

Project Title

Implementation of SmartPeep Falls prevention system in Parkway East Hospital

Project Lead and Members

Project lead: Dylia Syahniza Binte Samsul Bahrom

Project members: Yang Guirong, Soo Junwei, Law Hwee Tian

Organisation(s) Involved

IHH Healthcare

Healthcare Family Group(s) Involved in this Project

Allied Health, Nursing

Applicable Specialty or Discipline

Geriatric Medicine

Project Period

Start date: Jul 2023

Completed date: Dec 2023

Aims

The aim was to reduce the number of falls by 75% by the end of 2023, with the target of ensuring 100% user participation of SmartPeep for patients with high falls risk.

Background

Singapore is grappling with an aging population, this plays out in our acute hospitals, where we see an increasing number of older patients. In Parkway East Hospital (PEH), we noticed an increase in the number of falls in 2022, mostly among the elderly, rising from 0.4 to 1.3 falls per 1000 patient days. Approximately 87% of the falls in 2022 were above 60 years old. Of these falls, we had 3 cases that resulted in significant harm to

the patient, which resulted in additional length of stay and financial stress to the patient and family.

Methods

We utilise the Inpatient Falls per 1,000 Patient Days indicator to monitor the patient falls rate.

Results

From January 2022 to June 2023, there were 18 falls. Since the start of SmartPeep in July 2023, it has dropped significantly. 2 counts of the falls in September 2023 and the 1 count of fall in October 2023, were excluded as they were not within the monitoring of the SmartPeep system. Under the SmartPeep system monitoring, there were 0 falls in Jul to Dec 2023 period.

The impact of the new implementation is the drop in the number of actual falls, which has improved staff morale and patient outcomes. Staff are able to attend to patients' attempt to get out of bed in a more predictable manner.

Conclusion

See poster appended/below

Project Category

Technology

Digitalisation, Automation, Artificial Intelligence, Digital Health, Sensors

Care Continuum

Inpatient Care, Quality of Life

Keywords

Fall rates, Patient safety, Aging population, Fall prevention, Optical Image

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Team Leader:
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Team Members:
Dr Yang Guirong Ms Law Hwee Tian
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1. PROBLEM Statement

The hospital has experienced a significant increase in the number of falls since January 2022, raising concerns about patient safety, quality of care, and the overall well-being of our patients.

