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Telemedicine: Decreasing Barriers and Increasing Access to Healthcare

Telemedicine includes a variety of technologies and tactics to deliver virtual healthcare.[1] Telemedicine is considered a subset of telehealth. The latter includes provider-to-provider remote training opportunities and mobile health apps designed to promote health and engage patients.[2] Telemedicine is a specific kind of telehealth that involves clinicians providing medical services to patients.

As this brief explores, telemedicine can enhance interactions among providers to improve patient care, enhance service capacity and quality (such as in small rural hospital emergency departments and pharmacy services), and manage patients with chronic conditions from a distance.[3]

SUMMARY

Telemedicine is a method for enhancing healthcare and provider collaboration through the use of telecommunication technologies. For both urban and rural patients, telemedicine has benefits that include an increase in timeliness of services and patient comfort, and a decrease in the need for transportation, which ultimately leads to cost savings and improved quality of care. Telemedicine has grown significantly as states enact legislation that creates a framework for safely allowing patients, providers and payers to incorporate telemedicine into care delivery. This research brief provides a general overview of telemedicine and how it could increase healthcare value.

Three Types of Telemedicine

Telemedicine has three main types of technology: live video, store-and-forward and remote patient monitoring.[4]

Live video (synchronous): Live, two-way interaction between a person (patient, caregiver, or provider) and a provider using audiovisual telecommunications technology. This type of service can serve as a substitute for in-person visits for consultative, diagnostic and treatment services. For example, if a patient suspects they have an infection and needs quick treatment but cannot easily see a doctor, they could use real-time telemedicine to consult a doctor remotely and get treatment advice, referral or a necessary prescription. Video devices can include videoconferencing units or web cameras. Display devices include computer monitors, TVs, LCD projectors, tablets and smartphones.[5]

Store-and-forward (asynchronous): Transmission of recorded health history (for example, pre-recorded videos and digital images such as x-rays and photos) through a secure electronic communications system to a practitioner, who uses the information to evaluate the case or render a service outside of a real-time or live interaction. As compared to a real-time visit, this service provides access to data after it has been collected, and involves communication tools such as secure email.

Remote patient monitoring: Electronic collection of personal health and medical data from a patient in one location and transmitted to a provider (sometimes via a data processing service) in a different location for use in care and related support. This type of service enables a provider to track a patient's healthcare data after discharge to home or a care facility, reducing hospital readmission rates.

Telemedicine Benefits

Our review of the evidence finds that use of telemedicine has been shown to offer numerous benefits, including:[7]

Timeliness: Telemedicine enables patients to get certain types of care when they need it instead of having to travel to a facility or wait for an appointment. Of course, different health problems require different interactions. Persistent fevers, chest pain, unrelenting belly pain, and low blood pressure should never be handled remotely, but a sore throat or a rash can be easily handled through telemedicine.[8] However, telemedicine can provide immediate assistance until the patient can get to a facility, if needed. A study found that telemedicine use tends to rise on weekends and holidays when many physicians' offices are closed.[9]

Comfort: Telemedicine allows patients to remain in their homes or community as they receive care. Traveling to a hospital could be more uncomfortable or even painful for patients as they recover, and being in a supportive, known environment may foster quicker recovery.

Transportation: Patients in rural or suburban settings might not have the necessary resources to travel to a provider. Even for patients in an urban environment, public transportation can be tedious and grueling. Older or less mobile patients might also not have family, friends or caretakers to take them to clinics. Telemedicine can help a patient feel more independent. One study found that the use of home-telemedicine for care coordination improved functional independence in noninstitutionalized veterans with chronic diseases.[10]

Improved Outcomes: Telemedicine increases collaboration and productivity of medical staff which improves the quality of care patients receive. A survey of intensive care unit nurses found that 79 percent agreed tele-ICU systems enable nurses to improve patient care, and approximately 75 percent agreed it improves job performance.[11] Evidence suggests that the use of telemedicine results in fewer follow-up visits, making it more cost-effective. One study found that 6 percent of patients using telemedicine required a follow up for a similar condition, compared to 13 percent of those visiting a physician's office and 20 percent of those visiting an emergency department.[12]

Provider Benefits: Telemedicine increases collaboration between providers, and for those practicing in rural environments this can reduce the isolation they may face. Telemedicine can bring together numerous specialties, thus allowing healthcare providers to informally continue their education and training through collaboration with remote colleagues.

