

Early Developments in Telehealth in the United States as a
Result of COVID-19 in March 2020

By

Paridhi Khandelwal, BDS

*Dissertation submitted in partial fulfillment of the requirements of the
degree
MBA Hospital and Health Management*

Academic year, 2018–2020

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ABSTRACT

Introduction: Telehealth was mostly used to provide speciality health services and primary healthcare services in the rural and remote areas. However, its utility has now been identified in previously uncommon situations, most important and recent example being the coronavirus disease 2019 (COVID-19) pandemic. Telehealth has emerged as the safest and popular way of utilizing health services, with much scope for development and improvement. **Methods:** A thorough review of authentic reports, articles, and research papers published during March and April in 2020, we gathered data on the growth and usage of telehealth services and analyzed the key findings. **Results:** Though it might be too early to say, the collected data showed excellent growth in the utilization of various forms of telehealth services; however, telehealth has still not emerged as a commonly practised alternative to in-office visits, especially under normal circumstances. Mental health continues to be the top field that utilizes telehealth services. Significant growth in usage is seen in follow-ups, stable and chronic (routine and refill) elderly patients, and younger tech-savvy population with minor ailments. Telehealth has become a priority while choosing an insurance plan. New methods have emerged to help patients as well the healthcare providers during the COVID-19 pandemic. **Conclusions:** Telehealth could potentially become an integral part of healthcare services globally and curb the unavailability issues of healthcare services. Furthermore, it provides a great learning and teaching platform for healthcare providers, thus reducing healthcare inequalities between developed and developing nations regarding the availability of healthcare services, especially diagnosis and monitoring. During the COVID-19 pandemic, the importance of telehealth is recognized globally, integrating into the mainstream mode of healthcare delivery. Given that more people are expected to utilize telehealth services in the future, more payers and providers are likely to include them in their plans. Thus, telehealth services have a promising future.

TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Paridhi Khandelwal**, student of MBA Hospital and Health Management from the IIHMR University, Jaipur has undergone internship training at **ZS Associates** from **3rd February to 29th May 2020**.

The Candidate has successfully carried out the study designated to her during the internship training and her approach to the study has been sincere, scientific, and analytical. The internship is in fulfilment of the course requirements.

I wish her success in all her future endeavours.

Dean, Academics and Student Affairs
IIHMR University, Jaipur

Professor
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SALES + MARKETING

June 12, 2020

EXPERIENCE CERTIFICATE

This is to certify that Paridhi Khandelwal (Employee ID – 23482) was interning in our organization from February 3, 2020 to May 29, 2020. At the time of leaving she was working in the capacity of Knowledge Management Associate – Intern based at the New Delhi office.

We wish you all the success in future endeavors.

For ZS Associates India Pvt Ltd

Mohit Sood
Office Managing Principal

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled '**Early Developments in Telehealth in the United States as a Result of COVID-19 in March 2020**' and submitted by **Dr. Paridhi Khandelwal**, Enrollment No. **0793** under the supervision of **Dr. Anshuman Sewda** for the award of MBA in Hospital and Health Management of the University carried out during the period from **3rd February** to **29th May 2020** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.

Signature 

ACKNOWLEDGMENTS

I started my training with a vision to learn the practical aspects of Healthcare Information Systems. I am thankful to **Dr. Amudha Sharma** (KM-Consultant) and **Ms. Manvi Sharma** (KM-Associate Consultant) for giving me the opportunity to carry out my dissertation and for their constant support and encouragement. I express my sincere gratitude to **Ms. Saloni Gupta** (KM-associate) for her supervision, advice, guidance, and faith in me. I am indebted to her for being a source of inspiration and innovative ideas, and for helping me grow as a student and researcher.

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ABBREVIATIONS

COVID-19: Coronavirus disease 2019

IQVIA: Quintiles and IMS Health, Inc.

CMS: Centre for Medicare and Medicaid Services

CPT: Current Procedural Terminology

ED: Emergency Department

ICU: Intensive care unit

1. INTRODUCTION

According to Dowling (2015), telehealth has been around longer than one might think. Advising and guiding patients through the use of telephones have been explained in the literature since the 1960s (1). Telehealth involves numerous medical modalities, encompasses a variety of delivery methods, and incorporates multiple types of technologically-advanced equipments. A broad range of applications of telehealth, such as teleradiology, telesurgery/remote robotic surgery, teleconsultations, remote patient monitoring, and remote retinal imaging existed before the coronavirus disease 2019 (COVID-19) outbreak.

The first case of COVID-19 was reported in Wuhan city of Hubei province in China on December 31, 2019. The World Health Organization (WHO) declared a public health emergency on January 30, 2020, and officially named the disease COVID-19 on February 11, 2020. It had become a pandemic by early March.

This disease has infected and impacted millions of people globally. COVID-19 has consequences beyond infected patients, leading to potential changes in healthcare dynamics and outcomes. Although no treatment or vaccine is currently available, COVID-19 is still expected to impact pharmaceutical markets (Figure 1.1) in seven important ways (2):

- 1) Economic impact on growth prognosis,
- 2) Impact on active pharmaceutical ingredients/generics,
- 3) Rise in demand for medicines to alleviate COVID-19 symptoms,
- 4) Delayed treatment of non-COVID-19 patients,
- 5) Reduced face-to-face social interactions,
- 6) Impact on innovation, and
- 7) Restrictions on travel and medical tourism.

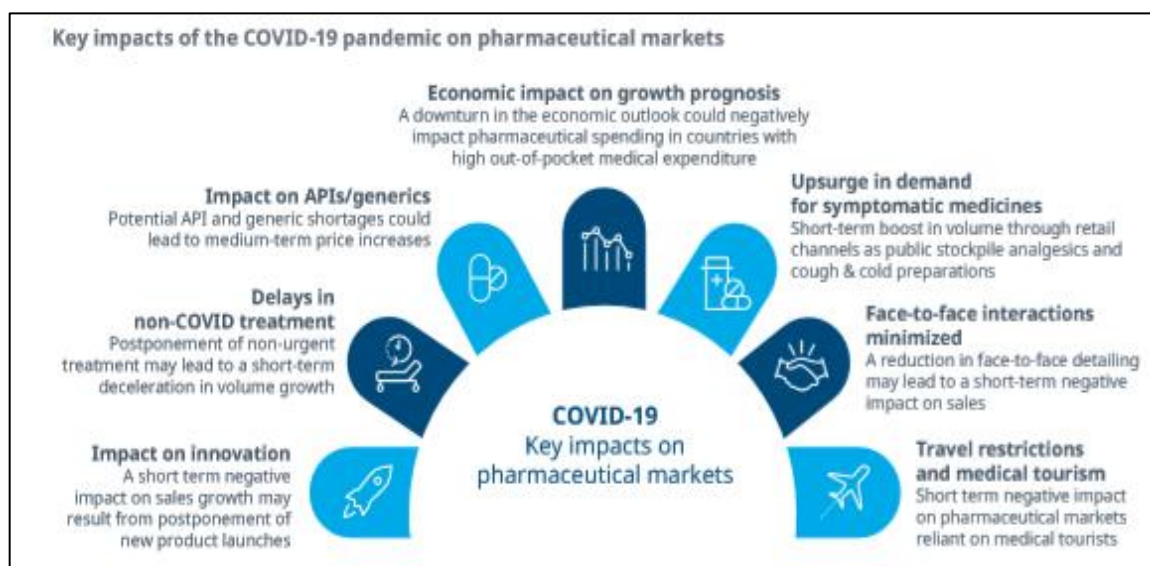


Figure 1.1. Key impacts of COVID-19 on pharmaceutical markets (Source: IQVIA Report: The Impact of the COVID-19 Pandemic on Global Pharmaceutical Growth).

Telehealth is ideal for the management of communicable diseases. A critical factor in slowing viral transmission is social distancing or decreasing person-to-person contact and interaction. Telehealth is useful for remotely assisting (triage) patients with COVID-19 or those with concerns of being infected. It provides convenient access to routine healthcare services without the risk of exposure at a hospital setting, including waiting rooms. Older adults and people with comorbidities have higher COVID-19-associated mortality rates than otherwise healthy young adults who contract COVID-19.

