

THE ROLE OF TELEHEALTH IN ACHIEVING A HIGH PERFORMING RURAL HEALTH SYSTEM: PRIORITIES IN A POST-PANDEMIC SYSTEM

The Rural Policy Research Institute (RUPRI) Health Panel

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INTRODUCTION AND PURPOSE

In October 2020, the RUPRI Health Panel (Panel) published its first assessment of changes in telehealth usage during the Public Health Emergency (PHE), which through waivers and other policy initiatives facilitated dramatic increases in use of video and audio technologies as a means of improving access to medical services. Our focus was (and remains) on use of these technologies by rural residents and providers. At that time, we offered policy and practice considerations focused on preconditions for optimum use of telehealth that remain timely, including the following:

- *Infrastructure*: All residents need access to high-speed broadband connections, enabling them to take full advantage of telehealth services.
- *Authority*: Rural providers, including rural health clinics (RHCs), rural emergency hospitals (REHs),* federally qualified health centers (FQHCs), and critical access hospitals (CAHs) should be eligible sites (distant and originating) to deliver telehealth services.
- *Willingness to use*: Both providers and patients must be comfortable using telehealth services if that modality is to become a means of assuring affordable access to clinical and public health expertise. Payment and regulatory policies should be responsive to meeting the needs and preferences of end users.
- *Financing*: The role of telehealth in providing essential services continues to evolve, and both investment capital and payment policies will also need to evolve. Questions remain regarding appropriate levels of financing that balance expanding appropriate use of services to otherwise underserved populations, improving cost-effective delivery of services currently supported in traditional settings, and creating new profit centers that do not advance access, quality, or affordability of services.

The Panel's commentary in this paper continues to explore these considerations as preconditions, with the benefit of two additional years of experience during the PHE. We do so by using our updated overarching framework, the high-performing rural health system (HPRHS) of the future (A Coburn, A O Ferdinand, A Knudson, J Lundblad, A C MacKinney, T McBride, K J Mueller, and guest author H Rockford, "High-Performing Rural Health System." January 2022) to understand benefits of telehealth in improving health equity as affecting four pillars of the HPRHS—access, affordability, community health, and quality. Based on experiences during the PHE, and on new applications of telecommunications technologies, the Panel assesses potential improvements in rural health service delivery, as well as potential unintended consequences that could undermine goals to improve services for currently underserved populations.

This paper draws on experiences during the PHE, as reported in the literature. We begin with a review of the potential for expanded use of telehealth in rural America, and use of services during the PHE. Effects on the pillars of the HPRHS will be assessed, with particular emphasis on improving health services for *all individuals and population groups residing in rural communities*, as evident in pillars we expect would be most directly

* REHs are added here, as they became an option in 2023, after the earlier Panel document was published.

affected—access, affordability, and quality. We close the review of developments by summarizing changes to the Panel’s four considerations.

KEY CONSIDERATION

The Panel continues to contribute to discussions of the optimum use of telehealth in health care delivery. *Appropriate* use of telehealth will advance the HPRHS. Conversely, ability to attract local consumers to distant providers may *threaten local infrastructure* by attracting insured patients (and the revenue streams they generate) away from local providers. The remaining population, either publicly insured or uninsured, may not generate sufficient revenue to sustain local practitioners. Services provided via telecommunications, even when appropriate, may pose *challenges to affordability* if they change direct out-of-pocket responsibilities of low-income residents. *On balance, potential advances to achieving the HPRHS as a result of telehealth appear to outweigh risks to access and affordability, but vigilance is required.*

OVERALL TRENDS IN TELEHEALTH DURING THE PHE

Potential Benefits to Rural Americans

Rural America has the potential to benefit greatly from the increased utilization of telehealth services.[2] One in 5 Americans lives in rural areas and although most rural Americans have health insurance, 26 percent of rural patients felt they did not have appropriate access to health care. Reasons for this include inability to afford care, difficulty accessing care due to distance, or lack of a local provider who accepts the patient’s insurance.[2] Approximately 8 percent of rural Americans report hospital closures in their local communities in the past few years.[2] In addition to the present health workforce shortage (including specialty care services using telehealth), America’s rural population will continue to face challenges accessing health care services.

One policy approach that may mitigate these health care professional shortages involves licensure waivers that permit interstate telehealth, or visits with out-of-state clinicians. This provision, passed by all 50 states and Washington DC in response to the PHE, are set to expire; however, a recent analysis suggests uptake of interstate telehealth services, particularly in rural areas.[3] While the percentage of patients receiving interstate telehealth services comprises a small subset of all telehealth services (.29 percent), a higher percentage of interstate telehealth patients lived in rural areas compared with those who did not receive care outside of their state (28 percent versus 23 percent).[3]

Telehealth has the potential to mitigate access challenges for rural patients. In a previous study, 85 percent of rural adults reported using the internet, and 71 percent of rural adults owned a smartphone.[2] Telehealth can act as an alternative option for these patients who already lack appropriate access to care. As borne out during the PHE, telehealth usage for primary care services is a viable form of access, assuming primary care providers can be

reimbursed as distant providers. Furthermore, the use of telehealth by medical specialists may allow for the establishment of both primary and specialty care for those living in rural and underserved areas. Telehealth has been shown to improve access to care in these populations by reducing the travel burden and decreasing the cost of care.[2] Also, implementation of telehealth in these areas can increase patient education and improve health outcomes via remote management of chronic conditions.

