

APPROPRIATE AND VALUE-BASED CARE CONFERENCE 2025

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16-17 OCTOBER 2025 AVBC
Appropriate and Value-Based Care



Sengkang General Hospital
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Don't be late, it's sedate!

- Reducing Incomplete Sedation Preparation for Inpatient MRI scans in Sengkang General Hospital

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Introduction

Magnetic resonance imaging (MRI) scans may require sedation for patients who are claustrophobic or unable to stay still, necessitating coordination between radiographers and the primary medical team. At Sengkang Hospital, a significant problem emerged between December 2023 and June 2024, where **31.2% of sedation-requiring inpatient MRI scans** (77 out of 260 cases) had to be rescheduled due to incomplete preparation. This resulted in a **S\$77,000 financial burden**, excluding wasted manpower hours. Rescheduled scans typically faced **three-day delays**, leading to increased bed capacity strain, higher costs, delayed diagnosis, and patient dissatisfaction. Our team aims to **investigate and reduce the percentage of inpatient MRI cases rescheduled/cancelled due to incomplete pre-procedure sedation preparation by half within six months**.

Methods

1. Root-cause-analysis of the 77 rescheduling of cases was done. Interviews were conducted with ward clinicians/nurses to obtain a better understanding of some of these identified reasons:

- Interviewed ward Medical Officers (n=4) and staff nurses (n=4) on the process of inpatient MRI scan under sedation.

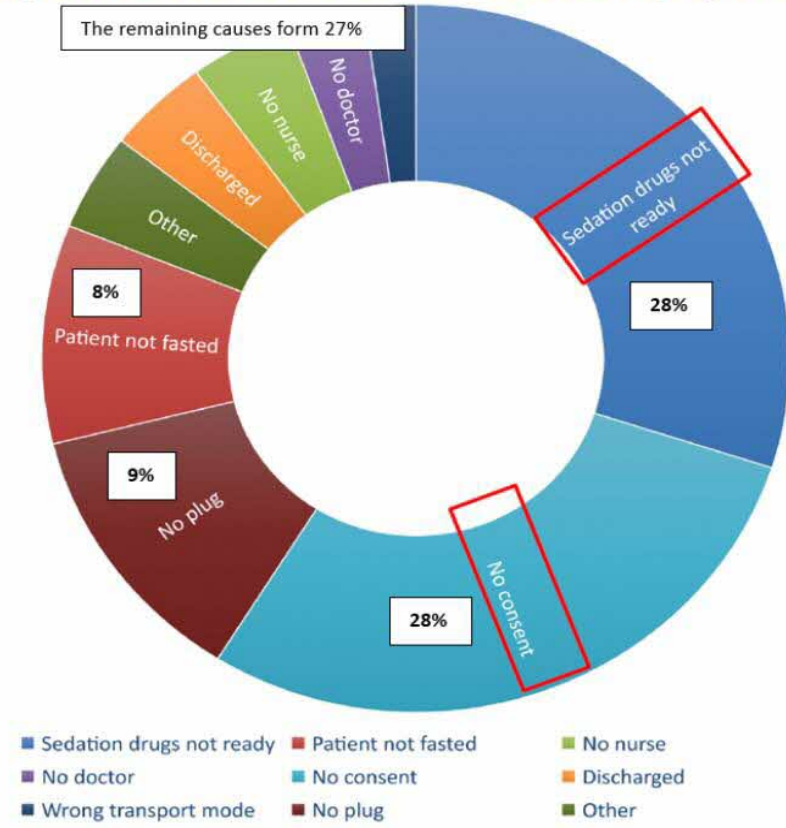
Medical Officers:

- All interviewees learnt about sedation preparation through **word of mouth** from their peers.
- One interviewee learnt about the sedation consent document by searching for the medical board policy on Docupedia. **Remaining 3 interviewees are not aware of the medical board policy.**
- All interviewees commented that an **MRI sedation workflow for reference** will be very helpful.

