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# DIGITAL HEALTHCARE DURING COVID-19 PANDEMIC: APPLICATION AND REGULATORY ASPECTS OF TELEMEDICINE

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## ABSTRACT

The Indian healthcare sector faces many glitches and some of them are political and economic uncertainty, accessibility, the rising prevalence of chronic diseases and an ageing population. Owing to the skewed ratio of doctor to patient, a large part of the population is still underserved in health care. As a consequence, effective and equal delivery of health-care facilities has always been an issue. Telemedicine as an instrument for health care delivery has been developed for both convenient and specialised healthcare, especially for patients with limited access to standardised healthcare services in remote locations. Subsequently in the influx of the COVID-19 pandemic, telemedicine activities have ultimately got extreme significance in the global health situation. The Government of India has recently highlighted the problems in telemedicine by publishing effective guidelines to streamline the telemedicine practises. Similar to COVID-19, telemedicine had an influence in the past on reducing a variety of epidemic diseases such as SARS and MERS. On the other hand, there are many barriers which need to be addressed / resolved to realize its full potential. Nowadays, the challenges faced by telemedicine are no longer technological, but legal. The absence of clear laws for telemedicine registration, practise and virtual consultation in India serves as a disincentive for medical profession. Therefore, it is proposed that apart from the Telemedicine practice guidelines of India, 2020, Indian Government should introduce comprehensive medico-legal regulations to address the issues faced by telemedicine service users and providers.

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## INTRODUCTION

*Effective use of technology is important to deliver healthcare. By leveraging technology, you can bring down lack of access and cost of healthcare*

N R Narayanamurthy[1]

Access to healthcare care is an ethical human right that transforms into a commitment to provide health services to all people of a country. Access, equity, quality, and cost-effectiveness are the major concerns in health care in all countries. The health services may be inaccessible[2] for most of the people in remote and rural areas. During outbreaks, pandemics, and disasters, when the already frail health system is overburdened and nosocomial transmission of infections is a challenge, the problems are exacerbated and intensified. As a result of these aspects, ensuring an adequate and equitable distribution of health-care services is always a challenge.[3]

Humanity is facing a new viral pandemic, Covid-19 as history repeats itself. The clarion call sparked ideas about how to deal with the widespread disaster. Following the rapid spread of the covid-19, the World Health Organization (WHO) declared coronavirus 2019 disease (COVID-19) as a pandemic on March 11, 2020. The virus also known as SARS-CoV-2, which posed a serious challenge for the entire world. The main problem is preventing the infection from spreading and providing adequate medical care to those who have been infected.[4] The COVID-19 outbreak has caused a worldwide lockdown, affecting daily life as well as most health systems, which have had to deal with both infected patients and routine non-COVID-19 patient care.[5] COVID-19 depicts a large number of deaths and a significant global economic contraction. Nonetheless, learning from the wreckage of the past reaffirms that the human species is resilient in the face of such disasters. During this critical period, the importance and usage of telemedicine has increased significantly,

[1] THE TIMES OF INDIA, https://timesofindia.indiatimes.com/india/deploy-tech-solutions-in-healthcare-narayana-murthy-says/articleshow/21735298.cms (last visited May 29, 2021
[2] Geetanjali Sageena, ET. AL., *Evolution of Smart Healthcare: Telemedicine During COVID-19 Pandemic*, J. INST. ENG. INDIA SER. B, 1, 2-4 (2021).
[3] Neema Agarwal, ET. AL., *Telemedicine In India: A Tool For Transforming Health Care In The Era Of COVID-19 Pandemic*, J EDUC HEALTH PROMOT, 9 (2020).
[4] Geetanjali Sageena *supra* note 1.
[5] Raffaele Galiero ,Pia Clara Pafund, ET. AL., *The Importance of Telemedicine during COVID-19 Pandemic: A Focus on Diabetic Retinopathy*, J. DIABETES RES, 8 (2020).

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owing to both positive evidence from previous epidemics/pandemics and technological advancements, particularly in industrialized countries, primarily the United States, the United Kingdom, and China.[6]

Telemedicine is an important tool for improving the delivery of health-care services by exchanging valid information for disease and injury diagnosis, treatment, and prevention, research and evaluation, and continuing education of health-care providers using information and communication technologies. Telemedicine was already developed as a solution to minimise a variety of infectious diseases such as SARS (Severe Acute Respiratory Syndrome) in 2003 and MERS (Middle East Respiratory Syndrome) in 2012 prior to Covid-19 pandemic. Hence, in the influx of the COVID-19 pandemic, telemedicine treatment and related activities have ultimately got extreme significance in the global health situation for the betterment of healthcare.

In a country like India, the Covid-19 pandemic has added unprecedented strain to an already overburdened health-care system. Health professionals and governments are struggling to give proper care to the citizens as the usual capacity has exceeded exponentially. Social distancing is one of the most important strategies for reducing and mitigating the spread of the Covid 19 epidemic and this is where telemedicine can assist and support healthcare systems, particularly in the areas of public health, prevention, and clinical practices. On the other hand, there are many barriers which need to be addressed / resolved to realize its full potential. This article describes the application and importance of telemedicine as a proactive measure to improve clinical care during Covid 19, using data from the existing literature.

