



Introduction

Since June 2020, Bukit Merah Polyclinic pharmacy has one of the highest reported rates of near misses among all 8 SingHealth Polyclinics. Near misses in the pharmacy may arise from any step during processing of prescriptions, from keying, picking to dispensing, and this may potentially cause harm to patients.

Aims

1. To reduce the total number of near misses over 6 weeks due to wrong quantity by 20% with a stretch goal of 0 near miss.
2. To reduce the total number of near misses over 6 weeks due to wrong strength by 20% with a stretch goal of 0 near miss.

Methodology

Pharmacy monthly near miss reports from 1st June to 30th September 2020 were analyzed to identify the most common types of errors and associated drugs. Top 2 near miss error categories identified were **wrong quantity** and **wrong strength** of medications picked.

A survey was conducted among Pharmacists and Pharmacist Technicians in Bukit Merah Polyclinic pharmacy to determine the causes of near misses. Potential causes of near misses were listed in an **Ishikawa Diagram (Fig. 1)**.

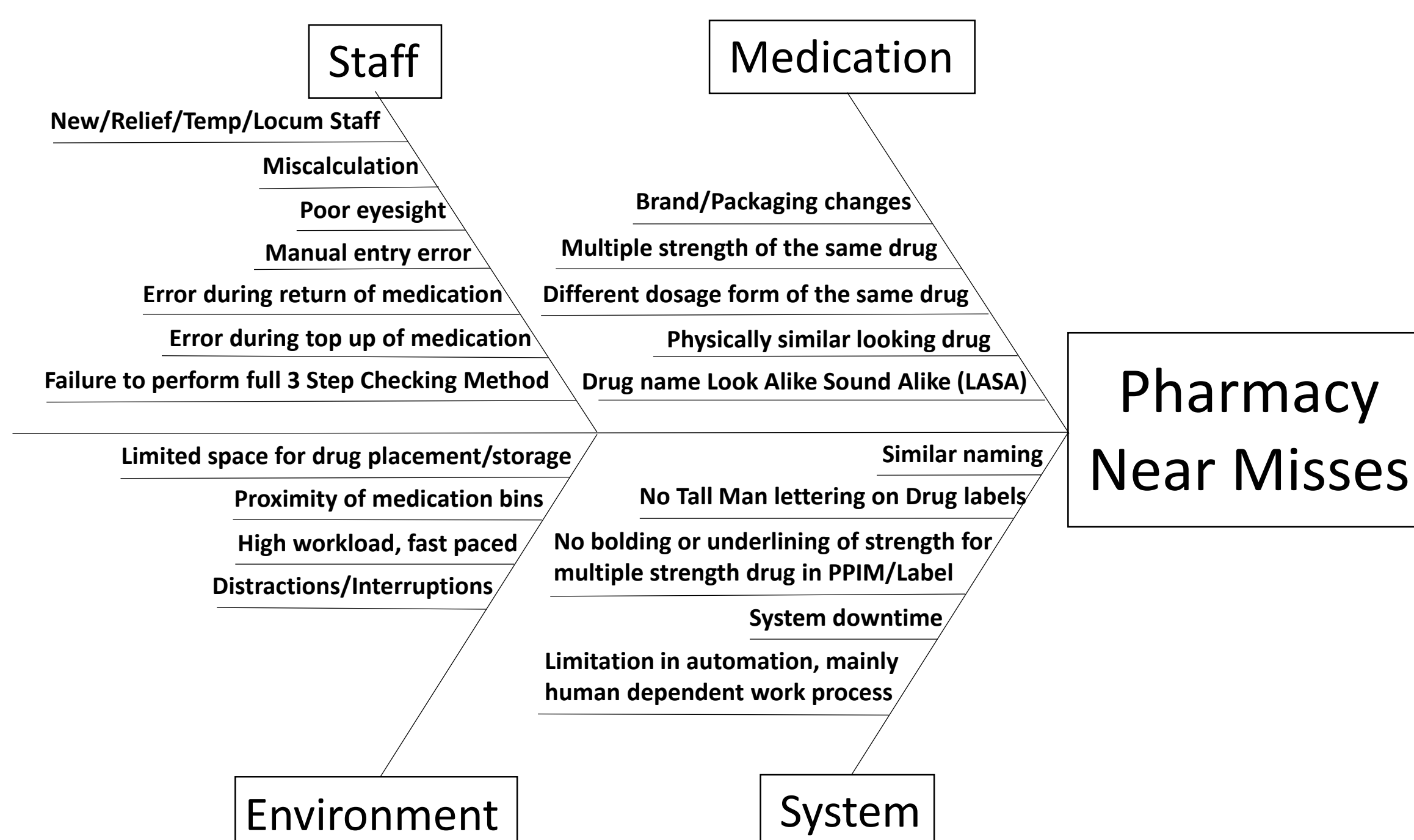
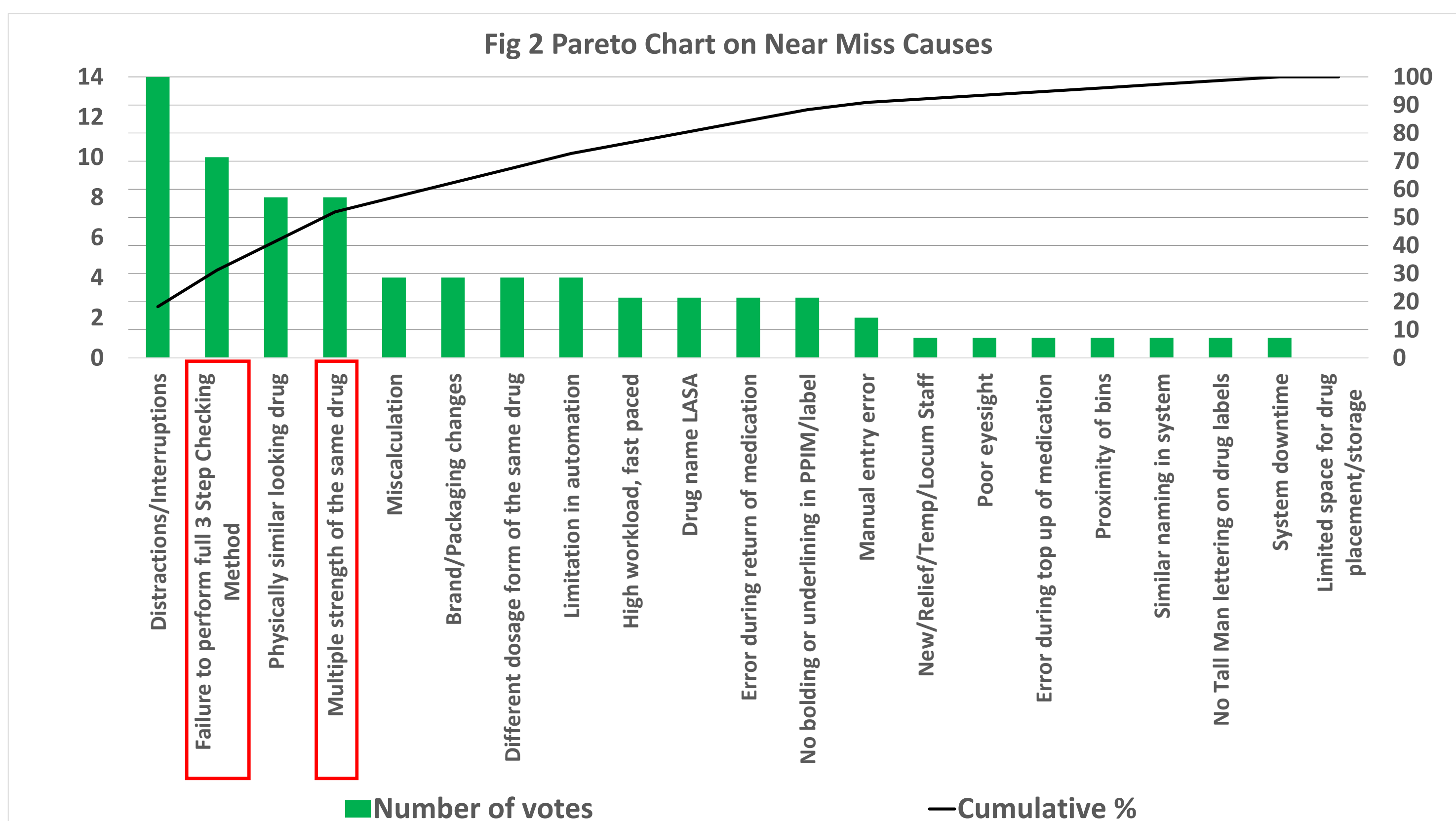


Fig. 1 Ishikawa Diagram on Near Miss causes

A pareto chart was constructed and the top near miss causes were identified (**Fig. 2**).

