Project Title

Improving the Accuracy of Inpatient Medication Reconciliation

Project Lead and Members

Project lead: Tan Yuen Ming

Project members: Tan Chin Kwok, Zhang Yingting, Coleen Ortiaga, Jane Kuan

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group Involved in this Project

Pharmacy, Nursing, Medical, Allied Health

Applicable Specialty or Discipline

Pharmacology

Project Period

Start date: Nov 2020

Completed date: Jun 2023

Aims

Improve medication safety, by reducing the average monthly rate of MR incidents by 36% from baseline, that is, a reduction from 0.14 to 0.09 per 1000 patient days, for the period from July to December 2022.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

The collaborative efforts of a multi-disciplinary project team, supported by strong leadership and use of Quality Improvement tools, successfully reduced MR incidents in the hospital. Performance has been sustained even after project goal is reached.

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Quality Improvement, Workflow Redesign

Training & Education

Virtual Learning Platform, Learning Approach. Micolearning

Keywords

Inpatient, Medication, Reconciliation, Dispensing, IT Systems, Prescription, Prior-To-Admission, Error, Incident

Name and Email of Project Contact Person(s)

Name: Tan Yuen Ming

Email: yuen_ming_tan@nuhs.edu.sg

IMPROVING THE ACCURACY OF INPATIENT MEDICATION RECONCILIATION

☑ SAFETY
☑ QUALITY
☑ PATIENT EXPERIENCE
❑ PRODUCTIVITY
❑ COST

TAN CHIN KWOK[1], TAN YUEN MING[2], ZHANG YINGTING[3], NG WAN JING[2], COLEEN ORTIAGA[3], JANE KUAN[4].

1. GERIATRIC MEDICINE, NG TENG FONG GENERAL HOSPITAL (NTFGH)
2. PHARMACY, NTFGH 3. NURSING, NTFGH 4. MEDICAL INFORMATICS, NUHS

Define Problem, Set Aim

Problem/Opportunity for Improvement

The inpatient Medication Reconciliation (MR) process is a collaborative effort between doctors, nurses, pharmacists, patients and their caregivers. It may also involve external parties like nursing home staff, for nursing home residents. IT systems are tapped on to facilitate this process. The many interfaces in this complex process often result in MR incidents. A MR incident is defined as any error in prescribing, verifying, administering, dispensing on discharge OR return of patient's prior-to-admission (PTA) medications post-discharge.

From an analysis of the hospital's incidents repository, looking at inpatient MR incident data over 6 months (from April to September 2020), the team found that the average monthly incident rate is 0.14 per 1000 patient days.

Aim

Improve medication safety, by reducing the average monthly rate of MR incidents by 36% from baseline, that is, a reduction from 0.14 to 0.09 per 1000 patient days, for the period from July to December 2022.

Establish Measures

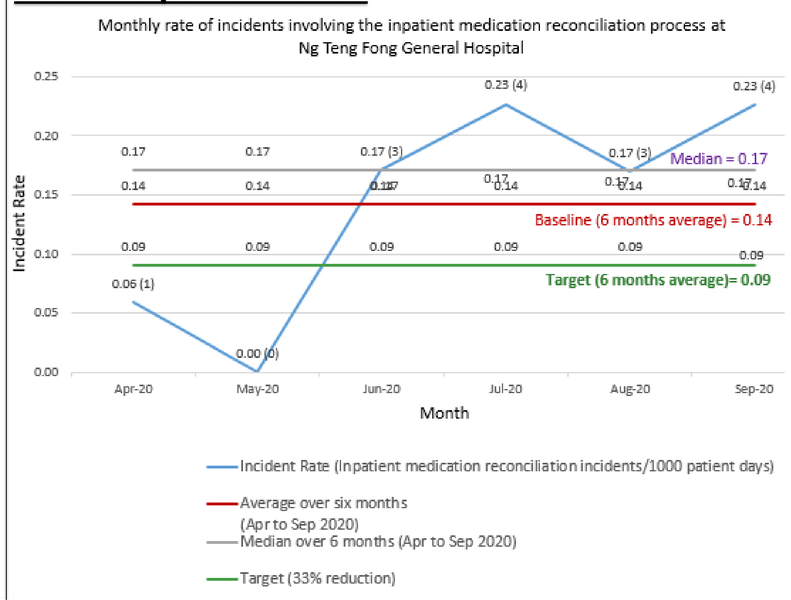
Outcome measure

1. Monthly rate of inpatient MR incidents.

Process measures

1. Ward 11 (pilot ward) MR prescribing near miss rate.
2. Rate of nursing MR near misses in ward 11.

Baseline performance



Analyse Problem

The team found that there were no official hospital-wide standardized processes for:

