

Underfunded Infrastructure

Impact on Health Equity

Community approach is key to bridging the digital divide and empowering digital health solutions

LEAD AUTHOR

Donna Christensen, MD

Former US Congresswoman, US Virgin Islands



LEAD AUTHOR

Donna Christensen, MD

Former US Congresswoman,
US Virgin Islands



SENIOR ADVISOR

Joyce Hunter

Acting Chief Information Officer, United
States Department of Agriculture,
and President, Data Science Camp



EDITED BY

Peter Gigante

CEO, Fluent Insights LLC



REVIEWED BY

Dr. Moira Kyweluk, PhD, MPH

Principal Director, Third Space Research



Dr. Ann Bagchi PhD, DNP, FNP-C, APN

Assistant Professor, School of Nursing,
Rutgers University and Health Committee
Chair, Latino Action Network



Dr. Linda Williams PhD, CGP

Founder and Chief Clinical Psychologist,
Well Psychology, Inc, and Founder,
Invisible Disability Project



Executive Summary

The COVID-19 pandemic highlighted the injustice of inadequate access to broadband internet – a disparity known as the “Digital Divide” – and intensified calls to address persistent health disparities for rural and underserved populations exacerbated by the divide. Remote health solutions, such as telehealth, can help bridge the divide but there are barriers to access including basic digital literacy and limited access to hardware and software that allow for tech-enabled connections. This paper draws on extensive research to lay out key issues that perpetuate the Digital Divide, identify opportunities and approaches that could help improve the situation, and present resources to support a path forward. The time is right for this research and conversation, as newly authorized infrastructure spending presents an opportunity for government entities and partners to focus more on equitable healthcare solutions. Utilizing public and private funds and expertise, we can advance a holistic approach to care – led by health advocates from local communities – for the best chance to successfully expand remote health access to rural and other underserved communities and improve both equitable access to care and health outcomes.



Key Findings

This paper explores the Digital Divide and other key social determinants that create barriers to quality health care and lays out the government policies and infrastructure investments that are needed to address those barriers.

Underscored by the COVID-19 pandemic, broadband internet has become an essential tool for healthcare and yet an estimated **120 million people in the US lack true broadband**. This 'Digital Divide' leads to healthcare inequities that disproportionately affect rural communities, seniors, and those with low income, less formal education, and disabilities.

- Broadband access is a “super-determinant” of health as it affects numerous other determinants such as education, employment, and healthcare access.
- Households with consistent broadband have increased health literacy, greater access to clinical and social services, make better informed healthcare choices, and stay closer connected to support systems of friends and family.
- Disparities cost the US \$93 billion in excess medical care and \$42 billion in lost productivity per year, as well as additional economic losses due to premature deaths.

Digital health services like telehealth can help bridge the gap for the underserved but will require **community outreach** and **digital literacy training** in equal measure to **hardware and software infrastructure expansion**.

- Health equity gaps in rural areas are particularly challenging as they are subject to additional social determinants including physician shortages, persistent poverty, food insecurity and “food deserts”, low insurance enrollment, insufficient benefits and coverage, excessive travel times, lack of transportation, and environmental exposures.
- A holistic approach led by health advocates from the local community has the best chance of improving health outcomes and successfully overcoming barriers caused by social determinants.
- Strategies for reaching vulnerable populations should center on community health workers (CHWs) who are themselves trusted and respected members of that population. CHWs have an ability to better understand the reality of how people live and the obstacles that keep them from success.

Funds allocated from the Infrastructure Investment and Jobs Act should align with **social impact** and **healthcare equity goals**.

- Funding should create or expand innovative digital inclusion programs.
- Program leadership should include meaningful representation from local community organizations with valuable experience in health equity and extensive community networks.
- Sponsors should consider requiring such representation when determining allocation of funding.



Social Determinants and Health Outcomes

What are Social Determinants of Health (SDoH)?

This paper highlights the Digital Divide and other key social determinants that create barriers to quality health care and lays out the government policies and infrastructure investments that can address those barriers. For decades, health research and policy experts from the US and abroad have known that good health derives at least as much from “nurture” as “nature.” Health policy literature refers to “nurture” in this context as **social determinants of health (SDoH)**. These are the daily circumstances of a person’s birth, living, learning, working, playing, worshipping, and aging that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Broadly, these conditions include economic, educational, medical, environmental, and social factors that have only recently been defined and tracked over time. Some determinants like poor transportation, lack of broadband access, and living with a disability are considered “super-determinants” as they cause disadvantage across numerous other determinants.¹ For example, lack of education or transportation can impact employment opportunities which in turn constrain income. Low income reduces access to healthcare and nutritious food and increases hardship. Hardship causes stress which in turn promotes unhealthy coping mechanisms such as substance abuse and overeating of unhealthy foods.²