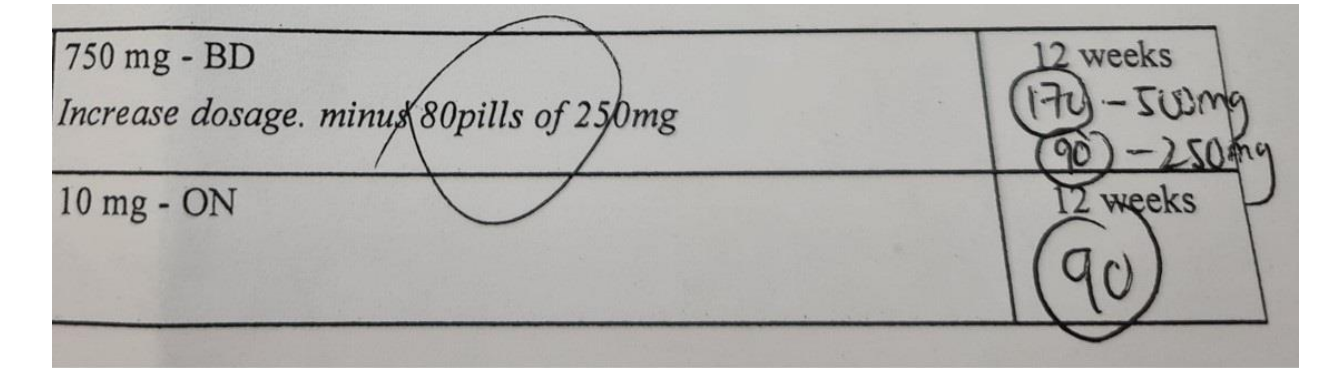


2 cycles of Plan-Do-Study-Act (PDSA) were carried out over a total duration of 6 weeks to address top modifiable causes such as:

1. Failure to perform 3 Step Checking Method (PDSA 1)
2. Multiple strength of the same drug (PDSA 2)

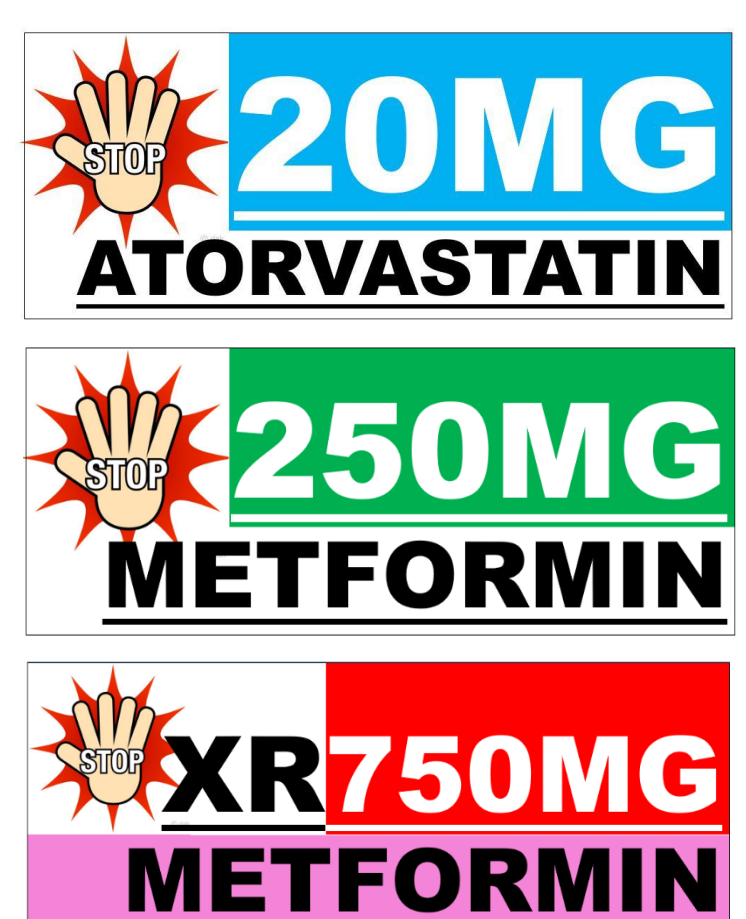
PDSA 1 (12/10/20–21/11/21)

- Staff were to check, count and write down the quantity packed on the prescription.
- Compliance was accessed by random checking of dispensed prescriptions on a daily basis.