(a) Nursing MR on admission and discharge

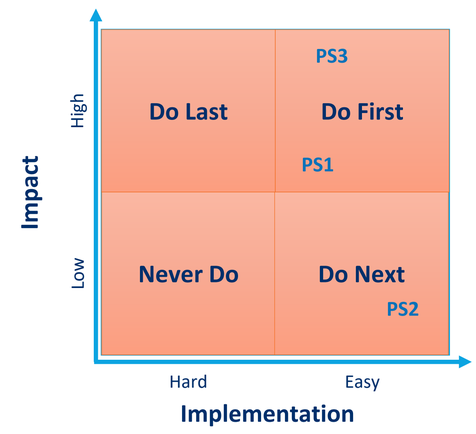
(b) MR and prescribing of patient's prior-to-admission medications by prescribers

Fishbone diagram of inpatient MR errors:

Select Changes

What are all the probable solutions? Which ones are selected for testing?

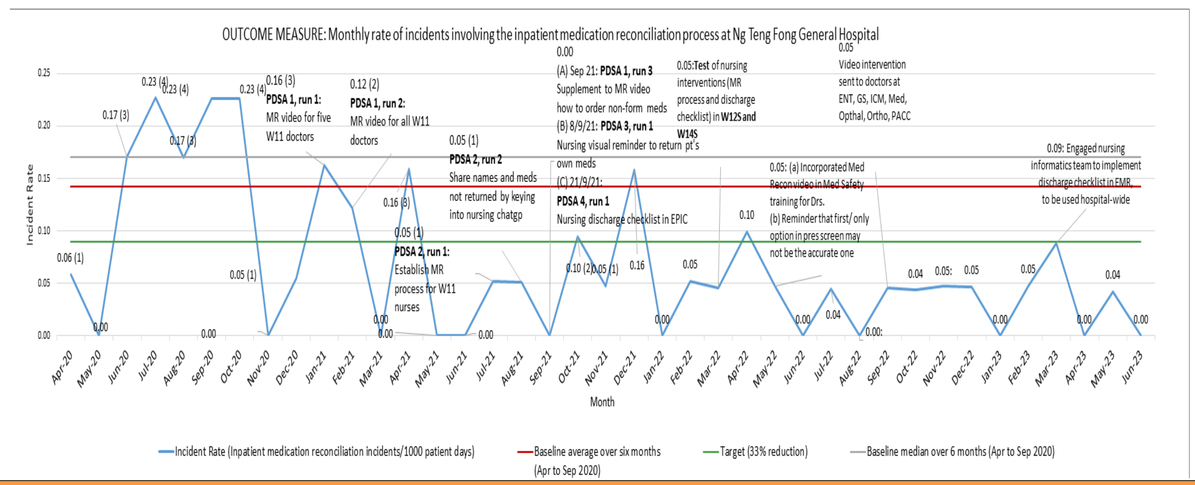
Root Cause	Potential Solutions	
Junior doctors unsure on how to prescribe PTA meds accurately	***PS1***	***Create a step-by-step MR video for doctors***
No standardized hospital-wide nursing MR workflow	***PS2***	***Create a standard workflow for nurses***
Weakness of existing pharmacy MR workflow	***PS3***	***Enhance pharmacy MR process***



Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
PS3 cycle 1	*Enhance pharmacy's MR process to prevent patient's own medications from being left in pharmacy upon discharge.*	*Test a new step in pharmacy's MR workflow.*	*New step was found to be effective in preventing incidences of patient's own medications being left in pharmacy on discharge.*	*Updated pharmacy's MR workflow with new step.*
PS1 cycle 1	*Create and test effectiveness of MR video for doctors.*	*Test on 5 junior doctors in pilot ward.*	*Doctors feedback that some parts are unclear.*	*MR video enhanced based on feedback.*
PS1 cycle 2	*Test enhanced MR video for doctors.*	*Test on all junior doctors in pilot ward.*	*Effective to reduce doctors' MR incidents.*	*Roll out hospital-wide with support of Medical Affairs.*
PS2 cycle 1	*Establish and standardize nursing MR process.*	*Test nursing MR process in ward 11.*	*Process is clear but a checklist in the system will allow for better compliance.*	*Enhance nursing MR process with system checklist.*

MR incidents reduced by more than the targeted 36%. There was a 73% reduction of MR incidents for the period from July to December 2022. MR incidents continue to remain low to date.



Spread Changes, Learning Points

What are/were the strategies to spread change after implementation?

Interventions found to be useful in pilot ward were tested in two more wards, before being implemented hospital-wide. To facilitate spread, clinical and nursing heads were engaged on the best way to reach out to all staff. IT systems were utilized to ensure a smooth and easy process for all. MR incidents were reduced by 73% from July to December 2022.

What are the key learnings from this project?

The collaborative efforts of a multi-disciplinary project team, supported by strong leadership and use of Quality Improvement tools, successfully reduced MR incidents in the hospital. Performance has been sustained even after project goal is reached.

Ng Teng Fong General Hospital

Jurong Community Hospital