The estimated number of deaths in the U.S. due to social factors — such as a lack of education, racial segregation, discrimination, and poverty — is comparable to the number resulting from heart disease, lung cancer, and other leading causes of death.³ These social factors are unevenly distributed and continue to drive health inequities via the complex interactions of geography, education, wealth, social status, race, gender identity, and sexual orientation.⁴ Current research shows a worrisome lack of progress in closing health equity gaps in the US over the past 25 years, with **self-reported health in the United States in decline between 1993 to 2017**.⁵



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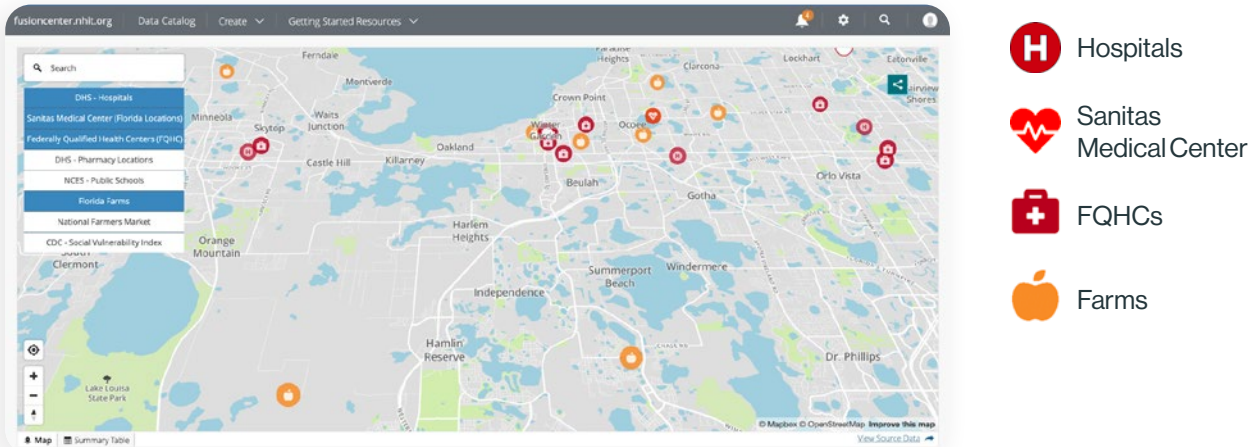
Photo by [Christophe Dion](#) on [Unsplash](#)



New Tools for SDoH Research

In order to address healthcare barriers, continued research is needed to identify and describe where and how the varied social determinants of health affect communities. Telehealth Equity Coalition co-founder, the National Health IT Collaborative for the Underserved (NHIT), is committed to expanding healthcare access to the underserved. As a part of that commitment, NHIT, in collaboration with Amazon Web Services and Tyler Technologies, has launched the NHIT Data Fusion Center to tackle and translate social determinants of health data into actionable insights. The Center pulls together de-identified, aggregated, and publicly available data and tools that allow for a granular understanding of determinants. In tandem, these datasets can provide practical insights into real-world problems, for example the placement of broadband nodes and hotspots for equitable service regions.⁶

Fig 1. NHIT Data Fusion Center Map of SDoH in Central Florida



SOCIAL DETERMINANTS OF HEALTH

Broadband Access and the Digital Divide

The COVID-19 pandemic placed renewed emphasis on digital connectivity as one of the major social determinants affecting health outcomes. As communities across the globe attempted to maintain basic functions while maintaining social distance, broadband internet connectivity became even more crucial to daily life. For tens of millions in the US, a lack of high speed internet access prevents their participation in remote work, training, education, healthcare, and social interactions. Households with consistent broadband benefit in numerous ways like finding greater availability and lower prices for goods and services, starting online businesses, acquiring new skills via distance learning, making better informed decisions about their healthcare, and staying connected to friends and family. Whether due to poor availability, affordability, or quality, **inadequate access to broadband internet causes chronic inequities known over the last 30 years as the “Digital Divide.”**⁷ Often these inequities manifest in historically excluded communities and those already at risk from factors like low income, less formal education, rural geography, old age, and disability.