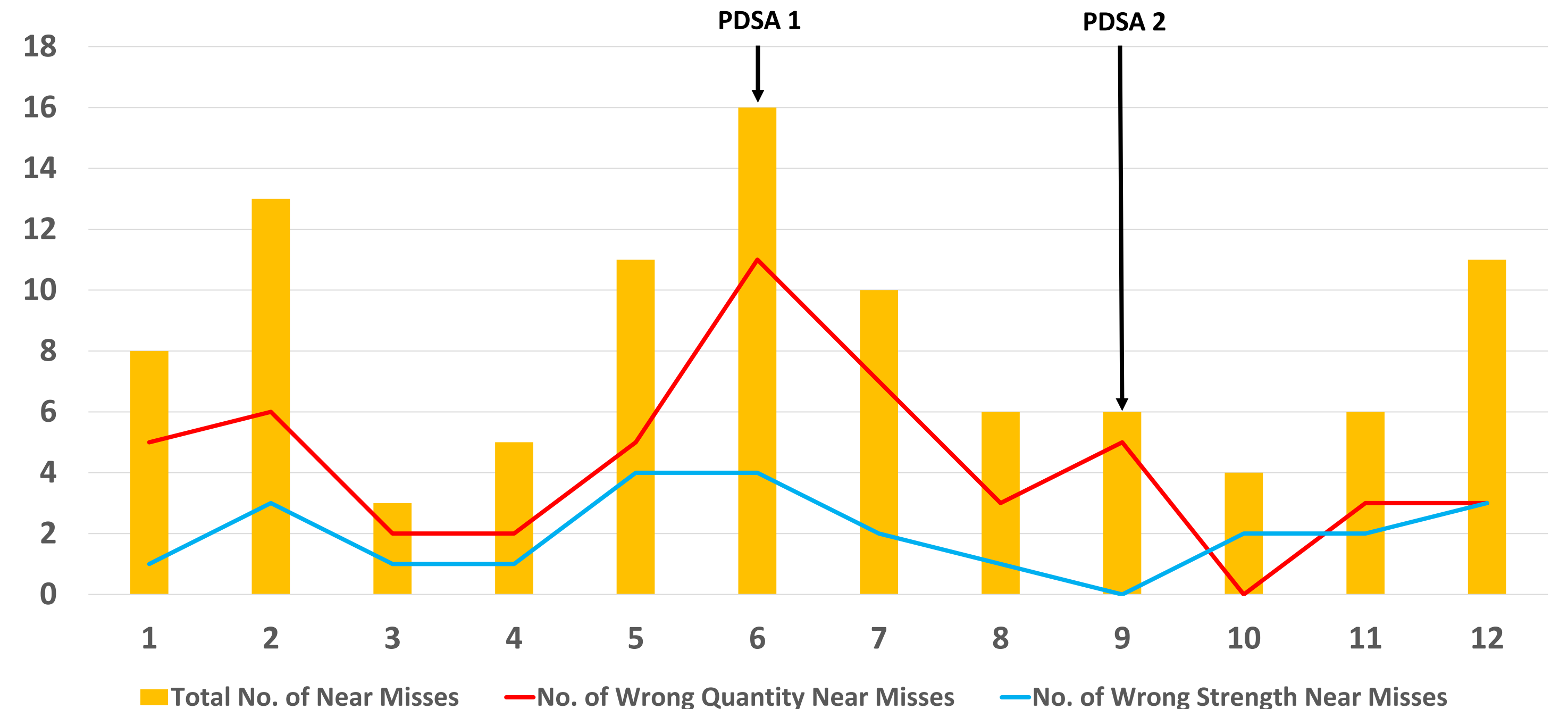
PDSA 2 (02/11/21-21/11/21)

- Among the near misses captured due to wrong strength of medications picked, the top 2 drugs identified were Metformin and Atorvastatin.
- Large labels were placed strategically at medication bins as prominent visual cues with strength highlighted against different colored background with enlarged font.



Results

Fig. 3 Total Number of Near Misses over 12 weeks



Week	1	2	3	4	5	6	7	8	9	10	11	12
Total No. of Near Misses	8	13	3	5	11	16	10	6	6	4	6	11
Total No. of Wrong Quantity Near Misses	5	6	2	2	5	11	7	3	5	0	3	3
Total No. of Wrong Strength Near Misses	1	3	1	1	4	4	2	1	0	2	2	3

1. Total number of near misses over 6 weeks due to wrong quantity reduced by 32% from 31 to 21.
2. Total number of near misses over 6 weeks due to wrong strength reduced by 29% from 14 to 10.
3. Number of near miss due to wrong strength of Metformin and Atorvastatin reduced from 1 and 3 respectively to 0.

Conclusion

Both aims to reduce the total number of near misses over 6 weeks due to wrong quantity and wrong strength by 20% were achieved.

Interventions chosen were simple, easy to implement and caused minimal disruption to the current workflow and resources.

The measures implemented in PDSA 1 may be incorporated into current workflow as it complements the existing 3 Step Checking Method. However, it is not feasible to apply measures implemented in PDSA 2 to all drugs with multiple strength as it will not be visually distinct due to existing colored labels in the pharmacy.

Overall, the interventions were effective in meeting the aims of the project.