

Timely Discharge amongst Same-Day-Discharge Patients in Invasive Cardiac Laboratory

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Mission Statement

To increase percentage of timely discharge amongst same-day-discharge* (SDD) patients from median 29% to 80% within 6 months in invasive cardiac laboratory.

* SDD: a stay after a PCI procedure that does not include supervised overnight monitoring; medically fit for discharge after routine monitoring per protocol after procedure

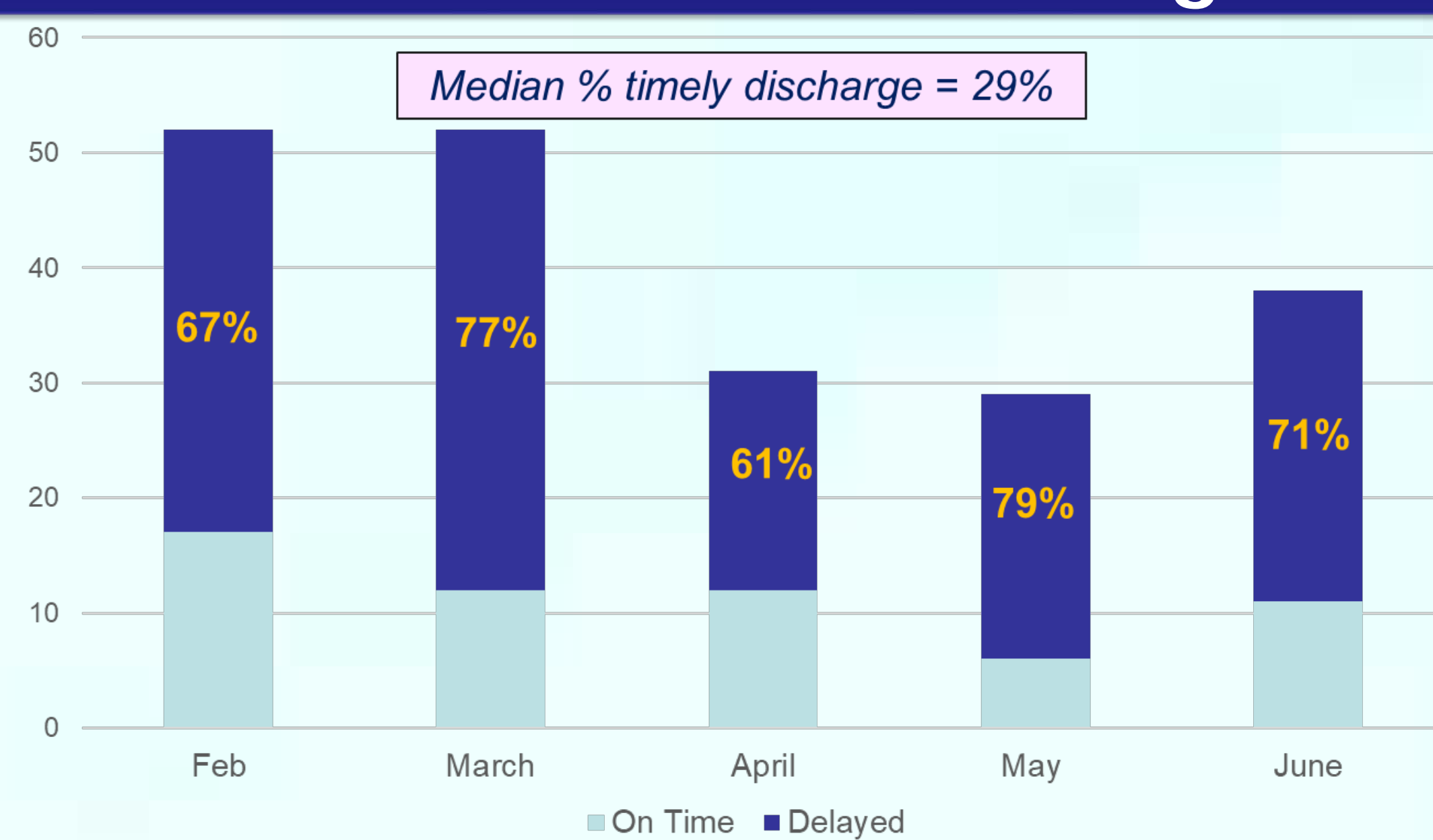
* Delayed discharge time: >30 minutes from the time patient has been flagged for discharge (per protocol) and the time they leave the hospital.

