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Breaking Barriers: How Telehealth is Revolutionizing Access to Healthcare

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Abstract

Telehealth is an increasingly growing practice among physicians to provide service and consultations to their patients and is the practice of utilizing telecommunications technology to give medical advice and check up on the patient. This paper reviews the current state of telehealth and the benefits and disadvantages with the practice, and how new technologies and practices associated with telehealth are progressing and improving the practice. The impact of these advancements in telehealth that are highlighted are the access of healthcare and delivery through telehealth, their potential to reduce geographical and financial barriers to receiving healthcare, increasing patient engagement, and reducing patient mortality.

Introduction

Telehealth is the concept of providing healthcare services through technology and without an in-person visit to the healthcare provider. The services provided can be administered through over-the-phone patient consultations, remote patient monitoring, and get updates on the status of your medical imaging and messaging your doctor in a secure way, etc. (Health and Human Services, 2023). Telehealth is a service that has grown in demand in recent years, and 2021 health statistics have shown that it is utilized across all specialties, for 13% to 17% of all patient visits in the United States (Charleson, 2023). Telehealth helps patients with getting regular meetings with their healthcare providers along with it being less of a financial burden as insurance or Medicare completely covered the cost of telehealth services for 60% of respondents, and in one study, the savings cost for patients ranged from $19 - $121, mostly from avoiding the need for emergency room visits (Hughes, 2020).

Advantages of Telehealth in Rural Areas

Telehealth has significantly increased the access that rural areas have to healthcare services, especially in recent years, as from 2010 to 2017, there was a 76% in the use of telehealth in hospitals from only 35% a few years before (American Hospital Association, 2019). Telehealth has also been shown to lead to a similar patient care experience as compared to an in-person visit when patients in a rural area received care over telehealth from healthcare providers, 76.5% reported it was beneficial to them, and 14.3% reported it was about the same level of care as going to a hospital in person (Kolluri et. al, 2022). These statistics are especially pertinent in rural areas as in the same study 52% of patient reported that transportation was a barrier or sometimes a barrier to receiving care from a hospital and 48% reported that the concern of whether or not they would be able to receive adequate health care or specialists was also a significant issue as 47.5% of them also reported that would have preferred to see a doctor more often (Kolluri et. al, 2022). Rural areas also demand significantly more travel time to receive care, as the average time for patients in this study to receive care was a 23.5-minute drive to see their primary care provider, and even then, the patients felt like they would receive insufficient information

from their physician and insufficient discussion time with their physician, which is why telehealth is beneficial as it provides the patient with a more accessible option for communication with their physician more conveniently and cost-effectively for the patient. Telehealth has also allowed for increased and safe doctor visits during emergencies such as pandemics as during the COVID-19 pandemic in 2020, on average, 30.2% of weekly health center visits between June 26 and November 6, 2020 took place through telehealth (RHIHub, 2021).

Telehealth for Psychiatric Patients

Telehealth is an increasingly utilized practice in the field of psychiatric medicine and is known more specifically as telepsychiatry. The effectiveness of mental health telehealth calls was evaluated in a study on schizophrenic patients, and it was shown that nurse support that was telephone-based helped to reduce positive schizophrenia symptoms compared with a control group; in this same study, it was also shown that telemonitoring had a beneficial effect on positive and negative schizophrenia symptoms over standard care when compared with a control group (Lawes-Wickwar et al., 2018). The patient's mood was also shown to have improved in the same study as nurse-delivered monthly telephone monitoring intervention helped to reduce bipolar disorder for patients after one year, and in the long term, it was shown that after two years of this practice, there was also a significant reduction in mania.

Telehealth for Those Who Are Physically Impaired

Individuals with physical disabilities often face significant challenges in accessing healthcare services due to physical barriers, such as transportation or lack of accessibility in healthcare facilities. Telehealth has emerged as a promising approach to address these barriers by providing remote healthcare services to individuals with physical disabilities. The use of telehealth for individuals with physical disabilities has been on the rise in recent years. According to a survey by the Pew Research Center, 62% of Americans with disabilities have used the internet to access health information, and 28% have used technology to communicate with healthcare providers (Anderson, 2020). Telehealth is also something that older adults have shown interest in as in a survey of older adults, 60% of respondents reported that they would be willing to use telehealth to receive medical care if it were available to them (Anderson, 2020). The use of telehealth for those with mobility disabilities rose throughout the pandemic, as one study showed that 43.3% of persons with mobility disabilities used telehealth services during the second year of the pandemic (Friedman et al., 2021). Telehealth is very critical to the consistency and quality of medical service received by patients with disabilities as there are 61 million adults with disabilities that live in the United States and need access to health care but still experience significant disparities in access to health care, and the quality of care they receive can result in disparities in health and their mortality rate as they are more likely to have chronic conditions which require consistent access to healthcare professionals which can be hard to receive when they have difficulties with mobility and going to the hospital or clinic itself, which is why telehealth is such a crucial and necessary aspect in aiding in their overall well being (CDC, 2023).