## EVOLUTION OF TELEMEDICINE

Telemedicine come from a combination of Greek and Latin words. The Greek word "tele" means "distance," and the Latin word "mederi" means "to heal."[7] . Telemedicine has a long history, with the first published record in the mid-twentieth century, when electrocardiograph (ECG) data was transmitted over phone wires. The Radio News magazine published in April 1924 featured the telemedicine's earliest efforts alongside a new vision for future public health. The magazine cover depicted a patient with a TV and receiver to communicate with his doctor on the other end of the

[6] E. R. Dorsey, E. J. Topol, "*Telemedicine 2020 and the Next Decade*," THE LANCET, 395, 859 (2020).
[7] Geetanjali Sageena *supra* note 1.

line.[8] Telemedicine, in its current form, began in the 1960s, when two healthcare programmes integrated the concepts of telemedicine into the delivery of healthcare in the United States,[9][10] primarily guided by the military and space technology industries, as well as a few people utilising commercial equipment that was readily available.[11]

The National Aeronautics and Space Administration (NASA) was instrumental in the early development of telemedicine. NASA (1972–1975) established the Space Technology Applied to Rural Papago Advanced Health Care (STARPAHC) program to provide medical services to space explorers. STARPAHC provided clinical care to the Papago Indian Reservation in Arizona.[12] NASA used telemedicine to lay the groundwork for MITAC (Medical Informatics and Technology Applications Consortium) at Yale University (1997), paving the way for the current trend of private involvement in public health management.[13]

## MEANING AND CONCEPT OF TELEMEDICINE

World Health Organization defines telemedicine as "The delivery of health-care services, where distance is a critical factor, by all health-care professionals using information and communications technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and the continuing education of health-care workers, with the aim of advancing the health of individuals and communities."[14]

Telemedicine is defined by the American Telemedicine Association (ATA) as "the natural evolution of healthcare in the digital world." Telehealth's allure lies in its ability to use electronic information and communication technologies to provide and support healthcare over long distances.

[8] Moises Rivera Ruiz,*et al*., *Einthoven's String Galvanometer The First Electrocardiograph Einthoven*, TEX HEART INST J. 174–178 (2008).
[9] *Id* at 175.
[10]Pankaj Mathur *et al.*, *Evolving Role of Telemedicine in Health Care Delivery in India*. PRIM HEALTH CARE 7 (2017).
[11] Currell R *et al*. *Telemedicine versus face to face patient care: effects on professional practice and health care outcomes*, COCHRANE DATABASE SYST REV, 7 (2015)
[12] N. Brown, *A brief history of telemedicine*. TELEMED. INF. EXCHANGE. 105, 833, (1995)
[13] *Id*, *at* 834
[14] WHO GROUP CONSULTATION ON HEALTH TELEMATICS https://apps.who.int/iris/handle/10665/63857 (last visited May 28, 2021)

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Telemedicine, is a tool for delivering medical care remotely typically via virtual platforms. It provides a number of advantages for both patients and healthcare providers. Telemedicine has a range of uses in, public health, health education and research, patient care, and administration.[15] Telemedicine and associated e-health services like Telehealth, Teleconsultation, Telemedicine Cabin and Telecare enables care from a distance through electronic and communication system.

A number of telecommunications technologies, including but not limited to: ordinary telephone lines, ISDN, ATM, DSL, Internet, intranets, and satellites, may be used for this medical data transfer.[16] Telemedicine can be as easy as addressing a case over the telephone with two health practitioners, or as complicated as the use of satellite technology and video conferencing equipment for real-time consultation between medical specialists in two different countries. In general, telemedicine refers to the use of connectivity and information technology for health care delivery by a virtual meeting of the doctors and patients.

## ADVENT OF TELEMEDICINE IN INDIAN HEALTHCARE DELIVERY

In India, telemedicine activities began in 1999, with the Government of India (GoI) taking the lead in introducing the technology in 2000. The first SATCOM (satellite communication) based Telemedicine Pilot Project was launched in Andhra Pradesh by the Indian Space Research Organization in 2001.[17] ISRO, the Ministry of Health and Family Welfare, the Ministry of External Affairs, the Department of Information Technology (DIT), and state governments all played important roles in advancing telemedicine administrations in India.[18]

The Ministry of Health in the Government of India have worked and is still progressing on a number of projects, including the National Rural Telemedicine Network, the National Cancer Network (ONCONET), the Integrated Disease Surveillance Project (IDSP), the National Medical College Network, and the Digital Medical Library Network, all of which aim to consolidate public

[15] Krishnan Ganapathy and Aditi Ravindra, *Telemedicine In India: The Apollo Story*, TELEMED J E HEALTH 15(6) 576-85 (2009)
[16] Victoria Ramos, *Contributions to the History of Telemedicine of the TICs*, RESEARCH GATE, (Nov.2010), https://www.researchgate.net/publication/251993493_Contributions_to_the_history_of_Telemedicine_of_the_TICs/link/53d602220cf220632f3d6910/download
[17] ISRO, *Telemedicine Healing Touch Through Space: Enabling Specialty Healthcare To The Rural And Remote Population Of India* http://www.televital.com/downloads/ISRO-Telemedicine-Initiative.pdf (last visited May 28, 2021)
[18] Geetanjali Sageena *supra* note 1.

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health data and make it more accessible.[19] The Government of India established telemedicine practice guidelines in 2005, and the Health Ministry established a National Telemedicine Task Force in 2006.

