Singapore Healthcare Management 2018

StrEAMLining the sort prescription procESS [SEAMLESS]

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Background

Over 800 prescriptions (Rx) are processed at the Singapore General Hospital Outpatient Pharmacy daily. After Rx are filled i.e. medications are dispensed to patients, the Rx are sorted by a pharmacy assistant (PA) in alphabetical order and stored for 2 years as per legal requirement.

The sort Rx process is time consuming, taking 5.5 hours to complete daily (0.7 full-time equivalent). The PA is required to perform numerous tasks. These tasks include separating Rx with attached documents that require subsequent processing such as bill adjustment, tracing for signatures on Rx and dispatching documents to various departments. The entire sorting process is summarized in a **Flowchart** in Figure 1.

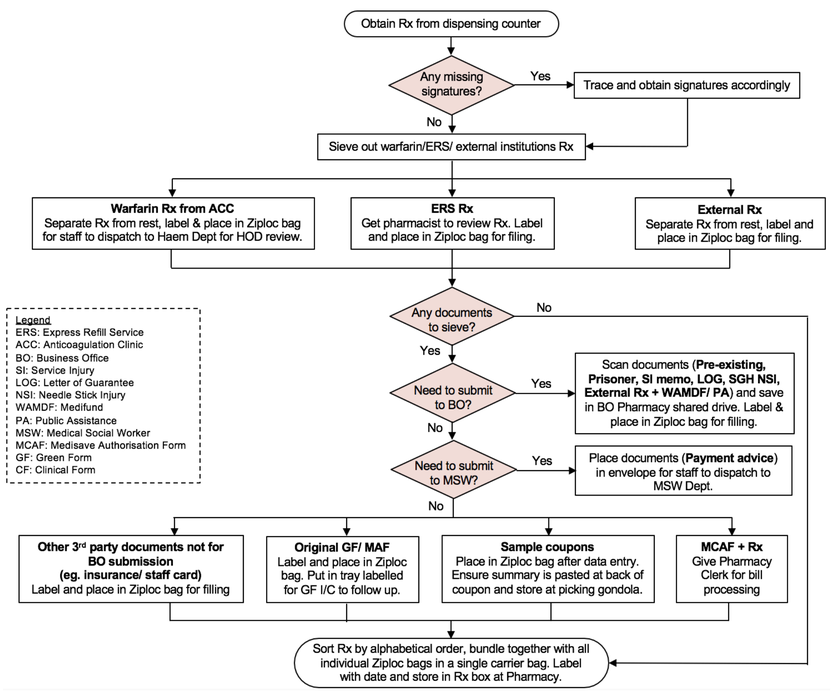

Figure 1: Sort Rx workflow at Outpatient Pharmacy

Mission statement

The aim of this study is to streamline the process and reduce the time spent to sort Rx by 75% within 4 months.

Methodology

Cause and Effect diagram was used to brainstorm root causes for the long time spent in sorting Rx.

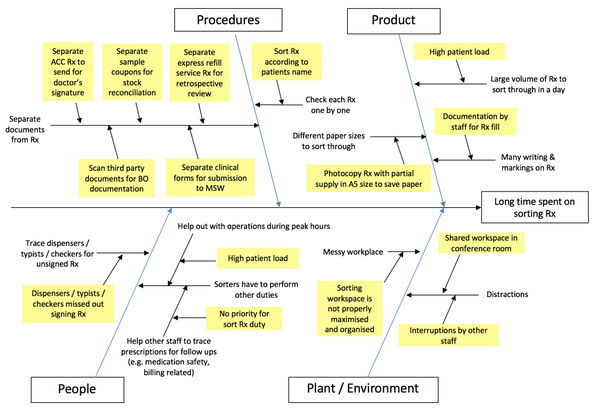

Figure 2: Cause and Effect diagram

Pareto chart was used to identify vital root causes through multi-voting by team members based on impact, frequency and prevalence.