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SOCIAL DETERMINANTS OF HEALTH

Inaccurate Maps and Chronic Deficits in Broadband

Starting with the Clinton Administration, federal and state programs have attempted to close the Digital Divide with subsidies and incentives. Despite the long-standing goal, the US Census estimates 1 in 7 (15%) Americans do not have high speed internet. For Americans in rural areas, the population affected grows to 1 in 5 (20%). While access to broadband has grown, the Government Accountability Office (GAO) has raised concerns that the Federal Communications Commission's (FCC) data – which informs decisions on where to allocate federal funds – lacks accuracy and overstates service.⁸

Since 2000, the FCC has published broadband service coverage maps constructed by the FCC using self-reported data from telecom providers that **dramatically overstates existing coverage**.⁹ Accurate data and service coverage maps are crucial as federal, state, local, and tribal governments all use these broadband maps to decide where to focus and fund broadband service expansions. The maps now pose a serious threat to plans to bring broadband access to millions of underserved and rural Americans — an increasingly crucial gateway to jobs, schooling and commerce. Separate analysis by Microsoft indicates over **120 million people** do not use the internet at FCC-defined broadband speeds.¹⁰ The analysis is based on anonymized datasets of demonstrated data transfer rates from across multiple Microsoft services.¹¹

The FCC has been measuring broadband deployment by counting an entire census block as served if a provider reports that it offers service to at least one location in the census block.¹² This method can overstate the extent of broadband deployment if the data shows that a census block has broadband but not all locations in the census block are actually served. New data collection efforts are underway to better inform and guide further broadband expansion. **While broadband infrastructure and computer hardware are necessary, true equitable access also requires focus on digital literacy and proficiency.** That is, how confidently people can use connected technology and safely navigate internet spaces.

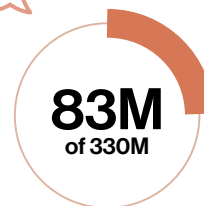


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SOCIAL DETERMINANTS OF HEALTH

Barriers to Quality Health Care

Quality healthcare increases the likelihood of desired health outcomes and provides safe, accessible, equitable, efficient, and effective patient-centered care.¹³ It is a comprehensive care model focused around living well by staying healthy with prevention, recovering from illness with treatment, and managing chronic conditions with support services. But for many, these ideals are far from reality. Although access to care overall has improved somewhat, significant disparities by race, ethnicity, household income, location of residence, and insurance type also exist with respect to finding a consistent source of care, receiving timely care, and successfully seeking care when needed.¹⁴



About one quarter of the US population live in areas designated by the US Department of Health as “**health professional shortage areas**.”

Even among the insured, millions of Americans encounter significant barriers to access healthcare services.¹⁵ The disadvantage for those living with a disability is often compounded due to a lack of disability-competency training for healthcare providers. Language barriers, a lack of permanent housing¹⁶, inaccessible service locations¹⁷, and scarce local health care resources all increase the risk of poor health outcomes and health disparities as patients delay care or forego it entirely. 83M residents live in areas designated by the US Department of Health as “health professional shortage areas.”¹⁸ Long waits for appointments and conflicting life obligations can also inhibit healthcare access even when resources exist. **Those most likely to encounter barriers include those with low incomes, persons in poor health, members of ethnic minority groups, and those with public insurance.**¹⁹

SOCIAL DETERMINANTS OF HEALTH

Health Inequity for Rural America

One in five Americans (60 million people) live in rural communities and rural residents have worse outcomes on several scores compared to urban and suburban dwellers. Recent studies have highlighted health equity challenges in rural areas in particular as they are subject to additional social determinants including physician



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shortages, persistent poverty, food insecurity and “food deserts”, insufficient insurance enrollment and coverage, excessive travel times, inadequate transportation options, environmental exposures, and broadband internet services that are often poor quality, unaffordable, or unavailable.²⁰ Those most at risk in rural areas include migrant workers who face yet more barriers due to frequent changes in residency as work demand shifts. Routine exams and consistent treatment are particularly important for those with chronic illness.



Rural residents are subject to additional social determinants including physician shortages, persistent poverty, food insecurity and “food deserts”, insufficient insurance enrollment and coverage, excessive travel times, inadequate transportation options, environmental exposures, and broadband internet services that are often poor quality, unaffordable, or unavailable.

The pandemic has also demonstrated the inequities in mental illness diagnosis and treatment for rural America. Telehealth accounted for 56% of all specialty mental health visits but telehealth is less often used in rural communities.²¹ Studies have shown **the use of telehealth in rural areas is between 25²² and 30 percent²³ lower compared to urban areas** and while telehealth visits among rural patients increased during the pandemic, the increase was significantly faster for urban patients.²⁴ The pandemic also complicated substance abuse treatment programs which are already strained due to an opioid crisis that has exploded in rural communities.²⁵ **Rural residents are more likely to receive opioid prescriptions than alternative pain management** like physical therapy due to lack of access.²⁶ Rural communities also have less access to Medications for Opioid Use Disorder (MOUD) centers that combine medications with counseling and behavioral therapies to provide a “whole-patient” approach to recovery.²⁷ Of the over 1,200 counties with no MOUD centers, nearly half (45%) are classified as rural. This lack of MOUD centers poses transportation and adherence challenges for people who need addiction recovery resources.