Telehealth is providing health-related services and information via telecommunication technologies and electronic information. Telemedicine, a part of telehealth, is the exchange of medical information from one location to another using electronic communication.

Telemedicine can help frontline healthcare workers by communicating with Emergency Department (ED) doctors, helping to quickly and efficiently identify and treat individuals who need hospital care and divert those who do not need hospital care to other facilities or keep them safe in their homes. Even under normal conditions, most hospitals operate at near-to-full capacity. Therefore, telehealth can significantly help reduce the healthcare burden on hospitals routinely.

Physicians are expanding their reach—even during quarantine—by deploying advanced telehealth solutions to remotely examine and diagnose more patients in a shorter amount of time, minimizing the number of patients entering hospitals and medical facilities.

Dedi Gilad of Tyto Care Limited noted that hospitals in Israel, for example, have integrated Tyto Care's telehealth solutions to examine COVID-19 patients in quarantine wards, as well as to monitor patients in isolation at home by delivering the Tyto Home kit (3).

There are different ways that hospitals may provide telemedicine services:

- 1) Telephonic consultation
- 2) Online chat
- 3) WhatsApp
- 4) Text messages
- 5) Video consultation; and
- 6) Comprehensive telemedicine service using an approved electronic medical record where case records, images, investigations, and teleconsultations can be stored. A good-quality video camera is used for interaction. Peripheral medical devices can be controlled remotely, and results are obtained in real-time.

1.1. Rationale

The COVID-19 outbreak has affected not only the people who got infected with the disease but also other individuals and aspects of society. Telehealth has emerged as a powerful and the safest possible way to continue providing the basic healthcare services without putting the healthcare provider or the patient at risk. Therefore, this study aimed to focus on a few key developments in the healthcare delivery service in the US, that have taken place in the wake of COVID-19, such as the expanded usage of telehealth during the global lockdown. Consultations and treatments are considered an essential service and telehealth looks like the most promising solution around this communicable disease.

1.2. Research Questions

- 1) How has telehealth emerged with the rise of COVID-19?
- 2) Which health specialties, hospitals, or healthcare settings have utilized telehealth the most and what is its scope in the future?

1.3. Objectives

The objectives of this study were:

- 1) To evaluate the role of telehealth and new developments in the telehealth industry in the US during the COVID-19 pandemic (till March 2020) and predict the post-COVID-19 role of telehealth
- 2) To evaluate the acceptance of telehealth and the most common reasons for opting for telehealth among the patients and doctors in the US before and during the COVID-19 era
- 3) To understand the benefits, concerns, and challenges faced by the patients in the US while using telehealth and compare them with in-person consultations and treatments

2. LITERATURE REVIEW

The increase in COVID-19 cases has increased people's interest in telehealth. However, most hospitals are unable to provide adequate telehealth services due to infrastructural and financial constraints (10). Various healthcare systems and governments are attempting to bring telehealth into mainstream treatments during the ongoing pandemic (11), apply telemedicine in caring for surgical patients, and evaluate potential implications of telehealthcare for surgical patients during the COVID-19 pandemic (9).

Advantages of telehealth include the ability to: rapidly deploy large numbers of providers; facilitate triage so that front-line providers are not overwhelmed with new presentations; supply clinical services when local clinics or hospitals are damaged or unable to meet demand; decrease the risk of communicable diseases that are transmitted through person-to-person contact (8). However, there are many barriers to telehealth that health insurance companies, employers, hospital systems, and media outlets should work to overcome (7). Information regarding healthcare access provided by telehealth in rural communities can be obtained by studying the evidence of telehealth use among individuals who had visited a doctor at least one time. Additional information on whether telehealth service was initiated in a primary care or community hospital setting, and details about the clinical speciality (medical or behavioural health) can be useful. Furthermore, it would be beneficial to learn whether these services are being provided as one-time consultations or ongoing continuous care (6).

Telemedicine for subspecialty care beyond mental health was uncommon, and despite the attention given to telemedicine for rural settings, most telemedicine users live in urban areas. Physician availability appears to be influential for tele-mental health, but not for

primary care telemedicine, the brisk adoption of which may reflect consumers seeking convenience rather than reflecting low primary care supply. Evidence suggests that local coverage and reimbursement regulations may have influenced the growth of tele-mental care but not primary care telemedicine (5). Telehealth process provides daily monitoring of patient health, leading to the benefits of scheduling convenience, and immediate feedback for patients, family, and caregivers (4). There have been many concerns associated with telehealth; however, cost reductions and improved access to care, leading to overall benefits outweighing the potential negatives. Although advancements in telehealth are being integrated into modern medicine, it is likely to become an integral part of standard healthcare in the future (1).

Table 2.1. Review of literature on telehealth in the United States.

Publication	Focus Area
Casey W. Neville (Neville, C. W. (2018). Telehealth: A Balanced Look at Incorporating This Technology Into Practice (1)	Specific uses, benefits, and barriers of telehealth
Ayisha Bashir, Dhundy R Bastola (Bashir A, Bastola DR. Perspectives of Nurses Toward Telehealth Efficacy and Quality of Health Care: Pilot Study (4)	Perception of nurses about the quality of services provided by telehealth
Michael L. Barnett, Kristin N. Ray, Jeff Souza, Ateev Mehrotra (Barnett ML, Ray KN, Souza J, Mehrotra A. Trends in Telemedicine Use in a Large Commercially Insured Population, 2005-2017 (5)	Telemedicine trend in large commercially insured population in the US from 2007–2015
Sungkyu Lee, Denise Black and Mary L. Held (Lee, Sungkyu, et al. Factors Associated with Telehealth Service Utilization among Rural Populations (6)	Access and usage of telehealth and factors associated with usage among the rural population and their health status in the US
Jay Portnoy, Morgan Waller and Tania Elliott (Portnoy J, Waller M, Elliott T. Telemedicine in the Era of COVID-19 (7)	Telehealth in mildly ill patients during the pandemic to reduce the hospital burden and prevent patient exposure
Anthony et.al. (Smith AC, Thomas E, Snoswell CL, et al. Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19) (8)	Strategies to ensure that telehealth is used regularly in acute, post-acute, and emergency situations
Hakim AA et al. (Hakim AA, Kellish AS, Atabek U, Spitz FR, Hong YK. Implications for the use of telehealth in surgical patients during the COVID-19 pandemic (9)	Telehealth application in pre/post-surgical care to reduce hospital burden and improve overall patient satisfaction
Young-Rock Hong (Hong YR, Lawrence J, Williams D Jr, Mainous III A. Population-Level Interest and Telehealth Capacity of US Hospitals in Response to COVID-19: Cross-Sectional Analysis of Google Search and National Hospital Survey Data (10)	Increased interest of the US population in telehealth with the spread of COVID-19 pandemic
Chengjung Wu and Ying Liu (Ohannessian R, Duong TA, Odone A. Global Telemedicine Implementation and Integration Within Health Systems to Fight the COVID-19 Pandemic: A Call to Action (11)	Challenges of including telehealth into mainstream and public health setting

3. METHODOLOGY

3.1. Research Design

Exploratory study

3.2. Type of Data

Secondary

3.3. Data Collection

The data for secondary research was collected from journals, articles, reports, research papers, news, and general internet searches.

3.4. Data Analysis

MS Excel

4. RESULTS

4.1. To evaluate the role of telehealth and new developments in the telehealth industry in the US during the COVID-19 pandemic (till March 2020) and predict the post-COVID-19 role of telehealth

4.1.1. Expanding Programs and Training

Currently, there are two main areas of adaptation for telemedicine: (1) Hospitals need an expansion of their telehealth services; and (2) Hospital staff needs to be trained in a very short time.

