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## ***Designing and implementing of a ‘flexible’ personal protective equipment (PPE) rack***

### **Background**

PPE consists of gloves, gown, face shield, surgical masks, wipes, alcohol rub and at times N95 masks.

Currently, PPE racks in the inpatient wards are made of Perspex (acrylic plastic).

This material suffers from the following disadvantages

- poor impact resistance, hence the sides chip easily upon impact
- rigid, hence the rack couldn't ‘expand’ or ‘contract’ to cater for change in box sizes of PPE
- poor contrast with surroundings

Given infrastructure constrains, the holders also protrude out into the corridor, hence posing further challenge in its design and use.

#### **Current PPE holder**



Hence, the aim of this project was to design and implement a safe and ‘flexible’ PPE rack that is adaptable to changes in box sizes and allows for attachments when more PPE items are required.

### **Method**

A multidisciplinary consisting of members from nursing division, facilities management and engineering, environmental services, materials management department and infection prevention was formed.

The team brainstormed about the specifications of the PPE rack and source for a suitable vendor who was able to cater to the requirements.

### **Results**

The new PPE rack has the following features:

- made of stronger material with an aluminium chassis for durability.
- Side loading to avoid the use of screws and nuts for easy cleaning by housekeepers
- chassis includes a ‘tongue’ that can be depressed or pushed out to cater for changes in box sizes
- a standalone attachable compartment for N95 masks or nitrile gloves should the need arise
- Configurable to hold 5-8 items, depending on clinical needs
- No longer transparent, hence allow for greater contrast with surroundings
- Better safety for staff and patient with the lesser by 200mm wall protrusion as compared with the Perspex holder.

#### **New PPE holder**



### **Conclusion**

The new PPE rack does not incur the same disadvantages as the current acrylic PPE rack; and allow for flexibility to cater for potential changes in box sizes.

It is easily customizable to individual department needs.

The just right size openings of the various consumables make retrieval easy and remain neat.

It is currently being phased in to all inpatient wards and some of the outpatient clinics in SGH.