

**Telemedicine: Improving Medical Treatment in Underserved Areas**

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## **Telemedicine: Improving Medical Treatment in Underserved Areas**

Telemedicine is a method that allows health care professionals to treat, diagnose, and evaluate patients using telecommunications technology. It is a subset of telehealth, which encompasses all health services, such as a public health app that alerts the public of a disease outbreak. However, telemedicine is specifically related to clinical services, such as a mobile app that allowed physicians to treat patients remotely. Telemedicine has become essential in treating various populations around the world and has become a method of setting private clinics apart in the competitive healthcare field. When telemedicine first appeared about fifty years ago, it was used as a method for helping patients who were in remote areas, and did not have access to quality healthcare nearby. As technology has progressed, telemedicine has become a method for treating urban populations that cannot afford certain treatments as well as give them access to specialists they otherwise would not be able to see (Telemedicine: Ultimate Guide).

Telemedicine was extremely important in providing primary care, but since then has evolved to be just as important for more serious issues, such as cancer. Oncological services have become more and more important because by 2026 there is an expected demand increase by 40% for cancer care. This is partly because of new cancer patients appearing and a large shortage of oncologists, many of whom are ready to retire from the profession (Doolittle, Gary & Ashley, 2006). Telemedicine will help this shortage by allowing patients to receive help from close by instead of travelling hours to meet an oncologist face-to-face. In order for telemedicine to be successful in cancer treatment, there is a complex network involved in the background, with numerous important players. I will be discussing how this network works from the individual level, the patient, to an organization level, large hospitals and even the government.

## **Research Question and Methods**

The main research question that will be answered is how the network of telemedicine came to be and how it adapted to changing society in order for it to be successful. It will cover the various systems involved in the telemedicine network and how they have changed through time to adapt to the changing and competitive healthcare field. The framework used to answer this question will be the Social Construction of Technology (SCOT). SCOT states that just because a technology is deemed the best in one context, does not mean it will be successful in another if it does not consider societal and economic factors. The success of telemedicine because of two reasons: (1) it formed to improve the lives of those who could not access adequate healthcare because of factors that impeded them, and (2) it has a network of actors that have worked together to create a technology that improves healthcare while being flexible with the changing times. The COVID-19 pandemic is an extreme example of how telemedicine adapted to the social distancing rules to continue to be a successful healthcare network. SCOT will be employed to understand how telemedicine developed in and how it functions in American society.

## **How the Telemedicine System Works**

There are multiple ways telemedicine can function in society but the most common and general way involves the patient, a small clinic, a major hospital, and a few doctors and health practitioners. A patient who needs a diagnostic can go to a local clinic and get a checkup over video chat with a generalist in a hospital, instead of driving hours away to a large hospital that has the services they need. They can get their wellness checkup as well as find a way to address any of their concerns. They can also get x-rays and other examinations done by technicians who work at the local clinic, which will then get sent to the generalist. If specialist attention is needed, the generalist can put the patient in touch with a specialist who can diagnose, treat, and monitor the disease's progression in a patient without ever having to meet face-to-face with that patient (Telemedicine: How Does it Work?).

The system has numerous pros and cons, but overall experts have concluded that telemedicine will benefit the public more than harm. Patients will have increased access to quality health care since they can remotely access the services of specialists that are not typically present in rural areas or to those who are socioeconomically disadvantaged. Patients will spend less money because barriers to adequate healthcare will be reduced. Hospitals will get increased revenue because they can treat more patients through a telemedical network. Telemedicine allows physicians to be more engaged and connected with their patients by enabling more check-ins to monitor progress instead of appointments once every few months. It also helps decrease the spread of contagious diseases because it eliminates the need for people to be in clinic waiting rooms. The cons are technological barriers. In order for telemedicine to be effective, all medical professionals need to have the technical training to operate the telecommunications technology. However, this is a non-issue as most healthcare professionals have already adopted telemedicine

into their practices and it takes very little training in order to remotely treat patients. Another small issue is that it requires the reimbursement system to change to include telemedicine protocols. Every time a physician provides a service that service has a charge associated with it. These are listed in the Chargemaster, a book that lists the billable items that are sent to the patient or health insurance provider. Telemedicine protocols need to be added to this which will change some of the costs for procedures, however this has already changed and has posed very few issues in hospitals. The biggest disadvantage is that telemedicine reduces in-person interactions which are important for establishing a connection between the patient and physician. This is problem is resolved because for more major appointments, patients will have to go see physicians, but for wellness check-ups or for minor sick visits the connection can still be built over the telecommunication system (Telemedicine: Ultimate Guide).