The External Affairs Ministry has also undertaken the Telemedicine Network Project and the Pan-African e-Network Projects.[20] Due to lack of awareness and acceptance of new technology, telemedicine has not had the 'blast' it was intended to have. Some believe that as telemedicine moves away from clinics and hospitals and into people's homes, it will have a significant impact on how healthcare is delivered in the developed world. The government and private healthcare institutions should successfully join for telemedicine to take a giant leap in healthcare and thus, helping to bridge the gap between rural–urban India .

Patient training with pictures and recordings, transfer of clinical images such as X-rays, Ultrasound, and video conferencing have become a norm in recent years as the use of wireless broadband has grown and cell phones has become ubiquitous.[21] Improvements in internet infrastructure for data transmission, encryption, password protection, HIPAA (Health Insurance Portability and Accountability Act of 1996) guidelines,[22] data digitization, and the creation of EMRs (electronic medical records) have made e-healthcare and telemedicine more cost-effective.

Today's telemedicine, which requires no special training, makes use of existing processing devices such as cell phones, cameras, and wearable biosensors to collect clinical data, making it easier to use. For the common man, current telemedicine practices reduce travel costs, save time, lower clinical costs, and make it easier to access healthcare specialists.

## APPLICATION OF TELEMEDICINE IN PANDEMICS PRIOR TO COVID-19

There were many cross–linking partnerships to enable digitalization of healthcare in India even before COVID-19. Teleconsultation/telemedicine services are being expanded by e–pharmacies and large hospital chains. On the other hand, insurance companies were bringing together the

[19] Saroj Kanta Mishra ET AL., *Telemedicine In India: Current Scenario And The Future*, TELEMED J E HEALTH, **15**, 568–575 (2009)
[20] Ministry of External Affairs, Government of India, http://www.mea.gov.in/ (last visted May 29, 2021)
[21] History of Telemedicine, http://mdportal.com/education/ (last visited May 28, 2021)
[22] Health Information Privacy, https://www.hhs.gov/hipaa/index.html (last visited May, 29, 2021)

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country's top health-tech providers on a single platform to enable a digitally enabled wellness ecosystem.

Initially, telemedicine was intended to provide medical assistance either in remote areas or where access to treatment is difficult, with the main goal of improving the management of chronic diseases, particularly in emergency situations. The onset of either epidemics or pandemics has contributed to the use of increasingly modern digital technology techniques over the years, which have also prompted the use of telemedicine even more often during the different stages of the outbreak, such as in the cases of the SARS epidemic in 2003 and later MERS-CoV in 2013.[23] In 2003, after the pandemic of Severe Acute Respiratory Syndrome (SARS), China started researching telehealth and advanced electronic medical systems for potential use in similar circumstances.[24]

During the Ebola outbreak, a mobile app called Ebola Contact Tracing (ECT) was used to fight the epidemic, helping to remotely track and trace reported cases of Ebola virus disease via contact. Compared to a paper-based form, data collected by the ECT app was quicker, safer, and complete, and it could track a large number of contacts accurately.[25]

Teleconsultation in Taiwan was used for patients with SARS during the outbreak of severe acute respiratory syndrome (SARS) in 2003. In a study, it was found that not only the cost of care was decreased as a result of the removal of travel by the experts, but also the availability and protection of health workers was dramatically improved by using the process.[26]

In India, the Apollo Telemedicine Networking Foundation (ATNF) is the oldest and most comprehensive multispecialty telemedicine network. Telemedicine has also been used successfully by the Sankara Nethralaya and Aravind Eye Hospitals in Tamil Nadu, as well as the Tripura Vision Centre in Tripura, to conduct eye disease screenings (tele–ophthalmology) in rural

[23] Kyle Enfield ET Al., *"Application Of A Telemedicine Platform, Isolation Communication Management System, For The Care Of Dangerous Infectious Disease: A Case Series,"* 2 OPEN FORUM INFECT DIS., 228 (2015).
[24] Junping Zhao ET Al, *E-health in China: Challenges, Initial Directions, and Experience*, 16 TELEMED J E HEALTH 344 (2010)
[25] INNOVATIONS FOR POVERTY ACTION https://www.poverty-action.org/study/reducing-ebola-virus-transmission-improving-contact-tracing-sierra-leone (last visited May 27, 2021).
[26] T Chang, J Lee, S Wu, *The Telemedicine And Teleconsultation System Application In Clinical Medicine* Conf Proc IEEE ENG MED BIOL SOC (2004). https://pubmed.ncbi.nlm.nih.gov/17271012/ (last visited May 27,2021)

areas in the general population. Because such initiatives have been successful in isolated areas, the need for them to be part of a larger ecosystem has been overlooked, as existing patients are being served through traditional consulting channels.[27]

## NEED FOR TELEMEDICINE DURING COVID-19 PANDEMIC

Telemedicine can emerge as one of the effective and long-term solution for COVID-19 prevention and treatment. Telemedicine has been recognised by the World Health Organization (WHO) as an important step in improving the response of the health system to COVID-19. Telemedicine has also been recommended by WHO as one of the alternative models to improve clinical efficiency and support decisions in order to enhance the delivery of services.[28] Hospitals and e–pharmacies, have implemented tele-consultation platforms and expanded their digital offerings. Both doctors and patients are using teleconsultation and e–pharmacy platforms at an increasing rate.

