

Project Title

Use of Video Consultation Skyrockets in Public Healthcare

Organisation(s) Involved

National Skin Centre, National Heart Centre Singapore, National University Hospital,
SingHealth

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Operations, Healthcare Technology

Aims

This article takes a look at the use cases and statistics of Video Consultation at the various healthcare clusters.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

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Project Category

Technology

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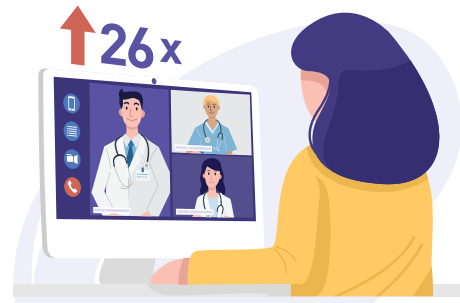
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Use of Video Consultation Skyrockets in Public Healthcare



At a Glance

Tele-consultations with patients comfortably participating from their homes are no longer uncommon. Use of **Video Consultation (VC)** in Singapore's public healthcare has skyrocketed, largely accelerated by the Covid-19 pandemic. **The number of monthly VC sessions in the sector grew by more than 26 times in the last one and a half years.** In this article, we take a look at the VC journey.



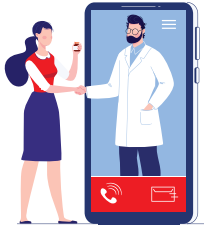
Introduction

Telehealth was first introduced into Singapore's public healthcare landscape more than a decade ago. However, VC only began to gain more traction in 2017 when IHiS developed the national **Smart Health Video Consultation** programme to pilot new VC use cases at **Public Healthcare Institutions (PHIs)**. Apart from providing a stable platform with economies of scale, the **Smart Health VC programme enabled sharing of learnings and best practices across PHIs for use cases such as psychiatry/psychology, dermatology, cardiology, and chronic diseases.** This improved the delivery of patient care.



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2,000 Unique Patients in first three years



As VC is mostly suitable for patients who are stable and do not require a physical examination, the programme began with a few pilot use cases for evaluation.

Approximately 2,000 unique patients adopted VC in the first three years. In the initial stage of the programme, a fair number of patients still preferred in-person consultations. In a compact city with medical services never too far away, and a prevailing culture of face-to-face interaction especially among the older

generation, there was no real impetus for patients to give telehealth a shot.

All that changed when Covid-19 hit our shores.

Since then, the use of VC has skyrocketed, with more than **56,000 unique patients using the service in the last 1.5 years**, and the number of different VC programmes (*i.e. how VC is being used to care for specific patient cohorts at specific care settings*) growing by 1,000%.

>56,000 Unique Patients in the last 1.5 years



>11,000 VC Sessions in May 2021



Twenty four, or almost all, Public Healthcare Institutions are now using VC (*as compared to only 12 in 2019*), and **in May 2021 alone, there were more than 11,000 VC sessions.** Since 2019, the overall number of institutions using VC, including Intermediate and Long-Term Care Services and Community Care Partners, have grown by about 140%. **More tellingly, in the same period of time, the number of medical, surgical, allied health and other specialties combined has also grown significantly by 160%, with practically all specialties (60) using video consultation now.**

Benefits of Telehealth Video Consultation

With VC, patients save on transportation costs and travelling time, while being able to keep their appointments more private. They are also potentially more motivated to see a doctor in a timelier fashion, and “turn up” for their appointment. Healthcare staff save on time too, as the no-show rate is significantly lower in teleconsultations. Community case partners supported by hospitals such as nursing homes also save on transportation costs whenever they use VC, as opposed to transporting a patient to and fro a hospital.

This was exemplified by the **Institute of Mental Health (IMH)**, which was among the first to mainstream VC in 2020. Prior to that, nursing home and psychiatric residential home staff had to bring patients to-and-fro IMH. After VC was implemented, it saved staff and institutions plenty of time and money from not having to travel and charter transport. Patients’ default rate have also been reduced significantly from about 20% for traditional face-to-face consult to virtually zero for VC. With prompt and regular consults with the same designated IMH doctors, patients display better compliance to their treatment plan, which in turn reduces their risk of relapse and readmission to IMH, as well as length of stay. IMH has also extended VC to individual patients to allow greater accessibility to care amongst the whole IMH population, whom may have travel limitation or work commitment.