4.1.2. New-age use of telehealth in the rise of COVID-19

- 1) *Forward Triage* is sorting of patients before they arrive in the ED. Respiratory symptoms—which may be early signs of COVID-19—are among the conditions most commonly evaluated with this approach. More than 50 US health systems already have such programs. For example, Jefferson Health, Mount Sinai, Kaiser Permanente, Cleveland Clinic, and Providence leverage telehealth technology to allow clinicians to see patients who are at home. Systems lacking such programs can outsource similar services to physicians and support staff provided by Teladoc Health or American Well. It helps to combat the current COVID-19 situation because:
 - a) It allows patients to be efficiently screened
 - b) It is both patient-centred and conducive to self-quarantine

- c) It protects patients, clinicians, and the community from exposure
- d) It allows physicians and patients to communicate 24/7, using smartphones or webcam-enabled computers
- e) Healthcare providers can easily obtain detailed travel and exposure histories.
- f) As the availability of testing sites expands, local systems, using dedicated office space, tents, or in-car testing can integrate telemedicine into their workflows to test appropriate patients while minimizing exposure risk.

For example, Jefferson Health's telemedical systems have been successfully deployed to evaluate and treat patients without referring them to in-person care. When testing is needed, this approach requires centralized coordination with the practice personnel as well as the federal and local testing agencies. It is critical that practices do not routinely refer patients to ED, urgent care centres, or offices, which risks exposure of other patients and healthcare providers.

Patients presenting for in-person care and screen positive for high-risk features should be immediately isolated to prevent further contact with patients and healthcare workers (12).

- 2) *Provider-In-Triage Model* (rapid initial evaluation and testing) is done by allowing a remote provider to perform the patient intake.

For example, Aurora Health partnered with a commercial telemedicine vendor to develop their own software for this purpose. In an emergency, web-conferencing software with a secure open line from a triage room to a clinician can be implemented relatively rapidly. Covering multiple sites with a single remote clinician can address some workforce challenges, but it is difficult to do if the software lacks a queuing function (12).

- 3) *Via Tablet*: In ambulatory care settings, patients screening positive at presentation can be given a tablet computer and isolated in an examination room. A telehealth visit can be conducted without exposing staff by using commercial systems or paired tablets allowing communication with a clinician through a dedicated connection. This system works for patients who are well; however, it cannot eliminate exposure to sick patients who require a procedure to be performed.

Similar tele-visit systems are being used for hospitalized patients to reduce exposure risks for visitors and staff (12).

- 4) *Electronic Intensive Care Unit (E-Icu) Monitoring Programs* allow nurses and physicians to remotely monitor the status of 60–100 patients in ICUs across multiple hospitals. For example, services offered by Mercy Virtual Care Center, Sutter Health, and Sentara Healthcare (12). Technological and staffing complexities make it impossible to create such a program on short notice, but rapid deployment of the two-tablet approach can reduce healthcare workers' contact with infected patients in the ICU (12).
- 5) *Houston's Project ETHAN* (Emergency Telehealth and Navigation) has used telemedical oversight by physicians to augment the in-person care offered by 911 responders, reducing the need for transportation to the ED. In the face of COVID-19, Avera Health is preparing to send mobile home healthcare units directly to patients and coordinating home-based testing. For sicker patients at home, such programs can facilitate evaluation before hospital transfer, potentially allowing them to bypass the ED and be placed directly in a hospital bed, reducing exposure for healthcare workers and other patients (12).
- 6) Medical decision making is often cognitive, and telemedicine can provide rapid access to subspecialists who are not immediately available in person. This approach has been thoroughly explored in the context of stroke, for which systems such as Jefferson Health, Cleveland Clinic, and the University of Pittsburgh provide virtual emergency neurologic care to several hospitals. The Mount Sinai system leverages specialists at eight hospitals and more than 300 sites to provide virtual emergency consultations and distribute work among subspecialty providers. The barriers to implementing these programs are largely related to payment, credentialing, and staffing of specialists (12).
- 7) *Ed Tele-Intake Or Direct-To-Consumer Care*: At institutions with ED tele-intake or direct-to-consumer care, quarantined physicians can cover those services, freeing up other physicians to perform in-person care. Office-based practices can also employ quarantined physicians to provide patient care remotely. Since telemedicine cannot completely replace hospital visits, the challenge is to increase the engagement of other healthcare professionals (e.g., nurses, medical assistants, and physician assistants) towards in-person care (12).
- 8) *Converting Scheduled Office Visits To Telemedicine Visits*: To prepare for the worst-case scenario that leaves healthcare workers quarantined, sick, or absent (e.g., lockdowns and curfews due to disease outbreaks and wars), Jefferson Health is

deploying telehealth so that clinicians can continue to care for established (non-exposed) patients by converting scheduled office visits to telemedicine visits. These visits can be conducted by both patient and clinician staying at their respective homes, thus greatly limiting travel and exposure and permitting uninterrupted care of established patients. Online training modules and sessions are available for clinicians or patients who require just-in-time training or assistance during their first call (12).

- 9) *Pre And Post-Surgery Consultations:* Telehealth allows a local primary-care or mid-level physician to consult a surgeon and perform a supervised physical exam remotely. Furthermore, telehealth ensures timely visits for patients, often sooner than an in-person visit, and has high rates of satisfaction from patients and clinicians (9). Surgical subspecialties and oncologic resections lend themselves well to telehealth preoperative surgical evaluations, as demonstrated in a study by Cerfolio et al. (9), and postoperatively, through pictures and video-conference follow-ups, including the detection of post-operative complications and saving patient's time. The Center for Medicare Services (CMS) expanded coverage and reimbursement of telehealth encounters, with state Medicaid and private insurances left to decide under public eye (9).

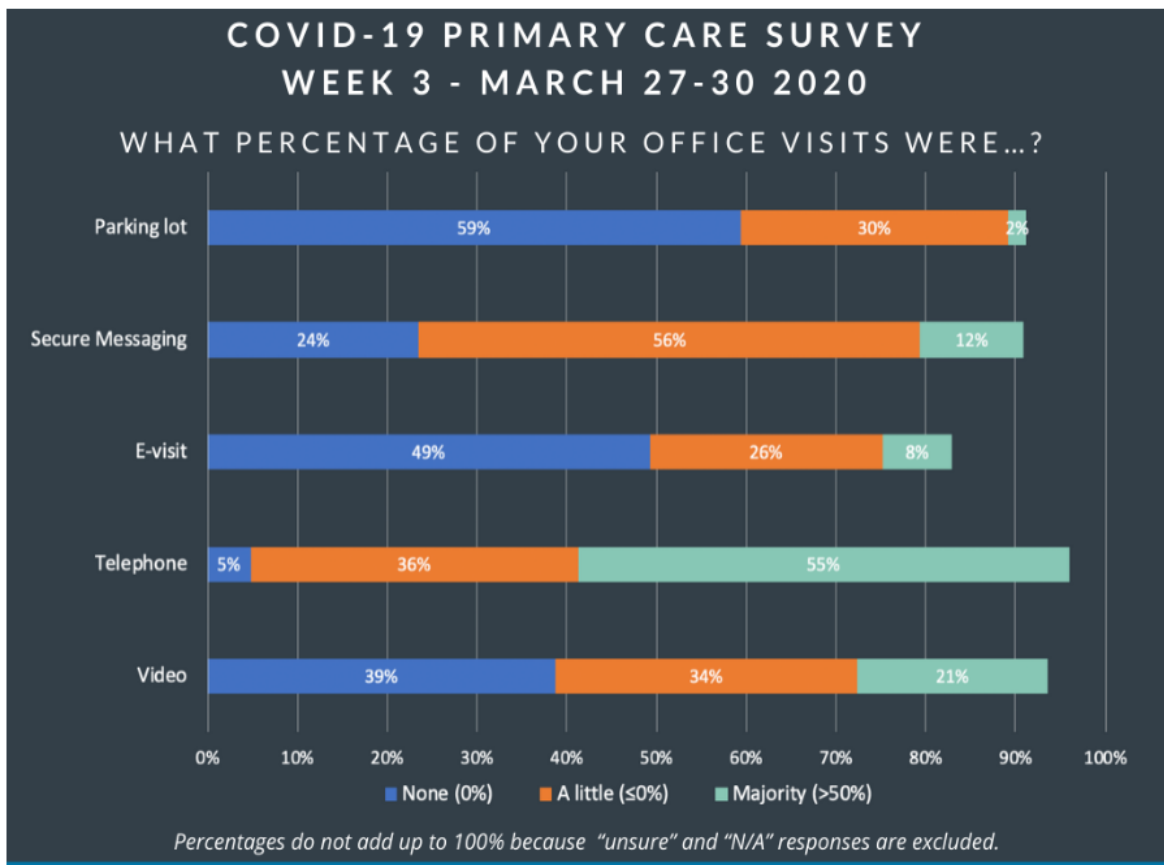


Figure 4.1. Percentage of telehealth visits among all the office visits. (Source: Primary Care and COVID-19: Week 3 Survey (13))

