



TELEHEALTH UTILIZATION IN RURAL UTAH

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ABSTRACT

Rural communities often are disadvantaged in accessing healthcare resources. The absence of nearby health facilities can significantly affect health outcomes. In recent decades, telehealth has been explored as a solution to disparities in health access, particularly for those living in rural settings. Telehealth resources utilize virtual communications in order to improve healthcare provision. Telehealth has the capability to improve healthcare provision and access to healthcare for rural residents if it is supported by adequate policy and infrastructure.

This research assesses the availability of health resources throughout Utah and explores the current state of telehealth use in Utah. The locations of health facilities throughout the state correlate with population density across Utah, though there are thousands of people living in rural areas of the state without access to any nearby health resources. Telehealth operations performed by University of Utah Health and Intermountain Healthcare have improved access to healthcare for rural Utahns, and demonstrate a commitment to improved healthcare access for residents in all areas.

The state is in an excellent position to pursue telehealth further, though telehealth alone cannot remedy health access disparities. Cost and quality of care are important concerns within the domain of telehealth that can be addressed through appropriate targeting and monitoring strategies. Additionally, reimbursement strategies that support telehealth more broadly would greatly contribute to improved implementation in both urban and rural settings. Policy supporting telehealth must catch up to available technologies in order for the impact of telehealth to be expanded.

INTRODUCTION

Pam lives in Stevensville, Montana, about 40 miles south of Missoula. Pam is a white woman in her mid-seventies, and she has spent her retirement volunteering in her community. She has beaten lung cancer twice and lives with COPD and atrial fibrillation. Her husband Ben is a white man in his mid-seventies who spent much of his career in the Air Force, and he now volunteers his time for the Innocence Project. Ben also has atrial fibrillation and suffered a minor stroke in 2016. Their small hometown of Stevensville does not have adequate health resources to treat these issues, but Ben and Pam have been able to travel to Missoula for health care. As they age, however, those 40 miles become longer, their ability to travel diminishes, and new strategies for managing their health must emerge. While Ben and Pam are only one couple in a small town in Montana, their story is representative of much of rural America. Healthcare resources for Americans living in rural areas are scarce, and when the ability to travel for care diminishes, how can they get the care they need?

One of the most significant inequities of the urban-rural divide is healthcare. Rural communities are fundamentally disconnected from many health resources that exist in abundance in urban spaces. Despite rural communities being home to a minority of Utahns, their health

status is critical for the wellbeing of rural residents. Telehealth resources have existed for decades and have been supported by improved technology, but their full potential has not yet been realized. Telehealth consists of resources and systems that utilize the internet and other computer technologies to connect patients with healthcare providers. This research will explore telehealth resources in Utah and assess the capacity of telehealth to make a difference in rural healthcare provision. It identifies gaps in health access for rural Utahns and evaluates current telehealth resources. Finally, this research addresses reimbursement practices for telehealth services in order to determine how to widen access to these resources in the future.

SURVEY OF UTAH'S HEALTH RESOURCES

Background

Significant research has been conducted on health disparities between urban and rural populations. Rural populations tend to experience worse health outcomes than their urban counterparts, and primary care providers are in higher demand and shorter supply in rural spaces (Richards, Saloner, Kenney, Rhodes, & Polsky, 2015). The depleting supply of health care workers extends beyond primary care physicians as well. The population of rural nurses throughout the country is aging, and fewer young adults are entering the profession than in previous years (Pfeifer, 2011). Additionally, rural Americans are less likely than their urban counterparts to work for employers that offer private insurance and a high proportion of veterans live in America's rural spaces (Pfeifer, 2011). As Murphy, Hughes, and Conway (2018) write, "rural hospitals frequently lack the financial and human resources to offer complex, highly specialized inpatient care that is required for most admissions today," which poses a threat to the sustainability of rural healthcare and rural communities in general. Telehealth services may help to reduce cost to payers while improving health outcomes if supported by adequate personnel.

Health professional shortages

One important indicator of an area's access to healthcare is the size of its population of health professionals. Across the country, rural areas tend to be home to fewer health professionals than urban centers and suburban areas. Shortages of health professionals greatly reduce communities' access to care and may hinder the long-term sustainability of an area. The Health Resources & Services Administration designates Health Professional Shortage Areas (HPSAs) based on federal standards, and these areas are eligible for certain federal resources (Health Resources & Services Administration [HRSA], 2019). Clinics in rural areas that are designated as HPSAs are eligible for Rural Health Clinic (RHC) designation. RHCs are provided enhanced reimbursement from the Health Resources & Services Administration, supporting their continued financial health (HRSA, 2019). As of January 2019, Utah is home to 14 federally recognized Rural Health Clinics (Rural Health Information Hub [RHI], 2018). In 2017, 36 states had more Rural Health Clinics than Utah, with Missouri topping the list at 367 clinics (Kaiser Family Foundation, 2017). Utah has a much smaller population than many states, however, and the large majority of Utah's population is concentrated in urban and suburban areas.

