Media Release

SCALING OF TELE-HEALTH FOR HYPERTENSION ACROSS THREE HEALTHCARE CLUSTERS

More hypertensive patients to benefit from home-based care during COVID-19

Tuesday, 3 November 2020 – A tele-health pilot for patients with high blood pressure (BP) which was jointly launched by the MOHT and Ang Mo Kio Polyclinic (AMKP) in 2018, has shown positive preliminary clinical outcomes, improved adherence to home monitoring and enhanced patient experience. It will now be progressively scaled to all three polyclinic clusters in Singapore.

The Primary Tech-Enhanced Care (PTEC) Home BP management programme is a partnership between MOH Office for Healthcare Transformation (MOHT), the National Healthcare Group Polyclinics (NHGP), SingHealth Polyclinics (SHP), National University Polyclinics (NUP) and Integrated Health Information Systems (IHiS). With the conclusion of a successful pilot at NHGP's AMKP in 2019, the PTEC Home BP Management programme is now being scaled to SHP and will be extended to NUP in the first half of next year.

The programme will benefit patients with high blood pressure and can facilitate better control of their blood pressure between visits to see their family physician. PTEC home BP management will also be more convenient as it may lead to less clinic visits needed for BP monitoring.

Said Professor Gerald Koh Choon Huat, Clinical Director (Future Primary Care), MOHT: "Even as the COVID-19 situation appears to have eased somewhat in Singapore, it is still advisable for patients, especially the elderly and immune-compromised, to observe safe distancing and avoid unnecessary crowds to minimise the risk of infection. Remote monitoring and tele-consultation can substitute some clinic visits and provide convenience to patients while ensuring safety and quality care."

Results from PTEC Hypertension (HT) Pilot

The six-month pilot from September 2018 to March 2019 studied two groups of 120 patients each from AMKP – with the Tele-monitoring Intervention (TI) group receiving additional Tele-BP monitoring intervention, and Usual Care (UC) group receiving usual care. The study endeavored to understand the health outcomes, adherence to home monitoring and patient and clinician satisfaction, with the overall goal being to achieve and maintain optimal BP among hypertensive patients.

During the pilot, TI patients were given a Bluetooth-enabled home BP device to monitor their BP at least once weekly. The readings were automatically transmitted through a mobile app from the patient's phone to a polyclinic care team. These patients were then followed-up on tele-consultations which could involve adjustments to their medications and via Chatbot messages.

The results indicated that mean BP levels of the patients on telemonitoring showed greater improvement over six months as compared to those on usual care. The greatest benefit was seen in patients on telemonitoring who had poorly controlled hypertension at the start of the pilot. Systolic BP[1] measurements improved by at least 10mmHg in 42% of these patients at the end of six months, while diastolic BP[2] improved by a similar degree in 32% of patients. The percentage of patients with uncontrolled BP in the telemonitoring group dropped by 23.5%. Even though the baseline percentage of poorly controlled BP in the TI group was higher, among those who had uncontrolled BP at baseline, 60.5% had controlled BP by 6 months in the TI group compared to 52.6% in the UC group.

Said Dr Valerie Teo, Family Physician, Consultant and Deputy Head, Ang Mo Kio Polyclinic: "The pilot results at AMKP show that PTEC is beneficial for patients with hypertension and especially those who have uncontrolled hypertension. With regular monitoring of their own BP levels, patients are empowered to take ownership of their own conditions. They can also continue to receive timely support from a dedicated care team with whom they have built a trusted relationship."

Patients on the PTEC pilot reported that the programme has increased their understanding of BP management and gave them confidence to self-manage their condition. They also found it convenient and saved them time as they had to visit the polyclinic less frequently.

PTEC Empowers Patients to Care for Themselves

[3]Hypertension affects one in four Singaporeans aged 30 years or older, and up to 50% have uncontrolled BP. Patients with uncontrolled BP are at risk of complications such as stroke, coronary heart disease, heart failure and chronic kidney disease.