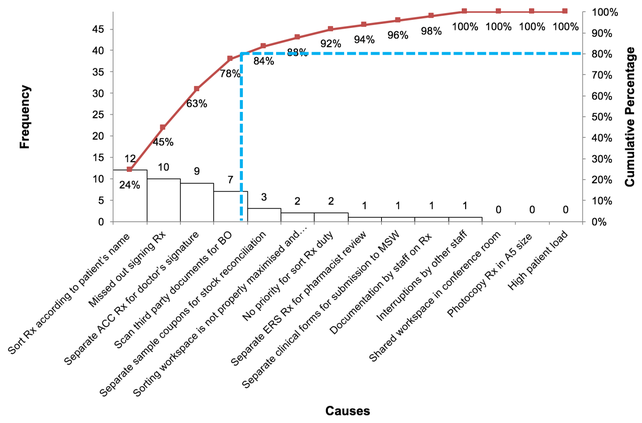

Figure 3: Pareto chart

Driver diagram was used to identify drivers for reducing time taken to sort Rx and brainstorm for solutions based on these drivers.

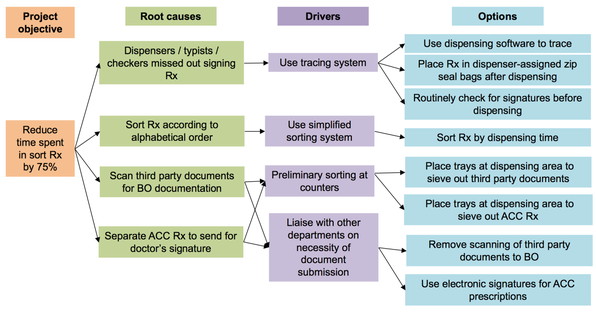

Figure 4: Driver diagram

Prioritization matrix was used to select the best solutions that were subsequently implemented in two PDSA (Plan-Do-Study-Act) cycles.

	Easy to implement	Sustainable	Time & Resources required	Effectiveness	Score	Solution selected	PDSA Cycle
Use dispensing software to trace	2	2	2	3	9	√	2
Place Rx in dispenser-assigned zip seal bags after dispensing	1	1	2	1	5		
Routinely check for signatures before dispensing	3	1	1	1	6		
Sort Rx by dispensing time	3	3	3	3	12	√	1
Place trays at dispensing area to sieve out third party documents	3	3	2	2	10	√	1
Place trays at dispensing area to sieve out ACC Rx	1	1	2	2	6		
Remove scanning of third party documents to BO	2	2	2	2	8	√	2
Use electronic signatures for ACC prescriptions	3	3	2	3	11	√	1

Score 1 = Meet criteria least; Score 2 = Meet criteria moderately; Score 3 = Meet criteria most

Figure 5: Prioritization matrix

Interventions

The following interventions were implemented in 2 PDSA cycles, one cycle at a time as detailed in the **Gantt chart** (Figure 6 below):

PDSA 1: (1) Rx sorted by dispensing time; (2) Preliminary sorting performed at the dispensing counters, where Rx with third party documents are separated; (3) Eliminate need for subsequent processing of ACC Rx with use of electronic signatures.

PDSA 2: (1) Tracing of signatures replaced with in-house dispensing software; (2) Eliminate scanning of documents for Business Office.

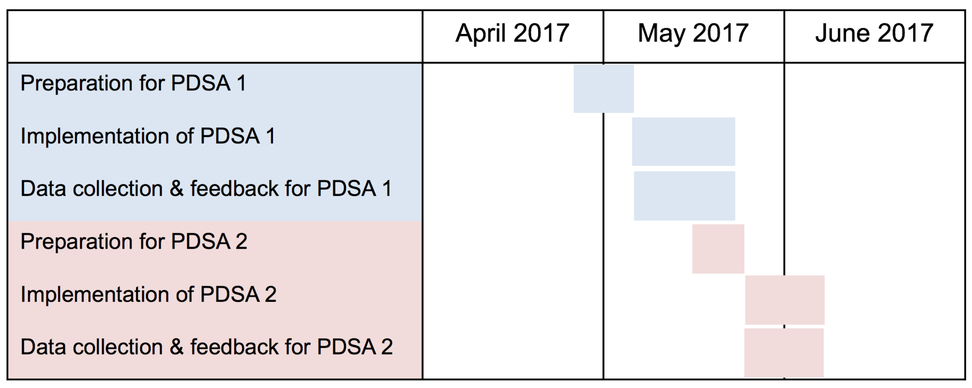

Figure 6: Gantt chart

Results

Daily time spent on the sort Rx process at baseline and respective PDSA cycles is plotted in a **Run chart**.