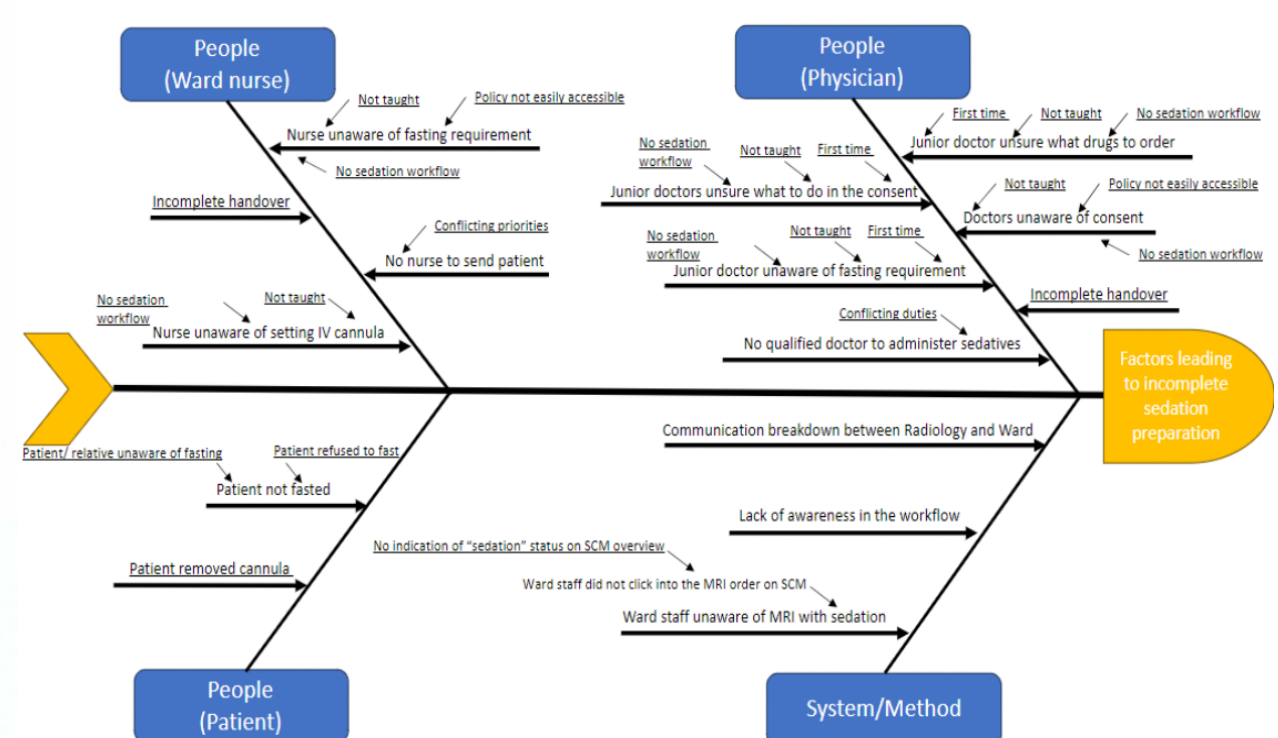
Staff Nurses:

- All interviewees learnt sedation preparation through **word of mouth** from their peers and seniors.
- All the ward nurse interviewees prefer if there is **SCM nursing handover note** on the required sedation preparation.

