Project Title

Improvement In Patient Handover Process Between Inpatient Wards and Radiology CT & MRI

Project Lead and Members

Project Lead: Melissa Liang Meishi

Project Members: Yap Jun Wei Joshua, Zin Zin Htun, Yap Tiang Siew, Anton Lim Wei Xiang, Teo Hui Sin, Waheeda Ahmad, Victor Hla Win Tun, Ng Yan Jun (Facilitator), Clarice Wee Li-Phing, Chan Man Fung Manful, Dr Bernard Wee

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group(s) Involved in this Project

Allied Health, Nursing

Applicable Specialty or Discipline

Radiology

Project Period

Start date: November 2021

Completed date: March 2022

Aims

Improve handover process between Inpatient wards and Radiology CT/MRI to increase patient accountability and thus improving patient safety. To increase the percentage of inpatient CT/MRI cases with spinal nursing and hourly monitoring being notified in radiology by 50% by end of Jun 2022.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

Communication between departments is important to promote patient's safety. Teamwork is essential for good collaboration between departments, and this prevents patient accountability dilution when there are many touch points during patient transfer.

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Risk Management, Preventive Approach

Keywords

Handover Process, Inpatient, Radiology

Name and Email of Project Contact Person(s)

Name: Melissa Liang Meishi

Email: melissa_liang@nuhs.edu.sg

IMPROVEMENT IN PATIENT HANDOVER PROCESS BETWEEN INPATIENT WARDS AND RADIOLOGY CT & MRI

☑ SAFETY   ☐ PRODUCTIVITY
☐ QUALITY   ☐ COST
☑ PATIENT EXPERIENCE

MELISSA LIANG MEISHI, YAP JUN WEI JOSHUA, ZIN ZIN HTUN, YAP TIANG SIEW, ANTON LIM WEI XIANG, TEO HUI SIN, WAHEEDA AHMAD, VICTOR HLA WIN TUN, NG YAN JUN (FACILITATOR), CLARICE WEE LI-PHING, CHAN MAN FUNG MANFUL, DR BERNARD WEE

Define Problem, Set Aim

Problem/Opportunity for Improvement

There are many touch points during inter-department transfer between Inpatient wards and Radiology when patients are scheduled for CT and MRI scans.

Currently, there is no platform for handover of pertinent patient information (spinal nursing and hourly monitoring) and should there be a need for information to be conveyed between ward and radiology, calls would have to be made to respective departments.

This is an ineffective practice as most of the time staff from both departments are heavily engaged with patients.

The cost of this problem is patient accountability dilution and thus potential lapse in patient safety.

