Project Title

Automation of Daily Cycle Count Generation

Project Lead and Members

Project Lead: Tan Matthew

Project Members: Stacey Ng, Lim Ying Fu

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: 2003

Completed date: 2003

Aims

The team aims to reduce the amount of time taken to perform daily cycle counts by at least 75% from ~2mins a day to under 30 seconds a day.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

Automation can minimize time spent on repetitive and manual-intensive tasks. Integration with other automated systems can be considered in the future, thereby enhancing the project in a synergistic manner.

Conclusion

See poster appended/ below

Project Category

Technology

Digitalisation

Care & Process Redesign

Operation Management, Inventory Management

Keywords

Inpatient, Pharmacy, Dispensing, Technology, Automation, Cycle Counts, Inventory

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AUTOMATION OF DAILY CYCLE COUNT GENERATION

TAN MATTHEW QS, LIM YF, NG STACEY HQ

- ❑ SAFETY
- ☑ QUALITY
- ❑ PATIENT EXPERIENCE
- ☑ PRODUCTIVITY
- ❑ COST

Define Problem, Set Aim

Problem/Opportunity for Improvement

Inventory cycle count is done for 10-15 items daily in Inpatient Pharmacy. The tracking of when each item was counted and tracking of discrepancies are both done completely manually. Different items have to be counted within different intervals depending on certain criteria (e.g. unit cost, high abuse potential). After an item is counted, the month is recorded to aid in tracking when it should be counted again.

From a time study done over a 3-week period, the team found that the average time needed to generate cycle count lists manually is 2mins 9s a day. The team needs to manually decide which items to count before generating these lists. Some days even required more than 5mins to generate the cycle count list. This simple process can be automated to a click of a button, requiring only mere seconds to be completed.

Aim

The team aims to reduce the amount of time taken to perform daily cycle counts by at least 75% from ~2mins a day to under 30 seconds a day.