Even when MOUD centers are within a reasonable travel distance, rural communities face challenges in offering safe, affordable, and reliable methods of transportation. The lack of investment in infrastructure in rural communities coupled with increasing use of rural roads over time has affected transportation safety. **The U.S. Department of Transportation’s Federal Highway Administration estimates that 40% of roads in rural areas are “inadequate for current travel.”²⁸** Health costs associated with traffic crashes, air pollution, and physical inactivity add up to hundreds of billions of dollars each year, but health is typically not considered in transportation policy and planning.²⁹ Lack of transportation is the leading cause of patient no-shows for medical appointments, and missed appointments are associated with increased medical care costs for the patient, disruption of patient care and provider-patient relationships, delayed care and increased emergency room visits.³⁰ **Not only is access to transportation a determinant of health in itself, it is also a barrier to addressing other health-related social needs, such as access to healthy food and social connections.**

Cost of Inequity

Any single one of these barriers poses an inconvenience. Together, they create major discrepancies in health between urban and rural America that affect us all. The lack of care and inconsistent access to care has significant personal, social, and economic consequences. Social determinants are found to cause substantial disparities in health outcomes for many indicators, including infant mortality, life expectancy, cardiovascular disease, cancer, diabetes, chronic obstructive pulmonary disease, kidney disease, Alzheimer’s disease, HIV/AIDS, health care access and utilization, health insurance, disability, mental health, preventive health services, smoking, obesity, substance use, drug overdose mortality, suicide, homicide, and unintentional injuries.³¹ It is estimated that **these disparities amount to approximately \$93 billion in excess medical care costs and \$42 billion in lost productivity per year** as well as additional economic losses due to premature deaths.³²



Per year, these disparities amount to approximately

\$93B in excess medical care costs

\$42B in lost productivity

Benefits of Preventive and Routine Care

Early intervention and primary care provide more opportunities to modify known risk factors (e.g. tobacco and alcohol) to prevent disease, detect disease at earlier stages, and control disease to avert serious complications. Prevention and early detection can maintain if not improve quality of life, lower healthcare costs, and avoid the need for intense treatment or hospitalization. **Modifiable health risks such as obesity, high blood pressure, and smoking are leading drivers of healthcare costs in the US – over \$730 billion in 2016.**³³



In 2016, modifiable health risks such as obesity, high blood pressure, and smoking drove healthcare costs in the US to over

\$730B

For patients with chronic health conditions, access to routine health care results in better symptom management, lower mortality, and early detection of new conditions. Properly managing chronic conditions with regular checkups and an appropriate treatment regimen can reduce the need for assistive care from friends and family. Patients with well-managed chronic conditions are more likely to avoid emergency care, resulting in lower healthcare costs for everyone. An estimated \$8.3 billion is spent each year on preventable emergency department care related to chronic conditions.³⁴



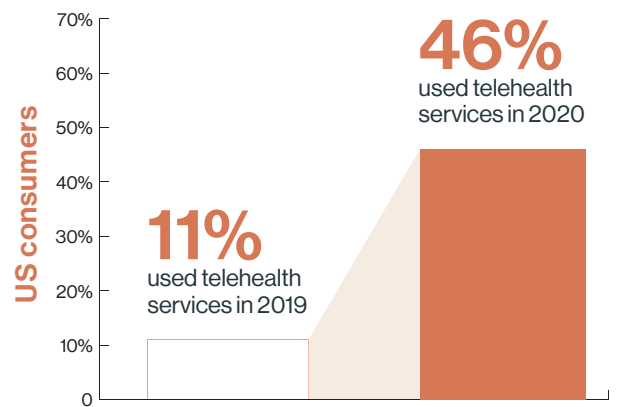


Development of Digital Health Solutions

Urgent Demand for Patient Digital Literacy Training

Throughout the pandemic, digital health solutions like telehealth have improved access to healthcare and offset the impact of several social determinants. For example, telehealth technology can reduce or eliminate the need for patient transportation, which is often a significant hardship for those with low income, living with disability, unable to operate a vehicle, or bound to inflexible work arrangements.³⁵ Telehealth can also cut wait times and improve early detection rates by expanding the pool of available primary care providers and specialists, extending the reach of safety net providers, helping patients maintain a provider relationship through housing disruptions, and alleviating language barriers via patient portals and increased access to medical interpreters.