Team Members

	Name	Designation	Department
Team Leaders	Dr Deborah Lee	Consultant	Cardiology
	Ms Li Huimin	Nurse Manager	ICL
Team Members	Ms Wu Huibing Chloe	Asst Nurse Clinician	Radiography Service
	Ms Chinnasamy Sudha	Asst Nurse Clinician	ICL
	Ms Kua Yee Fei	Senior Staff Nurse	ICL
	Ms Noraihan Bte Abdul Hamid	Patient Service Associate Executive	ICL
	Ms Goh Yi Ling Elizabeth	Senior Pharmacist	Pharmacy Practice
	Dr Eran Sim Wen Jun	Associate Consultant	Cardiology
	Ms Chia Mooi Ying	Patient	Cardiology

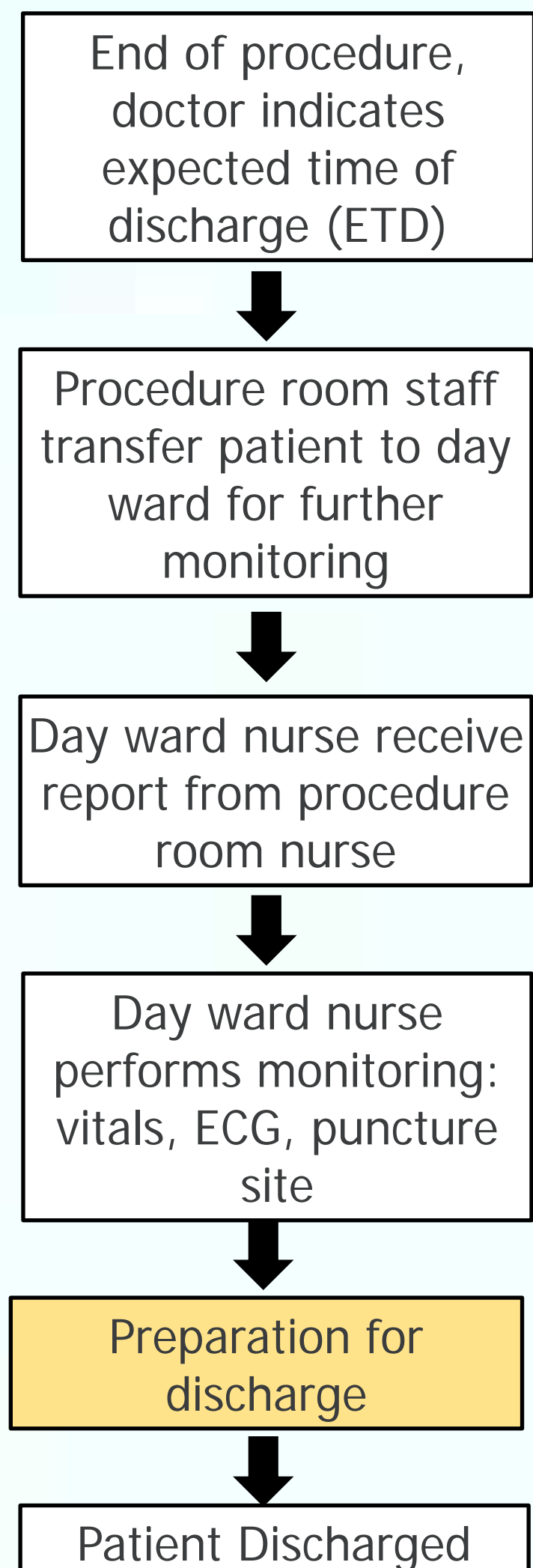
Evidence for a Problem Worth Solving

Delayed Cases for
Same Day Discharge
(February to June
2023)

