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Developing Drug Bin Label System at Singapore General Hospital Outpatient Pharmacy

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Background

The Outpatient Pharmacy holds approximately 1300 drug items. Each drug item is stored in a labeled drug bin. Pharmacy staff relies on the bin labels to efficiently and accurately locate the required drugs to fill patients' prescriptions.

The information on the bin labels requires updating whenever there are changes to bin location, cautionary information or inventory. However, the bin labeling process and management was unorganized among the stakeholders, which includes the Inventory, Medication Safety and Environment, Health & Safety (EHS) teams. The information and layout of the drug bin labels were also not standardized. Hence, the bin labeling process was time-consuming. Feedback gathered from pharmacy staff highlighted that the lack of organization and standardization could cause confusion and potentially lead to medication errors.

Mission statement

The project aimed to develop a system to improve and manage the bin labeling process in 3 months, reducing the time taken to process each bin label change by 50%.

Analysis

Root cause analysis was conducted to identify the causes for unorganized bin labelling process (figure 1).

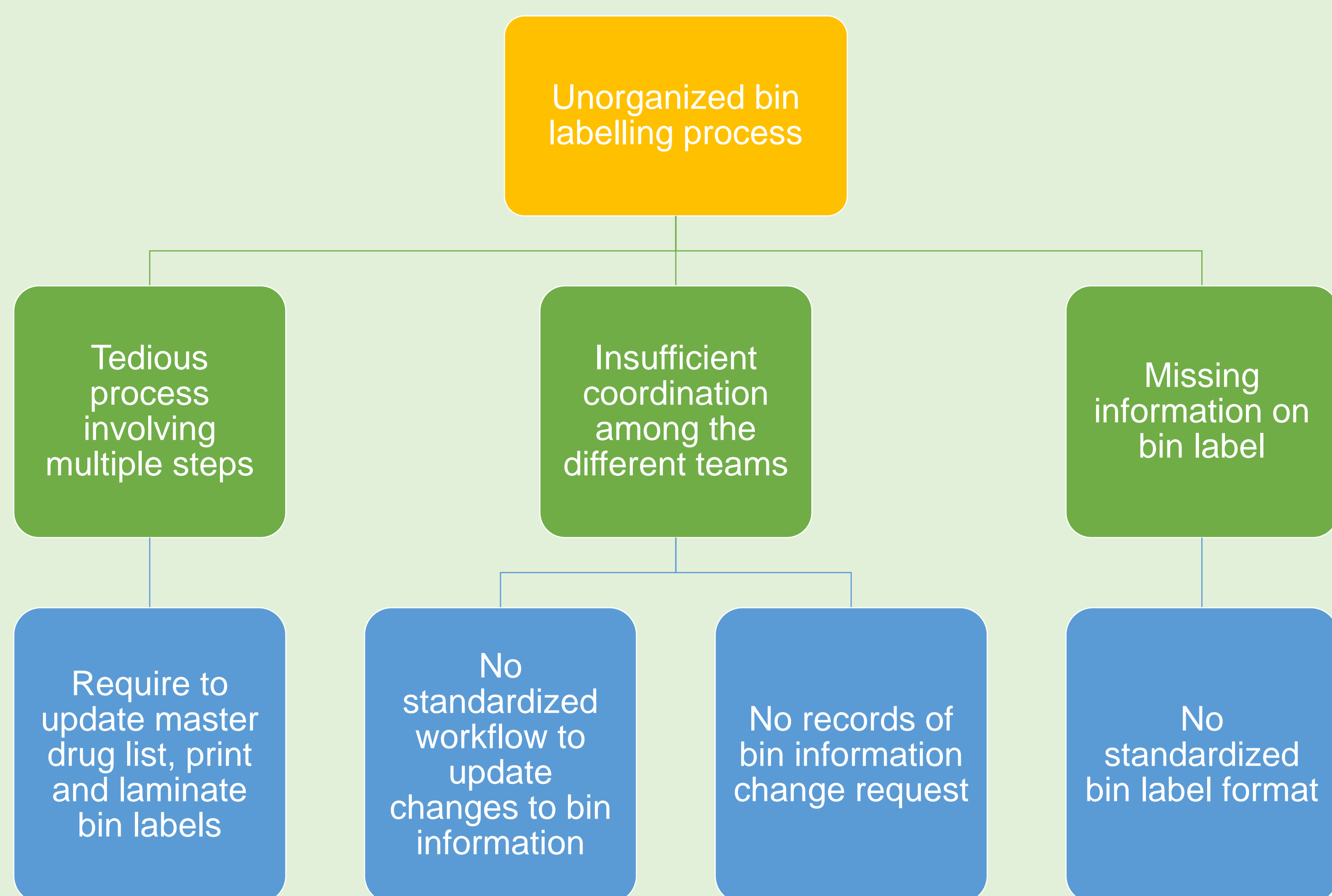


Figure 1: Root cause analysis

Initiatives

Based on the root causes identified, brainstorming session was held and the best solutions were selected through multi-voting. The following interventions / initiatives were carried out:

Interventions / Initiatives	Benefits
Develop master database of drug bin location and information • Verified by Inventory, Medication Safety and EHS Teams	<ul style="list-style-type: none"> Comprehensive drug list with updated and consolidated drug bin information Changes to drug bin information are automatically translated to ready-to-print bin labels, eliminating errors from manual translation Improves management of drug bin information
Develop drug bin location change request form • Request for location change to be reviewed by the various stakeholders	<ul style="list-style-type: none"> Allows tracking and hence accountability of location changes Promotes systematic review of the appropriateness of location changes by the various stakeholders
Standardize drug bin label design • Includes all pertinent drug bin information • Pharmacy staff voted for the best label design	<ul style="list-style-type: none"> Minimize confusion and maximize clarity, thereby promoting medication safety Alert staff on appropriate handling of drugs

Multiple drug strengths available indicated at the top

Drug strength highlighted with arrow

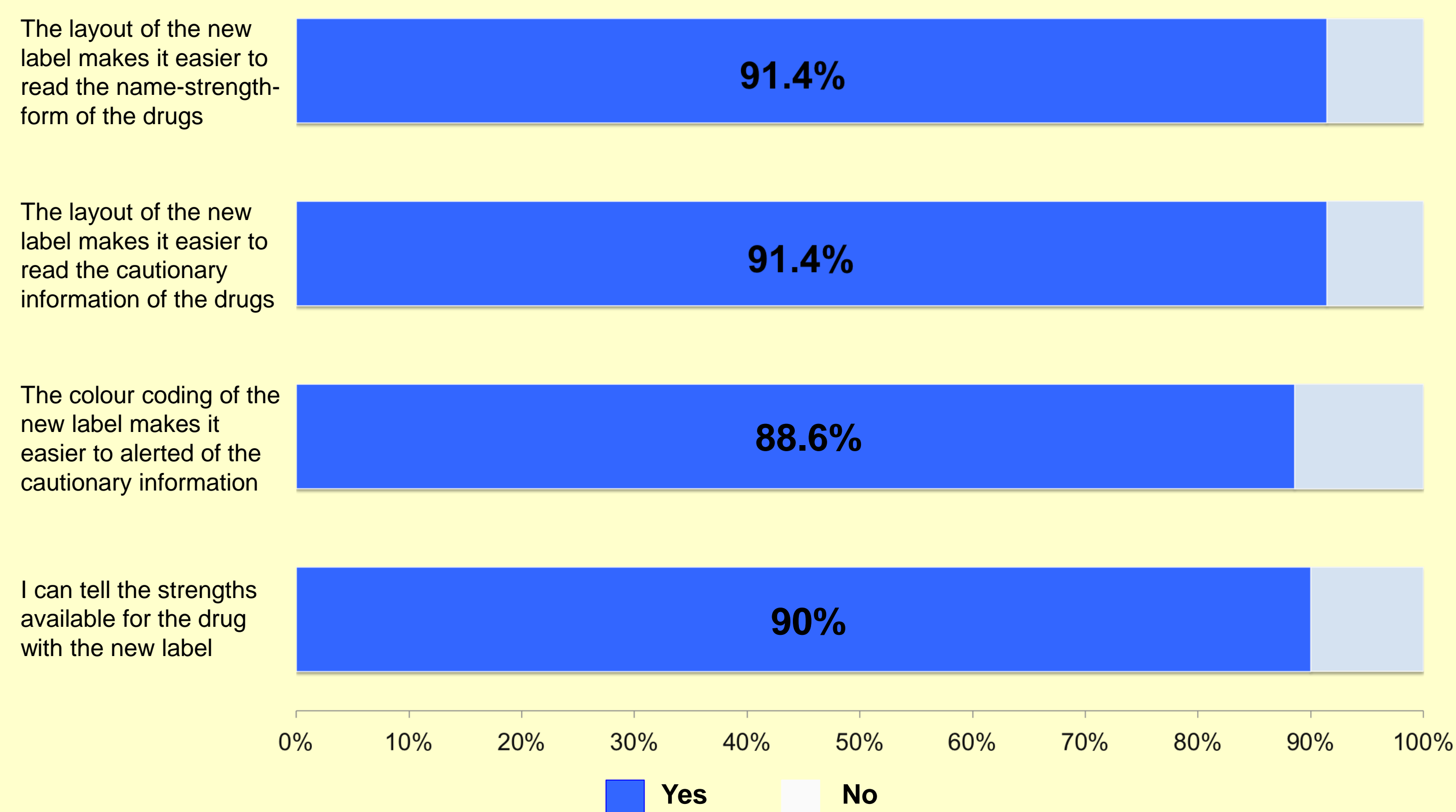
Relevant cautionary labels on the right

Figure 2: Standardized drug bin labels voted by pharmacy staff

Results

The development of the drug bin master database and standardization of the bin label design had reduced the time taken to process each bin change by 50%. Standardized drug bin labels voted by pharmacy staff that best promotes medication safety were fully implemented in February 2017. Results from post-implementation survey suggests that standardized drug bin labels improves medication safety.

Post-implementation survey on standardized drug bin labels



Conclusion and Future Works

We would continue to gather regular feedback from staff to enable further improvement of the drug bin label system. An example of a feedback received was to explore the use of acrylic holders for the drug bin labels to enhance durability. Overall, the consolidation and standardization of information through the new bin label system had improved the accuracy and timeliness of the bin labeling process. With approximately 10 bin location changes per month, the time saved in processing bin change is projected to be 30 hours per year. The improved bin label layout presents drug bin information with greater clarity and promotes safety, in line with the priorities of Singapore General Hospital to provide safest care and improve efficiency through streamlining processes.