Several countries, including India, have enacted social distancing as a means of limiting the spread of the disease to millions of people. The lockdown has aided in reducing the spread of the infection and preparing clinical healthcare facilities to deal with the emergency. In any case, given the population's size and lack of infrastructure, physical separation may be difficult to maintain after the lockdown is lifted. Because of the lockdown and the risk of infection, most patients have opted out of in-person doctor consultations for acute illnesses. Self–medication and self–diagnostic apps were their mainstays. During the first few months of the pandemic, some people even had virtual consultations with general practitioners or family doctors. Patients were forced to look for new sources of reliable acute care as the pandemic lasted longer than expected. Patients with chronic illnesses, such as diabetes, are identified as a high-risk group, which leads to a rise in the use of digital channels for disease management and control.[29]

On March 2020, the Ernst and Young (E Y) firm conducted an online general population survey with 1,500 respondents (on the basis of different age groups) to provide a snapshot of consumer

[27] ERNST YOUNG, *Healthcare goes mobile: Evolution of teleconsultation and e-pharmacy in new Normal September 2020,* https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/health/2020/09/healthcare-goes-mobile-evolution-of-teleconsultation-and-e-pharmacy-in-new-normal.pdf (last visited May 28, 2021)
[28] WORLD HEALTH ORGANIZATION, *Strengthening the Health Systems Response to COVID-19,* https://apps.who.int/iris/bitstream/handle/10665/332562/WHO-EURO-2020-670-40405-54163-eng.pdf (last visited May 29, 2021)
[29] ERNST YOUNG, *supra* note 27.

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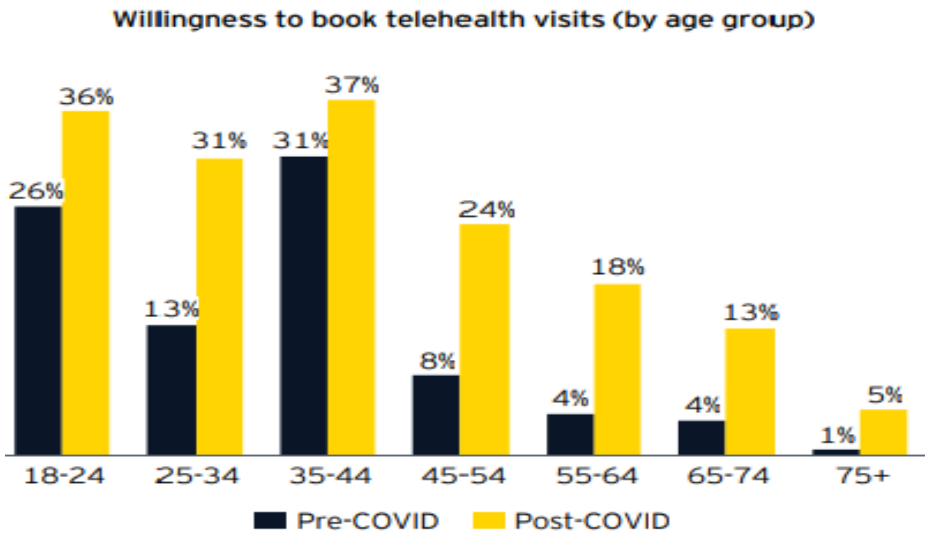
expectations for behaviour changes as a result of the COVID-19 crisis across a variety of sectors. The survey's findings shed light on how consumers will react following the outbreak and the pandemic's long-term consequences.[30] The survey conducted by EY compared the willingness of individual to select teleconsultaion as a treatment option before and after Covid-19. The findings shows that most of the individuals willing to consult their doctor via tele-health or tele consultaion for their treatment. The below figure (Figure 1) clearly shows the same.

**Fig:1 Showing Willingness to Book Telehealth Visits**




Source: EY–Parthenon's Life after COVID–19 Survey, 2020[31]

## TREATMENT *via* TELE MEDICINE: INTERNATIONAL RESPONSE

As the pandemic looms over the world[32] telemedicine and eHealth platforms are undeniably important for global management of COVID-19[33]. Medical centers that use and adopt telemedicine and eHealth platforms for patient care will see a number of benefits, including reduced burnout,

[30] ERNST YOUNG, *How Teleconsultation And E-Pharmacy Are Evolving As The New Normal* https://www.ey.com/en_in/health/how-teleconsultation-and-e-pharmacy-are-evolving-as-the-new-normal (last visited May 28, 2021).
[31] ERNST YOUNG, *Will 'Normal' Be Business As Usual Or Better*? https://www.ey.com/en_gl/covid-19/business-as-usual-or-better (last visited May 28, 2021).
[32] Ameet Doshi ET AL., *Keep Calm and Log On: Telemedicine for COVID-19 Pandemic Response*, 15 J HOSP MED 302-304 (2020)
[33] Kaminski J. *Informatics In The Time Of COVID-19.* 15 CAN J NURS INFORM.(2020)

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increased workforce sustainability, reduced medical practitioner exposure, and reduced PPE waste, such as N95 respirators and surgical masks.[34]

To encourage physicians to help provide health services, the Australian government provided funding for Medicare telemedicine services (Medicare support at home) in response to COVID-19.