Aim

Improve handover process between Inpatient wards and Radiology CT/MRI to increase patient accountability and thus improving patient safety.
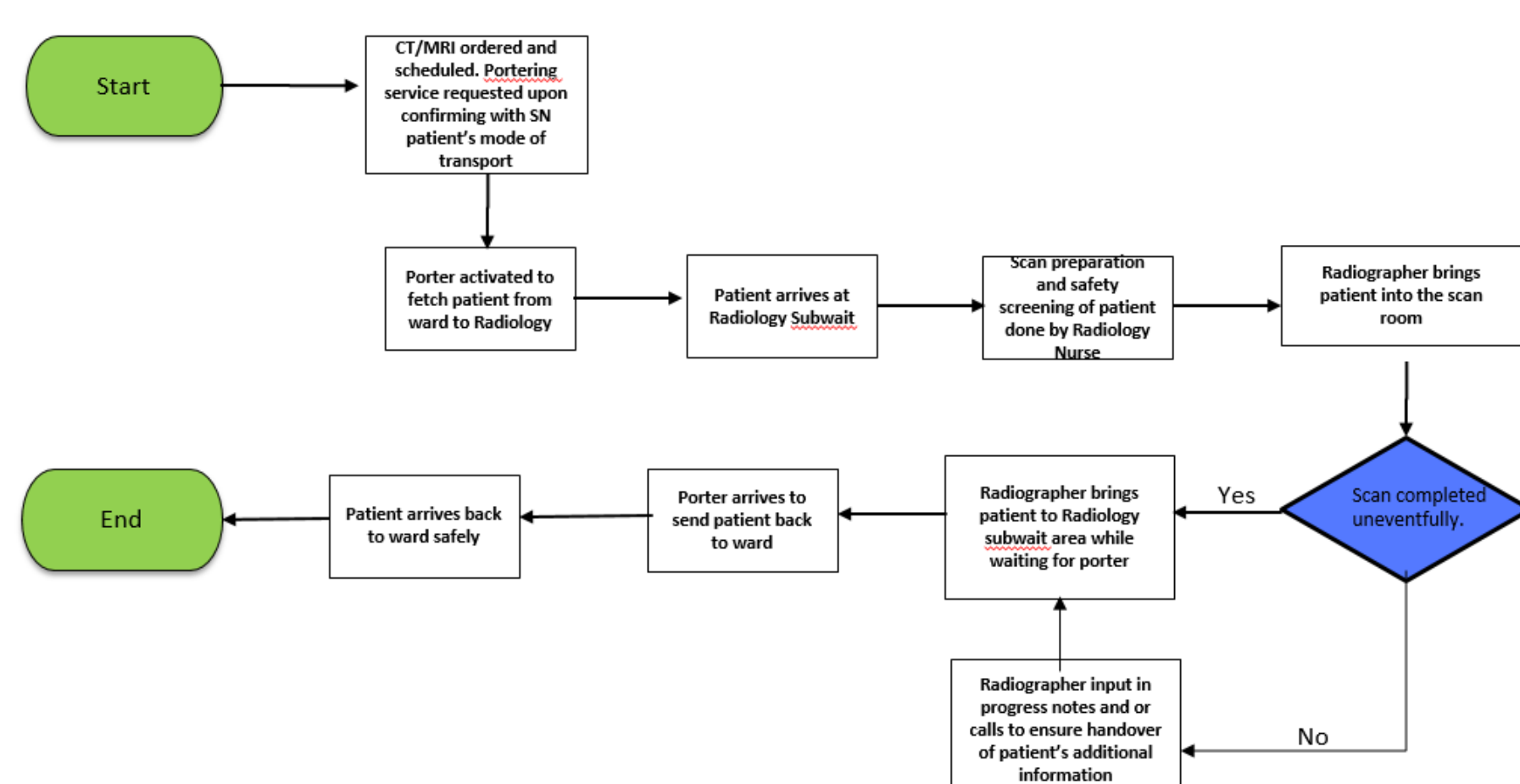