With hospitals overwhelmed, patients cautious about being in healthcare facilities, physicians concerned with the spread of COVID-19, and regulators relaxing restrictions on providing remote care, use of telehealth programs skyrocketed. Only 11% of US consumers used telehealth services in 2019 and yet nearly half (46%) did so in 2020 due to the convergence of consumer need, technological capability, and provider motivation.³⁶ **Use of telehealth services increased particularly in rural areas with Medicaid reporting a rise from 1% of visits being conducted via telehealth in 2019 to 12% in 2020.**³⁷ While adoption seems to have peaked during the pandemic, 40 percent of consumers intend to use telehealth going forward—up from 11 percent of consumers using telehealth prior to COVID-19.³⁸ While the pandemic ignited strong interest in telehealth, **successful and equitable adoption of telehealth services depends as much on digital literacy training and community support as on computer hardware and network infrastructure.**



Pilot Programs in Holistic Digital Healthcare

Community health partnerships could fill this need for skills training and community support, particularly in vulnerable populations. For example, the recent timely alliance of **NHIT and Sanitas USA**³⁹ is well-positioned at the intersection of clinical care, digital life skills training, and universally accessible technology solutions. Sanitas USA, a Keralty company, has an innovative holistic model that provides for not just health care but also social care needs and community support.⁴⁰ The model provides for clinical services to promote health and to prevent and treat illnesses, social services to promote personal autonomy of people who need help to carry out their daily living activities, and empowerment of families, friends and neighbors to support those patients.

NHIT has long advocated for community-based education and outreach to bring equitable health technology to the underserved. NHIT has previously worked with Regional Extension Centers to reach healthcare providers for the uninsured, Medicaid, and other vulnerable patients in communities of color and promote the adoption of electronic health records. Their work addressed system gaps that impeded education and outreach, built local strategic partnerships focused on the underserved, and gained trust and access to providers in the underserved communities of color that are not usually penetrable.⁴¹

Reaching Vulnerable Groups via Community Advocates

Community health workers (CHWs), also known as *Promotores*, are liaisons between their communities and health and social service providers.⁴² CHWs who are members of underserved and vulnerable populations best understand the challenges and opportunities and share the desire to improve conditions in their communities. Because they share the same language, culture, ethnicity, status, and experiences of their communities, **CHWs are able to reduce the common barriers to health education and care services.** CHWs build and maintain relationships of trust and respect within their communities, and understand the reality of how people live and what obstacles keep them from success.

Migrant and Seasonal Farm Workers

Among **those who most benefit from a holistic, technology-assisted care program are rural communities and migrant farm workers** who typically face deficits of digital skills and support as well as hardware and infrastructure. The 3 million migrant and seasonal farmworkers estimated in the United States face limited health services and public transportation, language barriers, unfamiliar medical systems, lack of health insurance, and low wages. The average individual farmworker income ranged from \$12,500 to \$14,999 and the average total family income ranged from \$17,500 to \$19,999.⁴³ A mere 8 percent of farmworkers reported being covered by employer-provided health insurance, a rate that dropped to 5 percent for farmworkers who are employed seasonally and not year-round. Approximately 70% of farmworkers are among the estimated 25 million people in the US with limited or no English language proficiency⁴⁴, underscoring a need for multi-language care support for both in-person and digital health solutions.

The health and well-being of farm workers has significant implications for food safety, food supply chain security, and economic stability of the 1.1 trillion dollar agricultural and food sector.⁴⁵ Sick workers and poor hygiene practices can contaminate food and cause foodborne illness outbreaks.⁴⁶ Workers unable to access testing or care put the broader farm workforce at risk of an outbreak that could lead to a total operational shutdown. Supply chain disruptions from labor shortages, like those during the coronavirus pandemic, result in significant loss of income for farmers alongside food shortages and rising retail food prices for consumers.

'Universal design' is the concept of designing environments, products and services to be usable to the greatest extent possible by everyone, regardless of their age, ability, or personal circumstance. Designs that are mindful of users with the most barriers often benefit other groups as well. For example, curb ramps on street corners initially designed for wheelchair users also made it easier for people pushing strollers, the elderly with walkers, delivery workers with carts, or persons with rolling luggage.⁴⁷ In a healthcare setting, pilot programs that successfully improve both **digital connectivity and access to virtual healthcare services for the most vulnerable populations like migrant farmworkers should replicate easily** to other communities. Aspects of pilot programs may include several types of partnerships: government agencies for funding and expertise, local groups for outreach to their community members, telecom providers for hardware and network access, and foundations and academic institutions for program evaluation and further research.