Richards et al. (2012) found that rural primary care providers tend to be burdened with heavier workloads than those serving in urban areas due to the scarcity of rural providers and the types of services required by rural residents. Richards et al. (2012) also found that federally-recognized Rural Health Clinics grant Medicaid appointments roughly on par with their rates of privately insured appointments, and that the "supply of new patient appointments appears influenced by the presence of RHCs." This suggests that cost-based reimbursement positively affects provider availability for Medicaid beneficiaries in rural spaces, and opens the question of how telehealth resources may be further utilized within the RHC system.

In Utah, Davis and Sevier Counties are the only counties that are not classified as HPSAs. Twenty counties contain areas that are classified as HPSAs. The remaining seven counties (Beaver, Daggett, Emery, Kane, Piute, Rich, and Tooele) are classified entirely as shortage areas (RHI, 2017). All of these seven counties are primarily rural, though parts of Tooele County act as a bedroom community of Salt Lake County. The wide prevalence of HPSAs throughout the state demonstrates a federally-recognized shortage of health professionals in Utah, particularly in the state's rural communities.

Utah's counties vary widely in the size of their populations of health professionals. In 2014, only six counties out of 29 reported greater than 15 physicians per 10,000 people. All of these counties center around urban areas with the exception of Grand County, which has a large tourism industry that warrants more health resources. The economic character of Utah communities is a significant factor in determining demand for health services, as exemplified by Grand County's relatively large population of health professionals. Every other county in Utah reported fewer than 15 physicians per 10,000 people in 2014, and Daggett, Piute, and Wayne Counties reported zero physicians (RHI, 2015). These data indicate a wide disparity in access to physicians across the state, with urban areas having the greatest concentration of doctors and some rural counties having no physicians at all. Some rural residents may be able to access care in nearby counties, but barriers to access remain for those who are unable to visit the next county over. The shortage of health professionals in Utah's rural communities may be supplemented by direct-to-consumer telehealth services, but these services cannot replace health professionals entirely.

Clinic and hospital locations

Comparing locations of hospitals and clinics with population data allows for assessment of access to healthcare facilities. The map below displays Utah's population, organized by census block group. Population data from the 2010 Census demonstrates population density across the state. Additionally, data from 2017 displays the locations of various health resources throughout Utah. This map displays locations of assisted living facilities, clinics, hospitals, mental health facilities, nursing homes, Rural Health Clinics, and urgent care clinics.