PTEC emphasises easy-to-use technology. The BP device is Bluetooth-enabled and automatically transmits the readings to the patients' polyclinic care team through a Vital Signs Monitoring (VSM) app supported by IHiS. If their BP levels are not well-controlled, they will receive Chatbot alerts – co-developed with NHGP and based on Singapore's clinical practice guidelines for hypertension – and tips on BP control. If needed, additional tele-consultation advice is provided by their nurse and their medication may be adjusted.

To help the care team to maintain better oversight of its patients' progress, PTEC uses a dashboard that consolidates patients' BP readings and prioritises daily tasks for the care team. It also flags out patients with anomalies in their readings so that the care team can take action between clinic visits.

Tele-health as a new normal for chronic disease management

Said A/Professor Chong Phui-Nah, Chief Executive Officer, NHGP: "NHGP is proud to be a part of this important national initiative, from partnering MOHT to develop the BP home monitoring programme to seeing it becoming a relevant and timely resource especially so during the COVID-19

[1] Systolic BP represents the pressure while the heart is beating. A normal systolic BP is 140mmHg or below.
[2] Diastolic BP represents the pressure when the heart is resting between beats. A normal diastolic BP is between 50mmHg and 90mmHg.
[3] MOH (2017), Retrieved from https://www.moh.gov.sg/docs/librariesprovider4/guidelines/cpg_hypertension-booklet---nov-2017.pdf

pandemic. While tele-health is not new, this pandemic has accelerated the adoption of technology much faster among both healthcare providers and patients. It has spurred healthcare providers to innovate and create solutions to continue providing care for patients. The pandemic has provided a nudge towards greater acceptance of simple-to-use technology for patients to monitor their own condition and engage with providers."

The PTEC team cites time savings and more regular check-ins between consultations, timely medical interventions, and more accurate and reflective chronic care management as benefits from transitioning to tele-health as a new normal for chronic care management.

Said Professor Tan Chorh Chuan, Executive Director, MOHT: "Poorly controlled high blood pressure can lead to serious problems such as stroke. The good news is there are many effective medications that can control hypertension but patients have to monitor their BP regularly and adhere to their treatment. PTEC makes it convenient for patients to do so. It helps patients to learn how to manage their conditions better and with confidence, as they have the support of their care team. Telehealth and technology-enabled home management are critical enablers. If we are able to scale these successfully across the primary care sector, it would benefit a significant number of patients and reduce their risk of serious complications"

The Home BP Monitoring programme is currently available in Ang Mo Kio Polyclinic and Bedok Polyclinic and will be available in Clementi Polyclinic first half of next year.

"Patients who enrol in PTEC will be empowered to be more active in the management of their hypertension. We feel confident that our patients and doctors alike can benefit from this programme." said Dr Adrian Ee, Chief Executive Officer, SHP

Said Dr Lew Yii Jen, Chief Executive Officer, NUP: "We are excited to be part of this initiative, as part of our continuous efforts to deliver quality care that is centred on the patient's needs. When we roll out this programme to our patients, we hope that this will also enable them to self-manage their health better and more easily."

The long-term goal for PTEC is to test-bed more solutions that will empower and support patients with other chronic conditions such as diabetes.

On enhancing the solution to better support patients, Chua Chee Yong, Head, Emerging Services & Capabilities Group, IHiS, shared "Together with our public healthcare partners, we continuously seek to evolve HealthTech solutions to enhance the patient experience and increase the polyclinics' productivity. For example, the IHiS technology team observed how the care team performed the patient enrolment, and developed a customised Patient Registration Portal to streamline and automate part of the process. The solution was also designed to be intuitive and easy to use, so that patients can provide their vital signs measurements in three simple steps."

On future plans for VSM, he further shared "IHiS is working closely with the public healthcare institutions to roll out more VSM pilots for the management of a range of diseases and conditions, including heart failure post discharge monitoring to evaluate the effectiveness of VSM in delivering better care for different diseases."

