, Klink K, Bazemore A. Who is Using Telehealth in Primary Care? Safety Net Clinics and Health Maintenance Organizations (HMOs). *J Am Board Fam Med*. 2016;29(4):432-433. doi:10.3122/jabfm.2016.04.150375
46. Centers for Medicare & Medicaid Services. Federally Qualified Health Centers (FQHC) Center. Accessed April 21, 2022. <https://www.cms.gov/Center/Clinician-Type/Federally-Qualified-Health-Centers-FQHC-Center>
47. American Medical Association. *AMA Digital Health Research*. American Medical Association; 2020:37. <https://www.ama-assn.org/system/files/2020-02/ama-digital-health-study.pdf>
48. Chronic Care Management Services. Published online 2018. <https://www.cms.gov/outreach-and-education/medicare-learning-network-mln/mlnproducts/downloads/chroniccaremanagement.pdf>
49. Quality Payment Program Overview. Quality Payment Program. Accessed April 27, 2022. <https://qpp.cms.gov/about/qpp-overview>
50. COVID-19 Response. Quality Payment Program. Published March 3, 2022. Accessed April 27, 2022. <https://qpp.cms.gov/resources/covid19>
51. Small, Underserved, and Rural Practices. Quality Payment Program. Accessed April 27, 2022. <https://qpp.cms.gov/resources/small-underserved-rural-practices>
52. MacKinney AC, Ullrich F, Mueller KJ. *Primary Care Clinician Participation in the CMS Quality Payment Program*. RUPRI Center for Rural Health Policy Analysis; 2019:6. <https://rupri.public-health.uiowa.edu/publications/policybriefs/2019/QPP%20Participation.pdf>
53. Quality Payment Program Participation in 2020: Results-At-A-Glance. <https://qpp-cm-prod-content.s3.amazonaws.com/uploads/1783/QPP%202020%20Participation%20Results%20Infographic.pdf>
54. Kichloo A, Albosta M, Dettloff K, et al. Telemedicine, the current COVID-19 pandemic and the future: a narrative review and perspectives moving forward in the USA. *Family Medicine and Community Health*. 2020;8(3):e000530. doi:10.1136/fmch-2020-000530
55. Cordina J, Fowkes J, Malani R, Medford-Davis L. Patients love telehealth-physicians are not so sure. McKinsey & Company. Published February 22, 2022. Accessed April 25, 2022. <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/patients-love-telehealth-physicians-are-not-so-sure>
56. Mehrotra A, Linetsky D, Hatch H. This is supposed to be telemedicine's time to shine. Why are doctors abandoning it? *STAT*. Published June 25, 2020. Accessed April 25, 2022. <https://www.statnews.com/2020/06/25/telemedicine-time-to-shine-doctors-abandoning-it/>
57. Guttentag S. The State of Telehealth, According to Healthcare Clinicians and Patients. GoodRx Health. Published

- November 15, 2021. Accessed April 25, 2022. <https://www.goodrx.com/healthcare-access/telehealth/state-of-telehealth-survey-2021>
58. Devereaux M. U.S. saw significant drop in telehealth use last year after rapid growth in 2020. Modern Healthcare. Published January 3, 2022. Accessed April 25, 2022. <https://www.modernhealthcare.com/care-delivery/us-saw-significant-drop-telehealth-use-during-2021>
59. Gilman M, Stensland J. Telehealth and Medicare: Payment Policy, Current Use, and Prospects for Growth. *Medicare Medicaid Res Rev.* 2013;3(4):E1-E14. doi:10.5600/mmrr.003.04.a04