We recognize, though, that the potential benefits of telehealth are not uniform across all places and populations in rural America. The 29 percent of adults in rural locations who, in 2020, did not own a smartphone suggests the challenges of relying on telehealth to reach all rural residents. Gaps remain in the availability of high-speed broadband in rural (and inner-city) places. These hurdles need to be overcome to realize the full potential of telehealth.

Telehealth Use During the PHE

As summarized in a previous RUPRI Health Panel paper, while telehealth usage increased dramatically during the first year of the COVID-19 pandemic, the rate of increase was much higher in urban counties than in rural counties. Although usage declined after the peak in the second quarter of 2020, telehealth use has remained higher as a percentage of total visits than pre-pandemic levels. With an additional year of experience and more time to analyze early data, some trends are becoming clearer. Published studies using national data (e.g., Medicare, large commercial databases) and results from large systems (e.g., Mayo Clinic, Marshfield Clinic) are consistent in showing continued use of telehealth, increased acceptance by patients and providers, and higher use for some health services over others. Using claims data for all 34.9 million Medicare beneficiaries in the fee-for-service (traditional) program in 2020, Samson et al. (2021) found that telehealth visits increased 63-fold in 2020 to 52.7 million visits.[4] The proportion of Part B visits completed through telehealth was higher in urban areas (5.7 percent) than in rural areas (4.3 percent).[4] An analysis of 446 rural and urban safety net clinics before and during the pandemic also points to increased telehealth usage in urban areas. Before the pandemic, little difference by rurality was found in the percentage of encounters conducted face-to-face versus via telemedicine (phone and video). However, during the pandemic, telemedicine visits increased significantly by 27.2 percentage points among patients in isolated rural areas compared to 52.3 percentage points among patients in urban areas. Overall, rural patients had significantly lower odds than urban patients of using telemedicine for visits during the pandemic.[5] The authors conclude that access to telemedicine in rural areas depends on both reimbursement and other efforts to encourage rural patient use.

Using data from Epic's Cosmos dataset, including electronic records from more than 150 organizations, researchers from Epic Research and the Kaiser Family Foundation found that use of telehealth peaked at about 13 percent of outpatient visits between March and August of 2020, falling to 8 percent between March and August 2021 (still higher than pre-pandemic levels of about 1 percent). They also found that use of telehealth for mental health and substance use disorder outpatient visits remained at substantially increased levels—36 percent in March – August 2021.[6] The Bipartisan Policy Center analyzed

Medicare outpatient and physician carrier claims (Traditional program) from 2019 through the third quarter of 2021. Similar to other studies, telehealth visits as a percentage of all visits peaked in the second quarter of 2020 at about 18 percent before dropping to about 5 percent in the third quarter of 2021, which was still well above the pre-pandemic level of less than 1 percent. Examining telehealth use in urban and rural areas separately, the authors found the same trend over time, and fewer telehealth visits per 1,000 beneficiaries among rural beneficiaries in both 2020 and 2021.[7] Regarding subspecialties, telehealth visits represented 8 percent of primary care visits and 3 percent of specialist visits. The greatest increase of telehealth visits involved behavioral health specialists. Also consistent with other studies, the percent of behavioral health visits attributable to telehealth increased sharply in early 2020 and remained high in 2021.

Published studies of other samples of patient records find trends similar to those reported from national data. One study of more than 6 million employer-based health plan beneficiaries in 2019 and 2020 found a more than a 20-fold increase in telehealth visits after March 13, 2020. Examining variation in telehealth use by patient characteristics and counties, researchers found the highest increases in metropolitan counties, in counties with low poverty levels, and among adults 46 years and older.[8] Within the Marshfield Clinic Health System (MCHS), a rural system in Wisconsin, half of all 1,300 providers across 86 specialties were consulting through telehealth during the first year of the PHE period, while most of the other half did not generally have direct interactions with patients (i.e., radiologists, pathologists, hospitalists).[9] In the early months of the pandemic (March 15–June 1), 41,699 billable telehealth encounters were completed, representing 22 percent of all appointments across MCHS, approximately a 1,700 percent increase compared to pre-COVID telehealth volumes.[9] Use of telehealth services by rural Medicare fee-for-service beneficiaries had been growing before the pandemic, albeit modestly (0.2% of all rural beneficiaries with a telehealth visit in 2010 to 0.9 percent in 2019).[10] Much of these increases occurred during and after the peak of the pandemic, with most visits for mental health conditions, and with non-physician clinicians. Overall, with several exceptions, the study of telehealth implementation by the MCHS presented a case that the rapid acceleration of telehealth use during the pandemic set up an infrastructure that will be leveraged to expand telehealth use to support the rural delivery system.[5]