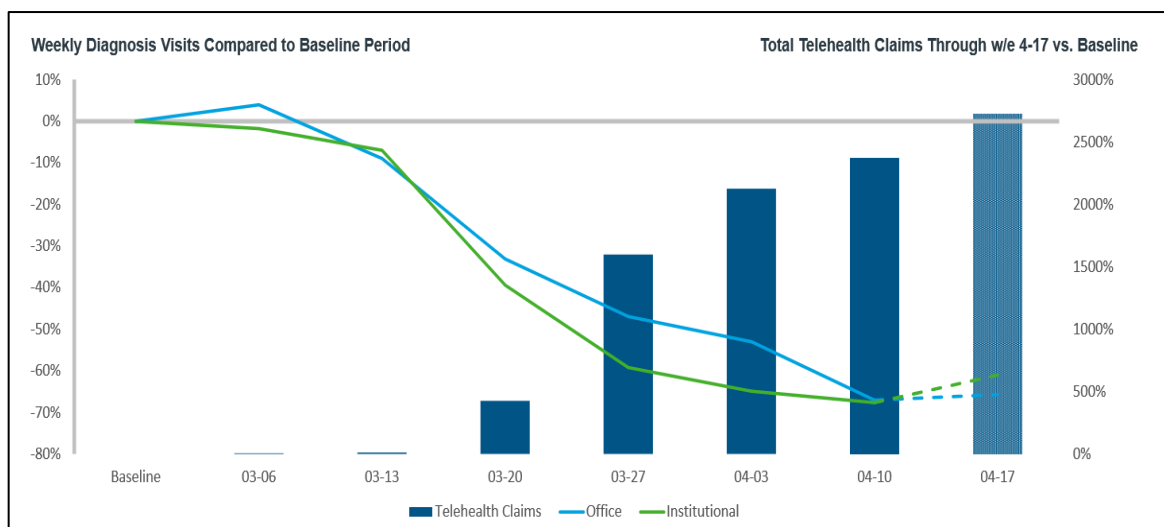


Figure 4.2. Telehealth claims in the US from first week of January to second week of April. (Source: IQVIA's May 2020 Report (14))

In Figure 4.2, we see that the majority of the healthcare workers had 55 per cent of their patient visits in the form of telephone calls, followed by video calls, e-visits, and messaging during the third week of March 2020. A few of them resorted to messaging to offer their duties in these times.

Telehealth growth can be attributed to the new payer policies as well as CMS policies wherein, the number of telehealth claims started growing from the first week of March and >2500 per cent of the baseline claims by mid-April (Figure 4.3). The baseline refers to the number of telehealth claims from the first week of January until the fourth week of February. CMS has increased the number of reimbursed procedures under Medicare and Medicaid in the month of March 2020, leading to an increased number of claims.

4.2. To evaluate the acceptance of telehealth and the most common reasons for opting for telehealth among the patients and doctors in the US before and during the COVID era.

1) *University Of Wyoming Survey*: A survey was conducted (N=83) between March 19–April 8, 2020, by the Wyoming Medical Society in collaboration with the Wyoming Telehealth Network to understand the impact of COVID-19 on primary care providers and practices in Wyoming.

According to the survey, telehealth use is on the rise among Wyoming physicians, with 54 per cent of respondents reporting the use of telehealth in their practices (Figure 4.4) and 58 per cent reporting that they have encouraged patients to consider telehealth (Figure 4.5). Furthermore, the physicians noted an increase in the number of insurance companies incorporating telemedicine services in their insurance coverage plans (Figure 4.6).

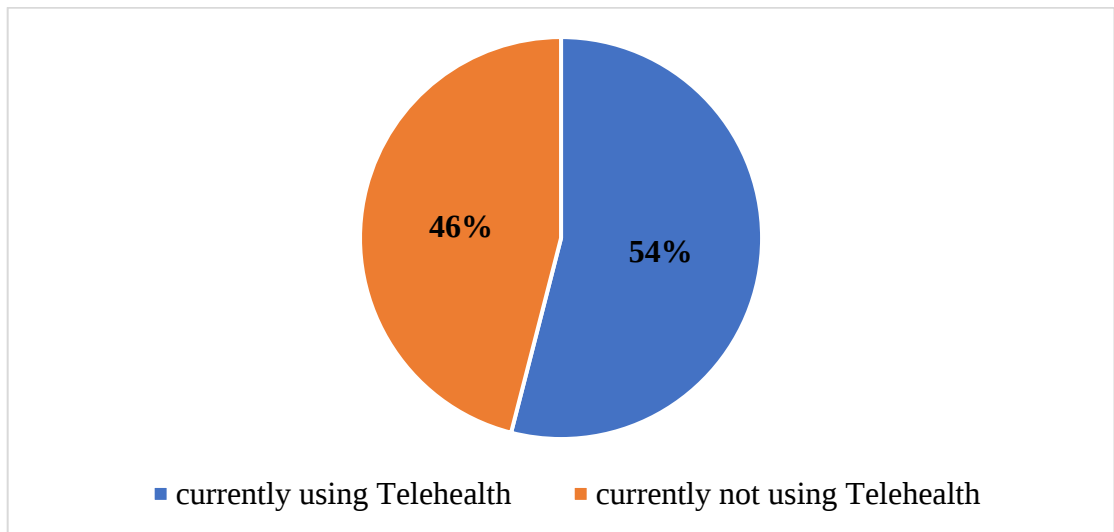


Figure 4.3. Use of telehealth services in the US. (Source: www.uwyo.edu) (15)

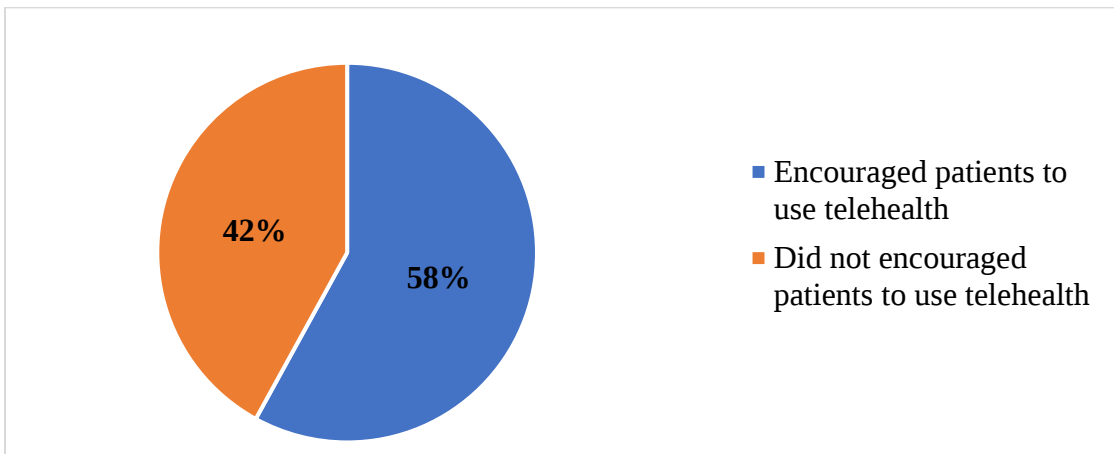


Figure 4.4. Physician's encouragement to patients (Source: www.uwyo.edu). (15)