Utah Health Facility Locations

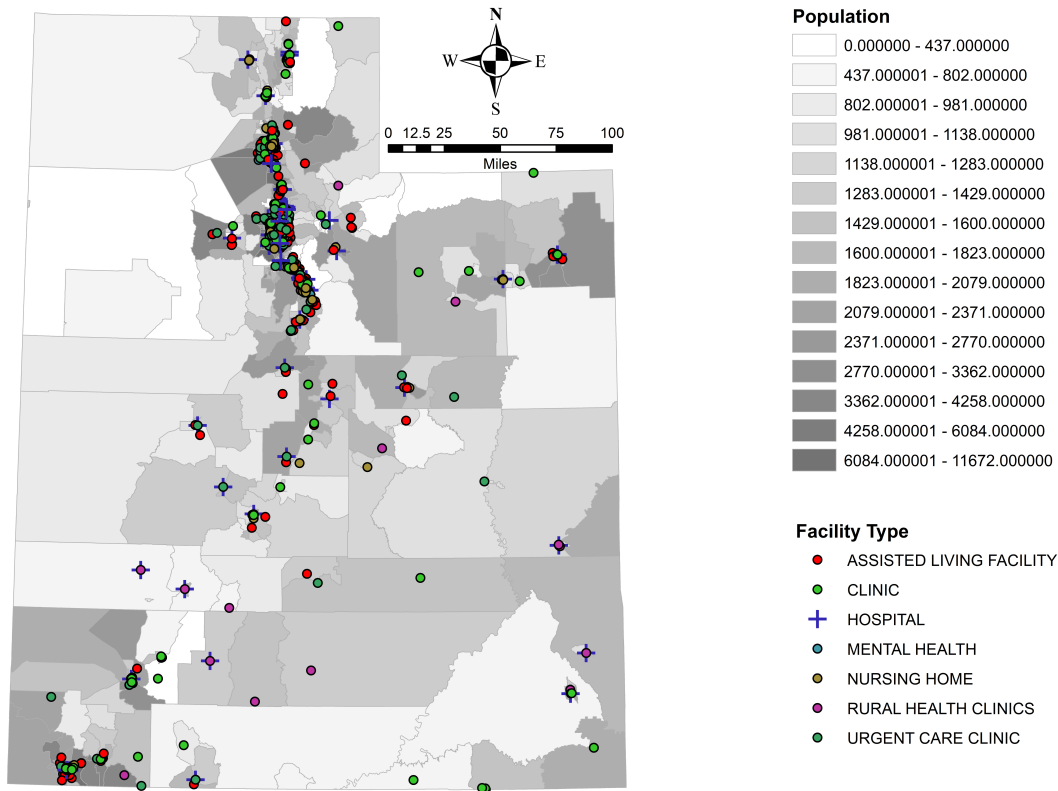


Figure 1. Utah Health Facility Locations. Development aided by Warren Scott, University of Utah Department of Geography.

The map above displays a strong correlation between population density and health resource availability, as expected. Areas of Utah with greater population density tend to be home to more health facilities, and more sparsely populated areas have fewer resources. In itself this is not necessarily negative, as resources should be scaled to the communities in which they are located. These data do indicate, however, that there are many census block groups in Utah that do not have any health resources of these types at all. The western part of the state is particularly barren, and while the population of this area is relatively small, the few thousand people living in this part of the state live without access to any health facilities and are required to travel for care. Additionally, many census block groups house only one type of health facility, reducing the kinds of care available to its residents. In areas in which hospitals are the only available health resource, patients must seek care for non-emergency conditions at the hospital, which drives up the cost of care. These data indicate disparities in access for those living in rural areas as compared to urban residents. Telehealth services may help fill this gap by increasing access to various kinds of health resources, including mental health care, long-term care, and acute treatment.

INSTITUTIONAL TELEHEALTH RESOURCES

Background

Virtual communications between doctors are gaining prominence in the telehealth sphere and have the capacity to significantly improve the efficacy of healthcare provision in rural spaces. Health professionals who do not have experience in a specialty area can communicate virtually with specialists in a different city in order to improve their provision of care and keep

patients in their hometowns. These communications require written contracts within and among health networks in order to organize payment, liability, and health records, among other factors. Telehealth communications between health professionals can significantly complicate payment for care, as the use of a specialist is costly and insurance plans have varied reimbursement practices for both specialists and telehealth use. Reexamination of reimbursement practices and policy supporting investment in telehealth would improve the provision of these communications and increase their availability for patients located in both urban and rural spaces.

Telehealth use between health professionals can improve healthcare provision for many different kinds of patients. Persons located in rural areas without access to specialists in their hometowns are one of the largest and most obvious target populations. Keeping patients in their hometowns for treatment improves healing, saves transportation costs, and helps to keep urban hospitals from over-filling. Another target population for virtual communication between doctors is nursing home residents. In a study of eleven nursing homes, Grabowski and O'Malley (2014) found that "off-hours telemedicine coverage in a chain of nursing homes generated cost savings for Medicare through fewer hospitalizations of residents of the facilities that were more engaged in the telemedicine intervention." Though these findings may not be generalizable to other nursing homes, they indicate that with proper training and utilization, virtual communications between doctors may be able to improve health and reduce patient transfers for nursing home residents. Rural nursing homes in particular may benefit from these technologies, as transfers to urban hospitals are costly. Another potential service population for telehealth communications between health professionals is persons who are incarcerated. Transporting prisoners to health facilities is expensive because of the required personnel, and getting doctors to visit jails and prisons can prove complicated. Improving telehealth communications between in-house clinics and doctors in other health networks can improve access to care for those who are incarcerated while also reducing costs.

Telehealth adoption has been relatively slow in most communities, regardless of their place along the urban-rural continuum. Martin, Probst, Shah, Chen, and Garr (2012) found that between rural hospitals and rural primary care providers, hospitals demonstrate a greater level of financial and institutional readiness for telehealth service utilization than primary care providers. Hospitals and primary care providers both could benefit greatly from telehealth implementation, as it would allow them to retain more patients and provide specialized care (Martin et al., 2012). Telehealth service implementation is expensive, however, due to infrastructure costs and requisite training. Hospitals may be at an advantage in this area due to their greater concentration of resources. Pursuing improved telehealth communications through adjusted reimbursement practices and clear contracting will help improve telehealth adoption and readiness in rural communities.