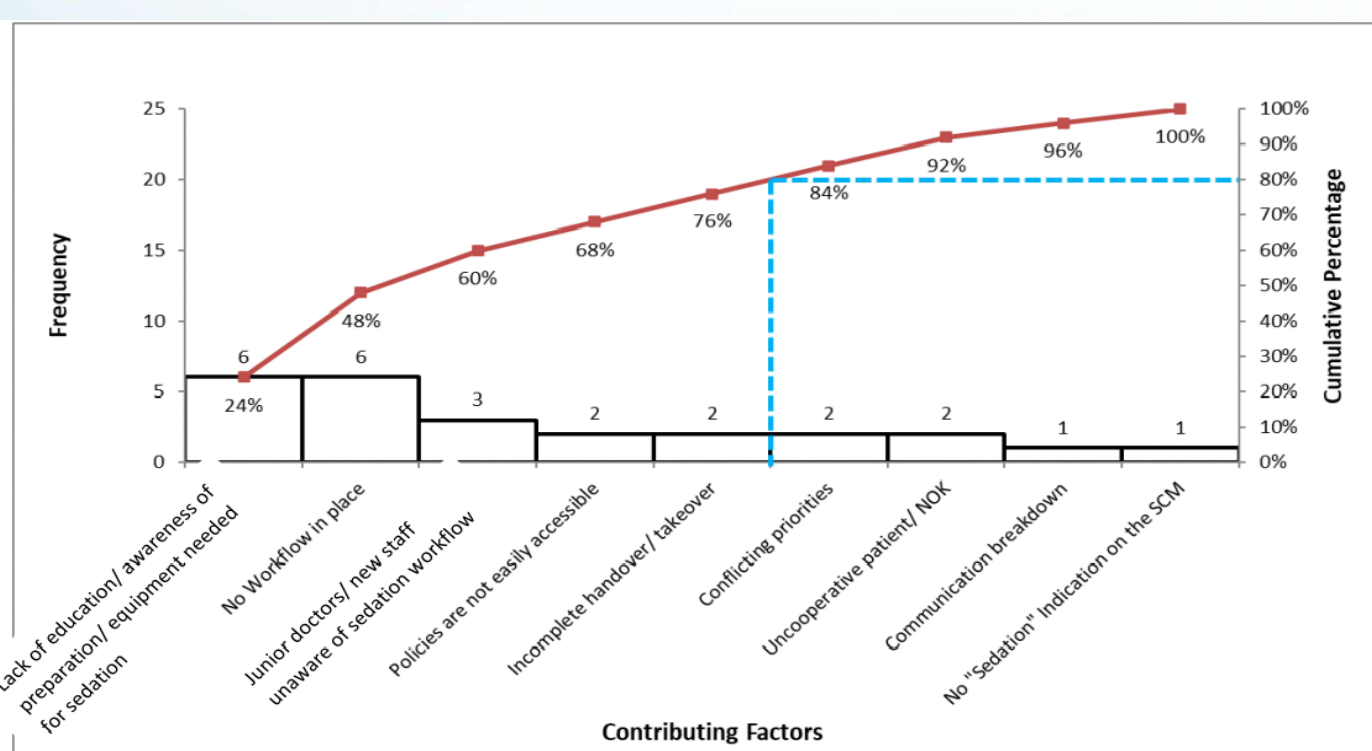
Top few reasons for failed MRI sedation preparation



Further cause-and-effect analysis was done using **Ishikawa diagram**:



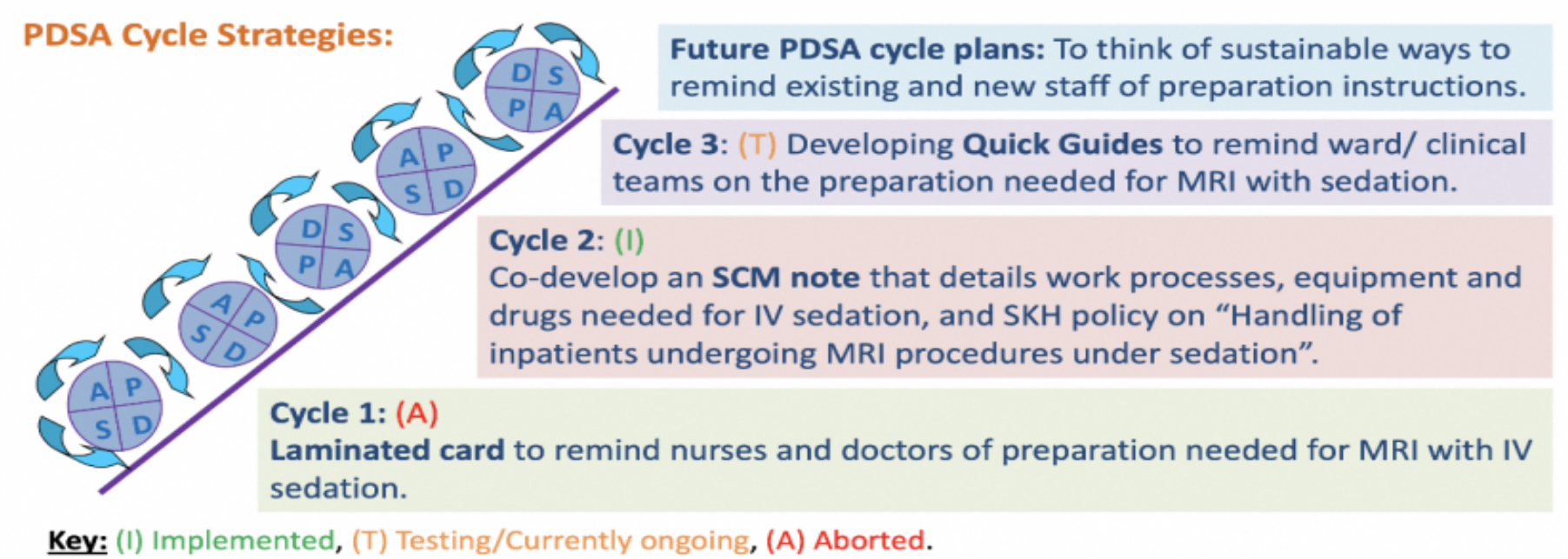
“5 Whys” analytical technique was used to identify the main factors contributing to the high-% of rescheduled MRIs and team members' votes were plotted on a **pareto chart**. **Lack of awareness of preparation needed for MRI with sedation** and **no standardized workflow** were highlighted as most important:



2. Plan Do, Study Act Cycle

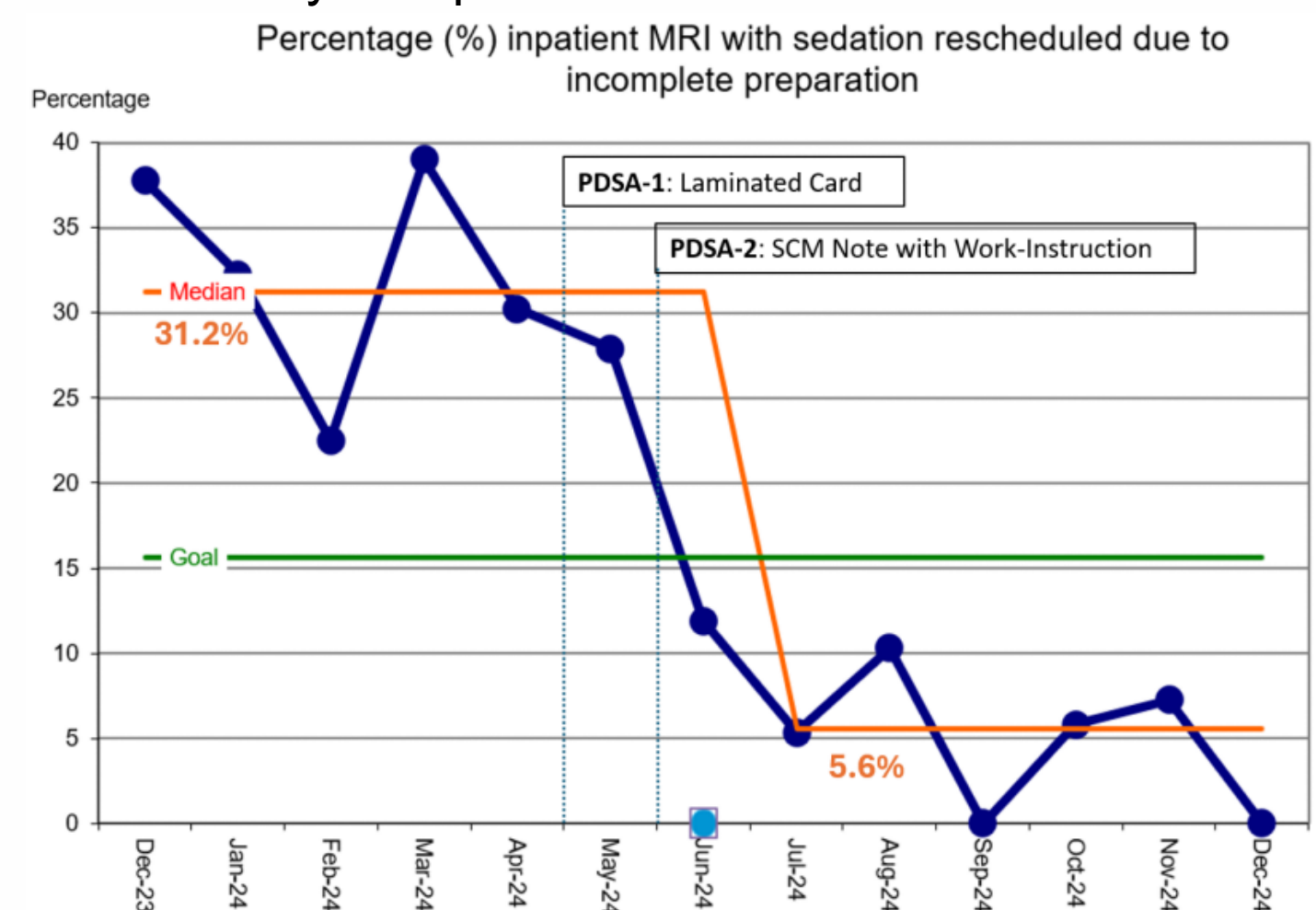
Over six months, two **“Plan, Do, Study, Act”** (PDSA) cycles were implemented