Telehealth can allow remote triage of care during infectious diseases outbreak and provide easily accessible data through technology, such as Chabot's as seen in Singapore during Covid-19[35]

In Shangdong province, China, the use of telemedicine services reduced death rates and reduced the incidence of COVID-19. Telemedicine provided community residents and medical staff with prevention and treatment guidance, training, communication, and remote consulting, and thus played a significant role in controlling the COVID-19 epidemic in this province.[36] Patients were encouraged to seek medical advice online rather than in person, which resulted in a significant increase in the number of consultations. The emergency telemedicine consultation system, a telemedicine-based outbreak alert and response system for surveilence purpose was established by the National Telemedicine Center of China (NTCC).[37] A mobile telemedicine device was used to collect, transform, and assess patient health data such as oxygen level, respiratory rate, and blood pressure, and to send the information to the attending physician. This helps to avoid direct physical contact, reducing the risk of infection and preventing infection transmission to nurses and physicians.[38]

In the United States, the government offers the ability to use telephones with "audio and video capabilities" such as smartphones in remote areas to provide health care in order to promote the expansion of the use of telemedicine facilities by enacting the "Coronavirus Preparedness and

[34] Anthony Jnr. Bokolo, *Application Of Telemedicine And Ehealth Technology For Clinical Services In Response To COVID-19 Pandemic*, HEALTH TECHNOL. 11, 359–366 (2021).
[35] OPEN GOV, *Singapore government launches COVID-19*, https://opengovasia.com/singapore-government-launches-covid-19-chatbot/ (last visited May 28, 2021).
[36] Xuan Song ET, AL., *The Role Of Telemedicine During The COVID-19 Epidemic In China—Experience From Shandong Province*, CRIT CARE 178 (2020).
[37] Bokolo Anthony Jnr, *Use Of Telemedicine And Virtual Care For Remote Treatment In Response To COVID-19 Pandemic*, 44 J MED SYST. 132 (2020).
[38] Xuan Song ET, AL., *Supra* note 36.

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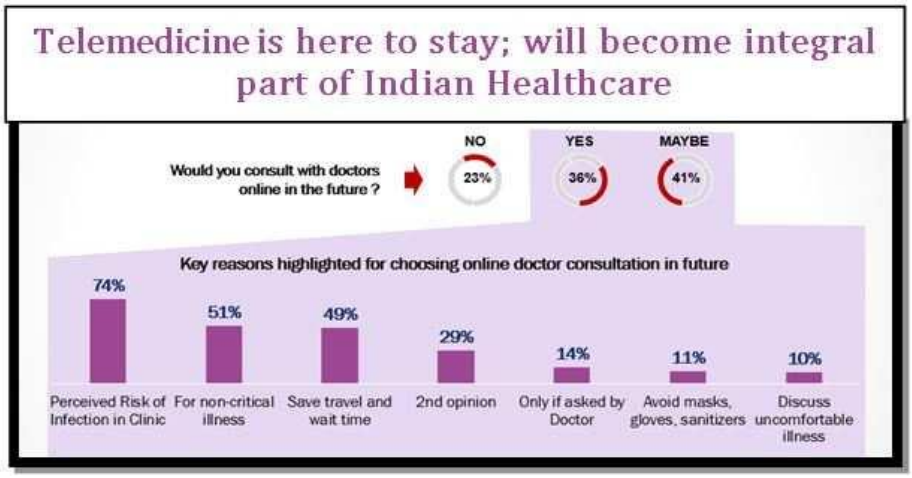
Response Supplemental Appropriations Act."[39]

**Fig:2 : Showing Interest to Consult doctor via Tele-consultation**




Source: Economic Times Health World[40]

A study carried out by DrOnA Health in collaboration with Mankind Pharma on the growth of telemedicine consultation in India since Covid shows that in this period, digital adoption of medicinal services increased three times and this study shows that 60% of respondents registered high satisfaction with telemedicine consultation, and 54% of respondents expressed their willingness to continue with it in the future as well.

## REGULATORY FRAMEWORKS OF TELEMEDICINE

SARS-CoV-2 affected almost 220 countries and territories[41]. Because the spread began in China and first affected neighbouring Asian countries, not all of them have been affected in the same way. Despite being the first to deal with the virus, they put in a lot of effort and discipline to effectively combat it. The epidemic has put countries' ingenuity and resilience to the test, and telemedicine has played a critical role in the development of health policies.[42] Governments all over the world have implemented significant regulatory changes in response to the coronavirus

[39] Coronavirus Preparedness And Response Supplemental Appropriations Act, 2020, Public Law 116–123, Act of Congress, 2020(United States of America), Public Law 116–123 116th Congress, Mar. 6, 2020 (U.S.A).
[40] ET HEALTH WORLD, https://health.economictimes.indiatimes.com/news/industry/demand-for-telemedicine-to-rise-post-covid-19-survey/78516110 (last visited May 30,2021)
[41] WORLDOMETER, https://www.worldometers.info/coronavirus/ (last visited May 30,2021).
[42] Josep Vidal-Alaballa ET, AL., *Telemedicine In The Face Of The COVID-19 Pandemic*, ELSEVIER (2020).

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outbreak, with the goal of encouraging the use of teleconsultation. The goal was to decongest healthcare facilities and make them more accessible during the pandemic, reducing the risk of infection.