To increase the <u>percentage of inpatient CT/MRI cases with spinal nursing</u> and <u>hourly monitoring being notified</u> in radiology by 50% by end of Jun 2022.
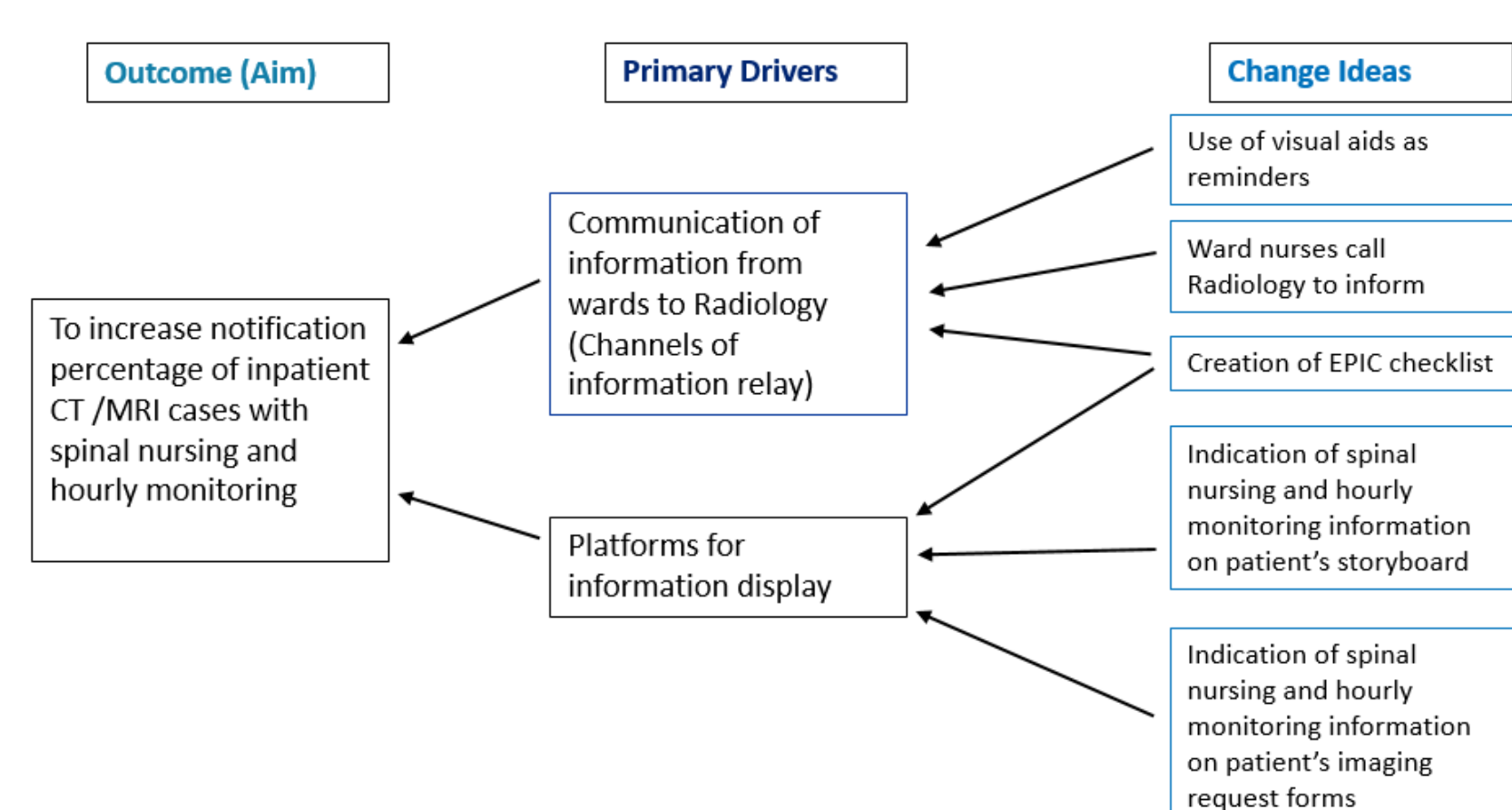
Establish Measures