University of Utah Health: Specialist Communications

University of Utah Health is one of the state's largest healthcare providers. The University is in a position to offer excellent telehealth services because of its large financial and personnel endowments. By working with other hospitals throughout the state, University of Utah Health extends its reach and provides care to patients needing specialty services. University of Utah Health runs a program called Project ECHO (Extension for Community Health Care Outcomes), a free partnership program to connect rural health providers with specialists in Salt Lake City. Through this program, rural health providers gain free access to specialist consultation and a broad network of providers (University of Utah Health, 2018). The University's three main telehealth contracting programs center on intensive care, burns, and strokes. Additionally, the University operates a tele-hub which rural facilities can call in order to get connected with a specialist. This service has existed for about 20 years, and University of

Utah Health pioneered this kind of communication. This service is utilized by hospitals outside of Utah as well as those within the state.

In 2018, University of Utah telehealth services aided 508 stroke patients, 66 ICU patients, and 1,134 burn victims. Additionally, the University contracted with about 60 sites throughout the intermountain West for burn services. Because University of Utah Health is one of few burn centers in the western states, its services are in high demand, as illustrated by the large number of patients that it served virtually in 2018. All follow-up visits for burn victims are conducted virtually, allowing patients to stay in their hometowns while recovering. The University's tele-ICU program is primarily driven by consulting between doctors about how to treat patients with specific needs that may not be met within their home settings. The goal of this program is to keep patients in their home communities in order to promote healing, reduce costs, and keep the University's urban hospitals from overfilling.

Project ECHO and University of Utah Health's other telehealth programs indicate commitment to healthcare access for all Utahns. The low barriers to participation in these programs allow for high levels of participation by rural providers, and the programs' successes thus far indicate a promising future for University of Utah telehealth. The desire to maintain autonomy in care provision may prevent participation for rural providers, and careful contracting is required to preserve the integrity and autonomy of rural clinics and hospitals. Additionally, financial support for technology and infrastructure in rural health facilities is important in improving these communications, as rural providers are limited by the tools they have regardless of their ability to communicate with specialists in Salt Lake City.

DIRECT-TO-CONSUMER TELEHEALTH

Background

The advent of the internet and cell phones has created the opportunity for individuals to access healthcare in their own homes and beyond. Direct-to-consumer telehealth improves patients' ability to access providers from any location, and is intended to increase access to healthcare in both urban and rural spaces. For those living far away from a primary care clinic or urgent care, direct-to-consumer telehealth may help fill this gap in access. Additionally, these resources may help to expedite healthcare provision for certain conditions requiring little intervention. Direct-to-consumer telehealth comes in many forms, though real-time communications are dominant. Store-and-forward communications are another form of direct-to-consumer telehealth in which a patient shares information with a provider and receives feedback at a later date. Accessing providers through direct-to-consumer telehealth services may be more time-efficient than seeing a provider in person, and in many cases is a viable alternative to in-person care.

Direct-to-consumer telehealth is provided to patients in a number of ways. Some healthcare providers utilize these services as a supplement to the in-person care that is already being provided to patients. The majority of the direct-to-consumer telehealth market, however, is dominated by for-profit companies that are separate from a patient's normal provider (Mehrotra, Uscher-Pines, & Lee, 2018). The relatively wide market for direct-to-consumer telehealth improves patients' access to telehealth services, but the use of telehealth companies outside a patient's normal health network can lead to difficulties in coordination of care, particularly for those with long-term conditions.

The efficacy and benefits of direct-to-consumer telehealth are heavily dependent on both the medical condition and the population being treated (Ashwood, Mehrotra, Cowling, & Uscher-Pines, 2017). Patients experiencing single-episode conditions with relatively low risk are more likely to reap the greatest benefits from direct-to-consumer telehealth providers. These

“simple acute” conditions appear to represent the greatest share of direct-to-consumer telehealth interactions, though behavioral health services are also gaining traction in the provision of direct-to-consumer telehealth (Mehrotra et al., 2018). Longer-term conditions requiring continuous care are better treated using telehealth services as a supplement to in-person care, though telehealth services can help patients stay in contact with their providers and reduce travel costs associated with care.

Responsiveness to virtual visits

In delivering healthcare, patient comfort is of utmost importance. Direct-to-consumer telehealth visits are effective and useful only if patients are responsive to the service and feel comfortable sharing their information via the internet. A Cisco survey of over 1,500 people across ten countries concluded that 74% of participants were open to virtual doctor visits, while only 40% of those in the United States were open to this kind of visit (Cisco, 2013). Additionally, while the majority of midsize and large American companies offered telehealth services to their employees in 2017, only 8% of eligible employees utilized the service (Murphy, 2019). A primary concern for potential patients is the quality of care associated with telehealth visits, particularly for parents seeking treatment when a child is sick. Additionally, personal preferences influence the patient’s decision to seek care in person or virtually (Murphy, 2019). Unfamiliarity with technology and concerns about data safety may also be important in determining whether a patient feels comfortable seeking treatment online. Martin et al. (2012) describe fears of increased risk arising from telehealth use due to misdiagnosis, mistreatment, or other unfortunate possibilities. These apprehensions may be especially pertinent at the rural level where traditional values tend to be particularly salient.