60. North S. These Four Telehealth Changes Should Stay, Even After the Pandemic. *FPM.* 2021;28(3):9-11.
61. *Report of the Council on Medical Service: Addressing Equity in Telehealth.* American Medical Association; 2021:12. <https://www.ama-assn.org/system/files/2021-06/j21-cms-report-7.pdf>
62. Robeznieks A. Which medical specialties use telemedicine the most? American Medical Association. Published January 11, 2019. Accessed April 25, 2022. <https://www.ama-assn.org/practice-management/digital/which-medical-specialties-use-telemedicine-most>
63. Shachar C, Engel J, Elwyn G. Implications for Telehealth in a Postpandemic Future: Regulatory and Privacy Issues. *JAMA.* 2020;323(23):2375-2376. doi:10.1001/jama.2020.7943
64. Augenstein J, Marks JD, Andrade M. Executive Summary: Tracking Telehealth Changes State-by-State in Response to COVID-19. Manatt. Published April 8, 2022. Accessed April 22, 2022. <https://manatt.com/insights/newsletters/covid-19-update/executive-summary-tracking-telehealth-changes-stat>
65. Health Equity & Digital Divide in Georgia. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/StateofHealthEquity_Georgia.pdf
66. Health Equity & Digital Divide in North Carolina.
67. Health Equity & Digital Divide in Tennessee. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/StateofHealthEquity_Tennessee.pdf
68. Health Equity & Digital Divide in Kentucky. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/StateofHealthEquity_Kentucky.pdf
69. U.S. Census Bureau QuickFacts: United States. Accessed July 29, 2022. <https://www.census.gov/quickfacts/fact/table/US/PST045221>
70. 2020 Census Illuminates Racial and Ethnic Composition of the Country. United States Census Bureau. Published August 12, 2021. Accessed July 29, 2022. <https://www.census.gov/library/stories/2021/08/improved-race-ethnicity-measures-reveal-united-states-population-much-more-multiracial.html>
71. Dobis EA. Rural America at a Glance: 2021 Edition. Published online 2021:18.
72. Nearly 1 in 4 Households Don't Have Internet—and a Quarter Million Still Use Dial-Up. Reviews.org. Published August 17, 2021. Accessed July 21, 2022. <https://www.reviews.org/internet-service/how-many-us-households-are-without-internet-connection/>
73. Bureau UC. Computer and Internet Use in the United States: 2018. Census.gov. Accessed July 21, 2022. <https://www.census.gov/newsroom/press-releases/2021/computer-internet-use.html>
74. Perrin A. Mobile Technology and Home Broadband 2021. Pew Research Center: Internet, Science & Tech. Published June 3, 2021. Accessed July 21, 2022. <https://www.pewresearch.org/internet/2021/06/03/mobile-technology-and-home-broadband-2021/>
75. Georgia Telemedicine Policy. eVisit. Published October 2019. Accessed July 29, 2022. <http://evisit.com/state-telemedicine-policy/georgia/>
76. Griswold D. Georgia Legislative Update — Telehealth and Other Health Care Developments. JD Supra. Published July 27, 2021. Accessed April 26, 2022. <https://www.jdsupra.com/legalnews/georgia-legislative-update-telehealth-3658480/>
77. Tennessee Telemedicine Policy. eVisit. Published October 2019. Accessed July 29, 2022. <http://evisit.com/state-telemedicine-policy/tennessee/>
78. Griswold D. Tennessee Health Care Legislation 2021 Update — General Assembly Passes CON Reform Bill. JD

- Supra. Published June 7, 2021. Accessed April 26, 2022. <https://www.jdsupra.com/legalnews/tennessee-health-care-legislation-2021-6159261/>
79. North Carolina Telemedicine Policy. eVisit. Accessed July 29, 2022. <http://evisit.com/state-telemedicine-policy/north-carolina/>
80. Gordet D, McCullough AJ, Welch S. North Carolina Telehealth Updates. JD Supra. Accessed April 27, 2022. <https://www.jdsupra.com/post/contentViewerEmbed.aspx?fid=001bb865-f91a-4238-b87f-ec5b7bd389fa>
81. Kentucky Telemedicine: Policy. eVisit. Published October 2019. Accessed August 1, 2022. <https://evisit.com/state-telemedicine-policy/kentucky/>
82. Telehealth Expansion in Kentucky 2020 During COVID-19: the Future? Sturgill Turner. Accessed April 27, 2022. <https://www.sturgillturner.com/our-insights/telehealth2020>
83. Leveraging Digital Health Tools to Advance Health Equity-North Carolina. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/NC_Leadership_Roundtables.pdf
84. Leveraging Digital Health Tools to Advance Health Equity-Tennessee. https://www.msm.edu/Research/research_centersandinstitutes/NCPC/DigitalTechnologySurvey/TN_Leadership_Roundtables_Draft2.pdf