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SingHealth RESEARCH | Experimental Medicine Centre

Improved Access Workflow of Microsurgery Lab for Better Utilization

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1 Introduction

SingHealth Experimental Medicine Centre (SEMC) operates a comprehensive animal-based research facility licensed by the Agri-Food and Veterinary Authority (AVA) of Singapore. It is currently the largest centre in Singapore, capable of supporting research utilising both small and large animals. The centre offers a one-stop service solution for investigators in animal research, starting from protocol development, animal supply, provision of facilities, veterinary care to technical services.

One of the facilities offered for use in SEMC is the Microsurgery lab, which is outfitted with 6 fully-equipped stations for microsurgery and animal procedure works. The original entrance to the lab is from the Rodent Barrier area, which is a bio-secured zone of the SEMC facility where only Specific-Pathogen Free (SPF) rodents are housed.

2 Identified Problem

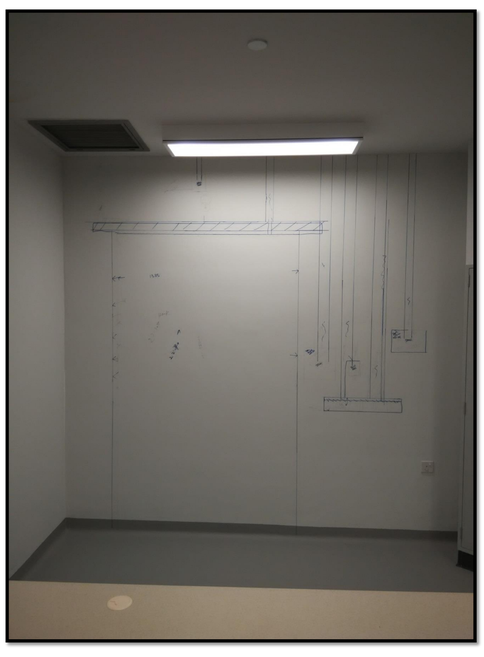
Most of the projects which were assessed to be requiring the use of the Microsurgery lab during the building planning phase ended up using non-SPF rodents, which could not be brought into the Barrier area due to the risk of contamination. Because of this, SEMC had initially re-purposed the Rabbit Procedure room (outside Barrier area) to be used as procedure room for the non-SPF rodent. Since the Rabbit Procedure room could only accommodate 1 station, facility booking by researchers became a challenge. On the other hand, stringent requirements for Barrier access also indirectly resulted in underutilization of the Microsurgery lab.

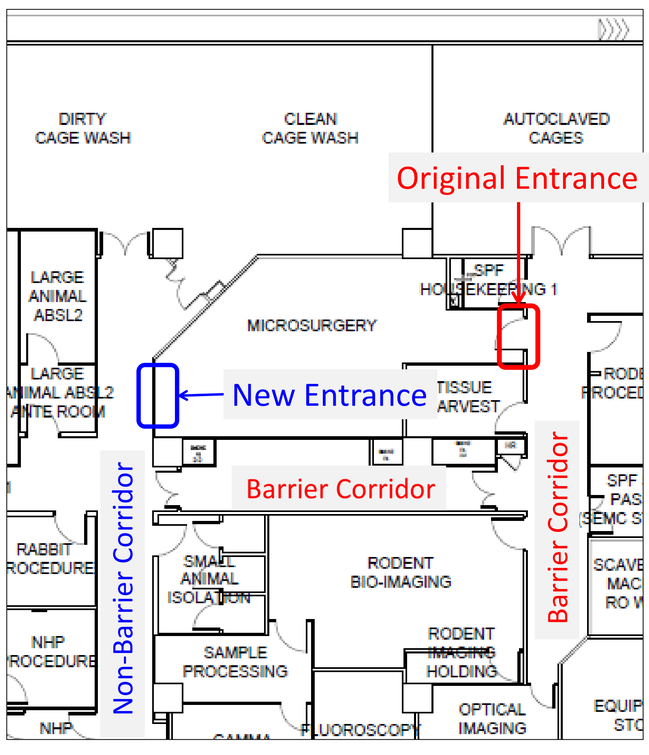
Hence, modification to the access workflow was implemented to accommodate non-SPF rodent procedures in the Microsurgery lab to **increase its accessibility, and hence, utilisation by researchers, whilst maintaining the bio-security of the Barrier area**.