Cost Effectiveness of Telehealth

The use of telehealth between doctors and patients for consultations has helped to cut down on the amount of infrastructure needed for healthcare providers to be able to assist their patients as out of 17 cost-minimization studies that reported their results from the perspective of the health system and of these 17 studies, 53% reported telehealth to be cost saving compared with conventional care (Snoswell et al., 2020). Telehealth is also cost effective for the patient as a study with 25,496 telehealth visits with 11,688 patients showed that for new visits the mean cost savings per visit ranged from $176.60 to $222.80 and for follow up visits the mean cost savings was $141.10 to $178.10, due to travel cost making the cost of patient care cheaper as patients do not need to travel as for to get medical advice and help (Patel, 2023). The cost effectiveness of telehealth allows for patients to get assistance from their physician on a more consistent basis as they do not need travel as much distance to get to the hospital and can meet with them anywhere as it is done through some sort of virtual way, save in terms of the amount of time they need to allocate to getting the opinion of their physician on the status of their health, and they can also save on the amount of money they would need to spend to be able to travel to the hospital which allows for healthcare to become more affordable and accessible to patients.

Insurance Covers Telehealth

The increased coverage of the use of telehealth for patients by Medicare and Medicaid recipients have led to more and more patients taking advantage of the use of telehealth to receive consultations and advice from their physician in a more cost effective way for the patient. Before the COVID-19 Pandemic the coverage of telehealth services under Medicare was limited to patients only in rural areas but ever since the pandemic it has expanded to cover a wide range of patients through the expansion of telehealth coverage by Medicare by Congress and the Centers for Medicare and Medicaid Services which allowed for patients to get telehealth services in a easier way as it was now covered by their insurance and it also helped to minimize their exposure to COVID-19 (Wyatt Koma, 2021). The use of telehealth has grown exponentially among Medicare beneficiaries with approximately 64% having access to telehealth appointments, an increase from the pre-pandemic rate of 18%. Among the 33.6 million beneficiaries with access to telehealth, almost half (45%) had a virtual visit with a health professional during the summer and fall of 2020, accounting for roughly 27% (15 million) of all community-dwelling beneficiaries enrolled in traditional Medicare and Medicare (Wyatt Koma, 2021). Additionally, In 2020, Medicare further increased reimbursement for remote patient monitoring to an average of $120 per patient per month when providers are enrolled in a qualified program. At that rate, if 50 patients are enrolled in an RPM program, a practice can expect to generate $72,000 a year in revenue.(Tashnek, 2020). Patient monitoring is also at a decreased cost as by delivering 20 minutes of remote patient monitoring per month, each Medicare beneficiary can generate reimbursement of about $1,400 over a 12-month period (Lamboley, 2022).

Practices That Combat the Disadvantages of Telehealth

Telehealth as practice makes it difficult to perform certain tests and procedures that physicians do on a normal basis in an in-person setting, with one that is commonly known being the biggest which is the physical exam, but new practices have been started to be used to allow for physicians to conduct patient assisted physicals which help with getting those metrics and understanding of the patients current state of health over the use of digital communication, with the most notable one being a patient-assisted physical exam and in the context of telehealth means that performing a patient-assisted physical examination over telehealth can present some challenges, but with proper planning and communication, it is still possible to conduct a thorough exam (Benziger, 2021). The process begins by explaining the telehealth exam process to the patient and ensure that they have the necessary equipment and technology to participate, such as a camera-enabled device and a reliable internet connection, then instructions are provided for how to position the camera and adjust lighting in the room to optimize visualization of the area of concern. Afterwards, the patient is asked about their medical history and any symptoms they are experiencing along with their weight, blood pressure, pulse oxygen saturation and temperature. The patient will then be asked to conduct skin assessment to look for abnormalities such as new bruises, rashes, or swelling. After a skin assessment, there is an assessment that will be conducted on the senses of the patient with a vision, hearing, smell, and throat assessment, along with a test on the pain with rotation of the neck, jugular venous distension, and checking Corrigan's pulse. The next step is to access the lungs of the patient, in which the patient is instructed to deeply inhale and hold their breath while any wheezing and tachypnea is observed and noted by the physician. Afterwards the heart of the patient is assessed with the pulse being measured and the beats per minute being recorded. The abdomen is then assessed to see if the patient feels any abnormality such as if the abdomen is firm or tender. Following the abdomen test a test on the extremities of the patient are performed where the patient will press their thumb into the pretibial area and assess edema and perceived temperature, after which a test on the patient's neurological status will be performed where the patient's speech, gait, ability to do a Romberg test, and ability to stand from a seated position will all be assessed by the physician. The final step of the patient assisted physical is to assess the social determinants of health that the patient deals with in their day to day activities like their diet, amount of physical activity, sleep habits, stress levels, housing situation, transportation, feeling of safety, and overall mood (Benziger, 2021).Overall, performing a patient-assisted physical examination over telehealth requires clear communication and a collaborative approach between the healthcare provider and the patient. By following these steps, the healthcare provider can conduct a thorough exam and provide quality care to the patient.