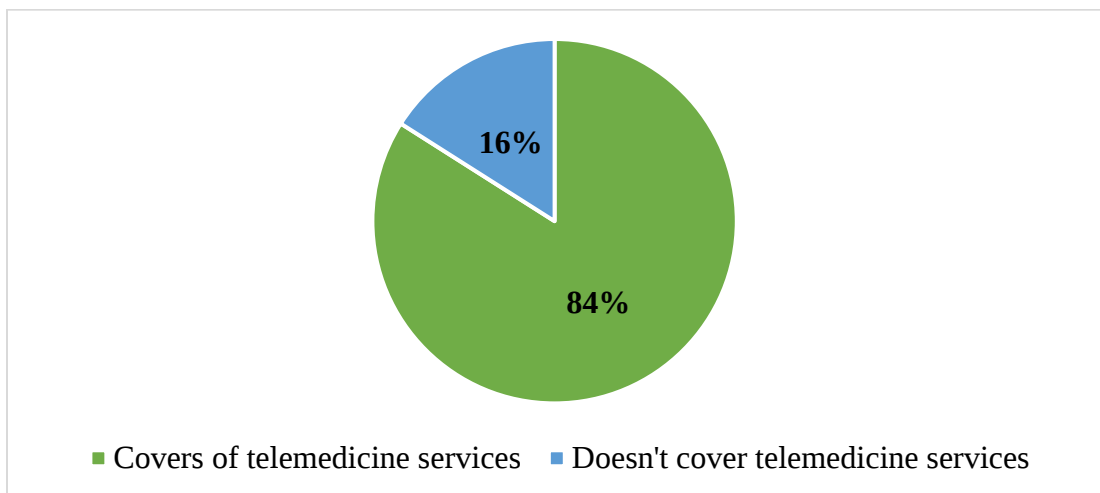


Figure 4.5. Factors influencing insurance choices in the US. (Source: www.uwyo.edu) (15)

2) According to SYKES SURVEY (n = 2000; 500 each from North, East, West, and South America) among the respondents who were familiar with telehealth, only 19 per cent had actually tried it (Figure 4.7). The majority of those surveyed indicated that they were aware that their health insurance plan covered telehealth services, a vital contributor to many people's willingness to utilize any specific health service. In contrast, nearly 35 per cent of respondents were unsure whether telehealth is covered by their health insurance provider, and less than 10 per cent said that their insurance did not offer coverage. Among the respondents who did not know if their insurance covered telehealth, more than 25 per cent were over the age of 55 years. The elderly, especially those covered by Medicare, often face the most restrictions on utilization (16).

The most advantageous aspect of using telehealth services amongst the population under survey was a quicker access to care in the COVID-19 era while the most looked for advantage prior to the pandemic was greater access to care in the remote areas, which is now the second most common influencing factor during the current pandemic. Additionally, avoiding overcrowded places is a new factor behind opting for telehealth services.

According to the survey results, the pandemic has increased the willingness of 60 per cent of the population to try telehealth in the future. This presents a lot of scope for broadcasting and promoting telehealth services to achieve better reach and access (16).

When asked if people get comparable healthcare through telehealth as they do for in-person visits, about one-third of respondents said that they do not believe it is possible to receive a comparable care through telehealth; however, they did consider it as a good option for initial consultations or basic care. Almost one-third of respondents believed that people get comparable healthcare through telehealth. Of those who believe people get comparable healthcare through telehealth, most were within the 18–24 years age group and lived in the western US. Those in the west were also the largest regional group to say that they have been adequately informed on how to use telehealth services (16).

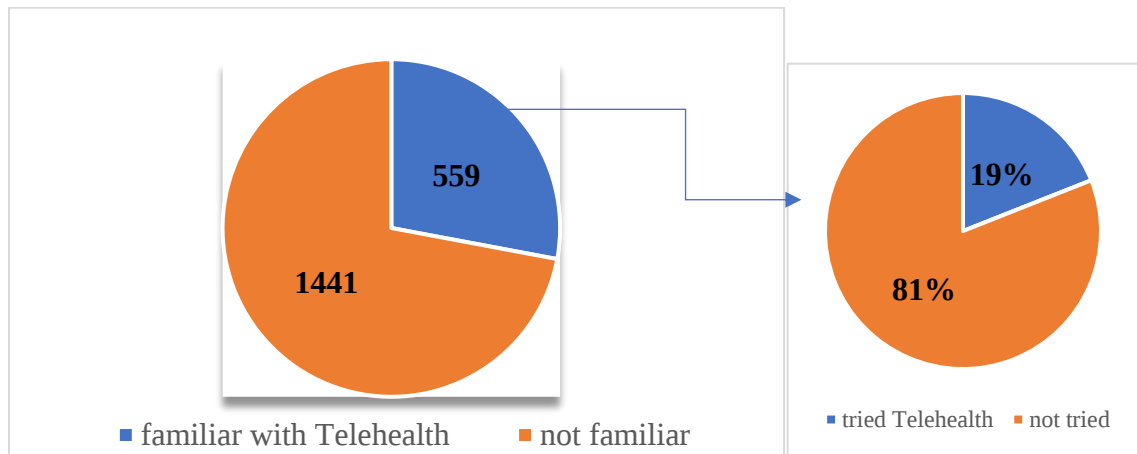


Figure 4.6. Familiarity with telehealth in the US. (Source: www.sykes.com) (16)

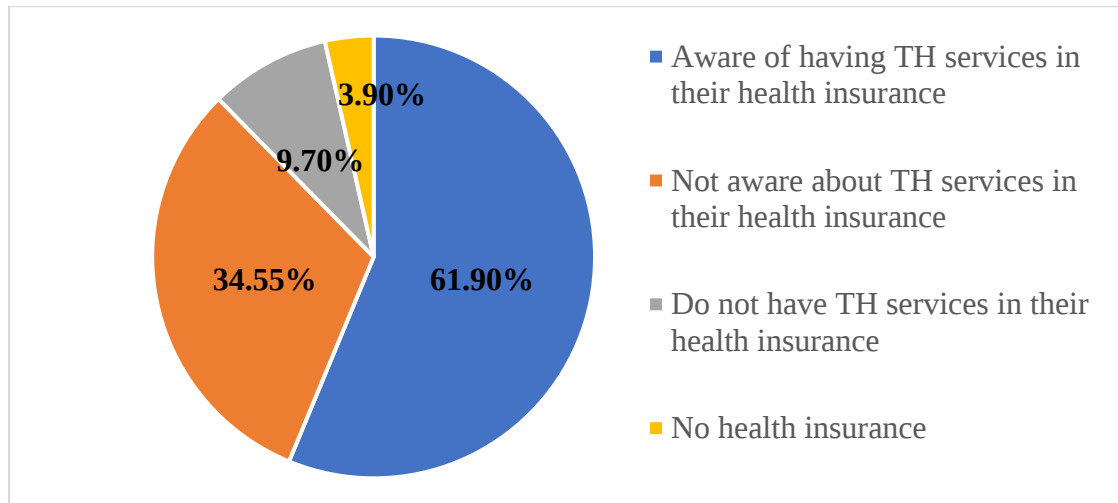


Figure 4.7. Familiarity with telehealth in the US. (Source: www.sykes.com) (16)

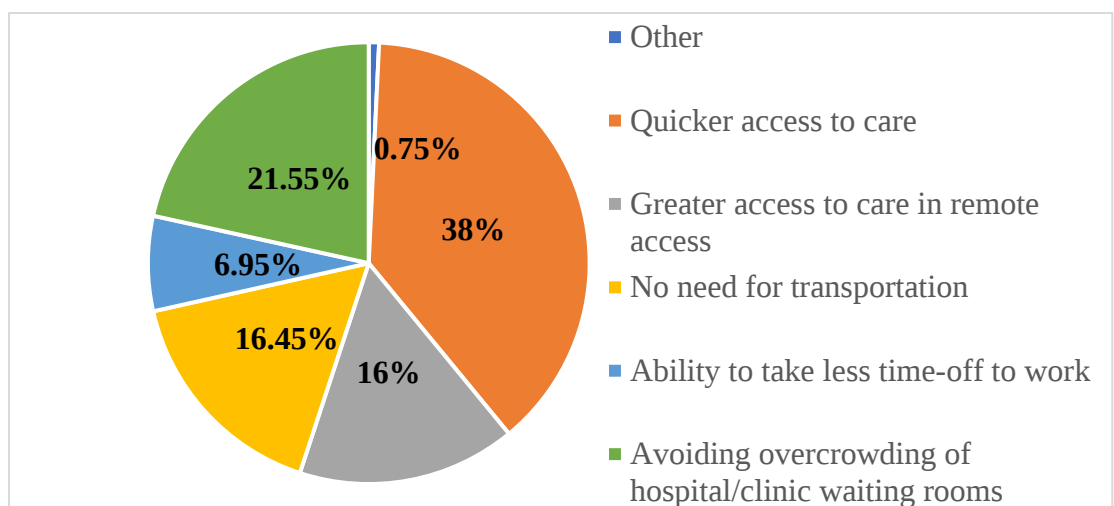


Figure 4.8. Advantages of telehealth. (Source: www.sykes.com) (16)