The Emergency Telemedicine Consultation System, a telemedicine-enabled outbreak alert and response network, was established by China's National Telemedicine Centre. The private sector helped organize the response: ZTE and China Telecom donated 5G technology to Sichuan University's West China Hospital.[43]

Singapore developed a tracing system that could identify and report the GPS location of people under quarantine, as well as link this information to their serological test results, giving them a map of the transmission chain.[44]

The strict GPS tracking implemented by China and Singapore during quarantine has raised concerns about infringing on individual liberties and the use of personal data that could not be applied in other cultures and parts of the world. In addition, given the unusual circumstances of the pandemic, the GDPR provided some flexibility. Personal data could be used for reasons of public interest and public health, and personal data could be collected without the data subject's consent.[45] Given the current crisis, this measure may be justified. In normal times, however, telemedicine services must ensure and guarantee access and security, which is a major concern for telemedicine applications. However, the benefits of improving the accessibility, quality, and effectiveness of health care outweigh the risks with more comprehensive standards and regulations ensuring strong privacy and security protections.

During the pandemic, Italy implemented telemedicine guidelines issued by the Italian Health Council in 2012 to allow for greater use of telemedicine technologies across the country.[46]

[43] George Paul, ZTE and China Telecom enabled the first remote diagnosis of coronavirus via a 5G telehealth system, INSIDER, (Jan 28, 2020, 8:28 PM), https://www.businessinsider.com/zte-china-telecom-build-5g-telehealth-system-for-coronavirus-2020-1?IR=T
[44] Yunkai Zhai, ET, AL., *From Isolation to Coordination: How Can Telemedicine Help Combat the COVID-19 Outbreak?* MEDRXIV (2020)
[45] WILL KNIGHT, *Phones Could Track The Spread Of Covid-19. Is It A Good Idea?.* (Mar. 15.2020, 08:00 AM) https://www.wired.com/story/phones-track-spread-covid19-good-idea/
[46]Kimberly Lovett Rockwell, Incorporating telemedicine as part of COVID-19 outbreak response systems, 26 AM J MANAG CARE, 147-148 (2020).

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In France, the Ministry of Health allowed the National Health Insurance (NHI) to reimburse patients with confirmed COVID-19 infection for video teleconsultations and tele-expertise without the need for prior registration. As the pandemic worsened, nurses and midwives who assisted with patient follow-up were rewarded. Following the pandemic, there was an increase in teleconsultations in Paris, with 44% of general practitioners conducting at least one.[47]

In Spain, public and private healthcare systems coexist, with the public system serving 100% of the population. Currently, in the midst of the epidemic in Catalonia, Spain, public health authorities have implemented a follow-up system at the primary care level, which uses phone calls to monitor patients' symptoms and re-admit them to the hospital if their symptoms worsen. The patients will benefit from this implementation because it will provide them with long-term and ongoing care. Medications are administered to patients while medical prescriptions are transferred from the Patient Electronic Medical Record (PEMR) to pharmacy electronic systems.

The Dubai Health Authority (DHA) has expanded its telemedicine initiative "Doctor for Every Citizen" to include consultations for COVID—19 for all Dubai residents. In collaboration with Du, the Ministry of Health plans to open a virtual care center (telecom operator). Observe The COVID-19 app is being used to track and trace people.

Increased guidance on digital health technologies, cyber-security expectations, and expanded reimbursement options were also provided by the European Union and Asian countries, allowing for greater adoption of telemedicine systems.[48]

## POLICY & REGULATORY LANDSCAPE OF TELEMEDICINE IN INDIA

During a pandemic, the Indian government has implemented telemedicine to reduce direct doctor-patient contact. Because of the growing importance of telemedicine during the COVID-19 pandemic, the 2005 telemedicine practice guidelines were revised in 2020 to focus on medical ethics, data privacy, confidentiality, documentation, digital consultation records, and the process of setting telemedicine fees. It focuses on medical ethics principles, such as the Indian Medical

[47] Robin Ohannessian ET, AL., *Global Telemedicine Implementation And Integration Within Health Systems To Fight The Covid-19 Pandemic: A Call To Action*, 6 JMIR PUBLIC HEALTH SURVEILL (2020).
[48] Suneela Garg, ET, AL., Telemedicine: Embracing virtual care during COVID-19 pandemic, J Family Med Prim Care, 4516–4520 (2020).

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Council Act's professional norms for protecting patient privacy and confidentiality. Following that, the federal and state governments took a number of steps to boost telemedicine services.[49]

The development of telemedicine facilities in India has been largely due to the joint efforts of ISRO, the Ministry of Information Technology, the Ministry of Foreign Affairs, the Ministry of Health and Family Welfare and the State Governments.[50] There is no specific legislation in India which legalises or disallows the practise of telemedicine. Before the emergence of Covid-19, there was no legislation or guidelines on the practice of telemedicine, through video, phone, Internet based platforms (web/chat/apps etc.). Telemedicine in India were regulated by the some of the existing laws/statutes governing general medicines. Indian Medical Council Act, 1956.[51]

- Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulation 2002)[52]
- Drugs &Cosmetics Act, 1940 and Rules 1945
- The Narcotic Drugs and Psychotropic Substances, Act, 1985[53]
- Clinical Establishment (Registration and Regulation) Act, 2010[54]

Thus the laws related to telemedicine are the laws applicable to the practise of medicine in India, combined with information technology laws. It includes:

- Information Technology Act, 2000-provisions relating to the protection of electronic data such as: Sections 43(a) to (h); Sections 63 to 74;Section 72
- Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011: This Act provides protocols for corporate agencies that collect, process or store personal data (including sensitive personal

[49] Rockwell KL, Gilroy AS. *Incorporating Telemedicine As Part Of COVID-19 Outbreak Response Systems*. AM J MANAG CARE. 26:147–8 (2020).
[50] 45 remote and rural hospitals (such as the Andaman and Nicobar islands and Lakshwadeep, hilly regions of Jammu & Kashmir, Medical College Hospitals in Orissa, among other rural hospitals) and 15 super specialty hospitals have been covered and linked by this telemedicine network.
[51] The Indian Medical Council Act, 1956 No.102, Act of Parliament 1956(India)
[52] Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations, 2002, Medical Council Of India Notification, 2002 (India)
[53] The Narcotic Drugs and Psychotropic Substances Act, 1985, No. 61, Act of Parliament, 1985 (India). For consultations on telemedicine, Schedule X of the Drugs Act has been made applicable. Therefore, in the telemedicine consultation, all medications listed in Schedule X cannot be administered. Narcotics, for example, such as morphine, codeine, etc.
[54] The Clinical Establishments (Registration And Regulation) Act, 2010, No.23, Acts of parliament, 2010 (India). Establishments falling under the definition of a 'clinical establishment' under the Clinical Establishments Act would be required to register with the relevant authority and conform to the minimum standards as prescribed under the Act.

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information) and requires the information provider's prior consent before transmitting sensitive personal data to a third party.

Under these regulations, only a person who is (A) a licenced medical practitioner and (B) provides a valid and legal prescription is authorised to practise medicine in India under the Drugs and Cosmetics Rules of 1945. Generally, a licenced medical practitioner gives a handwritten prescription with his name on it. In the case of telemedicine, a prescription is valid even though, according to Section 5 of the Information Technology Act, 2000 ('IT Act'), it is issued by way of digital signatures. Electronic documents are admissible as evidence in a court under the Indian Evidence Act, 1872, by means of the IT (Amendment) Act, 2008.

The National Health Stack (NHS), a nationally shared digital infrastructure, has been put up for discussion by the NITI Aayog to ensure a strong, reliable, and secure continuum of care. It will cover both the public and private sectors and will provide each citizen with a unique health ID. It aims to use Big Data and AI/Machine Learning to enable the entire population's health management and research through a national health analytics platform (ML). The NHS's goal is to connect healthcare providers, payers, and fulfilment agencies to national health electronic registries in a seamless manner in order to reduce costs by utilizing a nationally shared digital infrastructure and to promote population wellness.[55]

The healthcare digitization wave in India was sparked by Aarogya Setu, a COVID–19 contact tracing mobile app. Swasth Alliance is a collaboration of leading health–tech start–ups and thought leaders. Swasth Alliance[56] will ride this wave with Swasth Stack, a platform that aims to bring together multiple healthcare providers and start–ups to ensure that the masses have access to reach, flexibility, quality, and affordability. Swasth Stack is a project that aims to digitize patient data and medical records and create an online platform for teleconsultation and hospital care. The NHS will support Swasth Stack by enabling consent and data management across the Health Stack's various layers.[57]

[55] NITI AAYOG, National Health Stack Strategy and Approach, https://niti.gov.in/writereaddata/files/document_publication/NHS-Strategy-and-Approach-Document-for-consultation.pdf (last visited May 29, 2021)
[56] SWASTH, https://www.swasth.app/team (last visited May 29, 2021)
[57] ERNST YOUNG, *supra* note 27.

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## TELEMEDICINE PRACTICE GUIDELINES, 2020[58]

The Telemedicine Practice Guidelines, 2020 were issued by the Ministry of Health and Family Welfare on March 25, 2020, under the Indian Medical Council Act, 1956, and superseded the Indian Medical Council (Professional Conduct, Etiquette, and Ethics Regulation, 2002. This has broadened the scope of telemedicine and alleviated some physician and patient concerns. The objective of these guidelines is to provide medical practitioners with practical advice and help them integrate telemedicine into their daily routines. These guidelines are intended to ensure that doctors follow the proper procedure for providing effective and sound medical care. This is only a simple, and user-friendly guideline that lays the groundwork for the implementation of telemedicine services across the country. The advantages of the procedure far outweigh the risks.

## JUDICIAL ANALYSIS OFTELEMEDICINE IN INDIA

Although India does not have a specific telemedicine law, there are many divergent views on this subject. In *Martin F. D'Souza v. Mohd Ishfaq*,[59] the Supreme Court held that only in acute emergency cases can a telemedicine (telephone) prescription be issued and the doctor is needed to carry out his analysis, including, where possible, tests and investigations.

In addition, in general cases of medical negligence, the medical practitioner is normally required to have an appropriate degree of competence. It was held in *Poonam Verma v. Ashwin Patel*[60] that a physician or surgeon does not undertake to treat a patient favourably, nor does he undertake to use the highest possible degree of ability, as there may be people who are more educated and trained than himself, but he undertakes to use a fair, rational and competent level of ability. The actual examination constitutes this implicit undertaking. However, in the case of telemedicine, no medical malpractice guidelines have been developed so far.