### **The Patient Level**

Telemedicine was originally designed for the patient who lived in remote, rural areas. When people who live in these areas have to go see a physician, they are forced to travel hours to find a clinic or hospital that can help them with their medical issue. This can cause a whole host of problems. These people have to take time off of work to go see the physician which can mean lost wages. A large amount of time is taken out of their day that could be used to accomplish other tasks. Some of them might have to search for and pay for babysitting services if they have children or pets. These are the issues if they simply need a primary care physician. If they are in need of a specialist, like an oncologist, they might have to spend days away depending on how far they are located from an urban city. The majority of specialists prefer to practice in cities because there is a higher population, and therefore more opportunities for physician growth. This

puts those who live in rural areas at a disadvantage as it costs them more time and money to seek the same care as those in urban areas. Telemedicine solves this problem by giving rural patients the chance to remotely speak to specialists without sacrificing time or money for transportation. It allows them to receive the same level of care as their urban counterparts. Later, it was realized that telemedicine could also be useful for those in urban areas who are socioeconomically disadvantaged, because it costs less money to have their check-up through a telemedicine platform than to see a physician face-to-face.

### **The Small Clinic Level**

The next level in the telemedicine system is rural clinics and hospitals. The clinics can now have a wider range of healthcare services by optimizing telecommunications technology. Small clinics do not have the resources or manpower to provide constant care to patients and end up seeing their patients once every few weeks or months. They can now provide long-term resources using telemedicine, so they can check-in on patients more and monitor progress more often. Small clinics can now offer chronic care management and monitoring of long-term care patients. They can provide a telepharmacy service, so patients can their prescriptions delivered and remote therapy/counseling, for those who need immediate care or cannot manage to make their in-person appointment.

Telemedicine also helps the morale of physicians living in rural areas. Rural areas tend to be far away and physicians can feel isolated from the rest of the world and out of touch with new medical practices. Telemedicine helps foster a sense of collaboration and reduces those feelings of isolation, by allowing rural physicians to speak to urban specialists about their patients and use them as a resource for creating treatment plans. Dr. Wilbur Hitt said, “With telemedicine, it’s

like having one foot in the city but being able to live and practice out in a rural area.” It is also reassuring to know that rural physicians are on the right track with their patient treatment plans and are staying current with innovative and successful tools for patient success (Telmedicine: Changing the Rural Physician Landscape).

Telemedicine also has large financial benefits to rural clinics and communities. In a 2011 report, *Estimating the Economic Impact of Telemedicine in a Rural Community*, the results showed that each community that incorporated telemedicine into their healthcare practices had an annual savings of \$20,000 or more. (Telehealth Use in Rural HealthCare). The majority of savings came from the fact that lab and pharmacy services no longer had to be sent to a larger hospital elsewhere and could instead be done in-house through telemedicine. A 2017 study in the *Journal of Telemedicine and Telecare* had an article that reported that with the incorporation of telemedicine, rural hospitals no longer had to transfer their emergency department patients to larger hospitals with more services because they could implement a new tele-emergency program. This reduces the cost of treating each patient by \$3,800. The financial benefits for telemedicine show that it is an advantageous system that will be able to increase the medical services provided to their patients and transform the healthcare system to make it accessible to everyone. Cost of healthcare will become a minor issue.