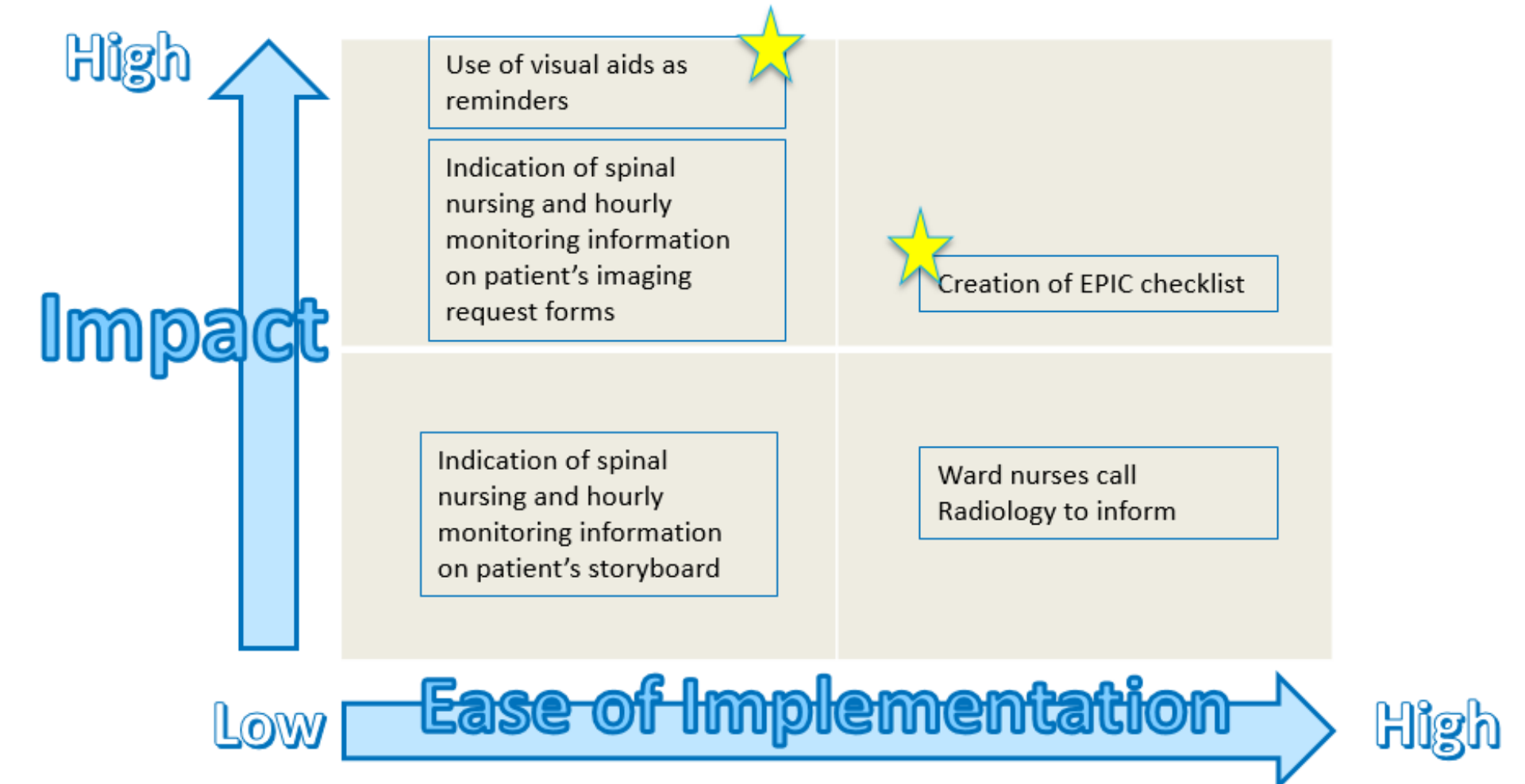| Type of Measure	Data	Data Source	Data Collection method	Data Collection Period	Frequency	Sample Size	Person
Outcome / Process / Balancing / Others	*What is the data to be collected?*	*Where can the data be found?*	*How will these data be collected?*	*What are the start & end dates of data collection?*	*How frequent would the data collection be?*	*What is the number of samples required?*	*Who is responsible for collecting this data?*
Outcome	Percentage of inpatient CT/MRI cases with spinal nursing and hourly monitoring being **notified** (% = no. notified/no of cases)	**Pre Implementation:** Through calls from wards to notify **Post Implementation:** the use of checklist, EPIC	**Pre Implementation:** Manual collection of informed cases over total number of CT/MRI cases **Post Implementation:** Through the use of checklist by looking at compliance percentage.	**Pre Implementation:** 5th Nov- 3rd Dec **Post Implementation** Phase 1: 8th Dec – 22nd Dec 2021 (2 wks) Phase 2: 7th Feb-21st Feb 2022 (2 wks) Phase 3: 7th Mar-29th April 2022 (2 wks)	Daily basis, at the end of each day	**Pre Implementation:** Sample size-4 Hourly Monitoring sample size- 904 **Post Implementation:** Sample size- 343	Radiographers, Radiology and inpatient ward nurse
Process	**Compliance** of 1)Ward nurses on checklist completion 2) Radiographers on checklist completion	EPIC- Checklist	1) Average compliance percentage by ward nurses OD: To look at ward to Radiology check point 2) Average compliance percentage by radiographers OD: To look at Radiographer (start exam) check point	Phase 1: 8th Dec – 22nd Dec 2021 (2 wks) Phase 2: 7th Feb-21st Feb 2022 (2 wks) Phase 3: 7th Mar-29th April 2022 (2 wks)	Daily basis, at the end of each day	Sample size- 343	Radiographers and inpatient ward nurse
Balance	Overall **time spent** for CT/MRI Brain NC scans done OH before and after implementation	EPIC	**Pre Implementation:** Start time (parameters taking) to End time (eporter receive time at ward **Post Implementation:** Start time at first checkpoint of checklist to End time at last check checkpoint of checklist in ward	**Pre Implementation:** 29th Nov- 3rd Dec 2021 **Post Implementation:** 7th – 13th April 2022	Once a day	**Pre Implementation:** Sample size-10 (CT & MRI) **Post Implementation:** Sample size-10 (CT & MRI)	Radiographers and inpatient ward nurse