Experiences during the PHE have revealed some fundamental considerations if telehealth is to become a permanent fixture in a high-performing rural health system. Rural populations can be challenging to serve because of the prevalence of chronic conditions, including mental and behavioral health issues. Those conditions can be effectively managed using telehealth, but technological challenges can create a barrier to use. Patient acceptance of telehealth generally is reported to have increased during the pandemic, but additional challenges remain.[11] In addition to technology concerns, these challenges include continued patient preference for more tactile/in-person interaction with providers, desire to maintain an existing relationship with a specific provider, concern over whether more complex diagnoses and treatments could be adequately provided over telehealth, and worry about privacy, especially pertaining to stigmatized conditions like sexually transmitted infections, mental illness, or substance abuse. Additionally, telehealth commercial firms have reported limitations in marketing their services to rural areas with

low patient volumes and limited infrastructure.[12] Despite these limitations, telehealth worked best for routine and familiar health issues, especially when rapport was created between patients and clinicians. This rapport was easier with a pre-existing clinical relationship, but not impossible without one. Telehealth was less suitable when a physical examination was needed, the diagnosis was unknown, or patients had a strong preference to be seen in person.[13]

FUTURE USE OF TELEHEALTH IN RURAL PLACES

Role of Infrastructure – Availability of Broadband

Effective use of the full range of telehealth applications requires high-speed broadband connectivity at both ends of transmissions. The COVID-19 pandemic shed light on the necessity of broadband access for health, education, and quality of life.[14] As of 2020, between 22.3 percent and 50 percent of rural residents still do not have access to broadband. [15-17] Furthermore, according to the 2020 Broadband Deployment Report, 22.3 percent did not have access to a fixed home broadband connection of 25 Megabits per second (MBPS) download and 3 MBPS upload speeds (25/3).[16] Thus, between 15.8 and 35 million individuals were lacking the capacity to perform basic internet-related tasks, including complete access to telehealth services.[14] Rural health care facilities fall behind when it comes to download and upload speeds compared to medical and health care facilities in metropolitan counties, and this gap increased over time.[18, 19] The rural-urban divide may grow with the start of 5G and increasing deployment of fiber optics in urban areas.[20] Meanwhile, tens of millions of Americans residing in underprivileged communities have been left behind without Internet access.[14, 21, 22] Consequently, the focus on broadband access in rural areas has intensified since 2020 given concerns about equity and the digital divide.

Role of End Users (Patients)

Telehealth utilization increased during the PHE, but disparities in access to telehealth services persist across geography, education, age, race, and income levels. Lack of consistent and high-quality access to mobile technology and broadband service limit telehealth usage. Income-based disparities persist; 76 percent of people with an income below \$30,000/year own a smartphone, compared to 96 percent of individuals with an income above \$75,000/year.[23] Age, race/ethnicity, and insurance status play roles in telehealth use. One urban study, for example, found more frequent use of telehealth video visits among patients who were younger (median age 48.12), those who have private insurance, and those who are White, while patients who use telehealth audio-only visits were older (mean age 57.58), have public health insurance, and are Black.[24] Overall, Latino and Asian populations were less likely to use telehealth than other population groups, while women used more telehealth services than men. Educational attainment also had a strong correlation to telehealth video visit adoption rates.[24]

When surveyed, patients who utilized telehealth pre-pandemic and those who utilized telehealth during the pandemic showed overall satisfaction with their telehealth experiences. However, new users required some acclimation.[25] Using telehealth in the future was also correlated with satisfaction measures. Users prior to the PHE (on or before December 2019) were more satisfied with the telehealth services than newer users and agreed that they used telehealth when their provider was not open, they were too sick to leave the house, or they did not perceive their condition to be urgent.[25] Past users of telehealth also disagreed more than new users that they would have preferred to see a provider in person (because new users did not have a choice in the mode of the visit, and were more likely than past users to want to see their provider in person). New users of telehealth were more likely to strongly agree that they used telehealth to avoid waiting rooms and the risk of getting sick.

From the patient’s perspective, the primary aim of telehealth is to increase access to care and enhance the convenience of health care delivery. Based on experience to date, virtual appointments can provide specialty care to populations where it otherwise may not be available, such as those living in rural areas, deployed on military assignments, or in prisons. Additionally, telehealth sessions, including those that address potentially stigmatized or sensitive conditions (e.g., mental health, sexual health), may be advantageous in tight-knit communities. Furthermore, telehealth may increase access to patients who may have difficulty making it to their appointments, such as older adults, disabled individuals, or those lacking sufficient transportation.[2]

A major disadvantage of telehealth, which is expected with any evolving technology, is lack of consumer awareness regarding their access to it, its services, and its cost. Barriers to accessing telehealth visits were more likely to be identified by patients who were older, did not have a college degree, reported low levels of computer literacy, had limited bandwidth, and were unaware of the telehealth services offered.[2]

Among specific patient engagement measures, results showed that hospitals located in rural areas were more likely than those in urban areas to experience the challenges listed in the text box.

