

## **Project Title**

Accurate Medication Supplies to Inpatients

## **Project Lead and Members**

Project lead: Yap Jun Liang

Project members: Tengku Nur Amylia Binte Tengku Abdul Rashid, Tan Yuen Ming,  
Cheryl Chin Qian Ni, Khoo Chong Zen, Tan Yen Yen, Shakelah Begum Mohd Kuppai

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group Involved in this Project**

Allied Health

## **Applicable Specialty or Discipline**

Pharmacy

## **Project Period**

Start date: February 2021

Completed date: July 2022

## **Aims**

For the period from Feb to Jul 2022, we want to improve the inpatient pharmacy medication supplies accuracy from 33.3% (only 2 out of 6 months target was met) to 66.7% (4 out of 6 months target is met).

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

1. Improvement can be achieved and sustained through understanding of the workflow and colleagues' perspectives. As seen from the run chart, the team exceeded the project target and met the target 100% of the time.
2. This innovation can be applicable in other settings and hence was also shared to departments like Operation Theatre.

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign

Risk Management, Preventive Approach

## **Keywords**

Accurate Medication Supplies, Automation, Excel VBA

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# ACCURATE MEDICATION SUPPLIES TO INPATIENTS

YAP JL, TENGKU NUR AMYLIA TAR, TAN YM, CHIN CQN, KHOO CZ, TAN YY, SHAKELAH B.

- SAFETY
- QUALITY
- PATIENT EXPERIENCE
- PRODUCTIVITY
- COST

## Define Problem, Set Aim

### Problem/Opportunity for Improvement

To reduce potential risks to patient safety, the hospital sets a target of not more than 0.1 error per 1000 medications supplied from pharmacy to inpatients. Between Feb to Jul 2021, the monthly supply error rate was met only 33.3% of the time (2 out of 6 months).

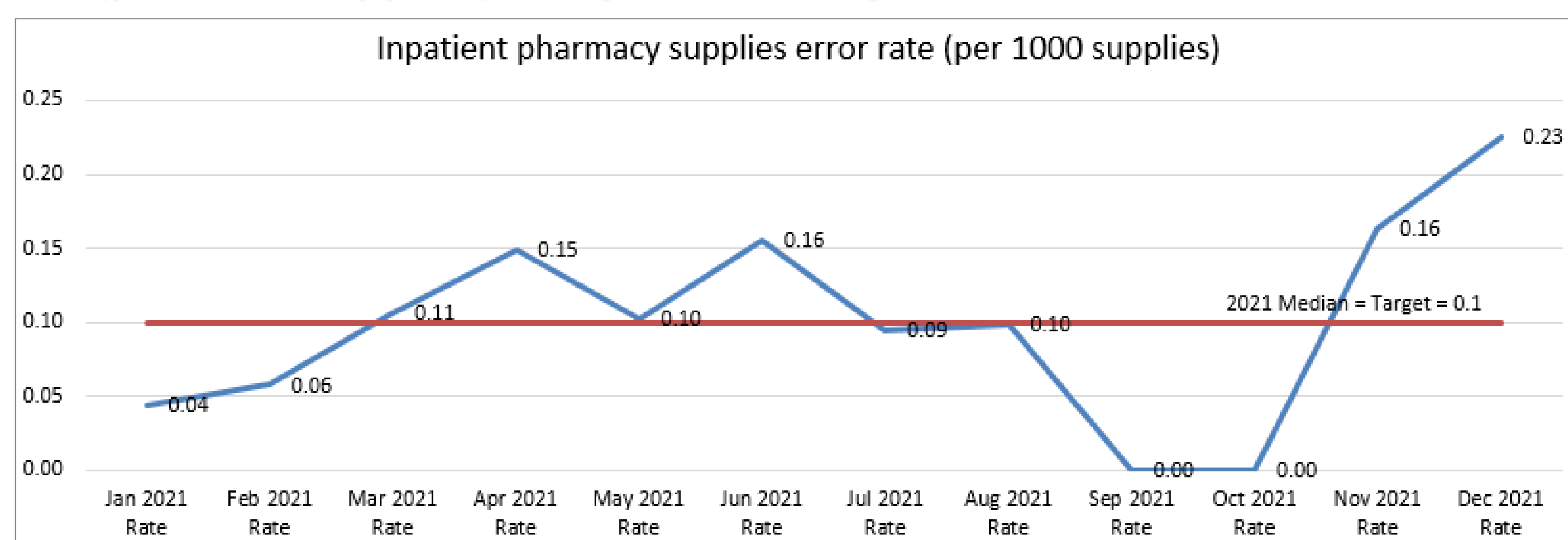
### Aim

For the period from Feb to Jul 2022, we want to improve the inpatient pharmacy medication supplies accuracy from 33.3% (only 2 out of 6 months target was met) to 66.7% (4 out of 6 months target is met).