Analyse Problem

Process Map (Flowchart) – Before Improvement
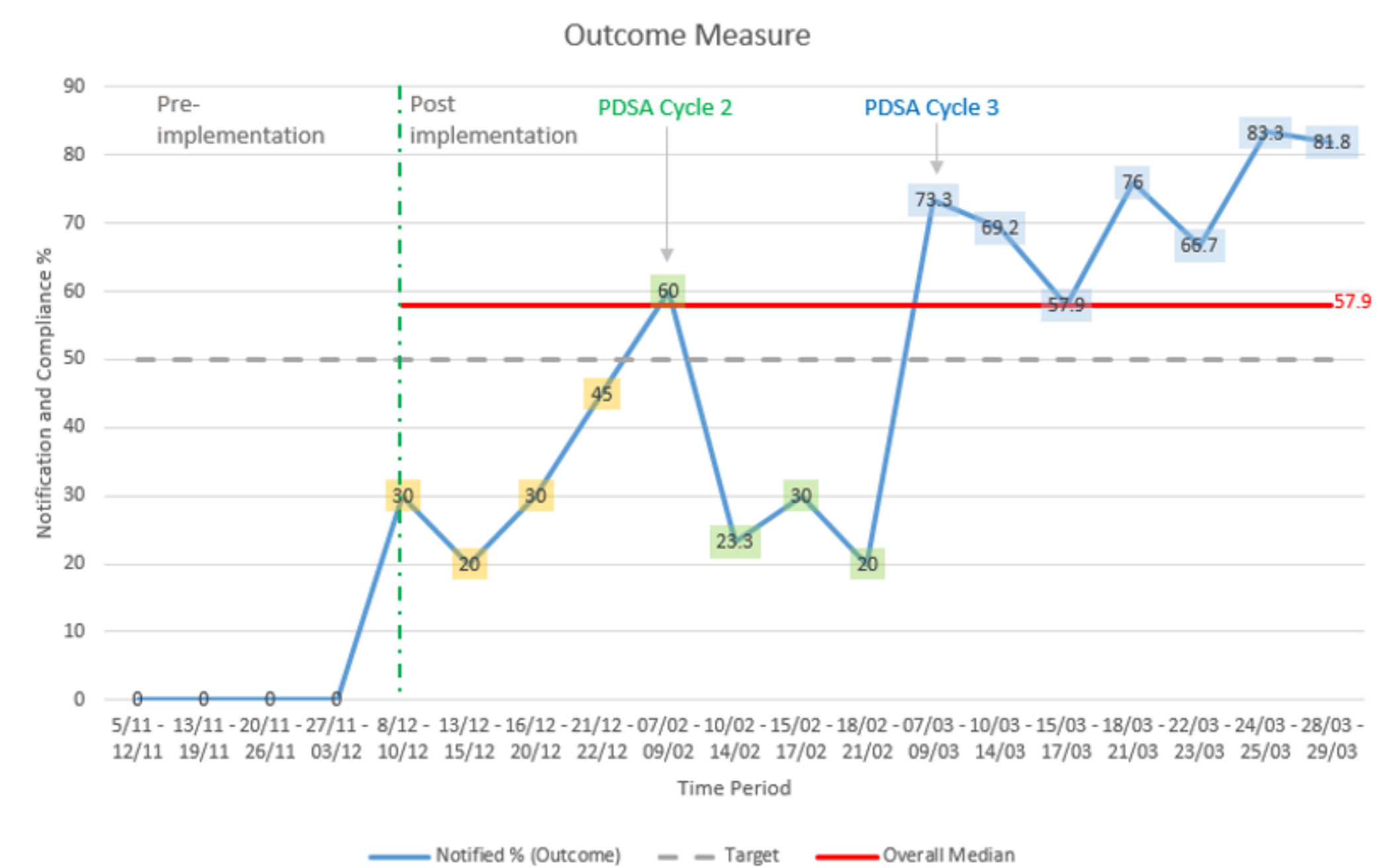

