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Review Article

Telemedicine and Impact on Health Delivery during COVID

Abas Khan[1] and Mohammed Sarwar M[2]*

[1]Senior Resident, Department of Hospital Administration, Sher-i-Kashmir Institute of Medical Sciences, Srinagar

[2]Resident Medical Officer, SKIMS

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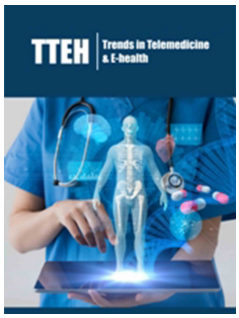

***Corresponding author:** Mohammed Sarwar, Resident Medical Officer, SKIMS, Srinagar, India

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Abstract

The telemedicine practices deliver clinical information and permit consultation and discussion between health-care professionals and patients regardless of where the patient is located, reduce travel expenses, save time, reduce medical costs, and provide easier access for the common man to specialist doctors without disrupting their daily responsibilities. Telemedicine also allows likelihood of better maintenance of records and documentation. In the wake of the ongoing pandemic, telemedicine proves to be an added boon providing the following added benefits to the health-care provider as well as the patients.

Keywords: Telemedicine; Health; Impact

Introduction

According to the American Telemedicine Association, "Telemedicine is the natural evolution of health care in the digital world." Earliest published record of telemedicine is in the first half of the 20th century when ECG was transmitted over telephone lines. In 1959, the doctors at University of Nebraska were the first to record real-time (live) video consultation using interactive telemedicine for neurological examinations. Thereafter, telemedicine came to rescue in disaster management during the 1985 Mexico City earthquake when NASA first used telemedicine services, and in 1988, during the Soviet Armenia earthquake, where the estimated casualties were more than 50,000. In the same vein, the establishment of a commercial space center named Medical Informatics and Technology Applications Consortium at Yale University in the year 1997 by NASA turned out to be an important milestone in private participation in public health management using telemedicine.

Modern Telemedicine

Over the past several decades, the use of wireless broadband technology has become more advanced and cell phone and internet use has become nearly ubiquitous. The people, regardless of their education status, manage to self-learn this form of communication and bring it to use in their day to day lives [1]. Further advancements in technology resulting in transfer of images facilitate sharing of medical data such as X-rays and scans and real-time audio and video consultations. Improvement in internet infrastructure such as bandwidth communication speeds, information storage databases, web service backups, standard formats for data transmission, encryption, password protection, Health Insurance Portability and Accountability Act of 1996 guidelines, digitalizing information, and establishment of electronic medical records made e-health and telemedicine stress-free and cost-effective [2].

Telemedicine in India

Telemedicine practices in India have slowly and steadily gained foothold. The steps taken by ISRO, Department of information technology (DIT), Ministry of External Affairs, Ministry of Health and Family Welfare, and the state governments played a vital role in the development of telemedicine services in India. ISRO (Indian Space Research Organization) was the pioneer of telemedicine in India with a Telemedicine Pilot Project in 2001, linking Chennai's Apollo Hospital with the Apollo Rural Hospital at Aragonda village in the Chittoor district of Andhra Pradesh [3]. To further the cause, in the recent years, the Ministry of Health in the Government of India has taken up projects like Integrated Disease Surveillance Project, National Cancer Network (ONCONET), National Rural Telemedicine Network, National