## Establish Measures

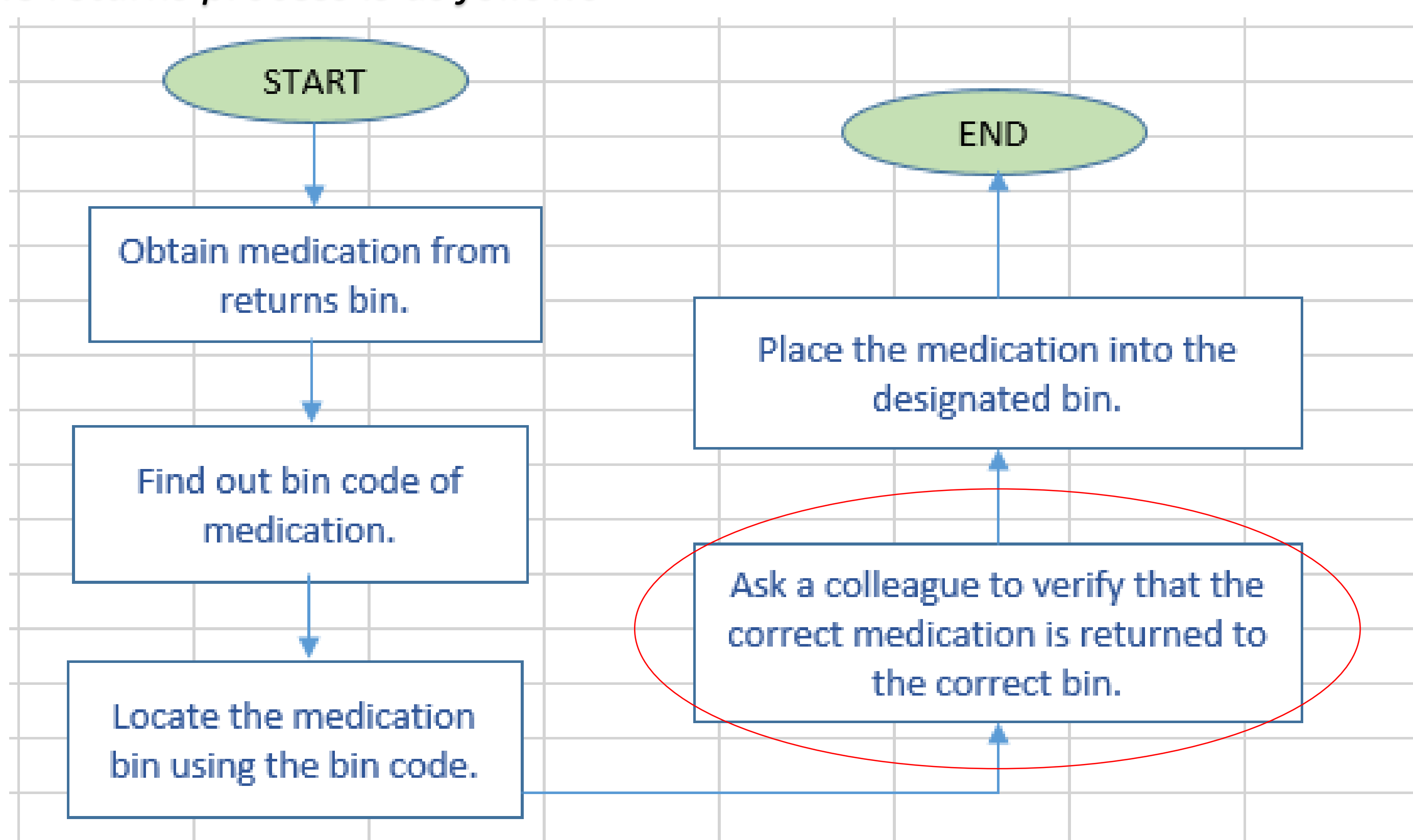
### What was your performance before interventions?