Driver's Diagram

Select Changes

High Impact / Low Impact — Low Ease of Implementation / High Ease of Implementation
- Use of visual aids as reminders ★
- Indication of spinal nursing and hourly monitoring information on patient's imaging request forms
- Creation of EPIC checklist ★
- Indication of spinal nursing and hourly monitoring information on patient's storyboard
- Ward nurses call Radiology to inform

Test & Implement Changes

Cycle	Plan	Do	Study	Act
1	To **implement** the handover checklist for IP MRI/CT scans to radiographers and nurses through TTT • Period: 2 weeks(started from 8th Dec 2021) • Participants: All NTF inpatient ward nurses and Radiology nurses and CT/MR radiographers	• The plan was carried out accordingly • Radiographers -We shared out how to do the checklist via department roll-call, internal meeting etc. • Nurses- **Train the trainer**	• We studied the compliance of the use of checklist • The post implementation result shows overall low compliance below 50%	• To adapt for the new cycle by reinforcing practice through weekly roll-call engaging the various ward sisters (ROs)
2	To **reinforce** the compliance rate for handover checklist by conducting weekly roll-call and inform respective ward ROs • Period: 2 weeks(started from 7th Feb 2022) • Participants: All NTF inpatient wards and Radiology nurses and CT/MR radiographers	• Radiographers -We reinforced and shared positive outcomes and experiences with using the the checklist via department roll-call, internal meeting etc. Rallied the support of ROs • Nurses- reinforcing practice through refresher training using ppt slides engaging the various ward sisters (ROs)	• The post implementation result still shows that improvement is below 50% despite reinforcements. • Could be due to backlash of Covid (spike in post covid workload) and scope of implementation is too wide	• To adapt the new cycle by reducing the number of participating wards (9s/11s&12s), targeting the orthopedic wards
3	• Due to the previous findings from PDSA cycle 2, we decided to **scope the project with more physical reinforcements such as the use of visual aids** to achieve higher compliance • Period: 2 weeks(started from 7th March 2022) • Participants: Wards 9s/11s&12S and Radiology nurses and CT/MR radiographers	• The plan was carried out accordingly • Visual aids-To remind people to do checklist and scope down to orthopedic wards	• The post implementation result shows significant improvement 37.9% • Studied workflow and reinforcement efforts that the orthopedic wards use to see how it can be expanded to other wards	• To adapt the new cycle to wards 5s/10s&14s, expand progressively

Outcome Measure : Percentage of inpatient CT/MRI cases with spinal nursing and hourly monitoring being **notified**

Outcome Measure

Spread Changes, Learning Points

Solution	Spread Details	Spread Timeline	Who
Discussion with Nursing senior management would be to re-define handover checklist compliance	- Through detailed discussion with nursing division and PSC, the handover is defaulted for nursing as 'completed uneventfully' in the checklist despite no actual sign off. This is to tackle the manpower crunch and at the same time still have a platform for patient information update if needed.	June 22- onwards	- Nursing
Spread will be focused in Radiology	- Radiology will continue to perform and sign off all checkpoints within our department and not defaulted as 'completed uneventfully' in the checklist. This is ensure that all the pertinent information is well-handed over. - Currently, scope is for CT/MRI inpatient scans only. We will include EPIC checklist build to other inpatient modalities such as Ultrasound/ X ray/Fluoroscopy. - Training/ Reinforcement on positive outcomes of handover checklist through roll calls.	June 22- onwards	- Radiology (EPIC team)

What are the key learnings from this project?

- *Communication between departments is important to promote patient's safety.*
- *Teamwork is essential for good collaboration between departments, and this prevents patient accountability dilution when there are many touch points during patient transfer.*

Ng Teng Fong General Hospital

Jurong Community Hospital