TELEMEDICINE

THE USE OF **TELEMEDICINE** TO IMPROVE PATIENTS WITH DIABETES FOR FOLLOW-UP CARE DURING THE COVID-19 PANDEMIC

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DEFINITION

The word **TELEMEDICINE** was introduced in 1970s and was literally defined as “healing at a distance”(1). In 2007, WHO has adopted the definition and was widely described as a process of delivering the health care services by healthcare professionals where distance is a critical factor using technology devices to provide the information of diagnosis, treatment and recommendations as well as a need or urgency to intervene. Besides, it can be used for the continuation of educations among healthcare providers, research and evaluations.

TELEMEDICINE has four components to intend the benefits of the usage; to provide clinical support, to reduce the geographical problems, to involve the advanced of technologies and to enhance health conditions (2).

TARGETED AUDIENCE

The targeted audience is for the upstream, midstream and downstream levels within the national and sub-national levels on designing telemedicine during the COVID-19 pandemic. It includes Public Health Specialist, Government Policy Makers, Physicians, Healthcare Providers and Health Information Technology Unit.

Background: **THE IMPACT OF COVID-19 TOWARDS DIABETES PATIENTS**

11th March 2020, World Health Organization (WHO) had declared a novel virus, COVID-19, as a global pandemic which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was reported that patients suffering underlying conditions such as hypertension, obesity, diabetes with complications, anxiety and chronic kidney disease were associated with severe COVID-19. The relative risk of death was 26% higher with diabetes with complications (3).

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ISSUE INSIDE

People who are diagnosed with diabetes are prone to have more complication events when infected with COVID-19. It is very important to lower the risk of complications by managing diabetes well.

In response to the COVID-19 pandemic, the Malaysia government had taken action to implement Movement Control Order (MCO) as a series of quarantines starting on 18th March 2020 (4). In a previous study, type 2 diabetes patients showed a deterioration in the glucose level during the quarantine period (5). During the quarantine period, patients' diet might change, less physical activity due to cannot do outdoor activities, more sedentary lifestyle such as spending more time on watching television, calories intake not balance contributes to weight gain and increase sugar food or snacks consumption (5). These can contribute to worsening diabetes conditions. Thus, diabetic patients must get closely follow-up with healthcare providers.

Benefits: **TELEMEDICINE EASES DIABETIC PATIENTS TO COMPLY FOLLOW-UP CARE DURING COVID-19 PANDEMIC**

TELEMEDICINE has many socioeconomic benefits in delivering healthcare services especially to those patients who are in remote areas. Due to mandatory lockdown or quarantine by the local government as a consequence of the COVID-19 pandemic, telemedicine had been introduced as a “home-based” tool to get medical advice from healthcare professionals. Diabetic patients are not advisable to stop taking the medications without acknowledgement of physicians, or else, it can cause diabetes complications. Hence, patients should have continuous stocks of medications. Patients can check HbA1c using a multifunctional blood glucose test and do it at home, and report the readings during the telemedicine consultation with healthcare providers.

The telemedicine application had shown improvement in patients with diabetic retinopathy (6). Physicians can consult based on the latest HbA1c results at home and might change the medications if necessary.

After consultation via telemedicine, the medications can be prescribed and delivered to patients’ house. Patients do not have to go to the hospitals and it will save spending time.

It is very important to include health educations, dietary advice, exercises recommendations and medications adherence during telemedicine. It is known that telemedicine is a supportive technology for outpatients’ management during the mandatory lockdown or quarantine during the COVID-19 pandemic.

Current Issue: CHALLENGES IN TELEMEDICINE FOR FOLLOW-UP CARE

ADVANCE TECHNOLOGY has focused on telemedicine for some time. It is a service that can help to improve health and patients’ lives. In 2020, it was recorded that 886,138 diabetic patient’s follow-ups in government health settings (7). Before the pandemic, patients came to see healthcare providers physically to follow up for every 3 to 6 months. Due to the pandemic, it is very difficult for patients to go out and it will cause the long queue to see healthcare providers. In a recent study, the number of outpatients’ visits had reduced to more than 50% during the COVID-19 pandemic (8). The usage of telemedicine is at infancy stage, thus most of healthcare providers are not expert in using it and they need helps from the experts such as Information Technology (IT) technicians.

