

# Automation of monthly stock cycle count using handheld tablet device

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# Background

11 Pharmacy locations in NUH conduct physical inventory cycle count manually. Undertaking such a huge endeavor by hand is not only labor intensive, but it is costly, time consuming, and often error

### Results



prone. Accurate variance reports are necessary to determine the specific bin locations and products to recount.

Due to the tedious manual process that requires significant time to select drugs and to conduct count, staff in respective pharmacy locations often do not perform the monthly count as required. If they do so, it was not done as accurately and consistently as desired. As a result, Pharmacy has to conduct twice yearly instead of once yearly stock-take to make up for the inconsistent and irregular cycle counts conducted by the various locations. This mid term stock take is conducted on weekends.

# Objective

The aim of the project is to automate the tedious manual process (using paper and pen) monthly cycle count to one that uses the handheld (tablet) device. The project also aims to reduce the frequency of stock take from twice a year to once a year

## Methodology

Key Performance Indicators	Baseline Performa nce	Target Performance	Performance Achieved through Project	Remarks
Reduced time taken for compulsory monthly cycle count (based on 12 cycles per year)	8hrs 11 sections x 5 staff x 8hours x 12 months = 5,280hrs	2hrs (based on trial) 11 sections x 5 staff x 2 hours x 12 months= 1,320hrs	1.8hrs (based on actual) 11 sections x 5 staff x 1.8hrs x 12 months = 1,188 hrs	Actual Time savings per year = <u>4,092hrs (77.5% reduction)</u> Actual cost savings per year in terms of man hours = 4,092 x \$23.32 (included 6% salary increment over the 2 years)= <u>\$95,425.44</u>
Reduce stock take frequency Total time taken per year for the stock take	2 times per year 1,999 hrs	1 time per year 999.5hrs	1 time per year Savings of 999.5hrs (50% improvement)	Removal of mid-term stock take= time savings of <u>999.5 man hours</u> Cost savings in terms of man hours = <u>\$45,863.44</u> (which includes 6% salary increment over the 2 years plus \$1000 meal cost)

Time and motion study was conducted for the existing manual method of conducting cycle count and automated system of cycle count process as pre and post project measurement. Users feedback after the implementation of the automated system

of cycle count was also taken into account.



Figure 1 shows the appearance of the programme menu of the tablet device.

Benefits



Figure 2 shows how a Pharmacy Technician operate the tablet devices.

#### **Cycle count time/cost savings**

Time savings per year = <u>4,092 hrs</u>

Cost savings in terms of man hours saved per year= <u>\$95,425.44</u>

#### **Stock- take reduction cost savings**

Cost savings with the removal of mid-term stock take = <u>\$45,863.44</u>

#### **Total Savings**

- = \$95,425.44 + \$45,863.44
- = <u>\$141,288.88</u>

# Limitations

i) Change management is required to ensure staff buy-in.

ii) Mature workers' ability to adopt and use technology is a challenge.
iii) IT issues – system incompatibility was addressed at the onset of the project to ensure the right operating system is used for the programme. All pharmacy locations have installed sufficient access points for improved WIFI signal. However, WIFI issues still occurs

Improved staff morale and satisfaction due to the following:i) Ease of stock taking and computation of stock variance arising from automation of processes.

ii) More work life balance from the reduction of stock taking from twice to once yearly, as stock taking is usually conducted over the weekend and after working hours.

#### iii) Saving on storage space

Pharmacy locations currently are required to store physical records for a period of 5 years. This can be avoided with automation as data and records can be stored electronically. Moreover, retrieval of archived data during audit is made hassle free with electronic records.

# Conclusion

Based on the time and motion study, the automated cycle count produced positive results i.e. cost savings of \$141,288.88 per year. A majority of staff (more than 80%) prefer the automated cycle count process.

Staffs have given suggestions for improvements of the tablet so as to make the usage of the tablet easier and convenient for the user. Suggestions are given to prevent disruptions such as WIFI instability, tablet device battery life span that may affect the ease of automation of cycle count. These have been implemented.