When Marshfield Clinic Health System (MCHS), a large rural health care system in Wisconsin, was assessed, the use of telehealth services had increased 20–30 percent annually for the last 5 years at the health system, but still comprised fewer than 1% of all visits in 2019.[9] Patient satisfaction surveys from MCHS also

indicated that, for some, telehealth enabled them to limit their exposure to the COVID-19 virus. Other patients commented on the convenience, time saving, comfort, and privacy of

Rural Hospitals Reported Patient Engagement Challenges

- Viewing their medical record online
- Electronically transmitting medical information to a third-party
- Requesting an amendment to change/update their medical record
- Requesting refills for prescriptions online, scheduling appointments online
- Paying bills online
- Submitting patient-generated data
- Communicating via secure messaging with providers[1]

seeing a provider from their home.[9] Telehealth was particularly relevant for mental health services, and MCHS shared that some of their new patients, including farmers, would not have consulted their provider had they been required to go to the provider's office. [9] In a 2022 policy brief, the Panel identified key issues in behavioral health that may be addressed, at least in part, with more use of telehealth and a focus specifically on farm families.[26, 27]

Role of End Users (Providers)

Telehealth offers several advantages from the health care provider's perspective. Through monitoring patients in their home environments, providers may gain access to patients' social realities, including family dynamics, economic barriers, and safety of living environments.[2] Telehealth may also enhance provider productivity and provide new revenue streams. Similar to the way telehealth decreases a patient's need to travel, virtual visits may benefit providers who spend time travelling between several health care facilities to provide care. Furthermore, providers appreciated the ability to continue connecting with their patients, the flexibility of working from home, and the ability to protect themselves from the virus.[9] In-depth interviews with health care providers from rural health care organizations showed that telehealth provided increased inter- and intra-health care organization coordination.[28] Providers noted several challenges to telehealth use, including service cost, reimbursement, legal liability, confidentiality, security of data, effectiveness, old equipment, and efficiency.[2] Specific to behavioral health providers, organizational capacity, patient skills and comfort, and provider knowledge and skills were mentioned as the main barriers to implementing telehealth in the rural setting.[28] A further challenge is to ensure that staff have appropriate training. Staff education in tele-behavioral health delivery should be twofold in focus: (1) functionality and (2) translation of clinical skill and process to the virtual environment.[2]

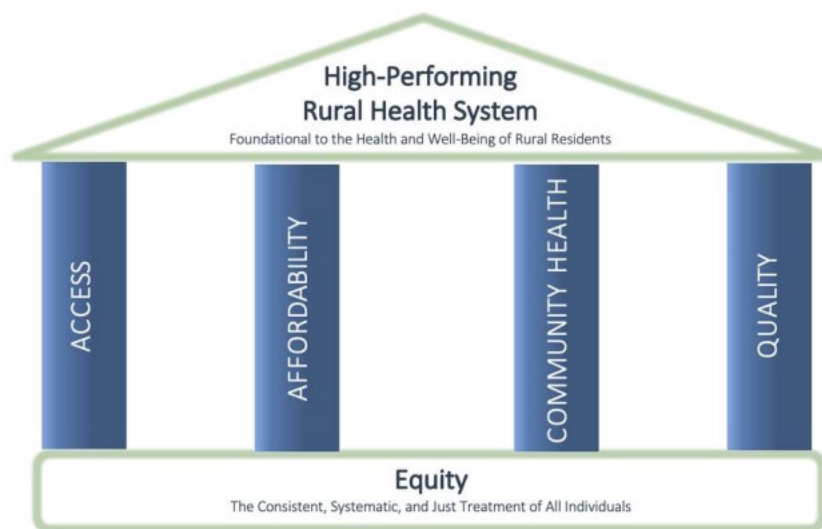
Unintended Consequences

During the COVID-19 PHE, increased telehealth utilization served as a means of controlling the spread of the COVID-19 virus among patients and staff by reducing in-person patient interaction. [29] However, the transition from in-person to virtual visits also resulted in unintended consequences. For example, vulnerable populations, including pregnant women with opioid use disorder (OUD), had to undergo an abrupt transition in care delivery mode that compounded barriers to care. For this population, virtual group therapy session attendance was three times lower than in-person session attendance.[29] Reasons for not attending virtual sessions included lack of technology, technological malfunction, poor digital literacy, unreliable internet connection, or inability to access virtual sessions in a meeting setting that is in accordance with the Health Insurance Portability and Accountability Act regulations for patient privacy.[29] In addition, while parents of children with disabilities found that telehealth was comparable to in-person services, telehealth had lower ratings with respect to diagnostic accuracy, treatment effectiveness, and rapport building.[30] Reliance on telehealth visits as the principal form of interaction may risk missing diagnosis of some conditions, such as depression, or stigmatized conditions, like alcohol abuse or interpersonal violence.[13] Telehealth should supplement

interpersonal contact, not replace it entirely. Further, there may be consequences related to provider exposure to malpractice liabilities.