Current Issue

Physicians perceptions towards TELEMEDICINE

Even though there are many benefits of using telemedicine, usage is not widely being used. The perception of physicians towards telemedicine is not satisfied. It was thought that up to 30% of patients only can get benefits from telemedicine (8). On top of that, the telemedicine implementation causes big data flows which required continuous maintenance. The data storage needs to be securely kept and monitored by IT expertise. Besides, the internet speed in the country is not widely covered especially in rural areas. It might be due to the location is not the telecommunications target market (9).

RECOMMENDED ACTIONS AND POTENTIAL NEXT PLANS

Patient Centricity

The implementation of telemedicine must be aligned with the health objectives and goals. This will require steps in ensuring patients' accessibility and sustainability towards telemedicine services. It includes the continuation and medical monitoring from the healthcare providers (10).

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Promote the use of telemedicine for health

Increasing the awareness of the benefits of telemedicine brings pragmatic acceptance among healthcare providers and patients. Strategically to promote the benefits of telemedicine as digital goods to help patients to improve health and to ensure no one is left behind. Telemedicine can be marketed by updating the hospital or clinic websites, notifying patients via message or email and promoting in social media.

The responsibility of Information Communications Technology (ICT) to set up the telemedicine

Telemedicine is a part of the healthcare system and the services are reimbursed by a medical team. ICT experts have to establish technical services following the telemedicine goals. It is important to develop technical support for the service to ensure the process of telemedicine can work efficiently. ICT is responsible for the health data to be kept in Electronic Health Record (EHR) or cloud in purpose to available for other healthcare providers to access remotely (13).

TELEMEDICINE allows us to connect a patient to a doctor and it allows us to erase time and distance

Anonymous

The involvement of multisectoral and multidisciplinary

The Malaysian Investment Development Authority (MIDA) is one of the agencies that give continuous support of telemedicine by engaging the relevant government ministries, encouraging new and existing health services of healthcare providers, and utilising the technology and expertise (11). In line with the technological advancement and challenges with developing countries, the attitudes and perceptions towards telemedicine shall be in a positive direction. The public and private health collaboration can share the expertise and related knowledge (10). Furthermore, the involvement of health and non-health disciplines make the telemedicine service be more effective in the long term.

Strengthening the data security

Government should play an important role to include a strict project for telemedicine. The digital transformation needs huge data storage and health data through the mobile phone, computers or tablets. Patients also need wireless and public networks for telemedicine to work. Hence, the government should ensure that internet connectivity is widely available for patients to access telemedicine.

Patients' information and privacy issues have to be securely kept to avoid assuage fears and less confidence. The security strategies need to stress the data be ethical, confidential, integrity, transparency and sustainable in line with the privacy regulations (12). The government must regulate the comprehensive guidelines for telemedicine nationally and legislation comprising access and liability shall be instituted. Building trust and ensuring good quality data are part of implementing telemedicine effectively.

Involvement of Strong Clinical Team for Diabetes Care Follow-up

Diabetes patients have the risk of heart complications, kidney disease, glaucoma, nerve damage and leg amputations. Healthcare providers have the responsibility in ensuring patients can receive proper consultation, clinical and physical examinations, educate patients in self-management to adhere to the medications and dietary recommendations, as well as to improve patients' quality of life and adopt better lifestyle choices (14).

Understanding the importance of following up is a vital instrument in ensuring patients can get meaningful positive impact. Despite physicians providing medical prescriptions, dietitians have to provide medical nutrition therapy to patients and the dietary recommendations might change in every follow-up. Longer follow-up is needed to analyze the dietary pattern and understand the problems in adopting a better lifestyle (15). Continuous education programs from nurses and diabetic educators are also important in making sure patients are on the right track. Medical specialists such as ophthalmologists, endocrinologists and neurologists are needed when diabetes complications happen and further consultations shall be given through telemedicine. In other to make sure the interventions have positive outcomes; telemedicine shall be implemented efficiently even during the COVID-19 pandemic.

"Evidence indicates that TELEMEDICINE can improve diabetes outcomes!"

Galiero et al. (2020)

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