Lab Work Over Telehealth

A notable problem that physicians are faced with when it comes to the treatment of patients over telehealth is how a patient's lab work can done since things such as allergy tests, STD tests and cholesterol tests require the patient to physically be there so that their labs can be done at the physicians hospital or clinic but new technologies and companies have made lab tests like these accessible for patients to be able to conduct them in their own home, which helps to solve this problem with telehealth. One company like this is Everlywell: This company offers a range of at-home lab tests, including tests for food sensitivities, STDs, thyroid function, and more. The tests can be ordered online and are shipped directly to the patient's home. Once the patient provides a sample, they can send it back to the laboratory for analysis, and the results are available online within a few days. Everlywell partners with healthcare providers to offer telehealth consultations and support for patients who need follow-up care (Vuskovich, 2023). Additionally the company LetsGetChecked offers a variety of at-home lab tests, including tests for sexually transmitted infections, fertility, thyroid function, and more. Patients can order the tests online, and the testing kit is shipped directly to their home. Once they collect a sample, they can send it back to the laboratory for analysis. The results are available online within 2-5 days, and patients can receive support and guidance from a team of healthcare professionals through the platform (LetsGetChecked, 2023). Another company that also helps with the labs of patients is Pixel by LabCorp, which offers tests for COVID-19, cholesterol, diabetes, and more. Patients can order the tests online and receive the testing kit by mail. Once they collect a sample, they can send it back to a LabCorp laboratory for analysis. The results are available online within a few days, and patients can access counseling and follow-up care through the platform (Zimlich,

2022).

Security Of Data Over Telehealth

Telehealth poses new challenges to privacy and security concerns and with 68 million telehealth services delivered in a few month span in 2020, up over 2,700% from the same period in 2019 (Staff, 2023), the worry over risk of exposure and the possibility that data will be disclosed in inappropriate ways has only risen. Telehealth providers must implement security measures to protect patient data, including encryption, secure video calls, and training. The rapid expansion of technology in healthcare has revolutionized the way healthcare is delivered. However, it has also brought with it significant concerns about the privacy and security of patients' PHI. The storage and transmission of electronic data create new security issues that healthcare organizations must consider. With the growing use of telehealth, these privacy and security concerns become even more complex. Telehealth is the delivery of healthcare services using telecommunication technologies such as video conferencing, mobile devices, and remote monitoring. The transmission of data to and from various locations increases the risk exposure and the possibility that data will be disclosed in inappropriate ways (Intel, n.d.). The rapid expansion of technology in healthcare has brought with it significant concerns about the privacy and security of patients' PHI. The use of telehealth further complicates privacy and security concerns. Federal laws such as the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic and Clinical Health (HITECH) Act address the privacy and security of electronic PHI (Cascella, n.d.). HIPAA and HITECH regulations require healthcare organizations to adhere to standards that ensure the confidentiality, integrity, and security of ePHI. The increasing use of telemedicine has raised concerns about the security of protected health information (PHI) during virtual appointments and paperwork completion. Video conferencing is a crucial technology used by remote providers, and it facilitates the transmission of PHI and electronic PHI (ePHI). As a result, the confidentiality, integrity, and availability of the information are at risk. However, there are HIPAA-compliant video conferencing apps that take a proactive approach to data protection (R., 2022). Telehealth service providers can implement administrative, technical, and physical safeguards to ensure compliance with HIPAA regulations. To accomplish this, they must ensure that their video conferencing tool meets five requirements: Business Associate Agreements (BAAs), End-to-End Encryption, Peer-to-Peer Connection, and Vendor Access and Auditing. BAAs are essential to HIPAA compliance because they require all concerned parties to take active measures to protect patient PHI (R., 2022). When searching for a video streaming solution for a medical practice, it is essential to verify whether the solution has a signed BAA. End-to-end encryption (E2EE) is the gold standard for HIPAA compliance because it ensures that malicious users and unauthorized third parties cannot access data transmitted during a video call. However, many popular video services, such

as Skype and FaceTime, do not meet this requirement. This level of encryption guarantees that only the devices used to make the video call can access the encryption key. Peer-to-peer (P2P) video streaming enhances security by routing data directly from one user to another, bypassing servers (R., 2022). HIPAA-compliant video conferencing relies on P2P to ensure that if a secure connection cannot be established, the unsecured video encounter will not take place. It is crucial to understand the internal data privacy policies of potential video conference vendors. Protecting data from employees is also crucial to the security of telehealth, as such a HIPAA-compliant video provider must have administrative, physical, and technical safeguards in place to prevent unauthorized users from accessing any information classified as ePHI, and robust auditing procedures to generate access report logs when investigating violations (R., 2022).