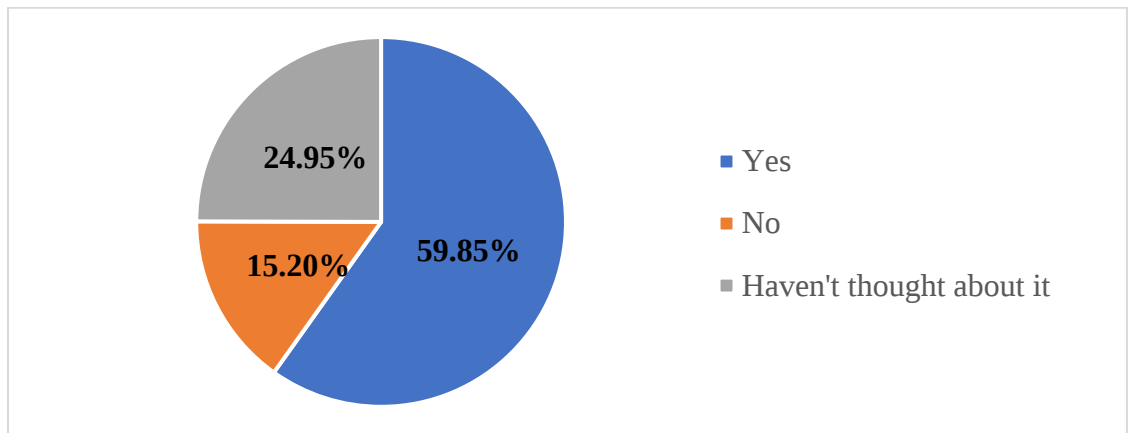


Figure 4.9. Impact of pandemic on people's nature to opt for telehealth in the future.
(Source: www.sykes.com) (16)

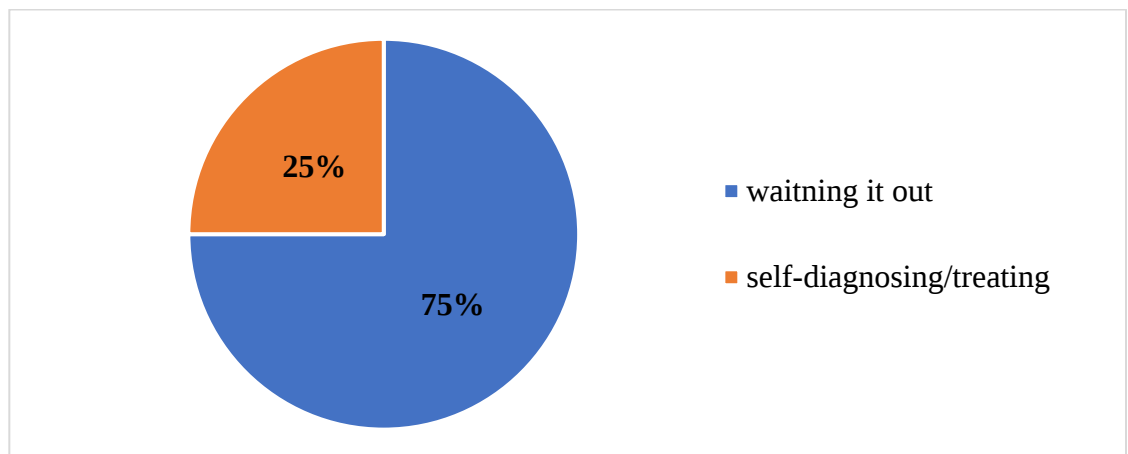


Figure 4.10. Willingness of people to wait for telehealth appointments.
(Source: www.sykes.com) (16)

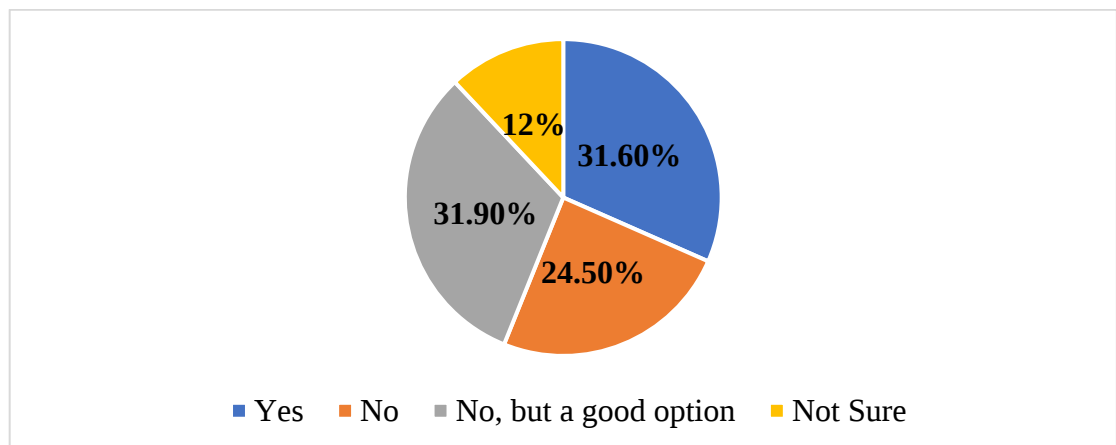


Figure 4.11. Are in-office visits comparable to telemedicine consultations? (Source: www.sykes.com) (16)

Most of the older respondents (>55 years of age) believed that telehealth care will never match the quality of an in-person visit, followed by the 45–54 and 35–44-year age groups. When asked if respondents would consider using a telehealth service to be remotely screened for COVID-19, if it were available and affordable, nearly three-fourths agreed to consider it if they experienced COVID-19 symptoms. It is conceivable that these numbers will continue to rise as the number of new COVID-19 cases increase. Interestingly, despite variations by age group in other questions, those saying “Yes” were evenly dispersed among all surveyed age groups.

At the time of this survey, more than one-in-ten respondents—most commonly 18–24 age group, followed by 25–34 age group—said that they have already used a telehealth service for something related to COVID-19 (16).