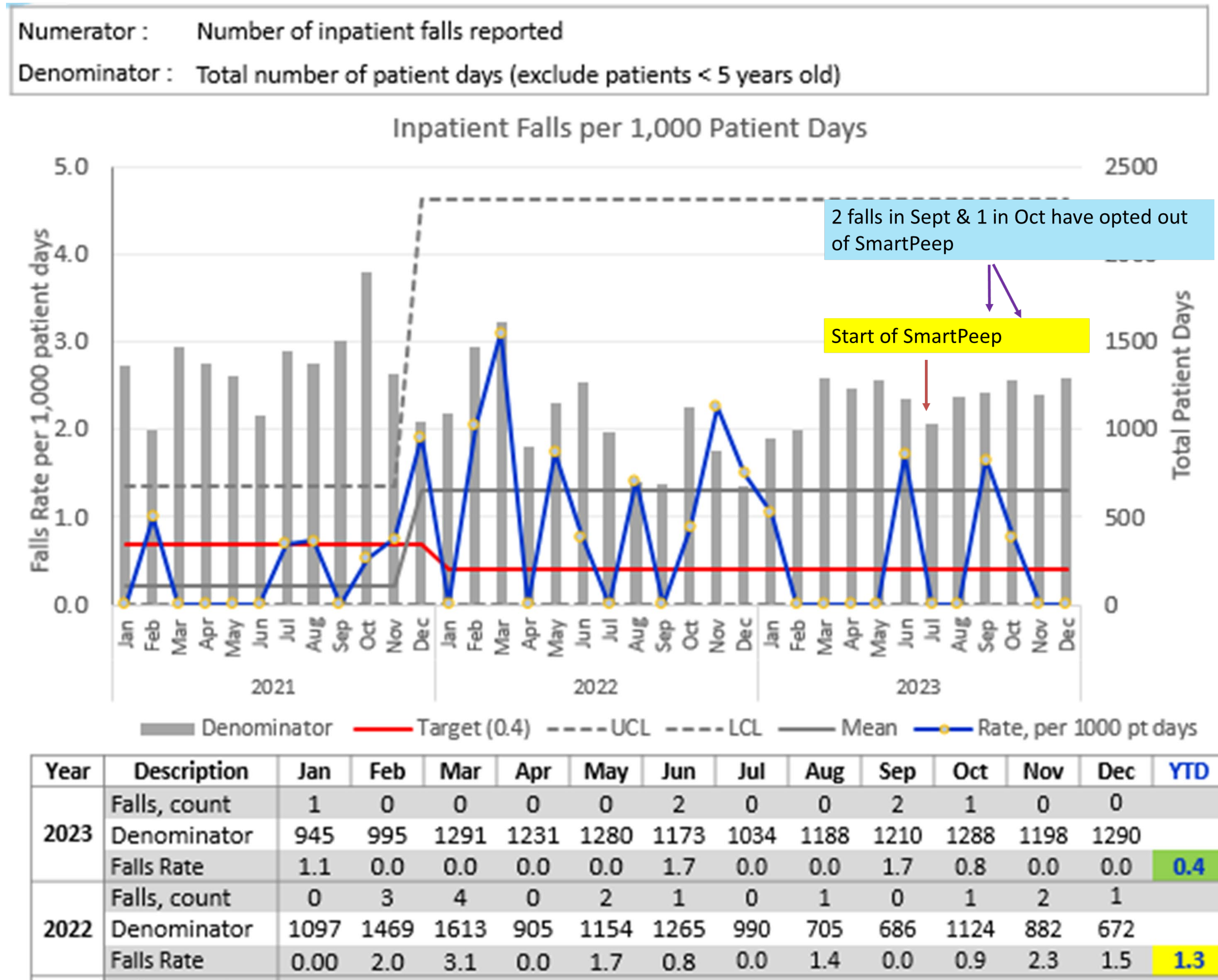
2. BACKGROUND Information

Singapore is grappling with an aging population, this plays out in our acute hospitals, where we see an increasing number of older patients. In Parkway East Hospital (PEH), we noticed an increase in the number of falls in 2022, mostly among the elderly, rising from 0.4 to 1.3 falls per 1000 patient days. Approximately 87% of the falls in 2022 were above 60 years old. Of these falls, we had 3 cases that resulted in significant harm to the patient, which resulted in additional length of stay and financial stress to the patient and family.

5. CHANGE STRATEGY

The falls prevention task force amalgamated multiple teams including nursing, operations, innovation teams that helped to explore solutions. This multidisciplinary combined the ground experience of nursing, the administrative experience of operations, as well as the industry knowledge from innovation team to help come up with the best solution for the problem. The consensus among the team was that the system that is to be developed would be able to provide advanced warning to the nursing staff, rather than alerting them only when a fall has occurred. Eventually, the organisation settled upon the innovative use of Artificial Intelligence (AI) analysing optical images captured by optical sensors placed inside the patients’ rooms. The current new falls prevention system, SmartPeep, uses optical sensors and AI technology to predict a patient’s intention to transit from bed. The system requires the nurses to register the patient in the system before utilisation. Staff is required to indicate the patient’s falls risk category into the system. The system monitors in accordance to the falls risk category of the patient. This system is designed and implemented solely as an additional safeguard for patients and to enable the nursing team to provide timely assistance to prevent falls incidences. The system will alarm whenever a patient tries to get out of bed, chair or even missing from the bed during the silent hours. When it alarms, it will show an imagery of the patient’s movements. The nurse has to acknowledge the alarm in the central monitoring system and at the same time attend to the alarm as shown on the screen. SmartPeep has significantly helped nurses to attend to patients in a timely manner when they attempt to get out of bed or mobilise on their own. The system also captures and prevents near-miss falls incidences.

6. RESULTS



7. LESSONS LEARNT

From January 2022 to June 2023, there were 18 falls. Since the start of SmartPeep in July 2023, it has dropped significantly. 2 counts of the falls in September 2023 and the 1 count of fall in October 2023, were excluded as they were not within the monitoring of the SmartPeep system.

Under the SmartPeep system monitoring, there were 0 falls in Jul to Dec 2023 period.

The impact of the new implementation is the drop in the number of actual falls, which has improved staff morale and patient outcomes. Staff are able to attend to patients’ attempt to get out of bed in a more predictable manner.

The lessons learnt from this project is the importance in providing proper communications to patients before getting their consent in using the SmartPeep system. For patients who refuse the use of SmartPeep but are of high falls risk, re-counselling will be done at ward level to get their consent to use the SmartPeep system.