### **The Urban Hospital Level**

While rural hospitals have been using telemedicine to improve their diagnostic systems and monitoring techniques, larger urban hospitals have been using this new technology as a way to improve their specialty practices, such as oncology. Most patients have a primary care physician who refers them to physician specialists on a case-by-case basis. However, a glaring

problem is that it takes time for the notes from one physician to reach another and it can lead to inconsistencies in a patient's treatment plans or competing diagnoses. With telemedicine a patient can now have all their notes transferred to each physician without having to physically bring them to a new physician each time. It shifts the burden off of the patient and gives the physician more time to analyze the notes, leading to a shorter appointment time, less money spent, and a clearer treatment plan in place. The system also attracts and retains patients (Chase, 2020).

The Florida Hospital Centra Care, now known as AdventHealth, implemented eVisit as a telemedicine system and found a huge increase in patient satisfaction because they were able to have a short five minute appointment from the comfort of their own home and quickly clear up any medical questions they had (Florida Hospital Centra Care). It also increases the number of patient appointments because they can check-in more frequently since they do not have to make the trip to the office. Lastly, from a financial standpoint, it greatly reduces medical costs, which is a huge reason to incorporate telemedicine into hospitals. It reduces costs and improves profits by enabling physicians to see more patients in less time. The AdventHealth hospital system saw a \$62,000 increase in revenue per month with the implementation of telemedicine (Florida Hospital Centra Care).

It also enables health systems to better distribute staff across facilities. In a physical interaction, if one hospital is understaffed, the patient will have to go find another one with available resources. In a telemedicine system it is easy for physicians with less of a work load to help cover facilities that are understaffed (Chase, 2020).



## **The Government Level**

Since the beginning, the government has had a huge stake in implementing and advancing telemedicine into communities in the country. The U.S. Department of Agriculture, the Department of Health and Human Services, the National Aeronautics and Space Administration, and the Veterans Administration are a few of the organizations that have involved themselves in advancing telemedicine. There are also organizations involved in telemedicine, the American Telemedicine Association, that have been working with the U.S. government in order to determine how to integrate telemedicine and develop guidelines for medical practice in telemedicine. Telemedicine started a government work group and eventually became part of the Affordable Care Act under the Obama Administration. In 2010, the Federal Health Collaborative was established which put mobile health and telemedicine under the same umbrella (Doarn et. al 2014).

## **Telemedicine and Coronavirus**

Government support for telemedicine is extremely important and the COVID-19 pandemic is a prime example. In times where there is a crisis, telemedicine can be extremely useful in continuing healthcare when face-to-face appointments are impossible. Telemedicine completely eliminates the chance of spreading coronavirus. With the importance of social distancing, telemedicine advancement is critical in order to keep the virus at bay. Large hospitals all over the country are expanding to use telemedicine to safely screen and treat their patients. It makes it easier to quarantine patients in their own homes and still get them the treatment that they need. According to Dr. Meeta Shah, an emergency room physician at Rush University Medical Center, “This is kind of a turning point for virtual health. We’re actually seeing how it

can be used in a public health crisis.” Many physicians are saying that telemedicine will be critical in managing this pandemic, which is why telemedicine resources got an \$8.3 billion funding boost from Congress (Abelson 2020). The coronavirus pandemic is inciting hospitals to adapt and develop more virtual services. It allows physicians who have been quarantined because of recent travel to continue help patients. 80% of U.S. hospitals have some sort of telehealth service. Medicare, Medicaid, and private insurance companies are also all agreeing to cover telemedical services during this time. Although telemedicine cannot diagnose or treat coronavirus, it can separate the people who should come into the hospital for further tests and who just needs to practice social distancing at home. It also helps prepare clinics and hospitals for high-risk people so that when they come in it lowers the risk of them infecting others (Armour 2020).

## **Conclusion**

Telemedicine is a relatively recent medical system but it has proven to be a system that will benefit everyone in the United States during normal times and during crisis. Each actor in the telemedicine network is extremely important in making it function successfully in the United States. By having the government support and integrate telemedicine into the healthcare system, not only does it help the U.S. government financially, but also large hospitals, small clinics, and any other healthcare organization all across the country. It fosters collaboration and communication between these medical systems, and overall creates a healthier, more accessible, and less expensive medical environment for every patient.

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