Achievements in Digital Health

ACHIEVEMENTS IN DIGITAL HEALTH

COVID-19 Pandemic Response

On January 31, 2020, the United States declared a public health emergency (PHE) in response to the novel coronavirus, SARS-CoV-2, that results in COVID-19 illness. Shortly afterwards, many state and local governments began stay-at-home policies intended to prevent transmission of COVID-19 to patients in health care settings as well as to prevent hospitals from being overwhelmed.⁴⁸ With the sudden interest from providers and consumers in using telehealth, as well as regulatory changes enabling greater access and reimbursement, telehealth usage surged as a safe way to access and deliver health-care.⁴⁹ Overall telehealth use has stabilized at 38 times higher than before COVID-19 hit, ranging from 13% to 17% of visits across all specialties and remaining steady since June 2020. **About 40% of consumers said they plan to continue using telehealth, up from 11% before the pandemic.**⁵⁰

Providing and receiving care through telehealth became easier during the PHE thanks to streamlined federal and state regulations governing healthcare. Temporary flexibility in HIPAA requirements, equal payments to providers regardless of health-care modality, interstate licensing reciprocity, and enhanced authority for prescribers have sustained our healthcare system otherwise pushed to the brink of collapse.⁵¹ Policymakers evaluating whether to permanently adopt changes enacted during the pandemic should recognize the value of these policy changes in keeping a wide range of telehealth tools available to patients and providers and support continued access.

For example, the “store-and-forward” asynchronous telehealth modality allows for a patient-provider interaction and exchange of information that does not occur in real-time. Providers can use asynchronous technology to collect patient information, such as a self-reported medical history, clinical data, clinical images, or laboratory results, and also engage in exchanges with patients to gather additional information and answer patient questions. Asynchronous communication can take place over a secure app, or a secure messaging platform.⁵² Providers can then use this information to furnish care to patients when, within their discretion and clinical judgment, the patient is a candidate for treatment via telehealth. This technique uses lower broadband speeds than real-time video connections and is a useful tool in areas with physician shortages and less internet connectivity.

ACHIEVEMENTS IN DIGITAL HEALTH

Federal Rural Telehealth Collaboration

In August 2020, the FCC, USDA, and HHS signed a memorandum of understanding (MOU) to work together on a Rural Telehealth Initiative and establish an interagency Rural Telehealth Task Force to address the telehealth needs of the 57 million rural residents in the United States. Since 1994, the USDA Rural Development’s Distance Learning and Telemedicine (DLT) Program has provided grants and loans to help rural communities acquire the technology and training necessary to connect educational and medical professionals with students, teachers, and patients in rural areas. Congress provided USDA Rural Development \$57 million in DLT funding in Fiscal Year (FY) 2021.⁵³

In October 2020, the **Rural Telehealth Access Task Force Act** was introduced in the US House of Representatives which aims to create a federal task force to study how telehealth is used in rural parts of the country, what barriers it faces in adoption and expansion, and how federal programs to expand broadband connectivity are fostering telehealth growth.⁵⁴ The task force would include representatives from the **FCC**, which oversees, among other things, the COVID-19 Telehealth Program and Connected Care Pilot Program; the **Department of Health and Human Services**, which oversees the Centers for Medicare & Medicaid Services (CMS) and the Health Resources and Services Administration (HRSA); the **Department of Veterans Affairs (VA)**, which administers the largest telehealth program in the country; and the **National Telecommunications and Information Administration (NTIA)**.