Many of these barriers to telehealth use can be addressed through proper marketing and targeting strategies. Quality assurance policies and communication strategies may help patients feel safer using direct-to-consumer services. Provision of clear instructions to patients interested in the service is necessary to bolster patient agency with the technology. Additionally, secure internet connections and smartphone-based communications are essential in order to ensure safe transmission of medical information and improve patient responsiveness to the service. Ultimately, proper communication strategies would help reduce patient reluctance to telehealth services, but personal preferences are still paramount in determining how someone may choose to access care. The goal for telehealth services should not be 100% utilization, as personal preferences affect patients’ responses to care and not every condition should be treated using direct-to-consumer telehealth.

Cost of care

One of the most promising aspects of direct-to-consumer telehealth is its potential to generate significant cost savings. The two main goals of rural health care sustainability are financial stability for providers and reduced cost to payers (Murphy et al., 2018), which are difficult to reconcile with each other, though telehealth may play a promising role in bridging this gap. Telehealth visits with a health professional may be less expensive than in-person visits for a variety of reasons. First, telehealth visits may be supported by fewer staff than in-person visits, and reducing the number of people that the patient is in contact with may generate cost savings. Telehealth visits may also be shorter than in-person visits depending on the technology and software that are used to conduct the interaction. Direct-to-consumer telehealth also may reduce costs by keeping patients from seeking care at the emergency room as a last resort (Ashwood et al., 2017). Additionally, while transportation costs may be separate from the cost of care itself, the savings in transportation made possible by direct-to-consumer telehealth present a significant benefit to patients. Transportation costs include both the cost of travel and the opportunity costs associated with taking time off of work or away from home. Particularly for

those living in rural areas, transportation time and costs can be a limiting factor to the patient's access to care.

It is also possible, however, for direct-to-consumer telehealth to generate greater costs than in-person visits in the long run. If a telehealth visit is inconclusive or leads to misdirection of care, the patient may have to seek additional services that would nullify the savings generated by the direct-to-consumer telehealth interaction. Direct-to-consumer services may lead to more follow-up appointments, testing, or prescriptions compared to other methods of care, which increases spending in the long run (Ashwood et al., 2017). These complications could be remedied by targeting telehealth services to those with relatively simple conditions or using them as a supplement to in-person care.

Studies of the costs of direct-to-consumer telehealth have produced mixed results. In a study of 40,000 Minnesota telehealth visits, Courneya, Palattao, and Gallagher (2013) estimated cost savings of \$88 per episode compared to traditional channels of care. Patients also reported high levels of satisfaction with the service (Courneya et al., 2013). These findings present a compelling and promising case for the use of direct-to-consumer telehealth as a substitute for in-person care. Per-episode cost savings certainly benefit patients and providers alike, but doctor-patient interactions and initial visits represent only one component in the greater sphere of healthcare.

In a study of about 300,000 patients over three years, Ashwood et al. (2017) found that direct-to-consumer telehealth visits did not decrease spending overall. While per-episode spending was reduced via direct-to-consumer telehealth, the convenience of the service led to greater use of care and an increase in overall spending (Ashwood et al., 2017). In this study, well over half of the telehealth visits represented new utilization, rather than use of the service as a substitute for an in-person appointment, and "telehealth services could save money if greater shares of visits represented substitutions for visits to other settings" (Ashwood et al., 2017). High levels of new utilization of health services is not necessarily negative in itself, as this represents greater inclusion of patients and increased access to care generally. It does, however, potentially negate the per-episode cost savings associated with telehealth use by increasing expenditures in the long-run, implying that other cost solutions are necessary in order to address rising costs. While direct-to-consumer telehealth may not currently present cost savings on a large scale, targeting strategies and education may help to direct resources efficiently and usher in greater cost savings in the future.