The outcome measure for this project is 'Inpatient pharmacy supplies error rate (per 1000 supplies)'. Performance before intervention is:



## Analyse Problem

From a brainstorming session, the team came up with an affinity and subsequent fish bone diagrams + 5 Whys. One of the main contributing factors identified by the team is medications returned to the wrong medication bins. This leads to subsequent wrong supplies. Process map for the returns process is as follows-

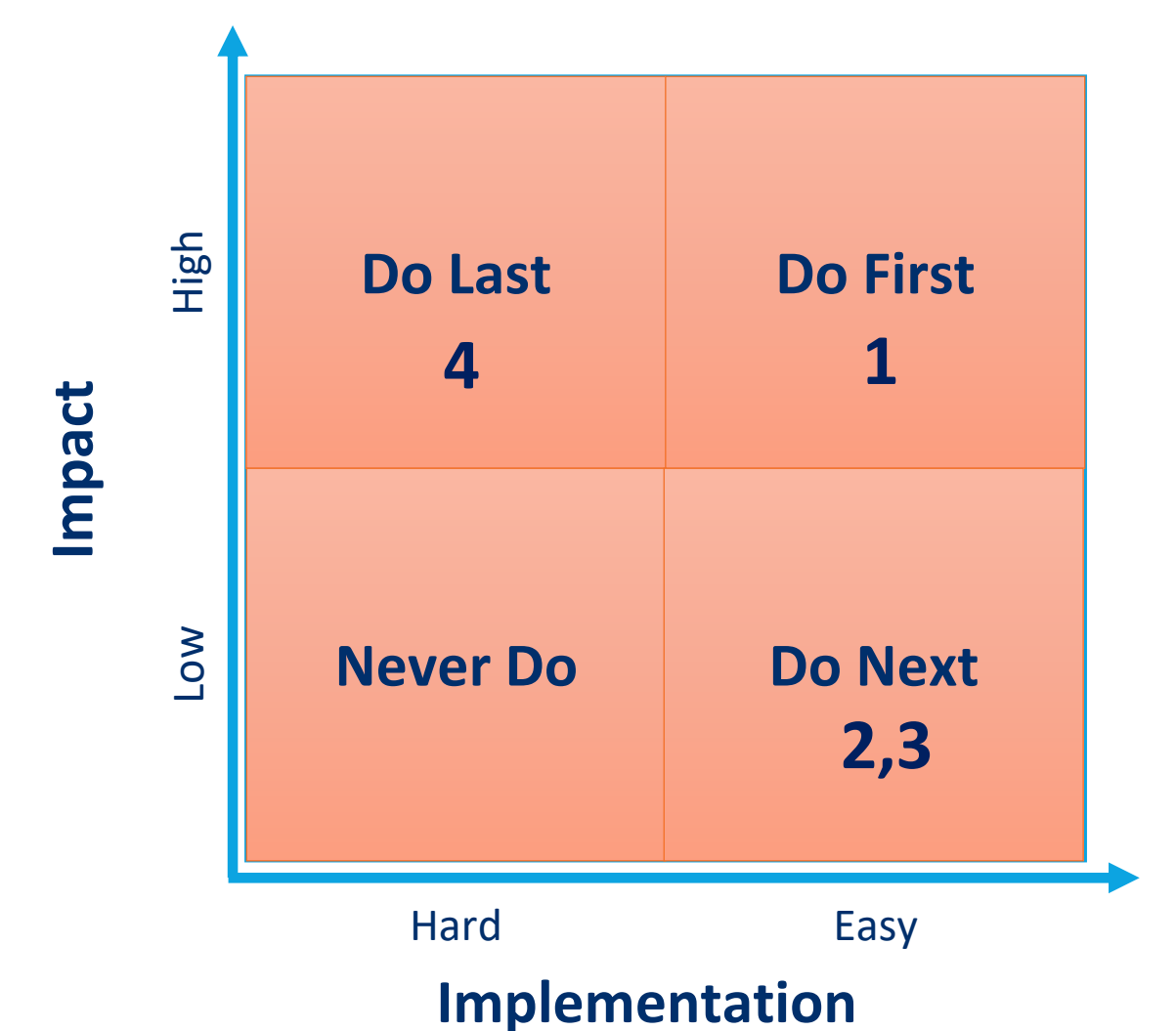


Due to manpower constraints, the step of having an independent double check (step encircled in red above) is frequently skipped. As a result, the medication bin may contain the wrong medication or strength. Subsequently, staff who pack medications will obtain the wrong medication or strength from the correct medication bin.

