

## **Project Title**

Innovative Programme for Tele-Presence Robot in Inpatient Wards

## **Project Lead and Members**

Project lead: Pamela Foong

Project members: Tan P.Y., Tan S.L.Y., Shi H.L., Koh R.H.G., Lim T.W., Yue A.J.J.

## **Organisation(s) Involved**

Yishun Community Hospital

## **Healthcare Family Group(s) Involved in this Project**

Nursing, Medical, Allied Health

## **Applicable Specialty or Discipline**

Medical & Laboratory Technology

## **Project Period**

Start date: Not Indicated

Completed date: Not Indicated

## **Aims**

To develop an innovative program utilizing Tele-Presence Robot in inpatient wards with the aim of reducing nursing time by 20% and enhancing nursing care delivery

## **Background**

The World Health Organization (WHO) predicts a global shortage of 18 million health workers by 2030, necessitating innovative solutions to address healthcare demands.

The emergence of Artificial Intelligence (AI) in healthcare, particularly through robotics such as PARO the companion, has gained traction, especially during the pandemic for remote surveillance.

## **Methods**

See poster appended/below

## **Results**

See poster appended/below

## **Conclusion**

See poster appended/below

## **Project Category**

Technology

Assistive Technology, Robotics, Digitalisation, Automation, Artificial Intelligence

Organisational Leadership

Human Resource, Staff Wellbeing

## **Keywords**

Communication, Mobile Digital Mammogram Screening, Screen for Life, Breast Screening, Automated Billing, Project Tracking Process

## **Name and Email of Project Contact Person(s)**

Name: Ms Pamela Foong

Email: foong.pamela.pei.mei@yishunhospital.com.sg

# Innovative Programme For Tele-Presence Robot In Inpatient Wards

## Yishun Community Hospital

Foong P.M.P.<sup>1</sup>, Tan P.Y.<sup>1</sup>, Tan S.L.Y.<sup>2</sup>, Shi H.L.<sup>3</sup>, Koh R.H.G.<sup>4</sup>, Lim T.W.<sup>5</sup>, Yue A.J.J.<sup>6</sup>

<sup>1</sup>Inpatient Wards, <sup>2</sup>Nursing Admin, <sup>3</sup>Admin Office, <sup>4</sup>ALPS, <sup>5</sup>Hospital Planning, <sup>6</sup>NHG CIOO

### Introduction/Background

The World Health Organization (WHO) predicts a global shortage of 18 million health workers by 2030, necessitating innovative solutions to address healthcare demands.

The emergence of Artificial Intelligence (AI) in healthcare, particularly through robotics such as PARO the companion, has gained traction, especially during the pandemic for remote surveillance.

### Objectives

To develop an innovative program utilizing Tele-Presence Robot in inpatient wards with the aim of reducing nursing time by 20% and enhancing nursing care delivery.

### Problem Analysis

Recognizing the burden on nurses in inpatient ward settings, a collaborative effort involving nursing leaders and stakeholders was initiated.

Site visits to facilities such as the Centre for Healthcare Assistive and Robotics Technologies (CHART) were conducted to explore AI-powered solutions. Following discussions, the Tele-Presence Robot was selected for its proven efficacy in Covid facilities and other local organizations.

An integrated team comprising members from Nursing, Material Management, Inpatient Operations, Hospital Planning, and Information Systems and Technology (IST) was formed to evaluate the feasibility and implementation strategy of the Tele-Presence Robot.

### Innovation

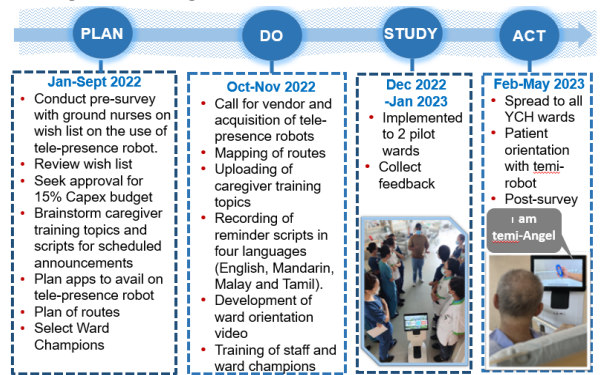
The selection of the Tele-Presence Robot (Figure 1) was based on its established effectiveness in COVID-19 facilities and other local organizations. Its purpose is to enhance productivity and promote positive patient outcomes through scheduled tasks. Collaborating with partners in this innovative endeavour aims to realize the vision of Tele-Presence Robot complementing nursing care.



Figure 1: Tele-Presence Robot

### Solution Planning & Scope

The implementation journey utilized the Plan-Do-Study-Act (PDSA) methodology and Gantt chart to ensure efficient progress. Communication platforms were established to facilitate collaboration and decision-making among the integrated team.



### Measurement of Improvement

- Time Saved: 60% reduction of nursing time** from 15 mins done by nurse to 6 mins done by Tele-Presence Robot

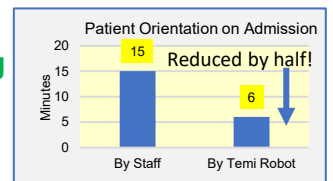
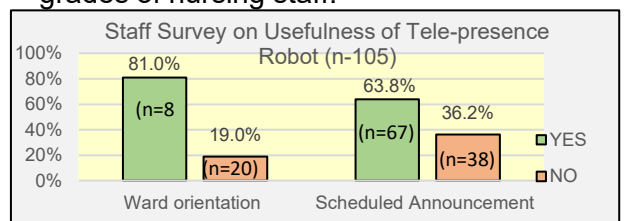


Figure 2: Time taken for orientation per patient - Staff Versus Robot

Orientation on Admission	Time Taken	Time & Cost Saving	No. of Patients
Time taken by Nurse (SSN/SN)	15mins	2970 mins (49.5 hours)	198
Man-hours (Nurse)	15x0.24cts	2970x3.53=\$10478.83	
Time taken to set tele-presence robot	3mins	594 mins (9.9 hours)	198
Man-hours (tele-presence robot)	3x0.24cts	594x0.72=\$427.68	
<b>Cost Savings</b>		<b>\$10051.15</b>	

### 3. Staff Satisfaction

- ✓ **81% of staff** indicated the usefulness of Tele-Presence Robot for ward orientation.
- ✓ **63.8% of staff** felt so for the scheduled announcement.
- ✓ **Consistency of information** to patient by all grades of nursing staff.



### Lessons Learnt

Our nursing team has long envisioned the integration of a robot to support daily tasks. Through collective efforts and perseverance, our team embarked on the journey of incorporating robotics into healthcare settings, remaining motivated to overcome challenges along the way.