The potential for cost savings is one of the most attractive features of direct-to-consumer telehealth. While these kinds of services may not reduce health spending overall, evidence of per-episode savings still presents a compelling case for direct-to-consumer telehealth. Appropriate targeting strategies are crucial in directing care as a substitute for in-person visits. Overuse of care can be addressed through targeted marketing and education, though the for-profit nature of most telehealth vendors complicates this relationship. Basic economic relationships suggest that in order to address overuse of the service, one solution would be to raise the cost of the telehealth visits. This is not an ideal solution, as it reduces the possible cost savings associated with telehealth and reduces access to care. Because many direct-to-consumer telehealth vendors are for-profit firms, balancing the price of the service has implications beyond the level of utilization of telehealth visits. Targeting and education strategies by both private firms and governmental resources are most promising in addressing overuse of care. While the cost of healthcare is an ever-growing concern with monumental implications, cost of care is only one of a series of metrics that should be used to evaluate telehealth services. Greater inclusion in healthcare and improved access are benefits of the service that should not be limited by costs, though over-use of telehealth services and increases in follow-up appointments are one area in

which cost can be addressed. Direct-to-consumer telehealth resources clearly benefit patients by increasing access to care and providing meaningful companionship and reassurance in the provision of healthcare, and the costs associated with this kind of service are only one of many considerations in assessing care.

Quality of care

Paramount in evaluating healthcare is assessment of the quality of care that is delivered. While cost and convenience are also significant factors in assessing healthcare delivery, quality of care is the most significant measure of health system success. Quality is of particular concern with direct-to-consumer telehealth because patients often have telehealth visits with professionals that are not their normal care providers, which can complicate the patient's interactions and record of care. Physicians that are hired by the telehealth service company "may not offer care that meets the standards of patients, insurers, or other stakeholders in a given health network" (Baird, 2017). The speed at which direct-to-consumer telehealth visits are often conducted can undermine the quality of care that is delivered, as many telehealth vendors attempt to keep visits to about 5 minutes in order to reduce costs (Baird, 2017). Hierarchical monitoring structures within telehealth companies and monitoring of interactions may help to address these factors.

Coordination of care is one of the most commonly discussed concerns in assessing direct-to-consumer telehealth. For patients utilizing private telehealth vendors outside their normal network, merging medical records and coordinating care with other physicians tends to be complicated. Records from telehealth visits may be lost or unfiled, and most electronic health record systems aren't currently compatible with telehealth software and records (Baird, 2017). This presents important complications for patients requiring follow-up care or new prescriptions. Additionally, the physician conducting the virtual visit may not have access to a patient's full record, which can result in miscommunication, misinformation, and poor prescription choices.

In a study of over 38,000 direct-to-consumer telehealth visits and 942,000 primary care visits, Shi et al. (2018) found that virtual visits had less appropriate testing and resulted in more follow-up appointments than in-person visits. This suggests problems for both quality and cost of care, as misdiagnosis, inappropriate testing, and follow-up appointments can complicate patient health status and health records and increase the cost of care. In order to improve the quality of direct-to-consumer telehealth interactions, health organizations must coordinate to ensure that health records can be appropriately and securely shared with telehealth vendors. Additionally, health insurance providers and employers must play an active role in monitoring quality of care and implementing appropriate mechanisms for improvement (Shi et al., 2018). The promises of direct-to-consumer telehealth must not overshadow the importance of monitoring quality of care, as some care is not always preferable to no care at all.

Intermountain Healthcare: Connect Care

Intermountain Healthcare provides direct-to-consumer telehealth to those living in all states where telehealth services are legal. Connect Care is Intermountain Healthcare's direct-to-consumer telehealth service that can be accessed 24 hours a day for those experiencing common conditions. Visits are conducted through video communication. For patients already within Intermountain Healthcare's network, their medical records are available to the clinician conducting the telehealth visit, and the record of the virtual visit is integrated into the patient's general medical record. For those outside the Intermountain network, however, medical records are supplied to clinicians by the patient herself, which can lead to complications in quality of care if the patient does not supply adequate background information or have access to the details of her health status. Visits cost \$49 and may be covered by the patient's insurance, depending on the policy. Additionally, if a patient's condition is not diagnosable by video communication and

requires an in-person visit, the patient is not charged for the Connect Care visit (Intermountain Healthcare, 2019).

Concern about over-prescription of pain medicine and abuse of pain medicine has been renewed in recent years in the wake of the opioid epidemic. Rural spaces have been especially plagued by this issue, and the prescribing power of physicians through direct-to-consumer telehealth is a warranted concern. Physicians who see patients through Connect Care are able to prescribe medicine through virtual visits, however it is illegal to prescribe opiates virtually. The ability to write prescriptions based on virtual visits is helpful for improving access to medicine and treating patients appropriately, but telehealth visits could also lead to over-prescription of medicines such as antibiotics. Additionally, the Department of Health and Human Services is currently developing policy that allows physicians to prescribe buprenorphine virtually in order to combat opioid abuse and overdose (U.S. Department of Health & Human Services, 2018). Treatment for substance abuse through real-time video communication is also covered by Utah Medicaid (Center for Connected Health Policy [CCHP], 2019). Medically-assisted treatment for drug abuse is one area in which direct-to-consumer telehealth services can play an important role in the future, particularly for persons living in rural areas without access to other clinics.