Medical College Network, and the Digital Medical Library Network. Setting up of standardized telemedicine practice guidelines by the DIT in the Government of India and setting up of a National Telemedicine Task Force by the Health Ministry, in 2005, were some of the other positive steps by the government. International projects such as the Pan-African e Network Project and the SAARC (South Asian Association for Regional Co-operation) Telemedicine Network Projects have also been taken up as an initiative of the External Affairs Ministry, strategically placing Indian telemedicine in the global scenario. A few noteworthy examples of the successfully established telemedicine services in India include Sher-i-Kashmir Institute of medical sciences, mammography services at Sri Ganga Ram Hospital, Delhi; oncology at Regional Cancer Center, Trivandrum; surgical services at Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, and many more. Telemedicine has also helped in shouldering the challenge of health care during massive Indian gatherings, for example, the Government of Uttar Pradesh practices telemedicine during Maha Kumbhamelas through Mobile Telemedicine system vans equipped with videoconferencing systems for visual communication enabling doctors in remote places connect to any of the telemedicine-enabled medical hospital and super specialty hospital for expert opinion [4]. Private sector also showed keen interest in the field. Some of the major Indian private sector players in telemedicine include Narayana Hrudayalaya, Apollo Telemedicine Enterprises, Asia Heart Foundation, Escorts Heart Institute, Amrita Institute of Medical Sciences, and Aravind Eye Care. They function with support from the central and state governments and from organizations such as ISRO who guide them with appropriate and updated technology. In the past few years, ISRO's telemedicine network has come a long way. It has expanded to connect 45 remote and rural hospitals and 15 super specialty hospitals. The remote nodes include the islands of Andaman and Nicobar and Lakshadweep, the hilly regions of Jammu and Kashmir, Medical College hospitals in Orissa, and some of the rural/district hospitals in other states.

Critical Issues in Use of Telemedicine

In spite of all these success stories, there are certain critical issues in use of telemedicine as an effective tool in health-care delivery [5]:

a. Telemedicine is plagued by a question of liability when information provided through telemedicine is misinterpreted.

b. Maintaining the privacy and confidentiality of telemedicine services is crucial to acceptance by consumers and health-care professionals; these providers must adhere to all data privacy and confidentiality guidelines.

c. Protection of information and computer systems is of top priority. Training of technical support staff in information security during the exchange of client information is an important component in fostering proper system use.

d. There is a need to develop process for reimbursement of the services provided through telemedicine by the health-care providers.

e. The technical requirements for a successful telemedicine program include secure, high-speed internet connection, a clinical telemedicine cart to serve as the hub for the interaction, patient access software, and access to IT professionals to set up the program and to be available when the system malfunctions.

f. Specific competencies that must be addressed to run the telemedicine program successfully include training time to develop the technical skills needed to set up and use equipment, professional knowledge, interpersonal skills, documentation, professional development, resource management, practice and administrative issues, and security of health-care information.6

g. Telemedicine visits can require extra time for equipment management and transmittal of prescriptions.

Salient Features of "Telemedicine Practice Guidelines" Proposed by Medical Council of India (2020)

Scope

These guidelines are meant for a Registered Medical Practitioner (RMP) who is enrolled in the State Medical Register or the Indian Medical Register under the Indian Medical Council Act 1956. The guidelines cover norms and standards of the RMP to consult patients via telemedicine [6].

Important exclusions

Digital technology should not be used to conduct surgical or invasive procedures. There is no provision for consultations outside the jurisdiction of India.

Training for telemedicine practice

To enable the RMPs to get familiar with these guidelines as well as with the process and limitations of telemedicine practice:

a. An online program will be developed and made available by the board of Governors in supersession of MCI.

b. All currently registered medical practitioners need to complete a mandatory online course within 3 years of notification of these guidelines to provide consultation via telemedicine.

c. Thereafter, undergoing and qualifying such a course, as prescribed, will be essential prior to registration of a medical practitioner.

Telemedicine applications

Tools for telemedicine can range from telephone, video, devices connected over LAN, WAN, Internet, mobile or landline phones, Chat, WhatsApp, Facebook Messenger, Mobile App, Skype/email/fax, etc.

a. Telemedicine applications can be classified into four basic types, according.

b. Mode of communication,

c. Timing of the information transmitted,

d. Purpose of the consultation

e. Interaction between the individuals involved: RMP-to-patient/caregiver or RMP to RMP.

Elements for telemedicine in India: A Telemedicine consultation should consider these seven elements.

a. Context: Telemedicine should be appropriate and adequate as per context.

b. Identification of RMP and patient: The name, E-mail ids, and address should be known to each other for the sake of transparency.

c. Mode of communication: The strength and weakness of audio, video, text, etc., should be weighed as per context.

d. Consent: Consent can be 'Implied' in case of mentally sound adult who initiates consultation. It can be 'Explicit' when the consultation is initiated by a health worker, RMP, or a caregiver. For an explicit content, patient can send an E-mail, text, or audio/ video message stating his/her intent to the RMP. The RMP must record this in his patient records.