- PDSA-cycle 1:** A **Physical Laminated Communication Card** was developed to be delivered to respective wards a day prior to the appointment. However, there was only marginal improvement and through focused group discussions, we learnt that PDSA-1 was **not sustainable** and caused **PDPA, infection control concerns and additional costs**.
- PDSA-cycle 2:** A **digital instruction system** was developed and implemented through SCM-Handover-Radiology-Nurse-Note. It contains detailed guidance on MRI procedures under sedation, including preparation steps, required equipment, and drugs. Being digital, it addresses both patient data protection (PDPA) concerns and infection control issues, while allowing easy tracking by the primary healthcare team.



Results

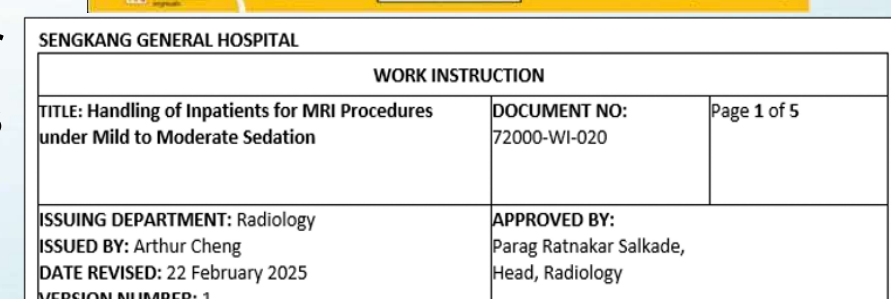
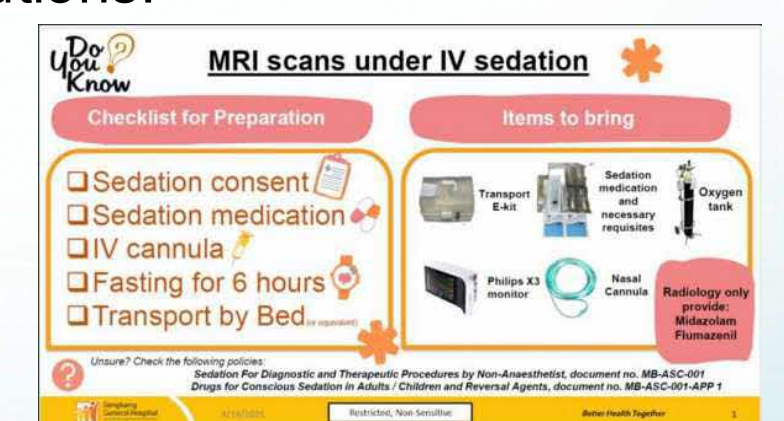
We reduced the percentage of inpatient MRI cases rescheduled due to incomplete pre-procedure sedation preparation from **31.2% to 5.6%** (**improvement of ~82%**). This translates to **cost avoidance of S\$63,180** over a 6-month period and many manpower hours saved.



Sustainability

For **sustainability**, the team developed 2 more solutions:

- “Do-You-Know” online nursing quick guide.** This platform **increases ease of accessibility** to work-instructions **beyond the SCM**.
- Official Work Instruction** created for sustainability to cater to a dynamic care team clearly illustrates the entire inpatient MRI under sedation work process. This assigns **accountability** for all parties involved.



Conclusion

This quality improvement initiative demonstrates how **structured problem-solving approaches** and **enhanced communication tools** can significantly improve healthcare delivery efficiency. The successful implementation of these changes not only exceeded the initial target but also **enhanced patient care quality and staff satisfaction**, serving as a model for future process improvement projects.