ACHIEVEMENTS IN DIGITAL HEALTH

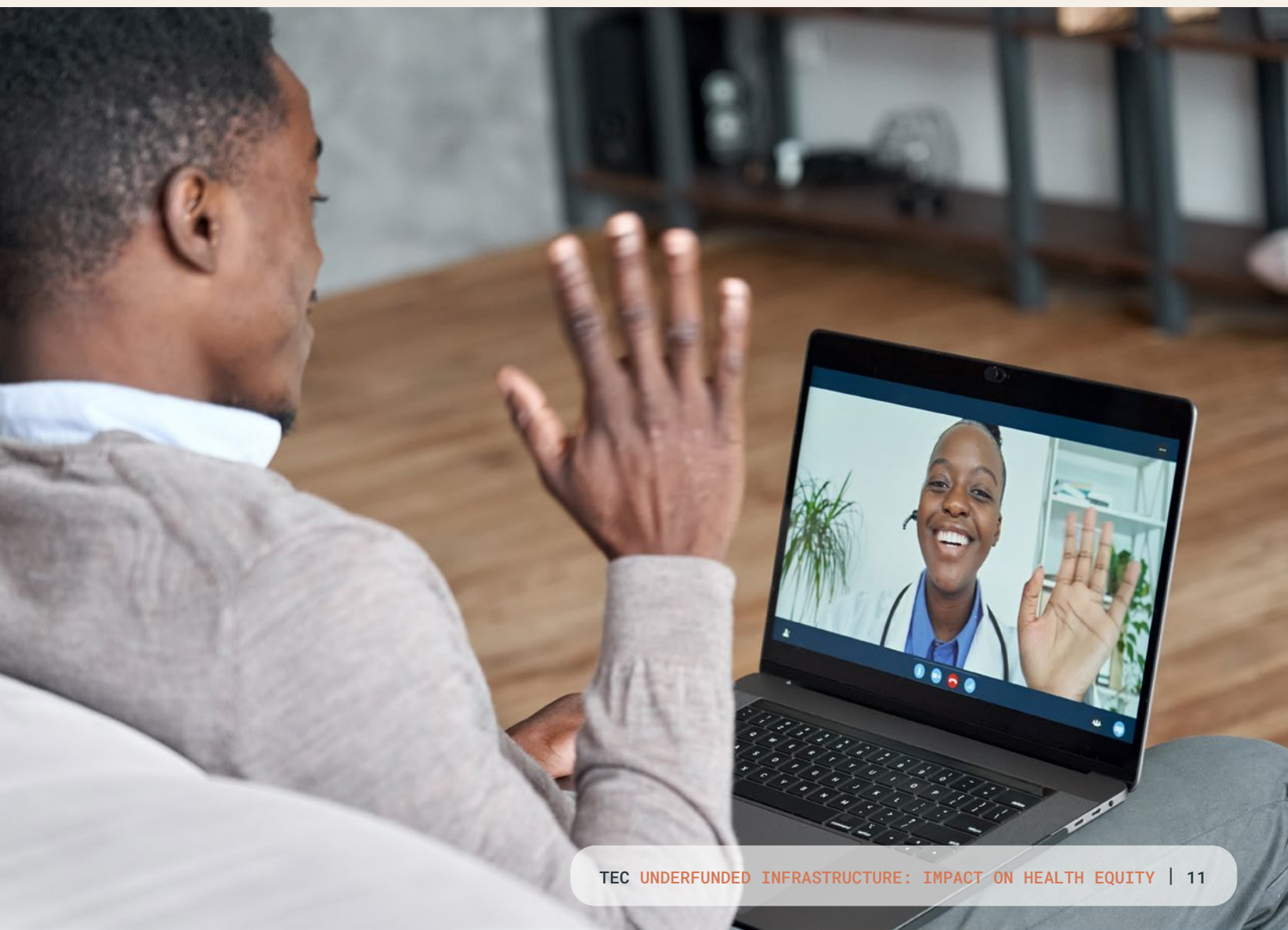
Department of Veterans Affairs

While telehealth has become a buzzword during the pandemic, digital health and telehealth services have a long history in the US. **The Department of Veterans Affairs (VA) documented the first instance of “telehealth” in the early 1960s**, when VA providers communicated with their patients via television. When Internet-based telehealth became viable, VA was an early adopter and by 2013, VA was treating more than 600,000 Veterans in 1.7 million instances of telehealth care.⁵⁵

Indian Health Services

Similarly, Indian Health Services (IHS), the Federal Health Program for American Indians and Alaska Natives (AI/AN), has a long history of using telehealth to fulfill its mission and provide access to care in rural and frontier areas. In 1973, IHS partnered with NASA and Lockheed Martin to provide telehealth to the Tohono O'odham Nation.⁵⁶ Historically, the IHS was an entirely federal system but is now managed with more local autonomy. Tribal governments now directly manage more than half of IHS-appropriated funds and the great majority of physical facilities are under self-governance contracts and compacts. In addition, 34 nonprofit Urban Indian Health centers provide care for AI/AN people and other underserved communities in urban locations. The IHS, Tribal, and Urban (I/T/U) health care facilities have come to be known collectively as the Indian health system.⁵⁷

The Alaska Federal Health Care Access Network (AFHCAN) has been in operation since 2001 and has been installed in 250 sites throughout Alaska.⁵⁸ Most of these sites (180, or 72 percent) are clinics staffed by community health aides/practitioners (CHA/P) in small villages with an average population of less than 300 residents. The AFHCAN system has greatly improved access to care for Alaska Natives. A study conducted in Nome, for example, found that prior to use of telemedicine for audiology and ear, nose, and throat (ENT) services, 47 percent of new patients would wait five months or longer for an in-person ENT appointment. After the introduction of telemedicine, this rate dropped to 8 percent of all patients in the first three years, and less than 3 percent of all patients in the next three years.⁵⁹ Using this service reduces patient wait times and opens up in-person appointment slots. Patients who need additional testing or in-person evaluation and care are seen in an expedited manner. In fact, most specialty consultations are now completed within two to four hours (ANTHC, unpublished data). More than 70 percent of all consultations are conducted without requiring the patient to travel to the specialist, resulting in an estimated \$8 to \$10-million savings annually in the state's patient travel costs.⁶⁰