Type of consultation: First consult: When the patient is consulting the RMP (i) for the first time for the current health condition or (ii) has consulted more than 6 months ago for the same health condition, or (iii) the patient has consulted with the RMP earlier, but for a different health condition.

Follow up consult: When the patient consults the same RMP within 6 months of previous in-person consultation and is for the same health condition. However, it will not be regarded as follow-up in the presence of new symptoms that are not in the spectrum of the same health condition or the failure of the RMP to recall the context of previous treatment and advice.

Patient evaluation: Proper care must be taken by RMPs to collect all medical information about patient's condition before making any professional judgment.

Patient management: If the condition is manageable via telemedicine, a professional judgment to provide health education and counseling and to prescribe medicines through a properly signed e-prescription can be given by the RMP.

Specific restrictions

Medicines that can be prescribed via teleconsultation will be as per the notification in consultation with the Central Government from time to time.

The categories of medicines that can be prescribed are:

a. List O: Safe to be prescribed through any mode of teleconsultation. They would comprise of 'over the counter' medicines.

b. List A: Relatively safe medications which can be prescribed during the first consult and are being re prescribed for refill, in case of follow-up.

c. List B: Medication which RMP can prescribe to a patient who is undergoing follow-up consultation in addition to those which have been prescribed during the previous in-person consult for the same medical condition.

d. Prohibited list: These medicines have a high potential of abuse. These include medicines listed in Schedule X of Drug and Cosmetic Act and Rules or any Narcotic and Psychotropic substance listed in the Narcotic Drugs and Psychotropic Substance.

Fee

The Fee for telemedicine consultation can be levied, and a receipt/invoice may be given to the patient.

Telemedicine during COVID Pandemic

In today's times, when the world is facing the biggest ever pandemic of Covid-19, the affliction of which is highly contagious and exponentially increasing numbers [7] of cases worldwide poses unprecedented challenge to even the world's best health-care systems. The World Health Organization recommends a doctor–population ratio of 1:1000 in India, while the current doctor population ratio is only 0.62:1000. This poor doctor–population ratio becomes even more daunting in the wake of COVID-19 outbreak. India, till now, there was no legislation or guidelines on the practice of telemedicine and the gaps in legislation and the uncertainty of rules posed a risk for both the doctors and their patients. However, in view of COVID-19 outbreak, the topic of telemedicine has suddenly taken a front seat.

Benefits of Telemedicine in COVID-19 Pandemic

The telemedicine practices deliver clinical information and permit consultation and discussion between health-care professionals and patients regardless of where the patient is located, reduce travel expenses, save time, reduce medical costs, and provide easier access for the common man to specialist doctors without disrupting their daily responsibilities. Telemedicine also allows likelihood of better maintenance of records and documentation [8]. In the wake of the ongoing pandemic, telemedicine proves to be an added boon providing the following added benefits to the health-care provider as well as the patients:

a. Telemedicine can be used for ongoing management of chronic diseases such as bronchial asthma, hypertension, and diabetes mellitus, particularly during a time when social distancing is encouraged. Individuals with these conditions are particularly susceptible to COVID-19, and medication compliance and disease optimization are important ways to mitigate severity. Telemedicine can serve as a safe and effective alternative to in-person care. A 2015 Cochrane systematic review examined the impact of telehealth involving remote monitoring or videoconferencing compared with in-person or telephone visits for chronic conditions including diabetes and congestive heart failure and found similar health outcomes in both.

b. Telemedicine can also be used for providing psychological support to patients and their family members without getting exposed to the infection.

c. During COVID-19 pandemic, telemedicine can also help in reducing the burden on the tertiary hospitals by providing diagnosis and treatment to patients in their own geographical location and reducing chances of patient's exposure due to hospital visits.

d. Telemedicine can also help in providing training to the care providers of sick and disabled children and elderly.

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