



TELEMEDICINE

Medical Goldmine or Minefield?

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The use of telemedicine by doctors and patients alike is gradually gaining acceptance in the healthcare landscape. The global telemedicine market has been valued at US\$40 billion in 2018 and is expected to reach US\$148 billion by 2025. Singapore is the only country in Asia with regulated telehealth guidelines and this has led to a thriving start-up ecosystem of digital health providers. Within Singapore, more than twelve telemedicine start-ups operate in accordance with the Ministry of Health clinical and data governance, which ensures that all the practices done in applications are up to professional and ethical standards. More healthcare organisations, including medical practices and third-party providers, are looking towards the adoption of these telemedicine platforms. However, in digital healthcare innovation, there are potential pitfalls and numerous obstacles to adoption.

According to the National Telemedicine Guidelines, telemedicine can be broadly categorised into four domains:¹

1. Tele-collaboration – interactions between (facility-based or mobile) on-site and remote healthcare professionals for clinical purposes. Healthcare professionals are involved at both ends of the interaction and a patient may or may not be involved in the same telemedicine interaction.
2. Tele-treatment – interactions between remote healthcare professionals and patients/caregivers for the purposes of direct clinical care. A patient or caregiver is directly involved at one end of the interaction and this creates a professional-patient relationship.
3. Tele-monitoring – the direct collection of biomedical and other forms of data from patients or caregivers by remote systems, which are used by healthcare professionals for clinical purposes such as vital signs monitoring and home nursing. There may not be a need to create a professional-patient relationship even though the healthcare organisation as a whole might owe a duty of care to the patient.
4. Tele-support – the use of online services for non-clinical (ie, educational and administrative) purposes to support the patient and caregiver.

Different telemedicine apps such as MaNaDr, DoctorAnywhere, MyDoc, HiDoc and Speedoc are popular leading homegrown apps where a patient can contact a local doctor with a few taps. Key features of these apps include appointment creation, video/text consultations, and the prescription of medicine and medical leave. In this article, I shall be highlighting some of the lesser-known but equally unique aspects of several telemedicine services.

Video/text consultations

Most applications like DoctorAnywhere, MaNaDr and MyDoc provide video call platforms on which patients can call a doctor. A simple consultation can be performed with medical advice, medicines and medical certificates subsequently prescribed to the patient. Like many of the other apps, MyDoc recommends the use of its telemedicine feature for 18 common ailments (which include flu, headache, gastroenteritis, etc) and for travel medicine advice. MyDoc clinicians are trained to treat common ailments effectively via the virtual clinic feature. If complicated ailments are detected upon triage, they are referred to MyDoc panel clinics for a physical consultation. MaNaDr, another leading telemedicine provider, also provides a platform for text consultations, similar to WhatsApp or Telegram messaging, without the need for face-to-face video calls. iDOC Clinic has also partnered with Unity Pharmacies to provide in-pharmacy remote video consultations, prior to the prescription of controlled medicines.

In Dr Kenneth Lyen's article published in the January 2019 issue of *SMA News* (<http://bit.ly/365mXii>), he discusses some drawbacks of telemedicine, including the possible overlooking of diagnoses and the inability to use our senses and clinical judgement. Essentially, doctors are limited to patients' own accounts of their

illnesses and are not able to utilise their full faculties for a comprehensive patient assessment. A mild fever could very well be masking sepsis, or acute abdomen or subarachnoid haemorrhage in different patient populations. Holistic care? Highly unlikely – more like a minimalist approach to basic medical care.

Personalised concierge medical services

Speedoc and JagaMe distinguish themselves from other telemedicine applications, through the provision of concierge medical house call and nursing services. It is highly useful for patients who may urgently require medical attention while facing caregiver or mobility issues. Speedoc allows the patient to request for a house call from a Speedoc medical doctor, who is provided with a medical bag, stocked with basic medications and emergency drugs. JagaMe offers caregiving services, nursing procedures and appointment accompaniment services. These apps have improved patients' accessibility to affordable medical and nursing services. Doctors who may not provide round-the-clock medical care may also refer patients to utilise these quality digital healthcare solutions when needed. Regular catheter changes for your bed-bound patients? Who you gonna call?

Marketplace for patients

DoctorAnywhere, one of the leading telemedicine providers in Southeast Asia, also provides an online marketplace where patients can purchase supplements, medical equipment and health screening packages. Other than the nearest hospital or retail pharmacy, clinicians may not know where else to direct patients to purchase supplements or home monitoring medical equipment. A dedicated online marketplace for medical supplies is a valuable resource for doctors to refer patients to. If consultation and prescriptions are required for certain products, the patients are then advised to seek a medical consultation via the DoctorAnywhere application.

Specialist medical care and tele-collaboration

For a consultation fee of S\$120, users of HiDoc are able to consult medical specialists at the Singapore Medical Group via a video call. They may also specify details about their condition and receive a report from the specialist within 24 hours. Users can also schedule in-person consultations via the app. These functions improve accessibility to medical specialist opinions and is a convenient means of communication for patients, primary care providers and specialists. MaNaDr has also recently launched a doctor-to-doctor communication service which may eventually prove to be extremely useful in effective specialist referrals and multidisciplinary management.

Tele-support and education

As opposed to consulting "Dr Google" which often bombards patients with overwhelming volumes of information and frightening diagnoses, the DoctorxDentist website forum allows patients to ask targeted medical questions and seek precise answers from doctors from different specialties. This creates a useful and accurate treasure trove of medical information and advice, which is constantly refreshed and updated for the benefit of patients. Doctors may utilise these forums to properly educate their patients beyond using conventional medical brochures.

LearningIn10 is a free digital library of educational medical video content created in collaboration with SingHealth, Duke-NUS Medical School and Duke University, covering over 300 medical specialties. This digital medical library, which is also available on YouTube, aims to benefit healthcare professionals and members of the public, and consists of education modules that provide an insightful overview of specific medical topics.

Integration of AI

Medgic is a locally developed advanced mobile application that utilises artificial intelligence (AI) to scan photos and suggest dermatological diagnoses. It seeks to detect, appraise and check for dermatological diseases or conditions, analyse skin health and recognise potential skin problems. Although it has

not been approved for making formal diagnoses, it serves as a model for the development of AI in medicine, which may, in the future, assist doctors in clinical diagnosis and decision-making.

Digital security

As with any telemedicine service and electronic medical record, proper documentation, medical indemnity, personal data protection and technical/connectivity issues are imperative to address. A lagging video with poor sound, though annoying, is a minor problem. A lawsuit arising from medical negligence is a larger problem. A catastrophe that may arise is the potential loss of millions from the hacking of thousands of medical records and payment details.

With the overwhelming digitisation of healthcare, it is important that SMA helps doctors and other related medical professionals keep abreast of the digital developments in the healthcare space, through regular *SMA News* articles and SMA seminars. One example would be the recently concluded Annual Medico-Legal Seminar 2019, jointly organised by SMA and the Medico-Legal Society of Singapore, which brought together medical, legal and cybersecurity professionals in a highly educational two-day event. I was delighted to glean many insights into the delivery of digital healthcare and telemedicine through this seminar. ♦

Reference

1. Ministry of Health. *National Telemedicine Guidelines for Singapore*. Available at: <http://bit.ly/33QArGL>.

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