

## Digital Health

## Benefits of Telemedicine: How Telemedicine is useful to Patients, Doctors & Healthcare Administrators?

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Telemedicine is a relatively new science that allows health care professionals to listen to the patients stories and to evaluate, diagnose and treat them using telecommunications technology. Coincidentally, this science developed when it was most needed, the COVID-19 pandemic. Because of this necessity, even those who are not tech-savvy, have embraced it or at least have accepted it. Here, I am going to discuss its benefits to various stake holders in health care delivery system.

### Benefits to Patients

- Telemedicine visits save time as an average time of 2 hours are needed for an in-person visit (combined travel, clinic wait and physician time) compared to 15 minutes (combined waiting and physician time).
- No need to make travel arrangements.
- Confidence and convenience equal to that of a home visit by a doctor.
- Prompt availability of a doctor to match the patient's schedule on a workday, out of hours or even weekends.
- Automated remote monitoring of vital signs and medical conditions are now possible.
- Improved engagement and focus between a patient and a doctor.
- Availability of a doctor outside the geographical region of the patient.
- Formation of a Medical Board (often called a Multi-Disciplinary Clinic in the UK) of different doctors in various locations is now possible in a short time and at less cost.
- Prevention of the risk of cross-infection, both receiving or transmitting infection during the journey to/from the clinic and at the clinic,

COVID-19 epidemic being one example, others being seasonal flu and skin infections.

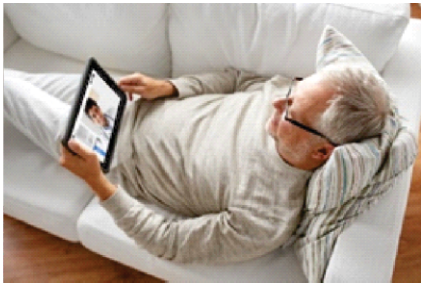
- Teleconsultations are often less costly to the patient, and most certainly where one involves travelling out of a city or country. On average, elective Teleconsultations would cost a hospital 30% less than in-person visits.
- Electronic Records can be maintained by uploading files or taking photos of lab reports, X-rays and uploading them to the Patient-dash-board of the Telemedicine software.
- Patient satisfaction is often improved as the doctor is promptly available, and early intervention is possible.
- Better healthcare as early intervention is possible, such as picking up a suspicious skin mole early before the potentially cancerous lesion spreads further.
- A reduced number of hospital visits are needed, thus less loss of work or business commitments.
- Privacy of the Teleconsultation visits - a desirable attribute, for instance, when some patients, due to their social position, delay their psychiatric check-up to avoid being seen at the psychiatric clinic waiting room.
- The overall effect on the patient using the service is to lower the logistical, disease, financial and emotional burdens. Several international surveys have indicated that on average, 85% of patients who have used Teleconsultation once would opt for it again.

### Benefits to Healthcare Providers (Doctors, Nurses, Therapists)

- Widening of outreach without leaving their phy-

sical location thus available to patients far from clinics in the same city, other cities, or even other countries.

- Less building or staffing requirements to widen clinic practice needed for Telemedicine practice, thus less cost required to set up Telemedicine practice.
- More satisfaction to the patient as doctor/ health-care provider being more readily available.
- Improves Clinical workflow while enhancing practice efficiency
- Reduces patient no-shows or failure to attend by more than 50% reported by several independent surveys.
- The prevention of contagious infections such as seasonal flu. Telemedicine has become the preferable means of carrying out a consultation by both patient and doctor during the COVID-19 epidemic where a significant number of health-care professionals lost lives due to catching the virus by providing in-person medical practice.
- Better management of the patient's health records, vital sign values, important clinical findings captured on images taken by the patient
- The overall effect is higher patient satisfaction, enhanced workflow efficiency, increased practice revenue and reduced clinic overhead.



### Benefits to the Healthcare System, Institution or Government

**Telemedicine can improve the overall standard of care.** A national study in the UK suggested that Telehealth based healthcare delivery system is capable of following attributes:

- Accident and emergency visits reduced by 15%
- Emergency admissions reduced by 20%
- Elective admissions reduced by 14%
- Bed days reduced by 14% reduction
- Tariff costs reduced by 8% reduction

We also learnt that 45% reduction of mortality rates which most likely related to timely intervention and facility of remote monitoring.<sup>1</sup>

**Telemedicine improves Clinical Governance.** A prominent Australian study reports that Telehealth incorporation into the healthcare delivery service

improves clinical governance. Telehealth was shown to be enabling improved quality, integration, and implementation of evidence-based care alongside assisting as a significant support for the rural health workforce.