USES OF TELEHEALTH IN A HIGH PERFORMING RURAL HEALTH SYSTEM

The Panel continues to assess the impact of telehealth usage on the rural health delivery system. Of special interest is the potential to improve opportunities for rural providers and patients (inclusive of all rural residents) to build and sustain new relationships that advance the principle of health equity and support the pillars of a high-performing system—access, affordability, community health, and quality. The first subsection below will examine implications for health equity common to all uses of telehealth. Subsequent subsections will focus on three general applications of telehealth (primary care and care across the continuum, behavioral health, and emergency care), and one specific illustration (response to strokes); all will be assessed for impacts on the pillars of the HPRHS.



Considerations Related to a Foundation of Equity

As discussed earlier, there are important factors to consider before celebrating the potential of telehealth to meet rural residents' needs. These factors fall within the scope of the foundation of the Panel's framework for a high-performing rural health system – equity – the consistent, systematic, and just treatment of all individuals.

Requirements for Usage

Technical requirements for systems accommodating telehealth will vary as a function of interactions sought. For example, several cloud-based high-definition videoconference platforms operate well on a limited bandwidth of only 1.5 Mbps, which represents just 6 percent of the FCC's standard of 25 Mbps. In addition, high-definition video telehealth is

feasible through the utilization of smartphones, tablets, and laptops over land and wireless connections, as well as over a range of bandwidths.[31]

Barriers to Accessing Telehealth in Rural Places

Rural residents are more likely than their urban counterparts to experience barriers to using telehealth services. Overall, 45 percent of 1,776 adults interviewed by SSRS (random sample oversampling older adults, rural residence, and Hispanic and Black) reported some type of technical issue as an obstacle to accessing a telehealth visit. About 2 out of 5 older adults (42%) and 35 percent of rural residents said lack of access to high-speed internet/broadband was an obstacle to telehealth access.[32] In an analysis of data from the Census Bureau's Household Pulse Survey, researchers in the Assistant Secretary for Planning and Evaluation (ASPE) found significant disparities among subgroups in terms of audio-only versus video telehealth use. Among telehealth users, the highest share of visits that utilized video services occurred among young adults ages 18 to 24 years (72.5%), those earning at least \$100,000 (68.8%), those with private insurance (65.9%), and White individuals (61.9%).[33] Video telehealth visit rates were lowest among those without a high school diploma (38.1%), adults ages 65 and older (43.5%), and Latino (50.7%), Asian (51.3%) and Black individuals (53.6%).[33]

Complement to Other Needed Services in the Health Care System

Telehealth visits appear to complement other services offered within the health care system. When the frequency and duration of direct nurse-patient encounters following the deployment of an inpatient telehealth system during the COVID-19 pandemic were examined, telehealth was found to complement rather than replace in-person care.[34] For example, the average in-person encounter length increased proportionally, such that the total in-person time nurses spent with patients on the COVID-19 units did not significantly differ from that in pre-pandemic comparator units. Thus, simultaneous adoption of telehealth, presented at the unit level, suggested it was used as a complement to, rather than a replacement for, in-person care.[34]

Limitations and Workarounds in Telehealth

There are several limitations in the widespread use of telehealth. The lack of physical contact between patient and provider creates challenges when performing remote physical examination. This limitation will affect certain medical specialties more than others. For example, cardiopulmonary examinations that rely heavily on auscultation and abdominal examinations that require palpation would be difficult to conduct via telehealth, whereas other specialties, such as dermatology and psychiatry, may adapt well to include both in-person and telehealth visits, based on the needs of the patient.[2] New technology, such as electronic stethoscopes and smartphone applications that measure patients' self-palpation, could be used to work around these more intimate aspects of the physical examination.

Issues Regarding Usage and Sustainability

Health care organizations seeking to boost internal readiness and workforce capacity to participate in telehealth will need to engage clinical staff to support telehealth. Staff at all levels will need to be engaged to effectively implement telehealth technologies. When a broad range of team members are trained, teams can maintain continuity when a team member is on leave or absent.[35]

Sustainable telehealth also requires an assessment of a client's technology context. Distributing smartphones to clients at the beginning of the pandemic was an effective way to initially maintain contact with them. However, smartphone attrition was significant over time due to factors such as the utility of the phones (e.g., some clients did not know how to use the phones), challenges to maintain data or operate the phones (e.g., difficulty keeping phones charged while experiencing homelessness), lack of motivation to keep the phones, and theft.[36] Additional challenges included client interest and ability to maintain equipment and connectivity, existing physical and behavioral challenges, and baseline literacy. Understanding these contextual factors allowed staff to match clients to the right equipment and connectivity plan.[36]

Primary Care and Care Coordination Across the Continuum

Primary care is the bedrock of the rural health care delivery system, an essential service that must be locally available. Further, local primary care providers need to monitor patient care across the continuum, including specialty services provided outside the local community. Therefore, the Panel places a high priority on the potential for telehealth to *supplement (not supplant)* primary care providers serving rural communities, both in direct services (enabling timely delivery of primary care services) and in communications with specialists.