The Road Ahead

Funding Opportunities

With the passage of the **Infrastructure Investment and Jobs Act (IIJA)** following the **American Rescue Plan Act of 2021**, tens of billions of federal dollars have been allocated for programs that both accelerate the recovery of groups most affected by the COVID-19 pandemic and to find innovative approaches in addressing physical and mental health, including digital health solutions. Many agencies are now releasing public notices calling for comments on various aspects of grant programs that have been created or greatly expanded by the IIJA. For example, the National Telecommunications and Information Administration (NTIA) received \$65 billion for improvements to broadband infrastructure and digital equity. They also must establish rules for various new grant programs within six months. From those funds, **\$2.75 billion is dedicated to establish three grant programs that promote digital inclusion and equity** to ensure that all individuals and communities have the skills, technology, and capacity needed to reap the full benefits of our digital economy.⁶¹

The U.S. Department of Agriculture (USDA) began accepting applications for the \$1.15 billion ReConnect rural broadband program for loans and grants to state, local or territory governments, corporations, Native American tribes, limited liability companies, and cooperative organizations to help people in rural areas get access to high-speed internet, which will be boosted by the infrastructure law.⁶²

Investing in Social Impact

The equitable expansion of telehealth will inevitably require money, and public funds will mix with private sector investment and foundation grants to meet that need. Program administrators should align fund allocations with social impact and healthcare equity goals. Digital health solutions have the potential to improve the quality of life for millions of underserved in the US if appropriately funded and designed. **Program leadership should include representation from grassroots organizations and community organizers**, many of which have been addressing health equity issues for decades and have extremely valuable experience and extensive community networks. Sponsors should consider including such representation as a contingency for funding.

Make Connections

While the enormous growth of telehealth is an exciting moment in the development of digital health solutions, it also reveals the scope of work yet to be done. From research to development, planning, funding, implementation, review, revision, there are numerous ways for stakeholders from healthcare, government, philanthropy, business, and technology to educate policymakers and engage with one another to develop collaborative solutions.

→ **Healthcare professionals** can offer their professional expertise and insights into the value telehealth provides, sharing experiences of connection and improved healthcare outcomes with their peers, the public, and policymakers - whether directly or in collaboration with professional associations and other allies.



Safety net clinic providers can get involved with programs like the MAVEN Project that connects frontline healthcare providers in medically underserved communities with expert volunteer physicians for timely virtual consults, ongoing mentoring, and education. MAVEN leverages these three services to forge long-term relationships with frontline providers and helps address workforce shortages and provider burnout.

- Many **Federal government agencies** including the Centers for Disease Control (CDC), US Department of Agriculture (USDA), Centers for Medicare & Medicaid Services (CMS), Federal Communications Commission (FCC), and the Health Resources and Services Administration (HRSA) have been and will continue to be involved in improving health outcomes and providing funding and expertise. These government departments and agencies also go through regular rulemaking processes and put out requests for information (RFIs). This creates a plethora of opportunities for stakeholders to share their expertise to assist policymakers in improving equitable health care access and use. As health inequity touches across many aspects of daily life, other agencies likely to get involved include the Department of Transportation (DOT), Department of Labor (DOL), Department of Education (DOE), and the Office of Science and Technology Policy (OSTP) and their state-level equivalents.
- **Philanthropic foundations** can play an important role in helping fund equity-focused pilot programs and expansions while promoting and supporting local community nonprofits.
- **Academic institutions** have a key role providing timely and unbiased research to advise on various aspects of program strategy at the state and federal level, as well as measure program progress and evaluate overall impact.
- The **healthcare and health technology industry** can continue to innovate and improve the quality and access to healthcare while being sensitive to underserved communities and potential social impact. They can also advocate for policies that promote patient and provider choice, enhance access to telehealth services and in-person services, invest in telehealth infrastructure, prioritize privacy and security, facilitate the delivery of healthcare services across state lines, address disparities in the use and willingness to use telehealth and remote patient monitoring technologies, and promote program integrity.

Conclusion

Rural, underserved, and underrepresented communities have not fully benefited from American innovation in science, medicine, or health care delivery and financing. We suggest using the Infrastructure funds to create demonstration projects that address gaps in six categories: health information and education, delivering and financing health services, health professions' development, cooperative efforts with the non-Federal sector, data development, and research agenda. Health disparities will be eliminated when we achieve health equity.

Endnotes

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