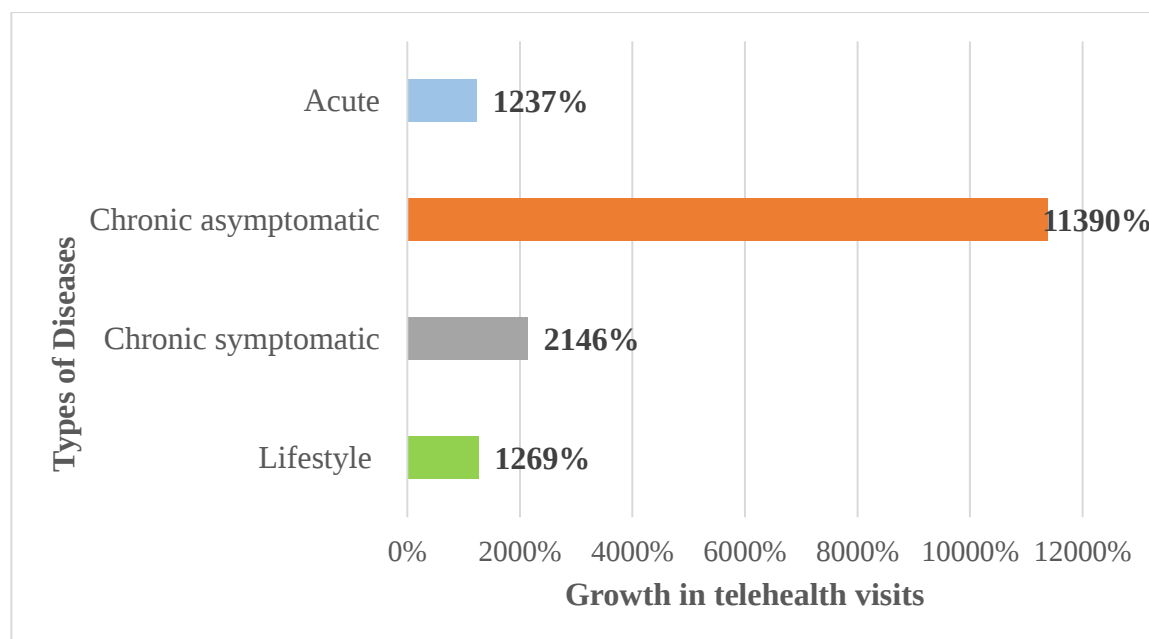
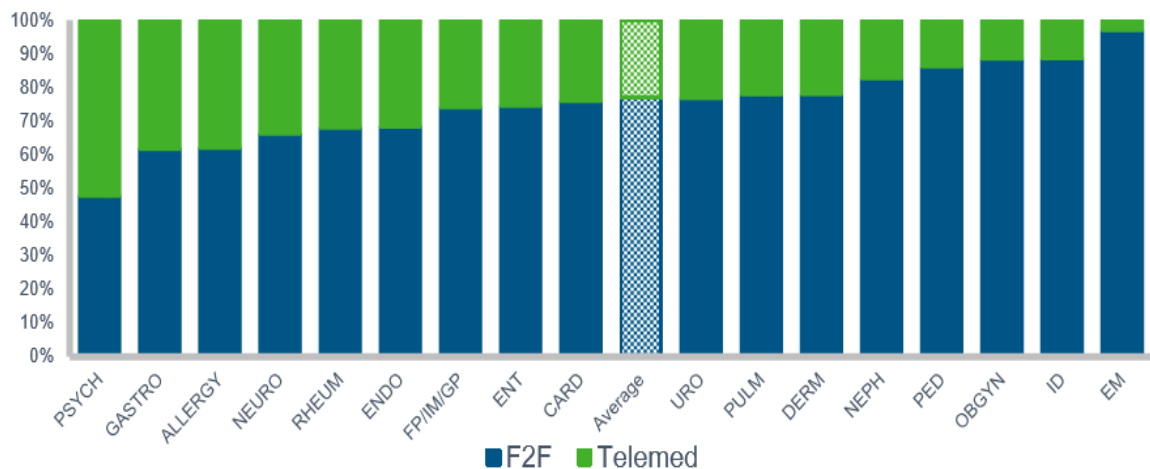


Figure 4.12. Telehealth growth in March week 3 v/s Pre-COVID Baseline Period.
(Source: IQVIA April report) (17)

Growth in telemedicine has highly contributed to the efforts made by the CMS for developing on both existing and new Current Procedural Terminology (CPT) codes for reimbursements. Most new developments were seen in endocrinology, pediatrics, and pulmonology. The highest growth is seen for patients with chronic asymptomatic diseases with a significant growth among patients with lifestyle diseases and acute diseases.

Table 4.1. New codes for reimbursement by CMS developed till the end of March 2020.
(Source: IQVIA April 2020 Report) (17)

	Primary care	Endocrinology	Pediatrics	Neurology	Pulmonology	Urology	OB/GYN	Cardiology	Orthopaedic Surgery	Dermatology	Gastroenterology
Existing Codes	21	19	17	11	15	12	14	11	8	7	11
NewTM Codes	18	5	9	6	7	3	0	5	5	0	3



Source: IQVIA: Real World Data, Medical Claims, April 17, 2020, reporting week ending April 3, 2020.

Figure 4.13. Telemedicine usage in the last week of March ending on April 3rd shown as percentage of physician interactions. (Source: iqvia-institute-reportcovid-19-impact-on-us-healthcare_May) (18)

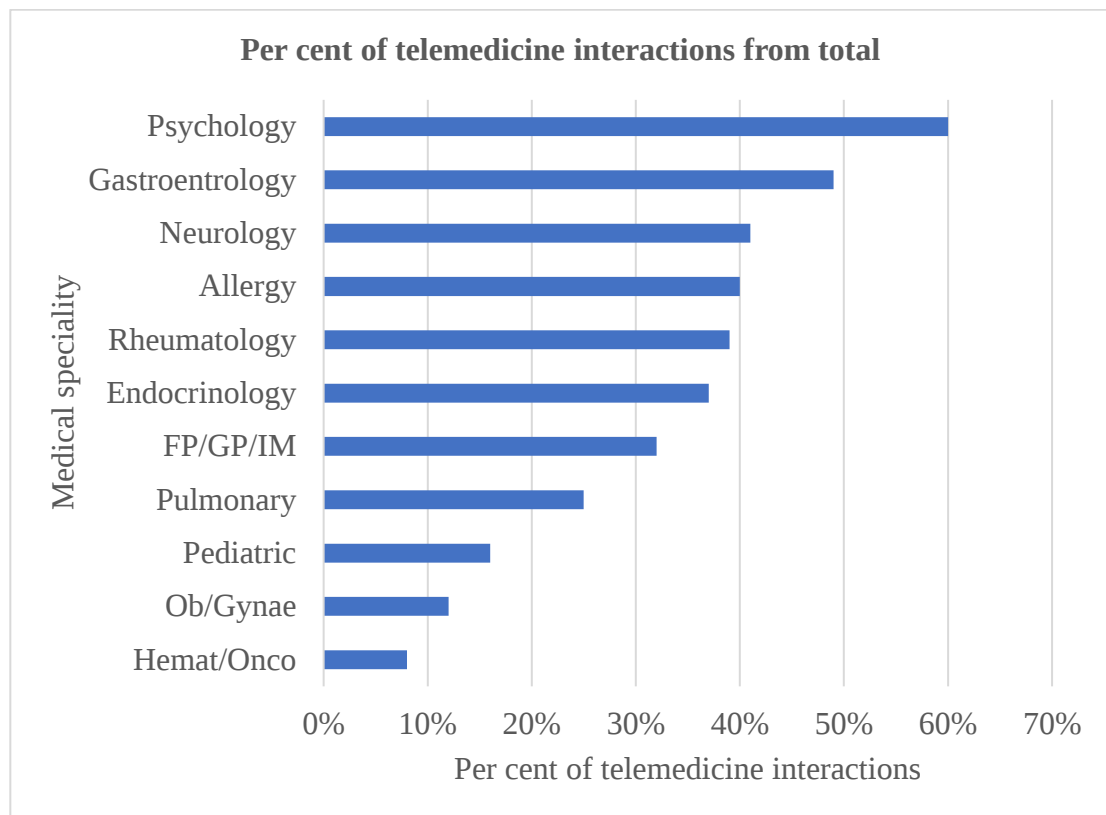


Figure 4.14. Specialty interactions by telemedicine. (Source: IQVIA April report) (17)

Psychology services have always occupied maximum telemedicine usage; however, gastroenterology, neurology, auto-immune and allergy, and diabetes have emerged as the other most common fields utilizing teleconsultation services. Although haematology and oncology are not among the top users, almost all details in oncology are reported by telehealth records. The possible reason for low usage in paediatrics is parental concern for in-time vaccination of the children.

4.2.1. Drivers of growth (17)

There were a few drivers for growth like higher reliance of health plans on virtual care, increased consumer awareness and willingness of physician and hospital systems to embrace telemedicine.

4.2.2. Market Access (17)

Market access was enhanced by contracting with Managed Medicaid, FFS Medicaid, and Medicare. Per-member-per-month rates and margins expected to decline due to government penetration and continued contracting with large national payers.

Table 4.2. Reasons for telehealth visits before pandemic and during the pandemic (16).