Connect Care exemplifies telehealth services that are well-coordinated by a health organization which also provide in-person care. Intermountain Healthcare should continue to pursue Connect Care for the treatment of simple acute conditions, as the program provides a streamlined channel of care for those in both urban and rural settings. In the future, Intermountain Healthcare could further integrate direct-to-consumer telehealth into its existing patient network by implementing long-term care and monitoring services virtually.

University of Utah Health: Tele-Prenatal and Behavioral Health

University of Utah Health conducts direct-to-consumer telehealth operations in addition to their consulting programs. One of the University's newest programs is targeted toward expectant mothers. The tele-prenatal program combines direct-to-consumer telehealth with in-person visits in order to maximize efficacy. Every three to four appointments, the patient makes an in-person visit with their doctor, and this care is supplemented by virtual visits that direct the patient to specific products that will aid her pregnancy and help the doctor monitor the patient. This program model aids both rural and urban residents by reducing the number of in-person appointments required of the expectant mother and reducing travel stress. Additionally, University of Utah Health has begun implementing behavioral health services virtually. The tele-crisis program aids those in need of immediate assistance, and licensed social workers conduct visits with patients remotely in order to reduce costs and improve accessibility to care. Patients may also feel more comfortable participating in virtual visits since they do not have to experience a new environment and can stay in the comfort of their own homes. Appropriate targeting strategies and reimbursement practices can help to widen the use of these services in order to increase access to both prenatal and behavioral care.

REIMBURSEMENT FOR TELEHEALTH SERVICES

As telehealth services grow in their availability, marketability, and recognizability, health insurance policies must be shaped to support appropriate uses of telehealth. Reimbursement for telehealth services is critical in shaping patients' decisions to seek virtual communications, as well as medical facilities' decisions about contracting with specialists virtually or implementing direct-to-consumer telehealth. One significant complication in this area is the wide variety of insurance policies that exist in the private market, as well as the variance between state Medicaid policies. This variance may decrease access to telehealth services by creating inconsistencies in cost of care to patients and by compromising patients' understanding of what their insurance

covers. The Center for Medicare and Medicaid Services should serve as a leader in writing telehealth reimbursement policies because of its large patient base, legal authority, and relative consistency as compared to private insurers.

Medicaid in particular has been studied as an important channel for resources in rural health systems. The program is a key source of funding for hospitals and primary care providers, and it contributes significantly to keeping rural economies afloat (Mueller et al., 2012). Medicaid is a vital source of health coverage for many rural Americans that allows physicians and hospitals to serve patients that may otherwise not be able to pay for their services. Additionally, Mueller et al. (2012) have described Medicaid as the “largest single payer for long-term services and support.” Those with long-term conditions may be supported by telehealth as a supplement to in-person care, and Medicaid can play a meaningful role in supporting these services. This research has established the critical role that Medicaid plays in supporting rural American health systems, and suggests that its importance will only grow in future years. Medicaid also presents complex bureaucratic and financial impediments to providers, however, and variance across the states further complicates reimbursement for these transactions.

Martin et al. (2012) found that reimbursement practices are a major barrier to implementation of these resources, and that states with low telemedicine adoption also have low rates of coverage for these kinds of services by private insurers. This presents a problem for both urban and rural populations that could benefit from telehealth implementation, and suggests that Medicare and Medicaid might act as leaders in promoting consistent reimbursement practices in order to support the growing role of technology and the internet in health care. One success in this area was the 2006 implementation of Medicare Part B coverage of medical nutrition therapy via telehealth use. The implementation of this reimbursement practice in 2006 signals a step in a positive direction for those living in rural areas with chronic conditions such as diabetes.

Medicare employs a particularly rural-focused policy in reimbursing telehealth. Medicare beneficiaries must live in a federally-classified rural Health Professional Shortage Area, or otherwise in a county outside of a Metropolitan Statistical Area in order for their telehealth interactions to be covered (Center for Medicare & Medicaid Services [CMS], 2019). Additionally, telehealth is defined as two-way, real-time communications between parties, so store-and-forward interactions are not covered by Medicare. Eligible visits include those addressing behavioral health, substance abuse, end-stage renal disease, consultations, and follow-up visits (CMS, 2019), and Medicare reimburses for a wide variety of visit types. In 2015, the Medicare Telehealth Parity Act was introduced with the goal to incrementally expand telehealth coverage for Medicare beneficiaries, but this bill died in committee (GovTrack, 2015). Medicare reimbursement for telehealth services currently is off to a good start, but expansion of the number of eligible geographic areas would greatly improve access to telehealth services for those living in urban and suburban areas that may use telehealth for reasons other than locational challenges.

