



Singapore Healthcare
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Custom-designed Trolley with Lifting Mechanism for Stowing and Transporting both Medical Waste and Infectious Linens

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Background

The convention method for Medical Waste and Infectious Linen transportation requires a housekeeper to utilize a platform trolley to transport from multiple locations in the hospital to sub-holding waste rooms before transporting to centralised waste holding room for collection by licensed waste collector.

This process involves high usage of manpower and time consumption as multiple trips are required back and forth.

During the transportation, the housekeeper may be exposed to several factors due to improper containment of bags. With a customized designed trolley, it will improve the process of medical waste and infectious linen transportation.

Root Cause

1. Potential Spillage

A platform trolley is used to transport Medical Waste and Infectious Linens bags which are stacked onto it. As the trolley is not enclosed, the bags may fall onto the floor and contents may spill.

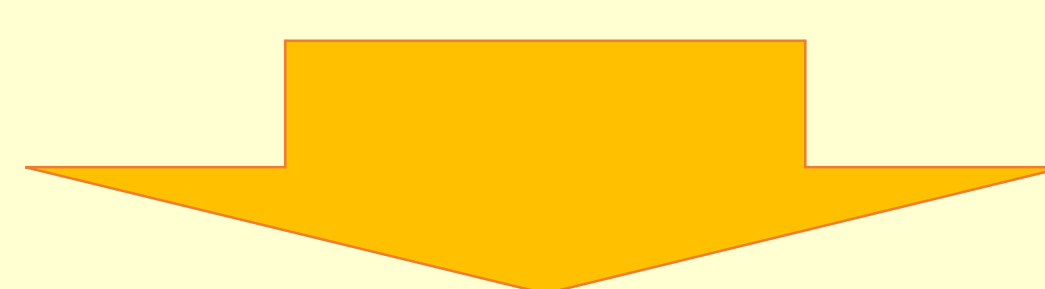
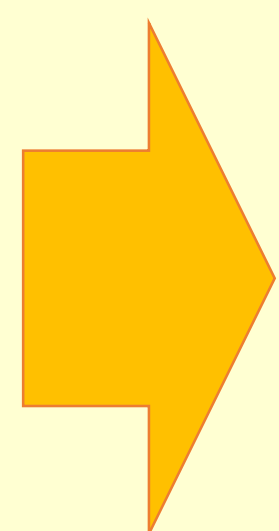
Medical Waste and Infectious Linen Transportation Process



Respective Location
(Dirty Utility)



Transferring to sub-holding
room via Platform Trolley



Push to Central Waste
Holding Room



Transfer Medical Waste
bags into 240L Bin at Sub-
holding room



Soiled Linen Bay

2. Work-related Musculoskeletal Disorder

- ❖ Weight of a 240 litre Medical Waste bin = 30kg
- ❖ Weight of 1 Infectious Linen Bag = 12kg

On a daily basis, a housekeeper has to lift and push approximately 8 Medical Waste bins per day and 24 Infectious Linen bags. Continuous lifting action and heavy weight load imposes strain on the housekeeper's body.

3. Sharp Injury

- ❖ Past record shows a total of 2 sharp injuries reported during transportation of Medical Waste and Infectious Linen bags.
- ❖ Multiple man-handling during the process increases the chances of sustaining sharp injury.

Goals / Target

Elimination

Spillage

- Medical Waste Bags
- Infectious Linen Bags

Work-related Musculoskeletal Disorder

- No. of trips performed by housekeeper
- Ease in transportation

Sharp Injury

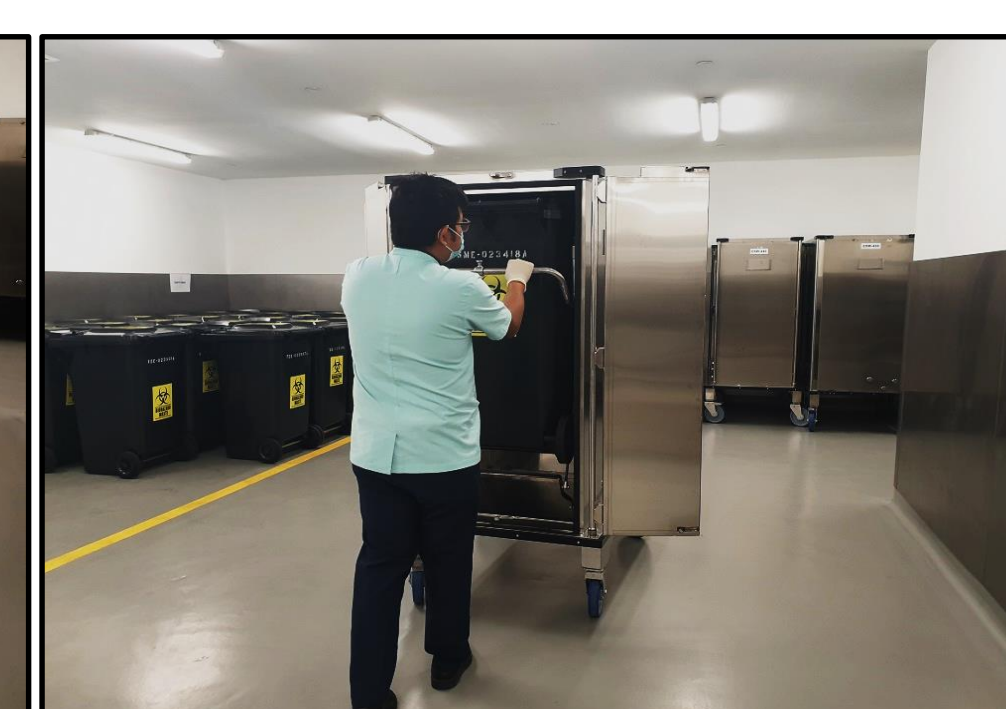
- Minimize man-handling during transfer process

Implementation

Custom-design Trolley



- ✓ Fully concealed with lockable doors, to eliminate unauthorized tampering, spillage and odor. Contents are securely stowed in the trolley.
- ✓ In-built lifting mechanism for ease of loading and unloading of Medical Waste bin and compartments for storage of Infectious Linen bags.



Loading of 240 litre Medical Waste Bin

In-built mechanism:

- ✓ Eases the retrieval process to one-man operation mode.
- ✓ Relieves the housekeeper from having to manually lift and push 240 litre bin (30kg) from designated location to centralized waste room.



Transportation via Automated Guided Vehicle (AGV)

The trolley is transported via AGV to the centralized waste holding room where the bins are then retrieved using the lifting mechanism for the appropriate disposal management.

Result

- ❖ Zero spillage and sharp injury reported since implementation on July 2018.
- ❖ The custom-designed trolley with lifting mechanism has improved the overall management of retrieving medical waste and infectious linens. Staff are appreciative that their well-being are looked into and no discomfort reported.
- ❖ Entire process is streamlined with the aid of AGV, resulting in reduction of manpower, with overall annual savings of \$134,574.