It was reported that Telehealth has been beneficial by reducing adverse events, improving health outcomes, offering an increased patient choice of service delivery, and improving access to services for rural areas and home care.<sup>2</sup>

**Telemedicine improves Healthcare economy.** Using Telemedicine based healthcare delivery optimises the healthcare economy and improves the cost efficiency of a healthcare delivery setup. A well-known study suggested that the use of Telemedicine for retinal screening was beneficial and cost-effective for Diabetes management, with an incremental cost-effectiveness ratio between \$113.48/quality-adjusted life year (QALY) and \$3,328.46/QALY (adjusted to 2017 inflation rate). Similarly, the use of telemonitoring and telephone reminders was cost-effective in diabetes management.<sup>3</sup>

Telemedicine improves Electronic Medical Records management. Taking up Telemedicine has been demonstrated to improve record-keeping when compared with in-person visits.

**Telemedicine reduces disease burden in the community.** Chronic diseases present a significant demand on the healthcare system of any institution or government due to their demand on outpatient visits, in-patient beds occupancy and load on lab work.

An important study has demonstrated that the deployment of Telemedicine for managing "Chronic Cardiac Failure, COPD and Cerebro-vascular events" reported empirically that in these three medical conditions, Telemedicine has the potential for addressing problems of patient access to medical advice, standard of care, and costs involved in the healthcare.<sup>4</sup>

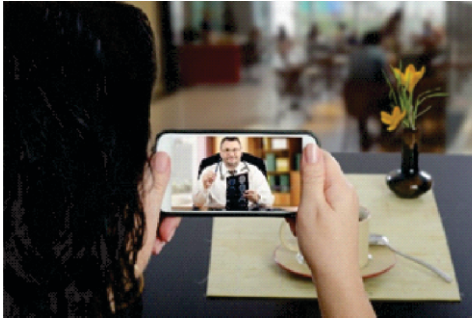
**Telemedicine can facilitate Governments in managing Epidemics in a better way.** Telemedicine deployment in epidemic situations has a significant tendency to impact in improving control of disease, epidemiological investigations, and management of clinical cases. Teleconsultations would help to assess the disease burden, evaluate, and categorise individuals making it feasible for dispatching the necessary help and instructing isolation wherever necessary.

The advantage of using Telemedicine as a tool expands to protecting doctors as well as patients from catching or transmitting an infectious airborne disease pathogen.<sup>5</sup>

**Telemedicine makes it possible for Governments to study disease pattern and modify or create health policies.** The use of Telemedicine in epidemic situations has a high potential for improving epide-

miological investigations, disease control, and clinical case management.

Teleconsultations, correctly documented, can facilitate the assessment of the disease burden, evaluate, and categorise individuals making it feasible for dispatching the necessary help and provide rapid isolation instructions wherever necessary.



### Benefits to the environment and community

**Telemedicine makes Healthcare Greener.** In-person visits have reduced the need for patient transport, paperwork production and transmission and consumption of in-office services by both patients and clinician, which continues to pollute the environment and enlarging the carbon footprint.

By deploying Telemedicine and health information technology, we reduce time and energy of the carer, the raw materials used (such as paper and plastic), along with the fuel consumption needed for travelling thus minimising the carbon footprint caused by the healthcare industry.<sup>6</sup>

**Telemedicine democratizes the Healthcare Service for Consumers (Patients).** The development of a Telemedicine culture, where a patient is engaged in a better way through live and personalised one-to-one online consultation can result in more patients being given better access to medical care and potentially a

better consultation experience. Telemedicine empowers a patient by sharing the responsibility of care and offers an opportunity to question steps of management during a Teleconsultation.

Telemedicine ready patients are offered an online dashboard to add information periodically such as BP, Blood Glucose readings or uploaded ECGs, radiographic or clinical Images. The wealth of healthcare information about oneself available to a patient is recognised to engage a patient better.

The compliance with a treatment plan has been confirmed to be better where a patient is informed and engaged. Telemedicine democratizes a community and overall helps raise the health standard of the public.<sup>7</sup>

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