Within Utah Medicaid, telehealth is defined as “two-way, real-time interactive communication between the member and the physician or authorized provider at the distant site” (CCHP, 2019). This definition limits the use of telehealth to real-time communications and does not include the use of store-and-forward communications between parties. Expanding legal definitions of telehealth within both Medicare and Medicaid would greatly improve these services’ support of telehealth by widening the number of eligible interactions. Two-way, real-time communications may not always be viable for beneficiaries, and expanding legal definitions of telehealth to include store-and-forward communications and other interactions would increase access to telehealth communications greatly.

Consultations, evaluations, and mental health services are included in Utah Medicaid's collection of eligible services. Only specific long-term cardiac conditions may be monitored remotely according to Utah Medicaid. This is a significant barrier to widening the service population of telehealth, as long-term monitoring could be of great service to many people living in areas without regular access to clinic locations. An expansion of the list of eligible services for reimbursement by Utah Medicaid would signal a commitment to supporting both acute and long-term patients remotely while increasing access to care.

CONCLUSION

The role of telehealth in supporting rural healthcare has shifted greatly over the last decade. The use of technological services for communications within healthcare is not new, but the goals and types of these communications have expanded significantly. The prevalence of smartphones and accessibility of video communications has brought direct-to-consumer telehealth into the mainstream market and expanded access to care generally. Additionally, improved communications technologies have reduced barriers to institutional use of telehealth. These resources have improved access to healthcare in rural communities, and they also carry significant promise for those living in urban spaces. Telehealth is not a singular solution to address issues in healthcare accessibility, but it has the capacity to make improvements in this area if supported by adequate infrastructure and policy.

Within Utah, access to health facilities is highly limited for those in the state's most remote areas. While it is expected and reasonable for the concentration of health resources to scale with population density, thousands of Utahns remain outside of this equation entirely. Direct-to-consumer telehealth may support these residents by providing access to care for acute conditions, but emergency and specialty services remain limited. Telehealth services that support emergency and ambulatory communications could have a meaningful impact on the state's most remote communities.

Communication between providers is one area in which telehealth interactions can greatly improve care. The ability of medical professionals to communicate with each other securely and quickly improves access to specialty care for those living outside of major cities while maintaining professionalism and quality of care. In this area of telehealth, the greatest barriers to use have to do with available infrastructure for rural providers. Rural facilities are limited by the tools at their disposal, and specialist communications can be prohibitively expensive for patients and providers. While University of Utah Health supports rural providers through offering free specialist contracting, this is only one example of a well-nurtured relationship between urban and rural providers. Additionally, in contracting with specialists across health networks, rural hospitals must work to maintain their autonomy in service provision while adequately utilizing the advice received through the specialist communication.

Direct-to-consumer telehealth is a growing field that must be monitored and assessed closely in order to maintain quality of care and limit the cost of healthcare. These resources are an important way for patients to receive care when they are not able to access an in-person visit to a hospital or clinic, and can also serve companionship and reassurance functions for patients. Direct-to-consumer healthcare provision can improve access to care and the provision of long-term services, but it must be met with careful cost and quality regulations of telehealth vendors. In order to address overuse of direct-to-consumer telehealth services, pointed marketing strategies should be pursued by both private telehealth firms and governmental agencies. Additionally, integrating telehealth records with other medical records is important for ensuring quality of care both during and after the virtual visit. Integrating medical records also can help to address overuse of care and expansion of costs through telehealth use, as the availability of a

patient's full medical history can help physicians make more accurate diagnoses and prescriptions and lead to less follow-up care and fewer complications. Direct-to-consumer telehealth communications through a patient's normal health network can also support long-term care for patients in both rural and urban areas if it is supported with appropriate reimbursement practices.

The successes and shortcomings of telehealth use thus far demonstrate that it is a promising supplement to in-person care in its current form. Institutional telehealth resources should continue to be utilized in order to expand access to specialty care and aide communications between doctors and hospitals. Direct-to-consumer telehealth can offer support and care to those in both urban and rural areas, and it may help rural residents in particular access care that is unavailable near their hometowns. Telehealth resources are more diverse than they appear at first glance, and are becoming increasingly varied as technologies expand. Expansion into preventive and long-term care is a promising area for telehealth to grow in future years if supported by adequate policy and financing. Expanding service areas, legal definitions of telehealth, and eligible conditions for reimbursement would greatly improve the ability of Medicaid and Medicare to support telehealth and serve as leaders in the field. Policy in this area must catch up to available technologies and infrastructure in order for telehealth to continue impacting rural communities positively.

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