Pillar One: Accessibility and Utilization

During the PHE, an increase in telehealth visits enabled patients to access care and likely acted as an important revenue replacement.[9] A cross-sectional study of traditional Medicare claims data and telehealth usage during the COVID-19 pandemic showed that 58 percent of primary care providers provided telehealth services, while only 26 percent of specialists did. Fewer than 8 percent of Medicare beneficiaries reported that they were unable to obtain care because of COVID-19.[37] Patients residing in a zip code where there was 80 to 100 percent broadband access compared to 0 to 20 percent were 1.6 times more likely in the year following March 13, 2020, to have completed both telehealth and in-person visits.[38]

Age and geographic region also influenced utilization of telehealth services. Rural patients who scheduled outpatient visits between June and August of 2020 were found to be older (51 years vs. 45 years, $p < 0.001$) and less likely to have activated their patient portal (54% vs. 75%, $p < 0.001$). Rural patients were also less likely than urban patients to use telehealth video visits and more likely to use audio-only telehealth visits.[39] Rural, uninsured individuals who were Asian, Black/African American, Hispanic/Latino ethnicity were all significantly less likely to have a telehealth video visit and to use telehealth in

general.[39] Despite these disparities, telehealth may represent more than a short-term solution as suggested by early evidence from the rapid expansion at Marshfield Clinic Health System (MCHS). In that system and others, patients and practitioners expressed interest in continuing to use telehealth post COVID- 19.[9]

An additional access issue pertains to the future of reimbursement for telehealth coverage for safety net clinics (SNC), a significant source of medical care in many rural areas. While the Coronavirus Aids, Relief, and Economic Security Act authorized SNCs (including rural Federally Qualified Health Centers) to provide services to Medicare beneficiaries during the PHE period, it remains to be seen whether SNC will continue to receive this designation. As a result, patient interaction with SNC providers has increased, state laws and policies have been adopted that also facilitate use of telehealth services, and SNCs are building telehealth into their practice protocols.[5, 40]

Pillar Two: Affordability

Telehealth has been found to save patients an average of \$19 to \$121 per visit, with savings primarily generated by avoidance of (ED) visits. Appropriate remote monitoring of patients' chronic medical conditions can help patients avoid costly ED visits or hospitalizations.[2] An unintended consequence of using telehealth in lieu of on-site care may be a different out-of-pocket burden for the patient as a function of co-payment or deductible policies. Further, if the telehealth visit is in addition to on-site care, the patient may again be at higher financial risk. Conversely, if telehealth changes the site of care to a location closer to the patient, care may be more affordable because of changes in time spent (including time away from work) and distance traveled.

Pillar Three: Quality

Quality of primary care services through telehealth, in comparison to in-person visits, cannot be fully determined without research based on more experience, but some measures are encouraging. When surveyed, 95 percent of Medicare beneficiaries were satisfied with their most recent telehealth visit and 8 out of 10 were likely to use telehealth in the future.[41] In addition to patient satisfaction, provider training is another important aspect of telehealth delivery that affects quality of care. When interprofessional primary care (IPC) teams were surveyed about the shift from in-person care (pre-COVID-19) to audio-only telehealth visits (during the COVID-19 pandemic), only 40 percent of providers reported receiving any training for virtual delivery.[42]

Pillar Four: Community Health

As providers become more comfortable with telehealth, there are opportunities to leverage telehealth to increase the number of patients served by their practice. Providers are also able to interact with patients in a variety of settings (e.g., at home, or at a different site to receive consultation), which could lead to contact early in the onset of health conditions (preventive health). More frequent communication with patients in their home settings may improve community health through reaching historically underserved populations.

The benefits to community health are not well understood; this is an area ripe for research as policy changes established during the PHE have now been extended to the end of 2024 by the omnibus spending bill passed in December 2022.

Behavioral Health

Behavioral health care conducted via telehealth offers numerous advantages for rural residents. Remote sessions may ameliorate well-documented behavioral health care provider shortages, patients' privacy concerns, and other challenges inherent in the rural environment. In particular, telehealth may extend capabilities of behavioral health providers to assist patients with substance use disorders (SUDs), including providing consultative services to primary care providers as they care for those patients.