Remote Monitoring with Telehealth

Remote monitoring patients is a very prominent tool for healthcare providers to be able to accurately and timely access the health of their patients and a survey conducted by Insider Intelligence showed that 23.4 million U.S. patients used remote patient monitoring services and tools in 2020 (Business Insider, n.d.). Remote monitoring is particularly useful for patients who require ongoing monitoring of specific health conditions or those who face difficulties traveling with 88% of patients surveyed stated that they had healthcare performed remotely in the last 12 months (Savanta Group, 2023). Remote patient monitoring enables tracking of numerous symptoms and health conditions, such as high blood pressure, diabetes, heart conditions, weight loss or gain, asthma, chronic obstructive pulmonary disease, and sleep apnea (HHS, 2023). Patients may use familiar devices such as weight scales, pulse oximeters, blood glucose meters, and blood pressure monitors, while others require more complex devices that need patient training, including specialized monitors for Parkinson's disease, dementia, heart monitors, apnea monitors, breathing apparatuses, and fetal monitors (HHS, 2023). With the increasing popularity and convenience of telehealth, remote patient monitoring has also grown in popularity. More providers are integrating remote patient monitoring due to advanced medical technology, growing awareness of telehealth for providers and patients, insurance coverage during the COVID-19 public health emergency, and the ability to monitor and prevent severe complications in remote locations. In-person testing, diagnostics, or monitoring may be necessary for some patients, depending on their health condition, Internet accessibility, personal preferences, and capabilities and. However, remote patient monitoring can provide various advantages for chronic conditions, pregnancy complications, and short-term illnesses (HHS, 2023). These benefits include a decrease in hospitalizations, shorter hospital stays when a patient can use a remote monitoring device at home, fewer emergency room visits, improved health outcomes for patients residing in rural areas, better preventive management for chronic conditions, and a reduced risk of COVID-19 exposure and other illnesses for both patients and healthcare workers. Remote patient monitoring also leads to a high satisfaction rate when it comes to the treatment patients receive from their physicians with the University of Pittsburgh Medical Center reporting that their patient satisfaction scores rose to over 90% because they equipped patients with remote patient monitoring equipment and tablets (Business Insider, n.d.) Remote patient monitoring is a growing industry and practice and it is expected by 2024 that remote patient monitoring services and tools are expected to reach 30 million U.S. patients, according to research from Insider Intelligence (Business Insider, n.d.) The increased usage of remote patient monitoring is supported by it being desired by patients to as according to a June 2021 MSI International survey, 80% of Americans are in favor of using remote patient monitoring, and nearly one-half are very favorable towards incorporating it into medical care (Savanta Group, 2023)., and more specifically when it comes to monitoring their vitals as according to the survey of ~300 consumers, between 65% and 70% said they would be willing to participate in a remote patient monitoring program with their care providers to monitor blood pressure, heart rate, blood sugar and blood oxygen levels (Savanta Group, 2023). On top of being favored by patients, remote patient monitoring is also becoming favored by healthcare corporations with 20% of large healthcare facilities surveyed by VivaLNK said they have already adopted some sort of RPM solution for their organization (May, 2021). On top of already adopting some remote healthcare aspect, nearly nine out of 10 healthcare providers indicated in 2019 that they had invested in or were evaluating remote patient monitoring technologies (Cassagnol, 2019), and 42% of VivaLNK large healthcare facility survey respondents thought that remote patient monitoring will be as widely used as in-person patient monitoring within the next five years (May, 2021). Physicians also favor the use of remote monitoring technologies and from 2016 to 2019, physician adoption of remote monitoring and management for improved care saw a noteworthy increase. Of the seven digital health tools included in the AMA's survey of physicians' motivations and requirements for the adoption of digital clinical tools,

remote monitoring experienced the second highest increase in adoption rate, trailing only televisits, which doubled from 14% to 28%. (AMA, 2022). The use of remote patient monitoring also aids in helping to reduce the risk of hospital readmissions with University of Pittsburgh Medical Center reporting that remote patient monitoring helped to reduce its readmission rate by 76%. (Business Insider, n.d.). Remote patient monitoring being favored by patients, physicians, and healthcare facilities has become a more widespread practice and a large market that will only keep growing and advancing over time and as of 2021, the global value of the remote patient monitoring market is worth $745.7 million (Business Insider, n.d.).

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