Redesign the Medication Reconciliation Workflow to Facilitate Timely Discharges

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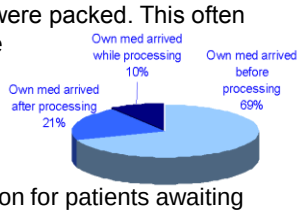
BACKGROUND

Medication reconciliation aims to reduce medication errors and adverse drug events, and improve patient safety. NUH Medication Reconciliation Guideline states all patients admitted would have their medications reconciled within 24 hours.

Prior to this project, only 44% of NUH patients brought in their own medications to NUH for medication reconciliation.

Of the medications brought in, 31% arrived at the pharmacy during or after the patient's discharge medications were packed. This often resulted in the need for repacking to be done after physical medication reconciliation.



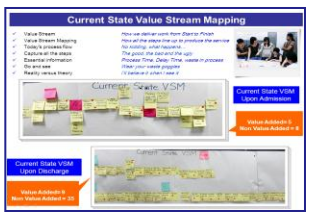
Moreover, 66% of medication reconciliation was done during Inpatient Pharmacy's peak hours of 10am to 1pm. This took time away from preparing medication for patients awaiting discharge. The competing work demands during peak hours added stress to the Pharmacy staff and hindered timely discharge. With the rework and uneven workload, the pharmacy processing time was 50 minutes. "Discharge Medication Delay" was cited as the 2nd most frequent cause for late discharge, contributing to 12.5% of all late discharges.

OBJECTIVES

1. Redesign the workflow to ensure patients bring in their own medications for Medication Reconciliation. (Patient Safety)
2. To have Medication Reconciliation (except final reconciliation) done prior to day of discharge. (Prevent rework and delays)
3. Improve workload leveling for pharmacists and facilitate timely discharges through workflow redesign. (Improve timeliness and staff morale)

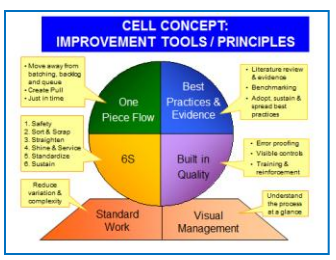
METHODOLOGY

The following methods were applied to analyze the medication reconciliation process, identify wastes and root causes in a Rapid Improvement Event held on May 2011. Value Stream Mapping of the current state to allow clear visualization of the value and waste in the medication reconciliation process.



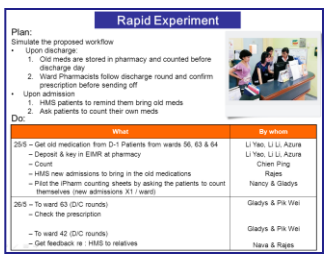
Use of "8 Wastes" and "Go and See" to identify key wastes in the medication reconciliation process.

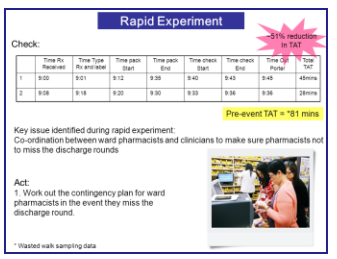
The team was encouraged to explore break-through solutions through a paradigm breaking session.



Utilizing principles from the Cell Concept, the team was able to generate comprehensive solutions.

Solutions were prototyped through a one-day "Rapid Experiment", in which the solutions were tested, reviewed and fine-tuned.



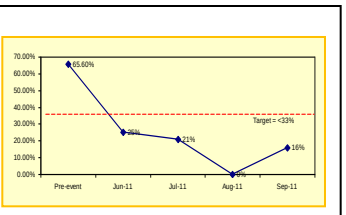


IMPLEMENTATION – KEY CHANGES

1. Pharmacy work tasks were re-organized to level workload and optimize manpower utilization.
2. Patients' own medications are now sent directly to the pharmacy by patients or next of kin, enabling early medication reconciliation.
3. Ward pharmacists now facilitate a first cut screening of discharge prescriptions, to reduce rework from errors or amendments.
4. Medication reconciliation information is now included in the existing electronic dashboard in general wards, to provide real time visual updates to pharmacy and ward staff regarding medication reconciliation status.
5. Standardized communication through the use of Healthcare Messaging System (HMS), to promote patient's awareness of the need to bring old medications, thus leading to improved patient safety and cost savings from avoiding unnecessary medications.
6. A separate 2-day 6S workshop was conducted in pharmacy to optimize storage capacity to hold the increased amount of patients own medications awaiting reconciliation.
7. New workflows were communicated to all staff involved in medication reconciliation, including clinicians, ward and pharmacy staff.

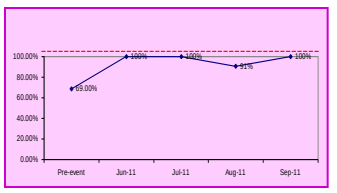
RESULTS

1. Timely discharge and Workload Leveling:
- Medication Reconciliation during peak hours decreased from 66% to 15%.
- Total processing time reduced from 50 mins to 28 mins. (38% improvement)



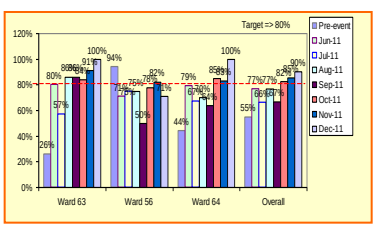
- "Discharge Medication Delay" dropped from the 2nd most frequent cause of late discharge to the 7th most frequent cause. Late discharges caused by medication delays reduced from 12.5% to 4.9% (61% improvement).

2. Reduce Rework:
- Medication Reconciliation done before packing of new discharge medication improved from 69% to 100%. This eliminates the need for rework from recounting and relabeling of medications.



3. Patient Safety:

Patients bringing their own old medication for reconciliation improved from 55% to 90%. Patient safety has improved due to lower risk of medication errors and adverse drug events.



4. Qualitative Benefits:
- Excellent teamwork between pharmacy and ward nurses to collaborate in improving the end to end-process across departments
- Workflow changes have been rolled out to all adult general wards in NUH

SUSTAINING THE GAINS & LESSONS LEARNT

Sustainability:
- Identification of project champions and regular engagement to ensure compliance to new workflow.
- Regular review meetings with the champions to report data analyzed, obtain feedback, understand challenges faced by staff, and further refine the workflow.

Key Success Factors:
- Shared goals and commitment from staff to improve patient and medication safety.
- Strong support and involvement of key stakeholders.