S. No.	Pre-COVID-19 Era	COVID-19 Era
1	Anxiety	Hypertension
2	Depression	Cholesterol
3	ADHD	T2 Diabetes
4	Insomnia	Respiratory infection
5	Bipolar Disorder	Allergic Rhinitis
6	PTSD	Cough
7	Mood Disorder	GERD
8	-	Hypothyroidism
9	-	Chronic Pain
10	-	Sleep Apnea

The telehealth services were essentially utilized for mental health-related disorders in the pre-COVID-19 era. However, its use has expanded more towards chronic conditions in the COVID-19 era. It appears to be most helpful for follow-up check ups, stable and chronic (routine and refill) elderly patients, and among the younger population living far away who is more tech-savvy and have minor ailments. During the present crisis three in five patients were open to telemedicine as an alternative (16).

4.3. To understand the benefits, concerns, and challenges faced by the patients in the US while using telehealth and compare them with in-person consultations and treatments

There are various concerns, challenges, and barriers associated with telehealth services (15).

4.3.1. Concerns

- Quality of care
- Accuracy of diagnosis
- Recording of appointment (patient privacy)
- Privacy of personal health information

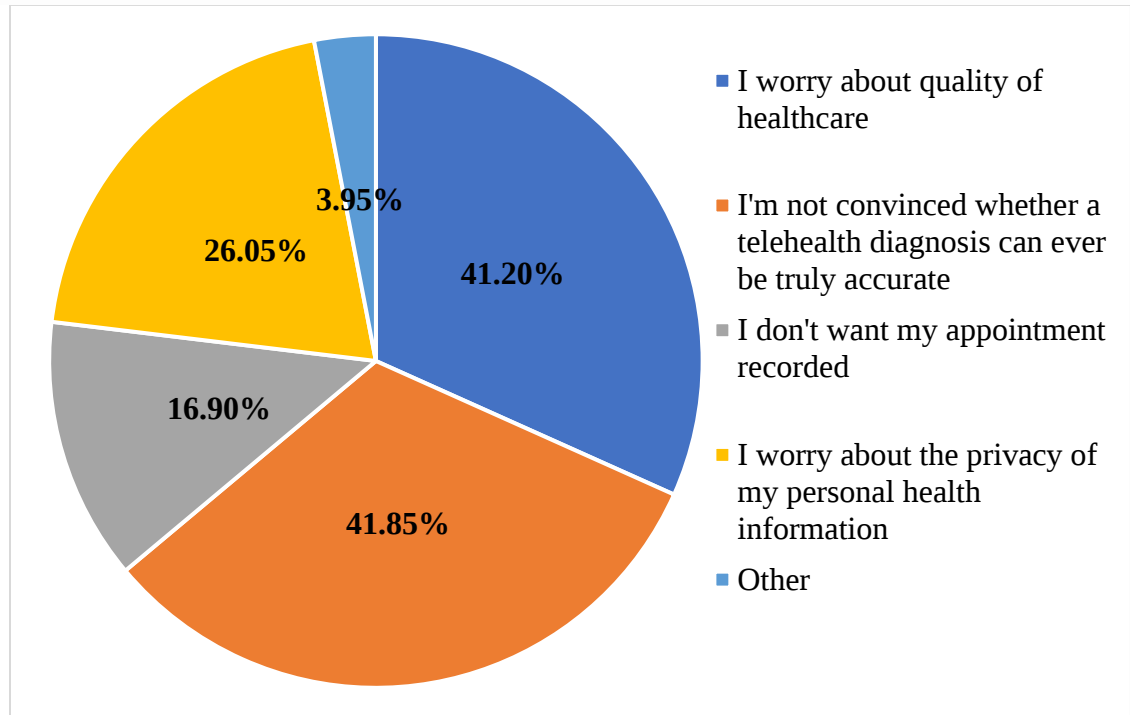


Figure 4.26. Concerns in telehealth services. (Source: www.sykes.com) (15)

4.3.2. Challenges

- Changes that are unlikely to come from the federal level
- Commercial reimbursement
- Medicaid reimbursement and credentialing are the states' domain

Disasters and pandemics pose unique challenges to healthcare delivery. Though telehealth will not solve them all, it is well suited for scenarios in which the infrastructure remains intact and clinicians are available to see patients. It takes time to work through payment and regulatory structures, state licensing, credentialing across hospitals, and program implementation; however, health systems that have already invested in telemedicine are well positioned to ensure that patients with COVID-19 receive the care that they need (15).

4.3.3. Barriers

- At a time of need, many people revert to what they are used to doing and the way in which they previously interacted with the healthcare system
- Patients would prefer that they see their own provider through telemedicine versus someone with whom they do not have a previously established relationship

- Patients may be unaware that they have telemedicine as an option and do not know how to access it

Health plans, employers, hospital systems, and media outlets should work to overcome these barriers by:

- 1) Educating people that telemedicine is an effective and safer alternative under the current circumstances
- 2) Expanding network reimbursement coverage for physicians to see their patients through telemedicine
- 3) Making people aware that a telemedicine benefit exists, with step-by-step instructions on how it can be accessed
- 4) Helping people understand how telemedicine works
- 5) Continuing to reduce cost barriers to accessing telemedicine (7).

5. DISCUSSION

Telemedicine practice guidelines have enabled registered medical practitioners to provide prescriptions electronically with several in-built safety methods to prevent abuse of the system. Pharmacists can now dispense from a digital screen having doctor's registration number and facsimile of the signature. Telemedicine was largely unknown to the people it was developed for and despite the growth it has shown during the pandemic, it is still far below the actual reach that it should have achieved. This is because of several variables that must line up for the practitioner and the patient so that telehealth can persist.

Table 5.1. Future development needs in telehealth (17).

For Healthcare Practitioners	For Patients
Reimbursement dynamics	Therapeutic area and disease state
Electronic medical record integration	Therapy mode of administration
Ease of billing	Socioeconomic and demographic
Access to patient tools and financial assistance	Need for diagnostic and/or procedure

Sustained telehealth adoption will require policy and behavioural shifts across stakeholders (17). The shifts include:

- Broader and lasting payment parity regulations and incentives
- Integrated billing
- Expanded cpt codes
- Ease of insurance adjudication and payment
- Continued use and training with video-based technologies
- Initiatives to drive awareness (by payers and health systems) and trial with their patients
- Building telemedicine into care guidelines
- New investment and acquisitions by larger providers (to expand network capacity)
- Introduction of telemedicine-only doctor practices
- Better integration with patient e-health records
- Remote monitoring and diagnostics
- Mobile health apps
- Effective processes for sample management, co-pay, and patient assistance programs

Adoption of telemedicine will vary by therapeutic area and disease state, mode of administration of therapy, need for diagnostic and/or procedure, severity, complexity and stage of disease for remote engagement. Infused therapies, HCP administered products, vaccines and certain physical examinations, older patient populations, rural patients and non-availability of high bandwidth internet access or technology aptitude may be hurdles for some patients. Elective surgeries, lab monitoring and diagnostics such as stress tests, EKGs, x-rays will continue to bring patients to the office (17).

5.1. Strengths

Telemedicine is one of the highly considered yet concerned way of dealing with the pandemic affected healthcare demands of the population across world today and this study takes into account the dynamic tracking of the recent pandemic events. It also helps to identify the gaps in the current telehealth services and illustrates future requirements that can make telehealth a more utilized branch of healthcare.

5.2. Limitations

This study had limitations. The study was largely based on secondary data obtained from published reports of selected pharmaceutical companies, news articles, and peer-reviewed publications. Secondary research has inherent limitations. As researcher being an external analyst, the scope of access to internal data was limited.

6. CONCLUSIONS

Telehealth has immense potential to stay for long. It can curb the unavailability issues of healthcare services in the whole world and can also lead to great learning and teaching platforms for the HCP's across the world. It can reduce the gap in the quality and availability of healthcare services between developed and developing nations, especially diagnostic services. Many developments have taken place during this pandemic, and the world has seen its importance but a lot more understanding and access methods need to be preached along with the support of reimbursement and development of infrastructure to make it more successful and enter into a new technological aspect of healthcare that the world requires today. More people are expected to utilize telehealth services now; hence we expect that more payers and providers are going to include them. Thus, we predict significant growth in telehealth services in the future.

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