



Singapore Healthcare Management 2022

“Money No Enough, Manpower No Enough Too”

Turning to robotic service during the COVID-19 pandemic

Ms Yip Shu Min, Ms Trilbie Kwok
SingHealth Community Hospital (SCH)
Ms Emily Lin Pei Yun
Singapore Health Services (SingHealth)

SingHealth Community Hospitals
Bright Vision • Outram • Sengkang



Introduction

What is TEMI?

TEMI is an Artificial Intelligence (AI) powered robot assistant that is being used in hospitals, medical centers, nursing homes and corporate buildings in Asia. Standing at 1m tall and weighing 12kg, this tablet-on-wheels robot is in-built with a 10-inch touchscreen and a speaker. Besides autonomous remote movement, TEMI can also play music and videos.

Background:

While people remain at the vanguard of all healthcare institutions, indigenously produced robots are an important component of the healthcare sector’s modernisation efforts.

Amid the pandemic, remote-controlled robots called “TEMI” were deployed at the SingHealth-managed Community Care Facilities at Singapore Expo and SingHealth Community Hospitals (SCH), in the first of such trials in Singapore.

Initially purposed for conducting teleconsultations to minimise healthcare workers’ face-to-face interactions with COVID patients, the versatile robot has since been used in other innovative ways to care for patients especially as worker shortages are felt across the healthcare sector.

Methodology

How was TEMI deployed and put to work?

With rising COVID-19 cases and urgency to open more wards to house the patients, the team was pressed for time.

The team expedited and scaled up the procurement of 12 TEMI robots purchases. Within a week of receiving TEMI robots, the team installed and deployed 8 TEMI robots to the Sengkang Community Hospital (SKCH) wards.

How TEMI works:

1. Patient presses call-bell for assistance.
2. Nurse activates TEMI to visit the patient.
3. TEMI arrives at patient’s bedside. Nurse checks with patient on his needs through TEMI.
4. Patient’s query is addressed and patient is happy!



Results

Here’s how TEMI has modernised the healthcare environment in SCH:

Enhanced Care Productivity

COVID patients who are clinically well or have mild symptoms and do not require extensive treatment can be attended to by TEMI. This then frees up resources for COVID patients with serious symptoms to receive the urgent medical care they need. After the TEMI rollout, staff time saved by TEMI had resulted in an average increase in daily man-hours by 48.42% achieved without any increase in headcount.

	Before TEMI	After TEMI
Time spent daily on activity	17.45 hours	9 Hours
% time saved daily		48.42%



Teleconsulting

TEMI helps to connect clinicians and pharmacists with their patients for ‘healing at a distance’. Teleconsultations have helped ensure continued access to quality healthcare for patients in SCH while minimizing the risk of exposure for healthcare workers, which has proved invaluable during the pandemic.



Conclusions

The incorporation of robotics into the wider healthcare ecosystem has certainly transformed the way patient care is being delivered in SCH. With the benefits of robotics switched on for all in and out of SCH to see, it is definitely here to stay!

With the landscape increasingly dominated by robotic assistants, in part necessitated by the current harsh realities of rising healthcare costs and manpower crunch and in part by the pandemic, SCH’s business model must continue to evolve.

One such evolution must surely be towards the concept of the Internet of Robotic Things (IoRT), “where intelligent devices can monitor events such as patient fall, gather sensor data from a variety of sources, use local and distributed intelligence to determine a best course of action, and then move remotely to control or manipulate objects in the physical world.” (adapted from ABI Research, 2014). The next project should take TEMI to the next upgrade before it expires.

