

Tele-rehab option for physiotherapy to be rolled out at 14 institutions



Chin Tian Loke, 72, a client of TOUCH Home Care using the Smart Health Telerehab system in his house. The model in the program will guide him through the various exercises and a therapist from the Home will monitor his progression. Photo: Najeer Yusof/TODAY

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SINGAPORE — Patients undergoing physiotherapy can soon opt to carry out their rehabilitation activities at home, using wearable sensors to monitor if they are doing it correctly while being filmed on a tablet for a therapist to review the session remotely.

Under a nationwide pilot of tele-rehabilitation involving 14 institutions, this option will be rolled out by the Integrated Health Information Systems (IHIS), the IT arm of the Ministry of Health.

NTUC Health and TOUCH Home Care have already implemented such sessions while various hospitals as well as SPD, an organisation that helps those with physical disabilities, will do so by the end of the year.

Speaking at a media briefing for the Smart Health TeleRehab pilot, National University of Singapore (NUS) Associate Professor Gerald Koh noted that while most rehab patients acknowledged that inpatient rehabilitation was

beneficial, only four in 10 wanted to continue with rehabilitation after they were discharged. The main obstacle they faced was getting from their homes to the rehab centre. "The very reason why (they) needed rehabilitation is the very reason why (they) can't get to the day rehab centre three times a week," Assoc Prof Koh added. Other issues included having no caregiver to accompany them as well as the high-costs involved, such as when hiring private transport.

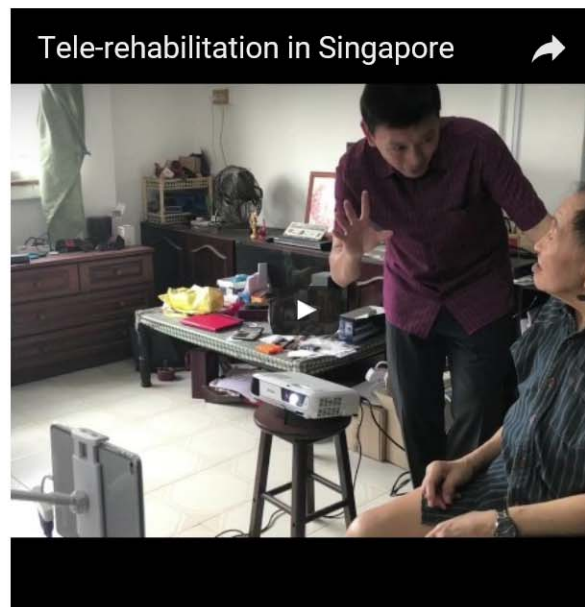
The NUS Department of Electrical and Computer Engineering and the Saw Swee Hock School of Public Health jointly developed the tele-rehab system — said to be the first of its kind — which includes a set-up comprising a tablet, neck and limb motion sensors, and a tablet stand. An app accompanying the system is also available in five languages.

To start the tele-rehab session, the sensors are first strapped onto the patient. After launching the app, the patient can start performing the exercises — as prescribed by their therapists through the app — which will be recorded via the tablet. Each set of exercise comes with video demonstrations, a counter to keep track of the number of repetitions completed, and audio encouragement among other things.

The therapists will receive exercise charts on how their patient performed during the tele-rehab sessions. They are also able to adjust via the app the difficulty levels and repetition of the exercises, for example.

A video conference can be arranged between the patients and their therapists for further assessment.

There were about 53,000 patients who underwent rehabilitation in 2014. Of these, about 65 per cent could benefit from the tele-rehab system. Suitable patients for tele-rehab include those who suffered from stroke, fractures, lower limb joint replacement or amputations, falls and musculoskeletal conditions among others.



In an ongoing trial started in 2014, Assoc Prof Koh found that the physical recovery with tele-rehab is as good as the usual rehabilitation process, which involves only face-to-face sessions with the therapists.

Another study by IHiS and NUS in 2015 also found that institutions can increase its productivity by more than 30 per cent when they adopt tele-rehab systems. For example, a therapist can see up to nine patients a day, up from six, by working remotely.

Due to the small sample size of the trial, the upcoming pilot — expected to involve some 1,000 people undergoing rehab — will be used to gather more data,

The participating institutions would determine the cost of the system. At TOUCH Home Care, each client would pay S\$18 for a session that involves a therapist's assessment while at Ang Mo Kio-Thye Hua Kwan Hospital, the cost will range from S\$3 to S\$50, depending on the amount of subsidies each patient receives. This is relatively cheaper than a session at the centre and patient's home, which cost about S\$80 and S\$160 respectively.

The pilot comes as a national platform for telemedicine was launched last month to have hospitals and other healthcare institutions offer consultations remotely.

Speaking to the media after visiting a patient using the tele-rehab system, Senior Minister of State (Health) Chee Hong Tat said the main hurdle with using remote technology in the healthcare sector was not with the technology, but the need to convince users and healthcare workers on the viability and benefits of the tool.

Apart from providing more convenience to an ageing population that may find it difficult to travel long distances, such remote tools can also improve productivity in the healthcare sector amid a shrinking workforce, he noted.

He added that the Government will be looking closely at how much patients pay for such systems, as these should be cheaper than face-to-face consultations amid the push for step-down care.

Since tele-rehab was introduced at TOUCH Home Care in March, physiotherapist Vivian Lim, 31, said she has been able to see six to seven patients a day, up from five patients which she could previously manage.

Some patients might need a few reminders to remember the steps to log into the system or recognise the logos in the app, she said. The effectiveness of the system also depends on the motivation of the patients, and whether their caregivers are able to help them with it, she added. Reiterating that some patients may still refer face-to-face interaction with their therapists, Ms Lim said: "We are not taking ourselves out of the equation... I think that (this) model of care will supplement and actually enhance recovery."