Pillar One: Accessibility and Utilization

Compared to Medicare beneficiaries who were 75 years and older, younger beneficiaries were more likely to report higher rates of specialist telehealth (including but not limited to behavioral health) visits.[37] Medicare beneficiaries with internet access were more likely to report that their specialist (behavioral health) had provided telehealth visits since July 1, 2020, their PCP offered telehealth appointments, and that they used video or audio-only telehealth visits.[37]

Telehealth reduces stigma experienced when seeking out care for an SUD. For example, in a study of Medicaid beneficiaries, researchers found that although COVID-19 exacerbated numerous structural vulnerabilities among low-income individuals with an SUD, programmatic adaptations to COVID-19 SUD care, including telehealth and loosening restrictions around medications for opioid use disorders, alleviated past difficulties that patients had faced.[43]

Pillar 2: Affordability

Future research should include analysis of the impact of telehealth for behavioral health services on affordability of care for patients and impacts on health expenditures. More specifically, the site of care is often a differentiating factor in setting coverage, including eligibility for insurance payment, consumer deductibles, and copayments. Thus, if interactions by telehealth constitute a new site, there may be implications for increased (or decreased) consumer financial liability. New direct care expenses for the consumer may be balanced by reduced associated costs such as transportation and time away from work. Effects on total spending are also challenging to assess. The immediate consequence of opening new channels of access to service may be an increase in expenditures, but if telehealth facilitates early and consistent treatment of behavioral health conditions (including more effectively monitoring chronic conditions) and lowers avoidable utilization of more expensive services, overall expenditures may be lower over time. In sum, we cannot yet be certain of effects on affordability with using telehealth for behavioral health services.

Pillar 3: Quality

There is evidence that availability of telehealth services increases the likelihood of a person's access to care, and with results comparable to in-person visits. When providers from a large multispecialty care organization in Massachusetts were surveyed, the majority of behavioral health care clinicians reported that they were as or more effective using telehealth. Transitioning to telehealth resulted in increased access to care, with a 10.3 percent increase in behavioral health care visit completions. Providing behavioral health services through telehealth may benefit clinician work-life balance, but doing so requires resources to support clinical, technological, and communication/teamwork changes.[44]

When compared to in-person treatments, telehealth-specific outcomes had no significant difference in patient retention and counseling attendance rates, no significant difference in high level of client satisfaction, and no significant difference in client and provider ratings of therapeutic alliance.[45]

Telehealth was found to be effective across the continuum of care for serious mental illness (SMI) and SUD, including screening and assessment; treatments, including pharmacotherapy, medication management, and behavioral therapies; case management; recovery supports; and crisis services. Evidence-based treatments for SMI and SUD, traditionally provided face-to-face, are also effective when delivered using telehealth and have outcomes comparable to in-person service delivery. In addition, therapeutic services provided using telehealth modalities produce positive outcomes for the client, including engagement in treatment, retention in care, and client satisfaction, which in turn lead to improved long-term health outcomes.[36]

Pillar Four: Community Health

Access to telehealth services could help provide interventions aimed at meeting community-wide needs. The use of telehealth visits was found to assist in the expansion of opioid treatment across public hospitals. Telehealth-based opioid treatment offered a safe and feasible approach to expand the reach of opioid use disorder treatment and behavioral health for a vulnerable population.[46] In addition, Federally Qualified Health Centers (FQHCs) in California expanded telehealth capacities but did not experience significant decreases in behavioral health visits during the pandemic period.[47] Results from the REACH (Respectful, Equitable, Access to Compassionate Healthcare) Project, found that asynchronous forms of telehealth, i.e., asynchronous secure text messaging and messaging through the electronic medical record system, were useful in complementing synchronous connections.[36]

Emergency Care and Use of Telehealth

Using telehealth capabilities to respond to emergency care needs literally can be lifesaving, as discussed below. Additionally, using telehealth may, as discussed above, improve access to essential services, which may in turn reduce avoidable use of hospital EDs. Finally,

provider-to-provider telehealth may support rural EDs staffed by advanced practice providers.

Pillar One: Accessibility and Utilization

By providing a means to access a clinician, telehealth may affect utilization of more expensive, high-demand services such as EDs. In a study of 1,776 adults (including an oversample of older adults, rural residents, Hispanic any race, and Black non-Hispanic adults) about 1 in 7 people who had a telehealth visit would have sought care in an ED or urgent care if telehealth was not available.[32] Two in 10 adults would have delayed care or not sought care at all if telehealth was not available. Of respondents who had a telehealth visit, 4% were redirected to the ED.[32]

Telehealth that supports local rural EDs with 24/7 access to certified emergency physicians improves access in communities unable to support on-site emergency room physicians. Consistent with the previously discussed need for care across the continuum (see discussion of primary care), provider-to-provider telehealth consultation can improve communications during local rural ED treatment of patients in local rural hospitals, alleviating the need to transfer, or improving the hand-off to regional tertiary centers. Especially with the new classification of Rural Emergency Hospitals coming online in 2023, telehealth will be a critical facilitator of access to emergency care services.