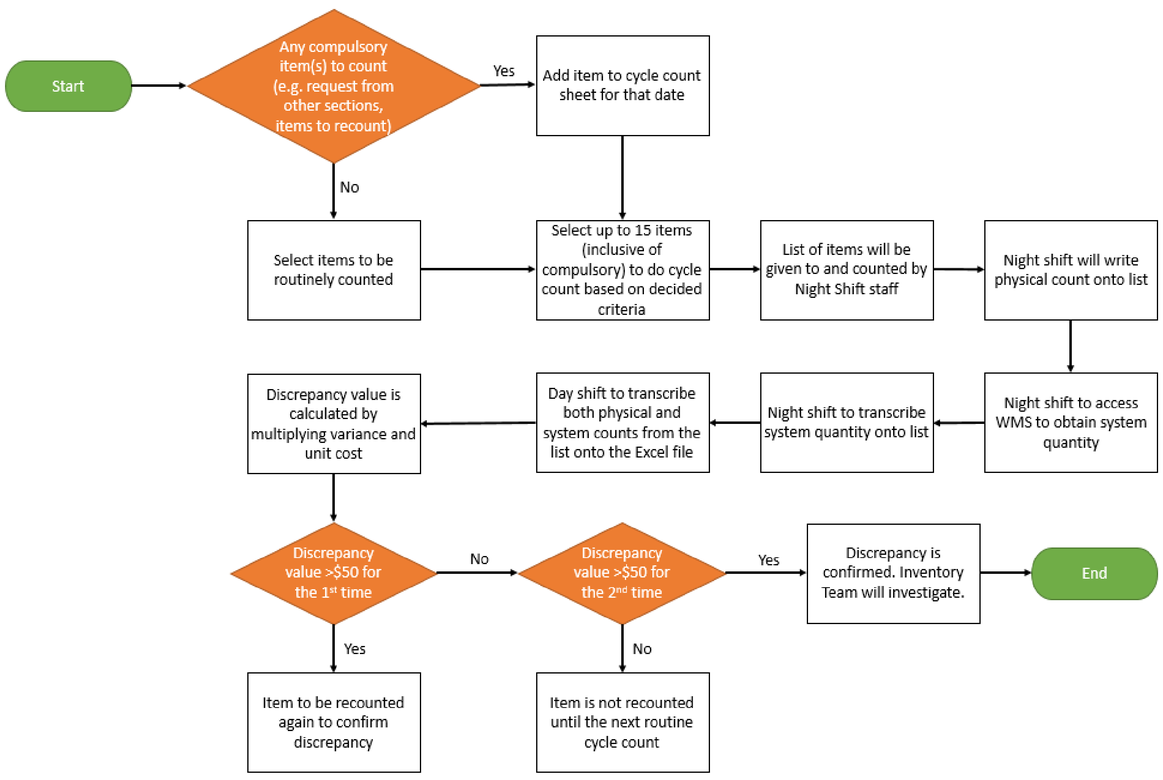
Establish Measures

Measures

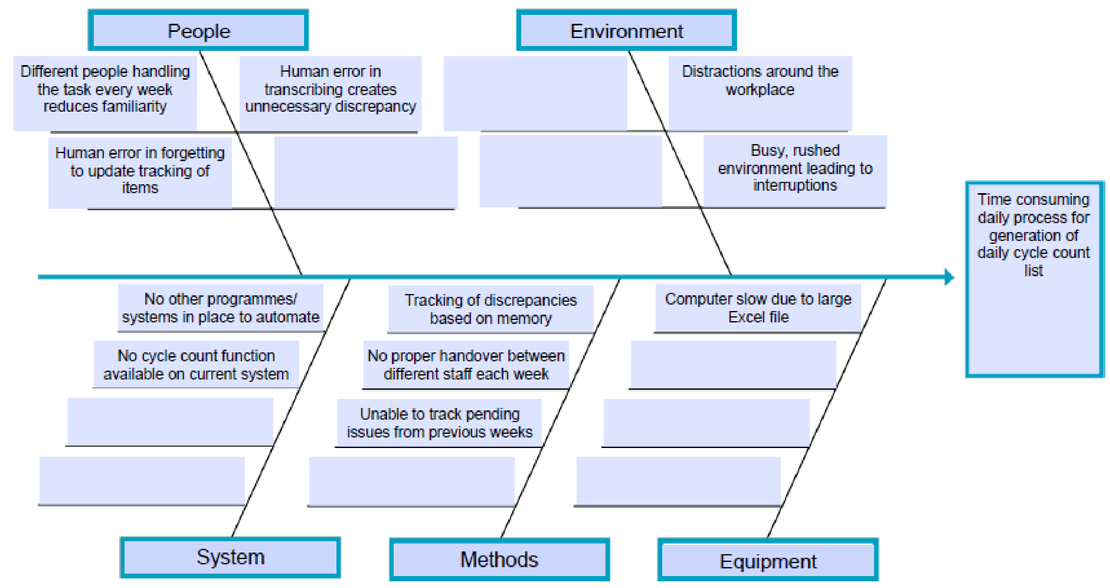
Time needed to generate cycle counts by different staff.

Analyze Problem

Process of generating cycle counts before interventions



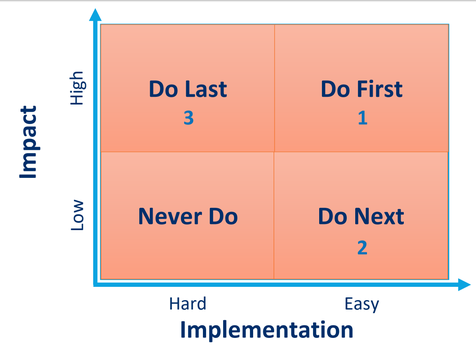
Probable root causes



Select Changes

Probable solutions and Selected changes

Root Cause		Potential Solutions
Time consuming daily process for generation of daily cycle count list	1	Automate process
	2	Increase the number of staff generating cycle count
	3	Reduce the number of items to cycle count daily



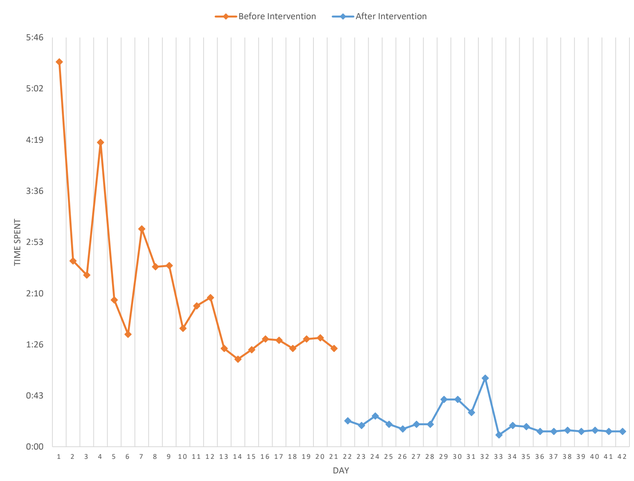
Test & Implement Changes

How do we pilot the changes?

CYCLE	PLAN	DO	STUDY	ACT
1	Design a cycle count generator powered by Excel to help automate manual processes.	The program tracks the date each item was last counted and creates a Priority Queue to automate generation of cycle counts when needed.	The proposed change helps to automate manually picking items to cycle count but the tracking of discrepancies after each count is still done manually.	To design a system to automate tracking discrepancies after each count.
2	Design a system on Excel VBA to automate identification and tracking of discrepancy values.	The additional functionality identifies items with a discrepancy value >$50 and compiles them for recounting. It is also able to identify discrepancies in recounted items, and flags them for investigation.	The proposed change helps to automate discrepancy tracking efficiently. However, user is unable to remove items from the 1st discrepancy list manually.	Improve the system to allow manual removal of items from the 1st discrepancy list (in cases where discrepancies are resolved before item is recounted).
3	Implement a sub-function that will allow the user to remove items from the 1st discrepancy list and reset the discrepancy status of the item.	The added sub-function allows users to easily remove items from the 1st discrepancy list.	The proposed change improves the overall usability of the program by reducing the need for backend debugging.	Improve the system by adding additional data fields to the 2nd discrepancy list
4	Added additional data fields (discrepancy of 1st count, along with discrepancy of 2nd count) to the 2nd discrepancy list.	The added data fields allows users to easily compare the trends in discrepancies.	The proposed change allows users to better discern which discrepancies should be investigated.	Following the success of this at inpatient pharmacy, further application is being considered for other sections such as IPAS, Outpatient and JCH.

What are the results?

The time taken to generate daily cycle counts using both the old and new methods, was measured by 3 different users for 7 days each. Using the automated program, the average time taken to generate cycle counts for the 3-week period fell by about 82% to 21 seconds.



Spread Changes, Learning Points

Strategies to spread change after implementation

Following successful implementation of the project, further application can be considered for management of cycle counts in other pharmacy sections like Outpatient and Jurong Community Hospital pharmacies.

Key learnings from this project

Automation can minimize time spent on repetitive and manual-intensive tasks. Integration with other automated systems can be considered in the future, thereby enhancing the project in a synergistic manner.

Ng Teng Fong General Hospital

Jurong Community Hospital