Cost Savings: Telemedicine has been shown to increase efficiency through improved management of chronic diseases. Telemedicine also reduces hospital costs by providing remote access to specialists that rural hospitals cannot usually attract to serve as a local provider.[13]

In one example, a rural hospital reduced its use of a full-time radiologist from five days a week to one. Using rural specialists' salaries from the Physician Compensation and Production Survey, the study estimated annual cost savings of $101,600.[14]

The same study examined 24 rural hospitals in various communities to quantify potential cost savings. Patients who use telemedicine services do not incur travel expenses to visit a far-off treatment site. The study measured average distance traveled, the average cost per mile, and the number of encounters per year—taking into account the percentage of encounters that required immediate attention, as opposed to those that could wait until a specialist was available locally.[15]

Telemedicine Barriers and Limitations

While many benefits of telemedicine have been identified, there are still barriers to states adopting or expanding this method of healthcare delivery.[16]

Broadband Access: The main barrier to telemedicine is access to reliable broadband or satellite since live video (synchronous) requires high-speed, high-quality connections. These electronics allow physicians to keep in contact with their patients through video and apps that transmit vital data and results, as well as with other healthcare professionals.[17] According to the Federal Communications Commission, in 2016, 10 percent of all Americans—34 million people—lacked access to 25 Mbps downstream/3 Mbps upstream service, a speed that would

make consultations viable.[18] This is particularly true in rural areas, where 39 percent—23 million people—lack access to 25 Mbps/3 Mbps service.[19] Rural areas are more expensive to serve with broadband, due to smaller populations being served over greater distances.

Reimbursement: In the 2017 legislative session, forty-four states introduced more than 200 telemedicine legislative bills, most of which focused on reimbursement policies in regards to private payers and Medicaid or licensing requirements for providers.[20] Telemedicine regulations and reimbursements differ by state, but there has been an increase in the number of states that provide reimbursements for telemedicine services to providers.

In 2017, state Medicaid reimbursement for telemedicine services included:[21]

- Forty-eight states and Washington, D.C., provide reimbursement for live video (synchronous) in their Medicaid program.
- Thirteen state Medicaid programs reimburse for store and forward.
- Twenty-two state Medicaid programs reimburse for remote patient monitoring.
- Nine states reimburse for all three.

Medicare offers the most limited coverage of telemedicine; they only cover a narrow set of services and only in rural areas.[22] Healthcare providers have to meet a number of provisions to qualify for telemedicine and telemedicine reimbursement under Medicare. They must be one of 10 qualifying distant site practitioners in a federally designated rural zone; the patient must be in a federally designated rural zone; and they must be using a real-time audio-visual platform.[23] These restrictions have become a barrier to many providers, especially if they were to broaden their telemedicine practice. Regardless, telemedicine use among Medicare beneficiaries increased by almost a third in 2016, with much of that increase occurring within the rigid boundaries of CMS reimbursement guidelines.[24]

Private payers are more willing to embrace telemedicine as a covered service for beneficiaries as part of a broader move to increase the quality of care—and avoid costly readmissions and other adverse outcomes.[25]

Medical Errors and Patient Safety: The overall impact of telemedicine on safety is less studied, and some have raised concerns that the absence of the traditional face-to-face encounter may increase the risk of medical errors.[26] One study reviewed 32 cases that ended with catastrophic outcomes, including deaths and malpractice settlements amounting to more than $12 million.[27] Without the ability to physically touch a patient, the doctor is limited in the care they can provide. While an in-person exam is important in many scenarios, there are still conditions that do not require one, like the common cold. However, telemedicine is a tool meant to complement existing healthcare methods. It will not replace traditional in-person visits, only expand the range of care providers are able to offer.