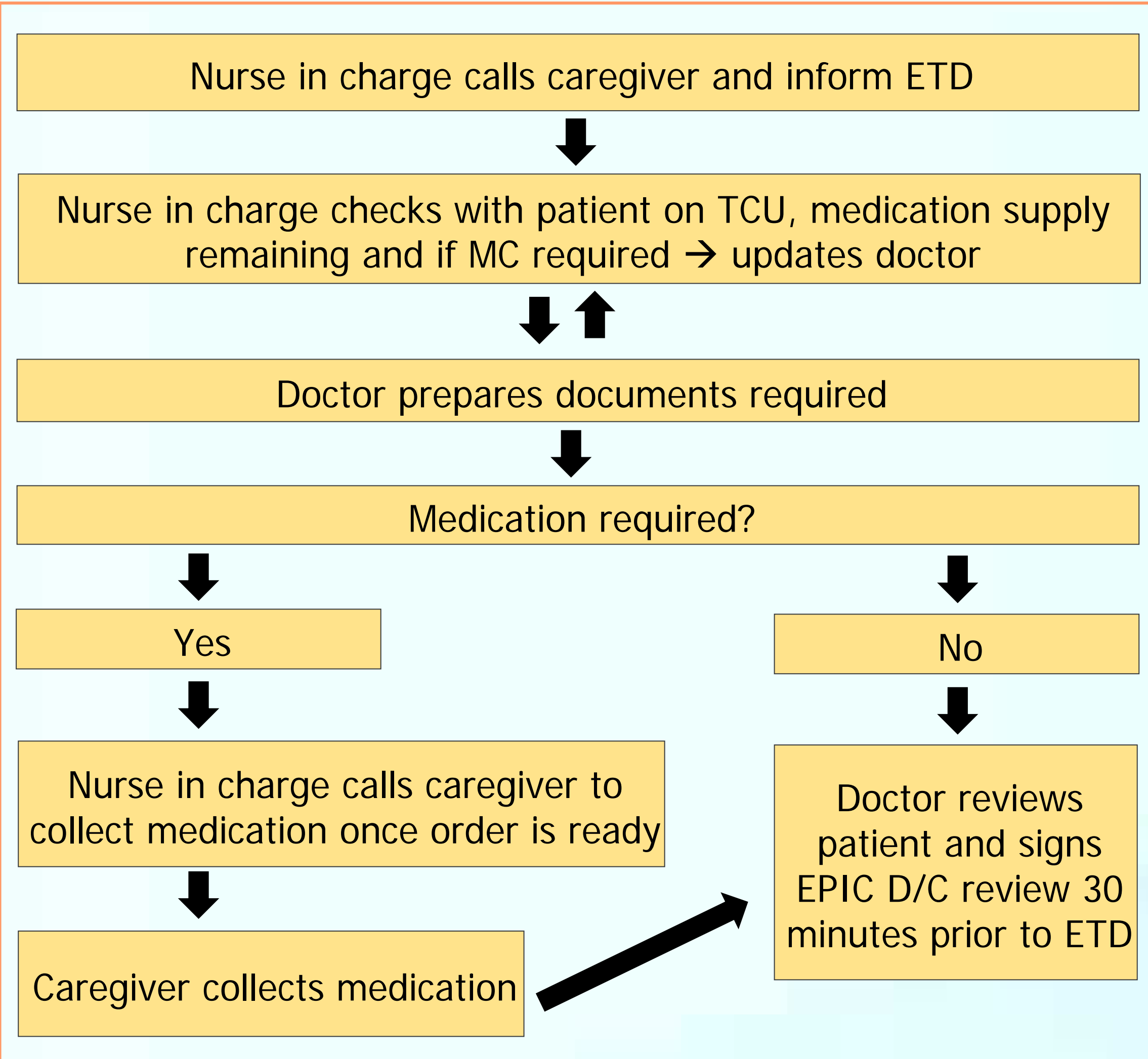


Flow Chart of Process

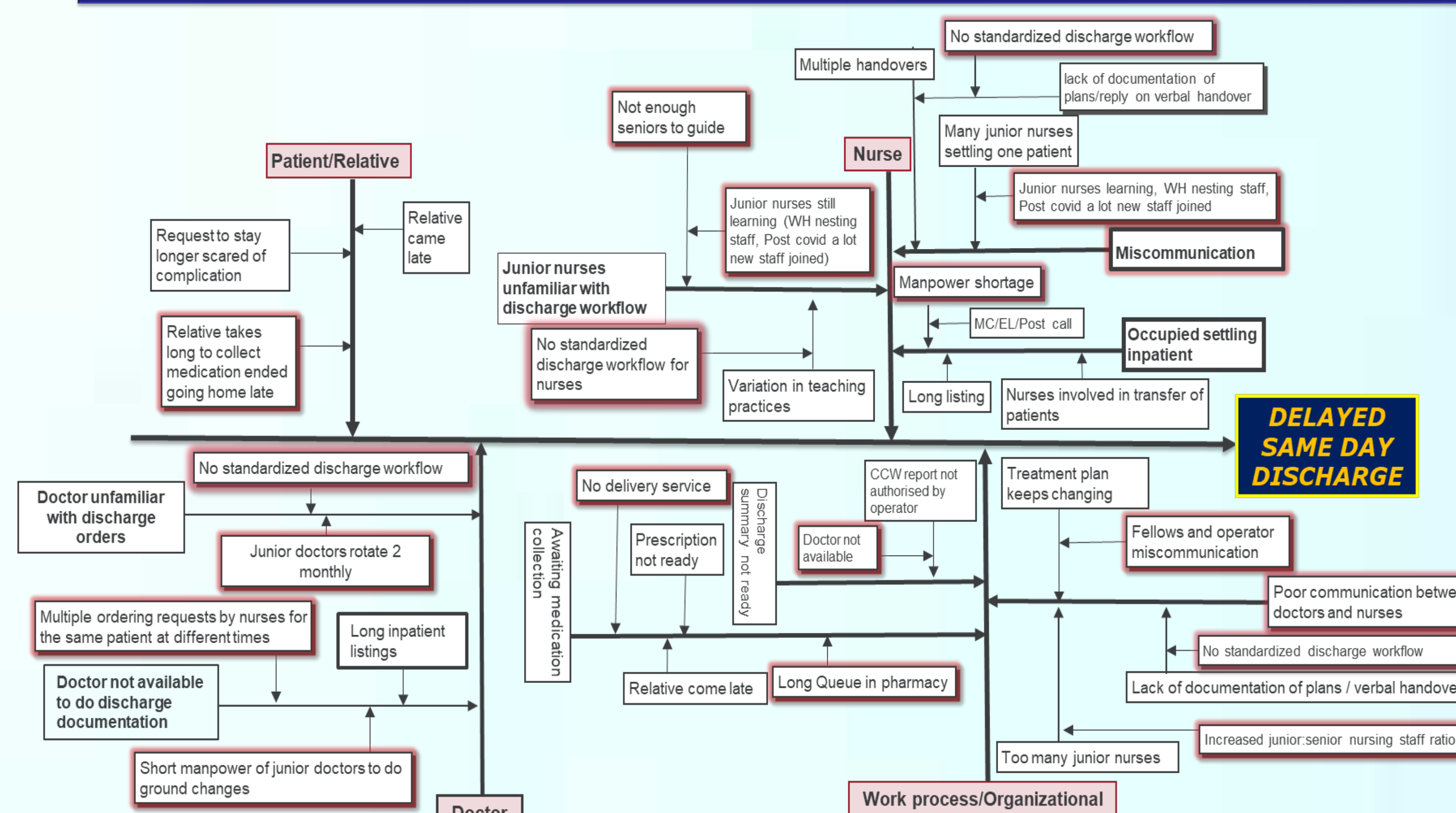
MACRO FLOW



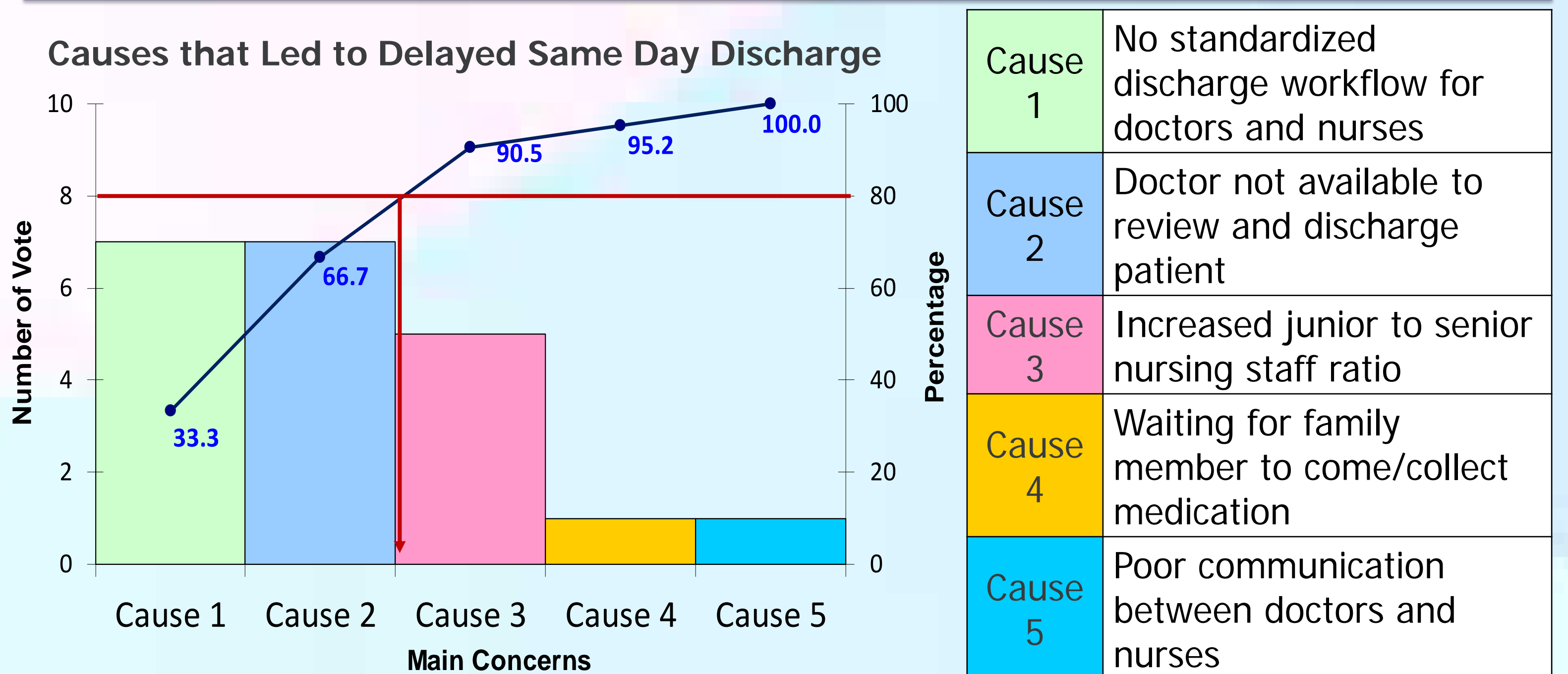
MICRO FLOW



Cause and Effect Diagram



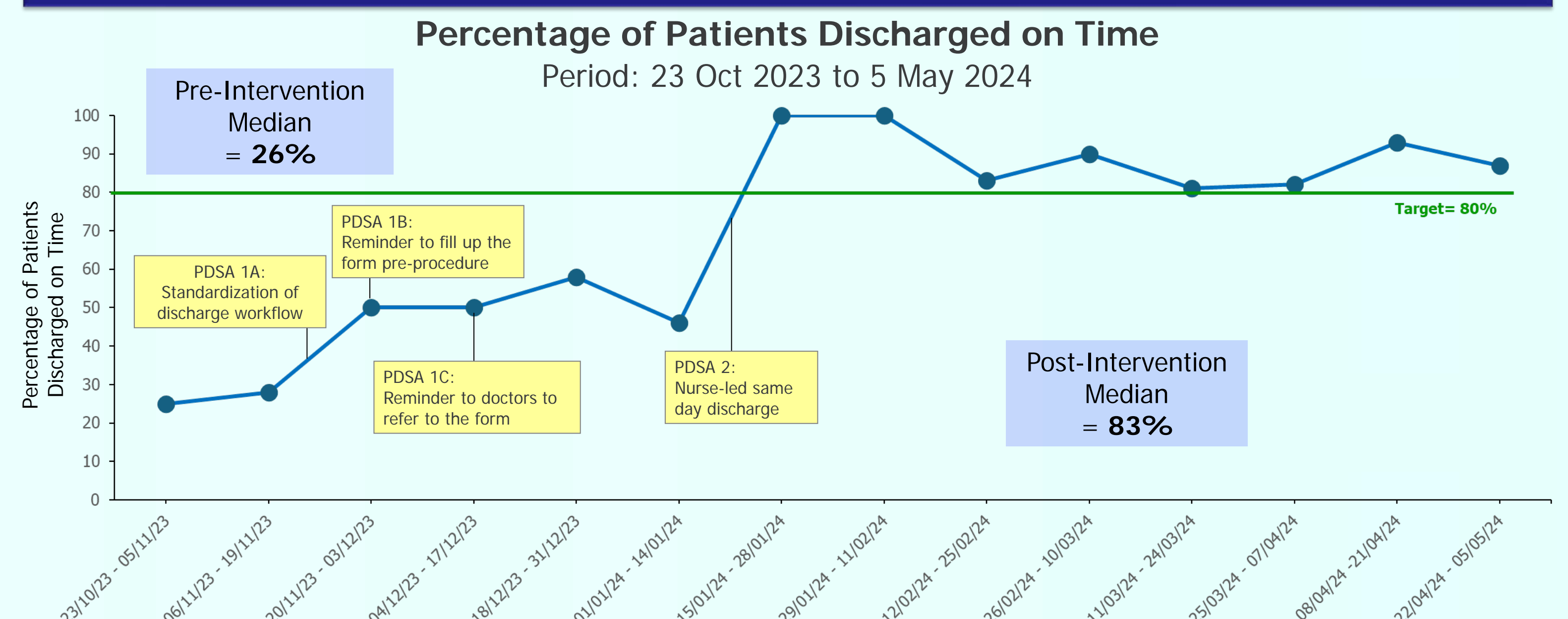
Pareto Chart



Implementation

CAUSE	INTERVENTION	DATE OF IMPLEMENTATION
Cause 1: No standardized discharge workflow for doctors and nurses	Intervention 1: Standardisation of discharge workflow	20 Nov 2023
Cause 2: Doctor not available to review and discharge patient	Intervention 2: Nurse led same day discharge	10 Jan 2024

Results



Pre-Intervention	Post-Intervention	Sustainability Phase
23/10/2023 to 05/11/2023	20/11/2023 to 04/12/2023	18/12/2023 to 31/12/2023