The Bombay High Court in *Deepa Sanjeev Pawaskar and Anr v. State of Maharashtra*[61] in the absence of physicians, the patient was directed to be admitted and medicines were administered via telephone instructions. Additionally, no resident medical officer was present. When the health

[58] TELEMEDICINE PRACTICE GUIDELINES, 2020 (INDIA)
[59] Martin F. D'Souza v. Mohd Ishfaq (2009) 3 SCC 1, para 54(b)
[60] Poonam Verma v. Ashwin Patel 1996 SCC (4) 332
[61] Deepa Sanjeev Pawaskar and Anr v. State of Maharashtra, 2018 SCC OnLine Bom 1841

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of the patient began worsening, an alternative arrangement for a specialist was made by the team. It was criminal negligence, identified as gross negligence, which is so severe that it is punishable as a crime, the Bombay High Court held. It is further claimed that not only a guilty mind introduces the aspect of crime, but also that the practitioner runs the risk of doing something with recklessness and indifference to the consequences.

## BENEFITS OF TELEMEDICINE IN COVID-19 PANDEMIC

In the aftermath of the current pandemic, telemedicine is an additional boon that provides both the healthcare provider and patients with the following added benefits:

- Telemedicine need no conveyance time or charges
- Better access to Specialists doctors.
- Individuals with chronic diseases are especially vulnerable to COVID-19, telemedicine can act as a safe and reliable approach to in-person treatment.
- Telemedicine may also be used to provide patients and their family members with social help without being exposed to infection.
- Telemedicine can also help minimise the burden on tertiary hospitals during the COVID-19 pandemic by providing diagnosis and care for patients in their own geographic location and reducing the risk of patient exposure due to hospital visits.
- Help to provide better treatment for sick, children and the elderly.

## CHALLENGES OF TELEMEDICINE

There is a lot of hope for telemedicine in the future. Telemedicine would become simpler and more commonly accepted in coming years with rapid advancements in technology. We need policies and recommendations to be implemented to effectively incorporate telemedicine with the current health structure. The paths and threats for the future may be:

- Apart from the Telemedicine Practice Guidelines 2020, there is no specific or comprehensive Act in India which regulates the whole aspects of Telemedicne.
- Standardized patient information format and consent form with the possibility of opting-in/out of telemedicine
- Security of patient information and treatment, duty to privacy, confidentiality

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- The problem of licencing is a significant obstacle since individual licencing standards are required by nations and states within countries.
- Standardization of equipment and telemedicine services with periodic inspection and submission to the regulatory authority
- Telemedicne can face huge challenges from the private hospital sector as this will reduce their profitability significantly as the patients need to only come to hospitals only for the physical service from doctors / nurses. This will impact their profit from medicine sales / other services which hospitals offer as the patients who will be taking telemedicine consultation will buy and do other medical services in a centre which is nearby their home.
- The main criteria to consider are age, gender, education, socioeconomic determinants, digital literacy, and the social climate. Computer literacy, language barriers between the provider and sthe patient, and a lack of knowledge of the availability of resources may contribute to a failure to embrace group telemedicine.

## SUGGESTION AND CONCLUSION

This study is a systematic review that focuses solely on the potential of telemedicine during the COVID-19 pandemic. Telemedicine has the potential to play an important role in this pandemic by reducing virus spread, effectively utilizing the time of healthcare professionals, and alleviating mental health issues. Patients seeking medical help have found it difficult to consult doctors because they are unable to see them in person. As a result, telemedicine must be considered as a viable healthcare option in order to reduce the fear of dying without treatment and to make healthcare services more accessible to the general public during such a global crisis.

With unprecedented growth and development in India's information and communication technology (ICT) system, telemedicine has a bright future. Satellite transmission, high-speed broadband connectivity, and mobile and wireless telephones are all gaining popularity in India's suburbs and rural areas. Other important growth drivers include the widespread use of wireless and web-based services, as well as advances in technology, such as the adoption of 3G and the upcoming availability of 4G spectrum and fiber optic networks. Telemedicine must be integrated into national frameworks, including public health preparedness. Telemedicine frameworks, operational plans, communication toolkits, and data-sharing mechanisms must all be defined

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quickly. To describe and assess the impact of telemedicine during outbreaks, this process should be supported by evaluation and research.

With respect to the use of ICTs in telemedicine, ethical concerns about confidentiality, dignity, and privacy exist in all countries. To ensure that differences in education, language, geographic location, physical and mental ability, age, and sex do not lead to the marginalization of care, it is critical that telemedicine be implemented equitably and according to the highest ethical standards. This pandemic has brought to light the importance of telemedicine in service delivery, as well as how it will be received in the future. Policymakers and health-care providers should be aware of the benefits of delivering care via virtual mode in this digitalized world, and should encourage the rapid development of policies and guidelines on the subject to support the efficient adoption of telemedicine. It is appreciable that the initial step taken by the Indian Government by framing Telemedicine Practice Guidelines, 2020 is appreciable but, government should come up with further amendments to this guideline to highlight the flaws and encourage the translation of enumerated benefits from paper to the public. By embracing telemedicine, both service providers and users stand to benefit significantly, and thus begin the transformation of public health care in India. Also, for the betterment of the quality of human life, Government should bring strict regulations/ rules so that the private healthcare providers take this option seriously and provide extensive services for the unprivileged sector of the society without looking at the profitability of health care industry.