These benefits have always been quite apparent, but they became crystal clear with the pandemic. With unnecessary travelling discouraged and work-from-home implemented, **see-a-doctor-from-home while avoiding infection risk in a hospital or polyclinic quickly became popular;** in fact, in Dec 2020’s issue of HealthTech Connect, we had reported on how in April 2020 alone, there was an extraordinary increase of over 6,000% the usual average of medication deliveries.

Let’s take a further look at some use cases and statistics of VC at various clusters.



National Skin Centre

The **National Skin Centre (NSC)** started providing teleconsultation services for their patients in April 2020. **Their main considerations were increased convenience for their patients, as well as increased safety for them and staff due to fewer people on premise.**

The workflow is as such:



Suitable patients identified by the attending doctor or nursing team are shortlisted for teleconsultation. Examples of some exclusion criteria are those with complex/extensive skin conditions, or who require nurse/doctor-administered treatment in the clinic.



Prior to teleconsultation, **patients send photos of their skin condition via email**, which are then uploaded into the EMR.



Mode of teleconsultation for follow-up patients may be phone or video. For new patients, video is used.



Patient is registered in the EMR on the day of teleconsultation, so that the doctor can record clinical notes and create relevant orders.



Post-teleconsult, the centre contacts the patient to **arrange for billing, appointment scheduling for any follow-up, and medication delivery.**

A pilot of 30 new patients revealed that there was a high diagnostic concordance of 86.7% between teleconsultation and face-to-face consultation. This suggests that teleconsultation can be useful for follow-up patients who bring up a new dermatological issue during the session, as well as for new patients with simple conditions.



There was also a high level of satisfaction by both doctors and patients, with **more than 88% of doctors and 82% of patients surveyed in April 2020 reporting that they were satisfied/highly satisfied with the service.** Based on its good outcomes, this teleconsultation use case has obtained in-principle approval for mainstreaming by the national Telehealth Implementation Workgroup, and is undergoing formal MOH approval process. Meanwhile, the patient numbers are expected to progressively go higher with more familiarity. As such, NSC intends to progressively increase its teleconsultation load by raising awareness of this service to their patients, and actively offering it as an option to suitable ones for future appointments.



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National Heart Centre Singapore

The **National Heart Centre Singapore (NHCS)** started providing VC services in Feb 2020 and saw increased uptake when Covid-19 restrictions started in Apr 2020. **Between Apr to Dec 2020, 931 VC sessions were conducted.**

Their exclusion criteria for patient suitability for VC are:



New Referrals



High Cardiac Risk Patients



No Face-to-Face Consult in the Last One Year



Communication Issues

The results were positive. **More than 90% of patients felt that VC improved their access to healthcare**, and more than 90% also trusted the quality of service. **Overall, 93% were satisfied with the experience.**



A clinical safety audit of all 931 cases showed that only 2 patients, or 0.2% of cases, had unscheduled readmissions to the hospital within 30 days.

An audit established that these two cases could not have been reasonably prevented even with a physical consultation. **This metric demonstrates appropriate patient selection for teleconsultation, thereby ensuring robust clinical safety standards.**

The analysis also showed that the no-show rate of 7.3% for VC was lower than the 14.2% no show rate of face-to-face consultation. This translates into **institutional time savings of a few hours a day, or hundreds of hours a year**, depending on the number of patients. **Patients also saved an average of \$34 - \$36 by using VC over face-to-face consultation.**

SingHealth Polyclinics

In July 2020, **SingHealth Polyclinics (SHP)** rolled out VC for patients with chronic diseases such as diabetes and hypertension at all eight of its polyclinics. From then to July 2021, **more than 7,000 VC sessions were conducted**, with encouraging increase in the number of VC sessions monthly.

>7,000
VC Sessions conducted
from Jul 20 - Jul 21



Based on feedback from 409 patients between May and July 2021, **93% had sufficient information and guidance provided before the VC session. 95% found the arrangement of appointments to be convenient.** Another survey earlier in the year showed that 81% reported that they saved at least one hour from not having to travel to the polyclinic, which helps to save cost for patients as well. 96% would likely use teleconsultation in future, and 92% believed that the experience was comparable to a face-to-face consultation.