05/11/2023	20/11/2023	18/12/2023
19/11/2023	04/12/2023	31/12/2023
03/12/2023	18/12/2023	31/12/2023
17/12/2023	01/01/2024	31/12/2023
31/12/2023	15/01/2024	31/12/2023
14/01/2024	29/01/2024	31/12/2023
28/01/2024	11/02/2024	31/12/2023
11/02/2024	25/02/2024	31/12/2023
25/02/2024	10/03/2024	31/12/2023
10/03/2024	24/03/2024	31/12/2023
24/03/2024	07/04/2024	31/12/2023
07/04/2024	21/04/2024	31/12/2023
21/04/2024	05/05/2024	31/12/2023

Cost Avoidance

	Pre-Intervention	Post-Intervention
Assume number of patients seen <i>bi-weekly</i> = 12 patients		
Median of % patients discharging on time	26%	83%
Estimate no. of patients discharging on time	3	10
Difference in no. of patients successfully discharged on time	10-3 = 7 patients	
Assume manhour required per patient as follow		
Average time saved for:		
<ul style="list-style-type: none">▪ Doctor (Resident level)= Time saved 60 minutes (standardized discharge template→ no back and forth on discharge orders, review patient and signing discharge review) → SGD 121.20▪ Nurse (ANC)= Time saved 80 minutes (median delay discharge time was 80 minutes pre intervention)→ SGD 87.20		
Total= SGD 208.40 per patient		
Cost Avoidance	7 x SGD 208.40 = SGD 1458.80 (Bi-weekly) Annual = SGD 1458.80 x 24= SGD 35,011.20	

Problems Encountered

- Coming up with standardised workflow did not translate to immediate improvement. It required constant reinforcements at both doctor and nursing level, with prompt and regular feedback before we could see results.
- The process of data gathering for delayed time of discharge was tedious and time consuming and may be limiting factor for sustainability. We are working to see if this process could be automated with electronic medical records, more so as we are monitoring as part of our key performance indicator in our cardiac catheterisation laboratory.

Strategies to Sustain

- Appoint nurse champion to continue monitoring and reinforce the changes.
- To hold periodic feedback sessions on the progress and challenges.
- Train and certify more nurses for competency in nurse-led same day discharge.
- Monitor as key performance indicator (KPI) for cardiac catheterization laboratory.