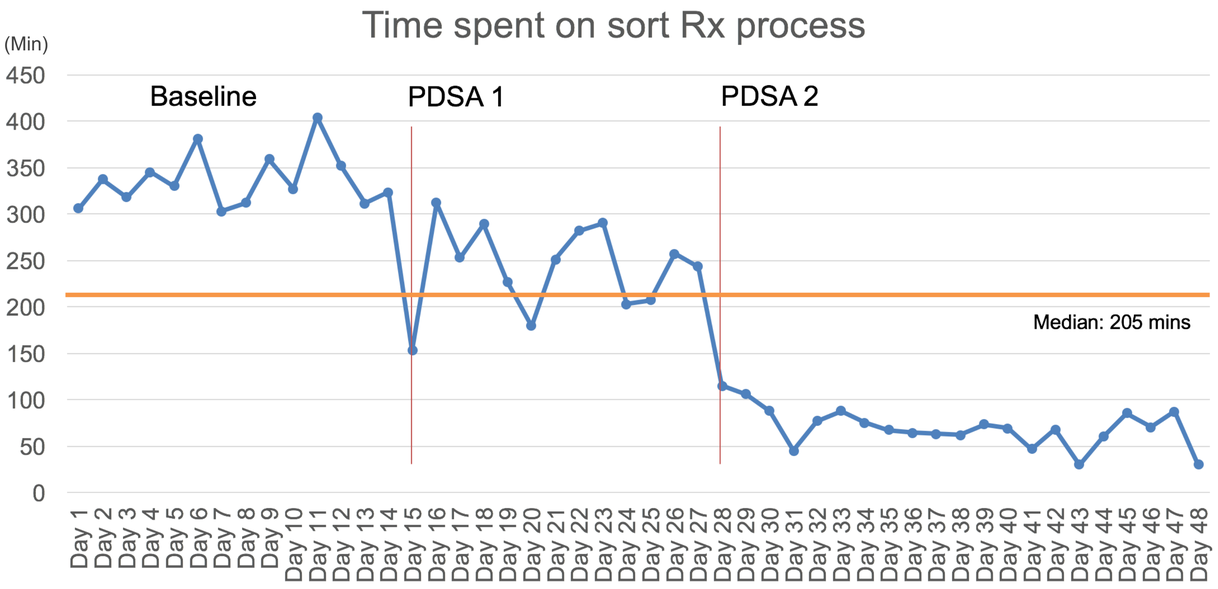

Figure 7: Run chart

There is a 78% reduction in time spent on sorting Rx from baseline to PDSA 2, while accuracy rate of sorting Rx with the new workflow is high at 98.3% in PDSA 2. This reflects the efficiency of the new workflow in reducing time spent on sorting Rx, while maintaining accuracy in sorting.

Conclusion

The streamlined process has reduced the overall time spent in sorting Rx. This allows manpower to be fully maximized at the pharmacy as the task can be combined with another operational duty, while the originally rostered PA can be channeled to perform other duties in the pharmacy. The solutions have been sustainable since implementation. By contributing to greater process efficiency, the solutions have value-added to the provision of quality service to patients by the pharmacy.

Sustainability

- Periodic roll calls are made to ensure staff are familiar with the new sort Rx workflow.
- A standard operating procedure written for the new workflow is incorporated into the training program for all pharmacy technicians for August 2017 cohort onwards.
- Feedback is collected continually and refinements are made to the workflow to better complement pharmacy operations.