Patient Privacy: Telemedicine complies with HIPAA laws, which aim to prevent private or secure medical documents from being leaked. However, there is no guarantee that routine data transmissions from an app or medical device, such as an insulin pump, may be shared with third-party advertisers or others.[28]

Licensing: States have varying licensing regulations, which can be a challenge for many telemedicine providers. While virtually all physicians must be licensed in the state in which they physically practice, a number of states require that physicians must also have a valid license in the state where the patient is located.[29] For this reason, states are introducing legislation to join the Interstate Medical Licensure Compact, which offers an expedited pathway to licensure for qualified physicians who wish to practice in multiple states.[30] In recent years, numerous telemedicine bills have also been focusing on expanding scope of practice and licensing for nurse practitioners and physical therapists.[31]

How Does Telemedicine Help with Healthcare Value?

State health policy leaders are faced with the challenge of making sure all residents have adequate access to care. In support of this goal, the use of telemedicine has gained traction, especially in rural areas. Advancements in high-speed broadband and wireless communications have made these services more reliable and affordable.

Consumers support these advances. According to a 2015 American Well Telemedicine Consumer Survey, 64 percent of Americans would be willing to have a video visit with their doctor.[32] Consumers want telemedicine because it is convenient and it reduces travel time and related stresses for the patient.

Live video, in particular, is appealing to consumers.[33] Patients do not need to be in a clinical setting to receive basic care to address minor concerns; they can stay in their home and video conference their physician through a computer, tablet or smartphone. Providers can then assess physical symptoms and ailments, such as skin rashes, post-operative stitches.

Telemedicine can be particularly valuable for patients in rural communities. They are more likely than their urban counterparts to have trouble either physically or financially getting to a health clinic, especially as rural hospital closures continue to climb at an alarming rate.[34] Rural communities are more likely to have older residents who might have more risk factors and chronic conditions. Telemedicine has some of the highest adoption in some of the nation's most remote areas: The three states with the highest telemedicine use are Alaska (75%), Arkansas (71%) and South Dakota (70%).[35]

As noted above, telemedicine can increase the quality of care and potentially provide cost savings. Patients have better access to a variety of specialists through telemedicine including psychiatry, which has increased the number of people receiving appropriate care for behavioral health issues.[36] Even in situations where a patient's condition requires transfer to a hospital, telemedicine services can provide a live audio and visual consultation from a specialist to where the patient is physically receiving care, possibly alleviating the need for a second transport.[37]

Recommendations

Telemedicine has revolutionized medicine by increasing access and quality of care while decreasing costs. Telemedicine also reduces the inconveniences, cost and health effects of traveling to a provider or healthcare facility.

To leverage these benefits, many states still need to adapt or expand telemedicine regulations. Some recommendations include:

- Including telemedicine in all payment models, with research to ensure the outcomes and cost-effectiveness of reimbursement levels.
- Easing regulations on licensing and geographic areas where telemedicine can be utilized, in order to reach a broader patient population—while keeping an eye on patient safety.
- Pair telemedicine legislation with appropriately expanded scope of practice rules (physician assistants and nurse practitioners, for example) to increase the number of providers who can assist the patient. [40]
- Continue to pursue national efforts to provide broadband internet access in rural areas.
- Be vigilant about patient privacy regulations and data breaches to protect the privacy of telemedicine data transmissions and storage.

Notes

1. Center for Connected Health Policy, *What is Telemedicine*, *http://www.cchpca.org/what-is-telemedicine* (accessed Oct. 1, 2017).
2. Mobile health (mHealth) refers to patient engagement, patient education, and public health programs offered via mobile communication devices such as cell phones, tablets, and PDAs. Applications include targeted text messages that promote healthy behavior wide-scale alerts about disease outbreaks, apps to help patients self-diagnose illnesses, to name a few examples.
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31. National Quality Forum, *Creating a Framework to Support Measure Development for Telemedicine*, Washington, D.C. (August 2017).
32. Alkon (Jan. 11, 2017).
33. Ibid.
34. Schadelbauer (March 2017).
35. American Hospital Association, *Telemedicine: Helping Hospitals Deliver Cost-Effective Care*, Washington, D.C. (April 22, 2016).
36. Ibid.
37. Healthcare Value Hub, *Provider Scope of Practice: Expanding Non-Physician Providers' Responsibilities Can Benefit Consumers,* Research Brief No. 21, Washington, D.C. (November 2017).

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