



Transformation of Sterile Supplies Unit

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Background of the problem

Sterile Supplies Unit (SSU) consist of 2 departments, SSU@SGH and SSU@SingHealth Tower. SSU reprocess sterile items (e.g. loose instruments, procedure sets, utensils etc.) to different areas of hospitals (e.g. clinics, operating theatres, wards etc.) for patient care. With the movement of SSU@SingHealth Tower from Block 8 to the Campus Logistic Hub at SingHealth Tower in 2020, together with industry challenges of manpower crunch and increasing demand from users, it was a timely opportunity in 2019 to review SSU processes to streamline workflows, inventory optimization and standardisation to ensure effective usage of manpower resources.

Mission Statement

To transform SSU reprocessing with the following objectives

1. Achieving efficiency in re-processing turnaround time (TAT)
2. Optimisation of manpower deployment
3. Attainment of a closed looped inventory system
4. Streamlining of workflows within SSU

Analysis of problem

SSU workflows are categorized into external and internal processes. External processes involved having SSU staff travels to hospital-wide users daily to order items, collect soiled items and dispatch the ordered sterile items. Internal process starts when soiled items are collected back, they will first need to be sorted before loading into washers. The cleaned items unloaded from the machines will be inspected before packing into respective packaging for loading into the steriliser. When sterilisation is completed, the items will be cooled before storing them onto the respective shelves, where they will be retrieved when required for dispatched. Value Stream Mapping was done with team representatives from SSU@SGH and SSU@SingHealth Tower. During the sessions, the following gaps were identified from the current state, separated into the following categories

Achieving efficiency in re-processing TAT	Number of items re-processed at SSU@SingHealth Tower
	1. Manually intensive to pack sets in SSU@SingHealth Tower as consumables are manually counted
	2. Economic viability of reprocessed sets
	3. Reprocessing of unnecessary items (e.g. not in use, not essential)
	Number of items stored in user's inventory
Optimisation of manpower deployment	1. Items stored in users inventory based on request
	2. Items stored in users inventory for contingency
	Number of trips for distribution and collection
	1. Physical trips by SSU@SingHealth Tower staff to place order for their users
	2. Unnecessary collection trips for SSU@SingHealth Tower staff at locations with no soiled items
Attainment of a closed looped inventory system	3. Duplicated delivery locations between SSU@SGH and SSU@SingHealth Tower
	4. Long delivery routes to users from Campus Logistic Hub at SingHealth Tower
	SSU@SingHealth Tower items are not tracked in terms of the number of washes and sterilization cycles
	Streamlining of workflows

Interventions / Initiatives

1 Efficiency in re-processing TAT

Number of items re-processed at SSU@SingHealth Tower

Conversion to Disposables

The items re-processed were evaluated based on a set of guiding principles. Eventually 10 items were chosen to be converted to disposables.

Eliminate reprocessing of items (e.g. bowl, jug, gallipot, VIP linen etc.)

Utilisation of the reprocessed items were reviewed, users' opinions are sought, and alternatives are proposed before removal from inventory

Combine dispatch of disposable items without sterilisation with ALPS

Disposable items are combined with ALPS who does delivery of consumables and disposables for economies of scale. This enabled SSU staff to focus more on reprocessing sterile items, instead of deliveries.

Number of items stored in user's inventory

User norms revised based on past utilization

Past utilization numbers help to determine revised norms to reduce inventory waste

E-trolley items stored in norms of users within same floor

Emergency items are stored in norms of users within same floor that have the items in circulation. Wards to obtain necessary emergency items from other wards before SSU@SingHealth Tower supplies arrive.

2 Optimisation of manpower deployment

Number of trips for order, distribution and collection

Route optimisation based on location proximity

Remove duplicated delivery locations between SSU@SGH and SSU@SingHealth Tower and balancing of delivery locations of SSU@SGH and SSU@SingHealth Tower to ensure minimal distance travelled

QR code scan to reduce daily ordering and collection locations

Each SSU items are arranged in respective bins. When the last piece of the items is used up, the users can scan the QR code attached to the bin to place an order for next day delivery (Figure 1). This eliminate the need for SSU staff to travel to the location for physical ordering. The same QR code concept is also used for collection, where the users will scan the QR code to trigger the location for order (Figure2)



Figure 1: Set-up of QR code ordering bins



Figure 2: Set-up of QR code at collection point

3 Closed looped inventory management system

Mayo pins and tags will be used to better track the re-processing cycle of procedure sets (Figure 3)



Figure 3: Sample of Mayo pins and tags

4 Streamline SSU workflows

Variations in practices are standardized to allow for better integration across both units. Some practices include standardising duration for reprocessing to 12 months etc.)

Results

Total cost savings were obtained from these areas

- Conversion to disposables
 - Pilot on QR code scan to eliminate physical ordering and reduce number of daily locations for collection, which estimated a manhour savings of 2548 hours
- Overall cost savings per annum: \$379,202

Sustainability Plans

With the full roll-out in the horizon, the project team will closely monitor the implementation of the new processes, while engaging stakeholders' feedback to ensure sustainability of the solutions