Evaluation of clinical effectiveness of VC showed favourable outcomes. Riding on the momentum, SHP intends to widen the application of VC to other chronic diseases, such as asthma, stroke and chronic kidney disease. To optimise resources, they are exploring setting up a centralised **“Telemedicine Hub”**, which will operate from a single location to serve all SHP patients.

National University Hospital, Division of Rheumatology

Part from VC, phone consultation is also gaining traction with providers and patients. A team from the **National University Hospital (NUH)** piloted a gout **Virtual Monitoring Clinic (VMC)** for patients with gout in 2016, so that patients could follow up on their conditions regularly via phone consultation and in a timelier fashion with healthcare staff. NUH also collaborated with 12



polyclinics across Singapore such that gout patients can visit these nearby polyclinics for blood tests if necessary. These not only **helped patients to shorten the overall treatment time**, but it also **saved them up to 60% of their medical expenses**.



Gout VMC, which officially started in 2017, saw about 100 gout patients completing the programme in the next

three years, with **more than 460 physical visits saved**. Clinical results were also positive, with the average time required for patients to reach back to the normal level of uric acid levels reduced from 243 days to 155 days (*a reduction of 12.5 weeks*).

460 physical visits saved



The results for the proof-of-concept study were positive, and the team concluded that **phone consultation for gout care is a safe intervention, with flares able to be managed appropriately and adverse drug reactions detected**.



Healthcare staff and patients were also satisfied with the service. Based on its good outcomes, this phone consultation use case has obtained in-principle approval for mainstreaming by the national Telehealth Implementation Workgroup, and is undergoing formal MOH approval process. Meanwhile, **NUH is working to expand gout VMC to other disciplines such as nephrology and general medicine**.

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While teleconsultation (via video or phone) is the most well-known modality of Telehealth, there are several other modalities, such as **Vital Signs Monitoring (VSM)**. Recent examples include the massive remote VSM operations that were set up at the Community Care Facilities (covered in April 2020's issue of HealthTech Connect), and Primary Tech-Enhanced Care (blood pressure monitoring, covered in Issue 1 of 2021's HealthTech Connect).



SingHealth Community Nurse Post



Mdm Yeong Sam Mooi, a resident enrolled in VSM Pilot, was taught by Nurse Clinician Ong Li Jiao and IHIS Project Manager Christophe Ng, on the usage of VSM Kiosk.

An even more recent example is the deployment of VSM earlier this year at SingHealth's **Community Nurse Posts (CNP)** located at **Senior Activity Centres (SAC)**, to enable elderly residents with hypertension to self-measure their **blood pressure (BP)** regularly, and take charge of their health conditions. Recognising that these seniors can be empowered to measure and manage their BP with guided messages, **SingHealth Community Nurses have introduced VSM Kiosks at 20 out of the 68 CNPs by end of June 2021.**



The workflow is as such:



SingHealth Community Nurses would **first identify suitable residents with hypertension or suspected hypertension** under their care, and coach them on how to manage their health conditions and self-measure their BP at the VSM Kiosk.



Nurses would also **educate residents on abnormal symptoms to look out for and to proactively seek help if required**. Residents would then scan their IC and measure their BP at the kiosk weekly.



The kiosk, equipped with a blood pressure monitor connected to an iPad running the **VSM Platform (Health Discovery Plus)**, will inform these seniors if their BP readings are low, normal or high, and advise the next steps to take.



If there are continuous abnormal readings, **HD+ Dashboard (developed by IHIS)**, would trigger threshold alerts to the nurses for timely intervention.



The **BP readings are also displayed real-time in SingHealth's EMR** to enable nurses to better manage the residents' care, enable care continuity and facilitate information sharing with other care providers.

Between Feb to Jun 2021, 150 residents have been enrolled. Out of 33 residents who responded to a survey, **73% felt that VSM kiosks are useful to help them better manage their hypertension**, while **64% would continue to measure their blood pressure using the kiosks**. An analysis of 53 seniors enrolled in the pilot found that all of them achieved an average 3% reduction in their systolic BP one month after weekly self-monitoring.



CONTACT

If you would like to explore introducing telehealth for your patients, please contact your respective CIO Office colleagues.