## Select Changes

### What are all the probable solutions?

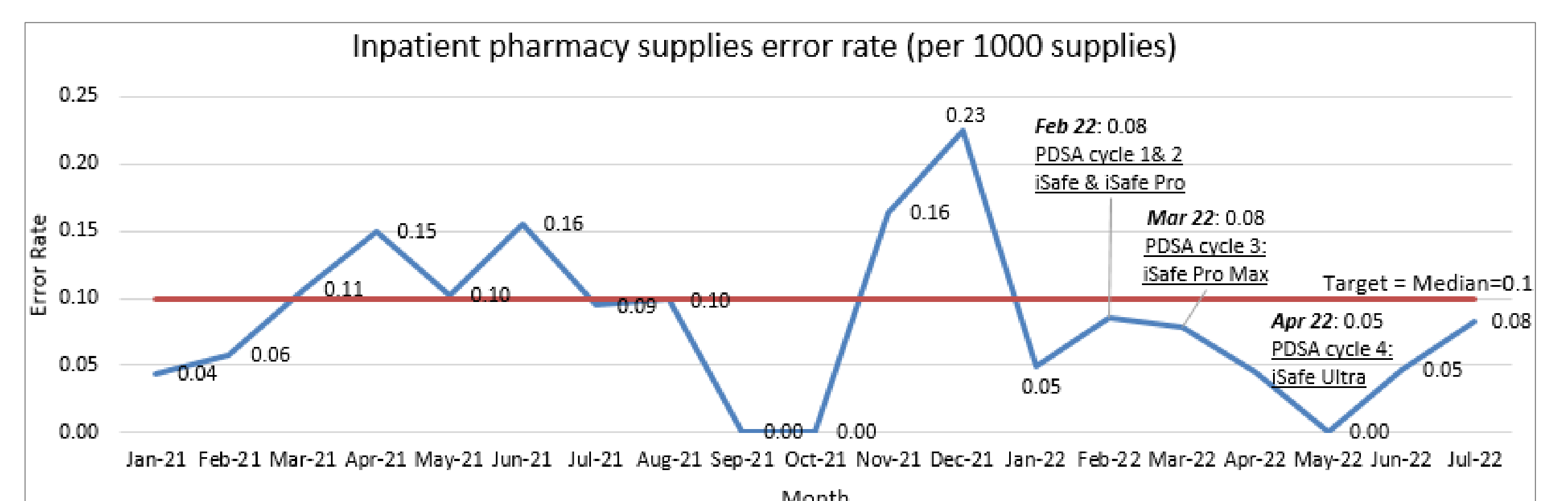
Root Cause	Potential Solutions
Medications returned to the wrong medication bins	1 Automate process
	2 Reinforce process to staff
	3 Reshuffle medication bins to prevent returns by memory
	4 Hire more staff with justification



## Test & Implement Changes

### How do we pilot the changes? What are the initial results?

CY	PLAN	DO	STUDY	ACT
1	To use technology that gives a visual cue when wrong drug is returned to the medication bin.	iSafe prototype: gives visual cue (red (indicates wrong) vs green (correct)) when drug and medication bin are scanned.	The proposed change (iSafe) is effective but slow as it supports only one entry at a time. Staff needs to manually refresh each time when scanning a different medication.	To enhance iSafe to allow multiple entries so that the frequency of manual refreshing of screen, can be reduced.
2	To enhance iSafe to allow multiple scans without a need for frequent manual refreshing of screen.	The enhanced version (iSafe Pro), works well.	iSafe Pro is effective in reducing wrong returns but process can be safer if there is additional audio feedback on accuracy of returns.	To include audio feedback on accuracy of returns.
3	To enhance iSafe Pro to be able to give audio feedback to staff.	The second enhancement (iSafe Pro Max), works well.	iSafe Pro Max is effective but process can be even safer if it can read out the name of the medication as well as the bin code.	Enhance system allow this – creation of 'DAVID'
4	To include ability to read out the name of the medication as well as the bin code.	The proposed changed (iSafe ULTRA) works well and with no complains.	Automation is effective. Post-implementation, since cycle 1, hospital target consistently met. Staff of different experience and background are able to use this innovation well.	To update medication returns process on this new workflow.



## Spread Changes, Learning Points

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

- Coaching session for pharmacy technicians (PTs) and pharmacy assistants (PAs) on how to use the new system (iSafe ULTRA).
- Provided trolley for PT/PAs to put the laptop as well as basket to place the medications, for a more seamless process.

### What are the key learnings from this project?

- Improvement can be achieved and sustained through understanding of the workflow and colleagues' perspectives. As seen from the run chart, the team exceeded the project target and met the hospital target 100% of the time. The team felt a sense of fulfillment.
- This innovation was also shared outside pharmacy to departments like Operation Theatre.