3 Methodology

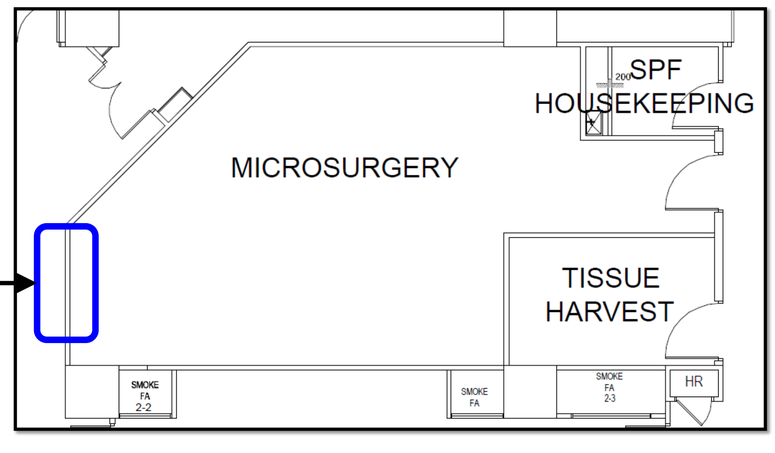
Clear wall space identified within the Microsurgery room

- Which opens to a corridor outside of the Barrier Area



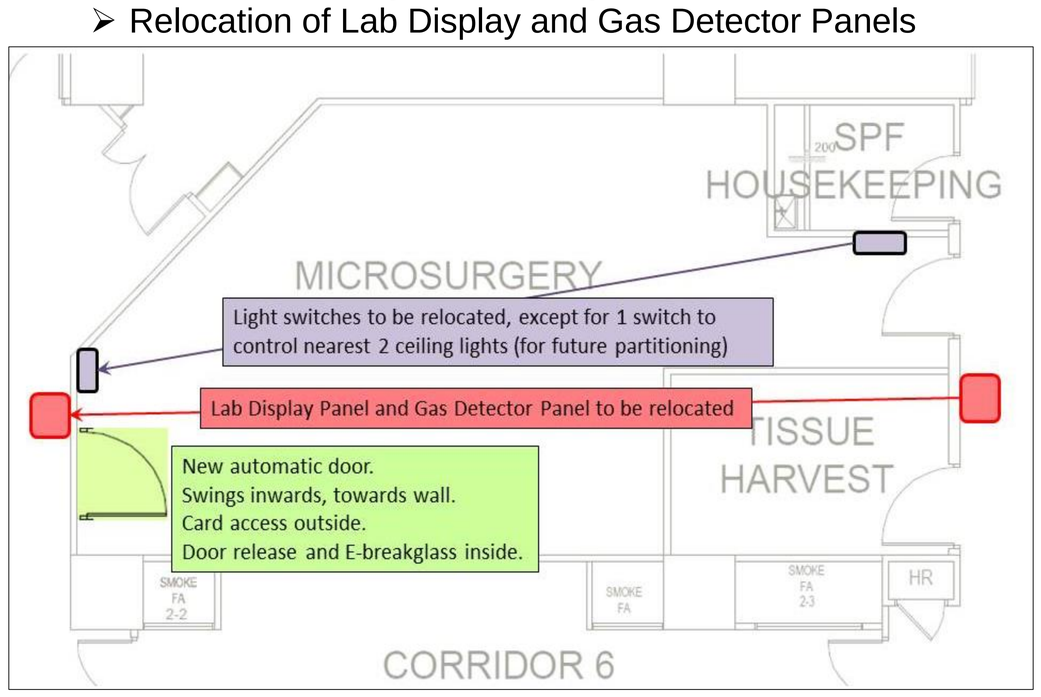


New entrance outfitted with:
- Automatic door
- Card Access System



Facility Modification Works carried out

- Wall Hacking
- Reconfiguration of Light Switches
- Relocation of Lab Display and Gas Detector Panels



Construction began in Aug 2015, took about 5 months to complete

Workflow for original entrance to allow dual purpose use

- Original entrance still provides access from Barrier Area
- Researchers using SPF rodents can still make use of specialized equipment and facility in the Microsurgery
- SOPs and Access workflow updated to prevent cross-contamination

4 Results

New Access Route
=
Lab can be used for non-SPF work
=
Increased procedural space for Researchers
=
Close to ***10-fold*** increase in usage
=
Generate more revenue
=
Better cost recovery

Average Number of Bookings of Microsurgery Lab per month		Fold Change Increase
Before new entrance	After new entrance	
1.1	10.7	9.7x

5 Conclusion

The new entrance for the Microsurgery lab and modification to access workflow have allowed both SPF and non-SPF rodent procedures to be done in the room, to better support research in SingHealth. This, in turn, has also helped to improve the utilisation rate of the Microsurgery without having to compromise the bio-security of the Barrier Area.