Pillar Two: Affordability

Consumers who access telehealth services rather than seeking care in emergency rooms will generate lower costs. However, the effect on out-of-pocket spending will be a function of insurance policies; if the telehealth service is eligible for insurance payment, cost to the consumers of any copayments should be less than their liability for ED visits. However, if the telehealth consultation is not an eligible benefit and its cost exceeds the copayment associated with an ED visit, patient costs could be higher. One review of telehealth experience provided an estimate that by reducing 1% of ED visits through the use of telehealth, the U.S. could see annual savings of more than \$100 million.[2]

Pillar Three: Quality

Quality of care in rural settings will improve if telehealth results in earlier, effective interaction with clinical providers during an emergency. Quality in rural hospital EDs may improve as a result of interactions among providers on site with expertise located elsewhere. This is especially true if state policies facilitating new configurations for rural EDs are specific in quality assurance requirements. For example, in March 2022 the Pennsylvania Department of Health released guidance implementing the new designation of tele-EDs, requiring that an eligible rural hospital shall “Establish and maintain 24/7/365 connectivity to a full-support telehealth hub that guarantees immediate access to a board-certified doctor of medicine (MD) or doctor of osteopathic medicine (DO). This shall include the development of a written plan addressing connectivity loss due to a malfunction of equipment, loss of internet connectivity or another incident on either the

originating or distant site side. The plan may include an alternative immediate access point to another on-call telehealth physician, or an on-site physician who will be present during the outage.”[48]

Pillar Four: Community Health

Impact on community health from increased use of telehealth in emergency care is unclear.

A Specific Example: Tele-Stroke and Emergency Response

Hospitals can receive access to tele-stroke through a hub-and-spoke model or use private third-party vendors or undertake some combination of the two.[49] After consultation, a patient may remain at the local site or spoke hospital, or be transferred to a facility that can provide a higher level of care.[50]

Pillar One: Accessibility and Utilization

Telehealth to respond to stroke symptoms is one of the most frequently used and rapidly expanding applications of telehealth, delivering much-needed stroke expertise to hospitals and patients.[51] Telehealth allows physicians at tertiary care centers, often vascular neurologists, to evaluate and remotely treat stroke patients in the emergency room. Providers at local rural hospitals, who may not have adequate stroke expertise, work with an off-site physician who can perform neurological assessments and triage the patient, evaluate brain imaging, and aid in diagnosis and treatment. This model obviates the need to urgently transfer suspected stroke patients to larger regional hospitals, which takes time and limits the efficacy of treatment. Without access to telehealth, patients at small EDs may be transferred to another health center, wasting precious time needed to administer effective stroke treatment and affecting the smaller hospital’s ability to retain patients.[49]

An analysis of the Furthering Access to Stroke Telehealth (FAST) Act implementation found that both urban and rural hospitals increased the use of tele-stroke substantially, from less than 1 percent of strokes being associated with billed Medicare telehealth consultations before the FAST Act, to approximately 3 percent by the end of 2019. Usage rose again during the COVID-19 pandemic, with approximately 6 percent of strokes experienced by Medicare beneficiaries being treated via tele-stroke in early 2021.[50] The continuum of care via tele-stroke has broadened to include prehospital, inter-facility and intra-facility hospital-based services, stroke tele-rehabilitation, and ambulatory tele-stroke. However, disparities in technology access remain a challenge.[52]

Pillar Two: Affordability

Tele-stroke was the first telehealth service to receive Medicare reimbursement outside of rural areas due to the FAST Act, which passed as part of the Bipartisan Budget Act of 2018 (P.L.115-123) and went into effect January 1, 2019.[50]

Pillar Three: Quality

Tele-stroke service expansion efforts have increased, especially in rural and frontier counties, and have improved outcomes. Strong evidence supports the use of tele-stroke, especially because the therapeutic window to treat stroke is so short.[50] A study of more than 150,000 patients treated for stroke found that patients who received care at hospitals with tele-stroke capacity had higher rates of reperfusion treatment, which restores blood flow to blocked arteries, and lower 30-day mortality compared with those treated in hospitals without tele-stroke.[53]

Pillar Four: Community Health

Gains from tele-stroke were found to be the largest in small hospitals in rural areas.[53] Small hospitals in rural and frontier areas may not see the volume of patients needed to justify hiring neurologists to provide stroke care and often struggle to hire neurologists because of provider shortages. Tele-stroke allows them to treat stroke patients and receive payment for their care without having to hire a neurologist.[50] A recent analysis from the U.S. Department of Veterans Affairs found that tele-stroke helped prevent such hospital transfers, allowing patients to be treated in their community and improving the timeliness of treatment.[54]

CONCLUSION

The optimal use of telehealth services beyond the COVID-19 pandemic will rely on maintaining and improving required infrastructure, laws, and regulations, particularly those governing reimbursement and licensing. These conditions require patient and provider buy-in, institutional acceptance by hospitals and practice plans, universal access to technology and high-quality broadband in both rural and urban areas, and legislation and policies facilitating long-term sustainability.[52]

In this paper, the RUPRI Health Panel has presented emerging trends in the use of telehealth among rural residents and has described barriers and facilitators of telehealth use. Well-documented inequities in rural health and sparse resources compel us to deploy all tools and resources to meet the needs of rural residents. Telehealth is one such tool. As the Panel has stated previously, telehealth can be a beneficial supplement to existing elements of a high performing rural health system. This paper provides evidence of the potential contribution of telehealth across the four pillars of the HPRHS.

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