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About MOH Office for Healthcare Transformation (MOHT)

MOHT is an agile unit with the mandate to address fundamental and longer-term issues critical for system-level healthcare transformation to meet Singapore's changing demography, and health and disease patterns. MOHT works with partners to identify pilots that support its programmes and complement ongoing work at MOH and clusters / institutions, with each pilot taking a design-centric approach to implementation, involving providers, healthcare professionals, patients and caregivers at all stages of the design of solutions. MOHT adopts a value-based healthcare approach in endeavouring to achieve better health and clinical outcomes. A longer-term and broader perspective is essential in identifying key system-wide changes needed. These encompass shifts in the following three directions: (1) longitudinal, holistic care across persons' entire life course; (2) strengthened focus on wellness and the prevention of chronic disease; and (3) empowerment of individuals and patients for better self-management.

Each collaboration will be staged with rapid build-measure-learn cycles, anchored by enablers such as technology scanning, IT, data analytics, finance and incentive redesign. From these collaborations, MOHT will develop frameworks, methodologies and toolkits to enable effective solutions to be scaled across the wider healthcare system.

For more information, visit www.moht.com.sg.

About National Healthcare Group Polyclinics

National Healthcare Group Polyclinics (NHGP) forms the primary healthcare arm of the National Healthcare Group (NHG). Its six polyclinics serve a significant proportion of the population in the central and northern parts of Singapore.

NHGP provides a comprehensive range of health services for the family, functioning as a one-stop health centre providing treatment for acute medical conditions, management of chronic diseases, women & child health services and dental care. The focus of NHGP's care is on health promotion and disease prevention, early and accurate diagnosis, disease management through physician led team-based care as well as enhancing the capability of Family Medicine through research and teaching.

Through the Family Medicine Academy and the NHG Family Medicine Residency Programme, NHGP plays an integral role in the delivery of primary care training at medical undergraduate and post-graduate levels. With the Primary Care Academy, NHGP provides training to caregivers and other primary care counterparts in the community sector.

More information is available at http://www.nhgp.com.sg

About National University Polyclinics (NUP)

The National University Polyclinics (NUP) provides primary care treatment for acute illnesses, management of chronic diseases, women and child health services and dental care. As part of the National University Health System (NUHS), we collaborate with the hospitals and specialty centres within the NUHS to redefine healthcare.

NUP comprises a network of polyclinics – Bukit Batok, Choa Chu Kang, Clementi, Jurong, Pioneer, Queenstown, and soon to come, Bukit Panjang (2021*), Tengah (2025*) and Yew Tee (2026*). Partnering general practitioners, grassroots, the community and social care partners, we work together to ensure the well-being of the community we serve.

For more information on NUP, visit www.nup.com.sg.

*Estimated date

About SingHealth Polyclinics (SHP)

SingHealth Polyclinics (SHP) practises Family Medicine, providing seamless, patient-centred treatment and preventive healthcare that is affordable and accessible to all through its network of eight polyclinics.

SingHealth Polyclinics is a member of Singapore Health Services (SingHealth) – an Academic Medical Centre offering over 40 clinical specialties through a network of acute hospitals, national specialty centres, community hospitals and polyclinics.

For more information, please visit https://polyclinic.singhealth.com.sg/

About IHiS

IHiS is a multi-award-winning healthcare IT leader that digitises, connects, and analyses Singapore's health ecosystem. Its ultimate aim is to improve the Singapore population's health and health administration by integrating intelligent, highly resilient, and cost effective technologies with process and people.

IHiS played a key role in helping all major public healthcare institutions become amongst the first in Asia Pacific to achieve HIMSS EMRAM Stage 6 and 7, international benchmarks for advanced technology used in patient care.

Transforming healthcare through smart technology, IHiS has garnered more than 80 awards for its innovations. It supports more than 50,000 healthcare users in Singapore's health ecosystem through the application of clinical informatics, computer science, data science, mechatronics, standards based IT that enables information exchange and cross boundary workflows, analysis, statistical and machine learning techniques to discover insights.

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