**Management of Microbiological Safety Cabinets (MSCs) - Policy**

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| **POLICY NAME** | Management of Microbiological Safety Cabinets (MSCs) | | | | | | | | | | | **POLICY NO.** | | |  |
| **EFFECTIVE DATE** |  | | | | **DATE OF LAST REVISION** | | | 15/07/2022 | | | | **VERSION NO.** | | | 2.0 |
|  | | | | | | | | | | | | | | | |
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| **APPLIES TO Apply group names to define applicable areas of staff.** | | | | | | | | | | | | | | | |
| GROUP 1 | Principal Investigators | | | | GROUP 2 | | Laboratories workers | | | GROUP 3 | | | Research Operations staff | | |
| GROUP 4 |  | | | | GROUP 5 | |  | | | GROUP 6 | | |  | | |
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| VERSION HISTORY | | | | |  |
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| VERSION | APPROVED BY | REVISION DATE | DESCRIPTION OF CHANGE | AUTHOR | SIGNATURE |
| 1 |  | 26/05/2022 |  |  |  |
| 2 |  | 15/07/2022 | Changed to include MSCs in Hunter Wing |  |  |
| 2 | Safety Management Committee | 13/09/2022 | Policy approved | Ariel Poliandri |  |
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# Policy Statement

There are several types of Microbiological Safety Cabinets (MSCs) serving different functions. For the purposes of this policy, MSCs are broadly defined as enclosed, ventilated workspaces for safely working with pathogens that can become airborne. MSCs fall under Local Exhaust Ventilation (LEV) legislation and must be tested for compliance every 14 months. In many instances, MSCs are used to prevent sample contamination while working with non-pathogenic organisms. In these cases, the MSCs are not used to protect the Health and Safety of users.

Given the regulatory requirements affecting the use and maintenance of MSCs, Research Operations oversees their testing and maintenance in Jenner Wing and Education Operations in Hunter Wing ensuring that St George’s University complies with the law.

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# Abbreviations

BPR Biocidal Products Regulation

COSHH Control of Substances Hazardous to Health

HEPA High Efficiency Particulate Air

HSE Health and Safety Executive

LEV Local Exhaust Ventilation

MSCs Microbiological Safety Cabinets

PI Principal Investigator

VHP Vaporized Hydrogen Peroxide

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### Testing and servicing MSCs in Jenner Wing

There is a regulatory requirement to test LEV at least every 14 months. To ensure that St George’s University complies with the law, Research Operations contracts competent contractors to undertake the testing of all the university’s MSCs in Jenner Wing on a yearly basis. Some Microbiological Safety Cabinets are tested more frequently, as dictated by Local Rules.

The cost for statutory testing and servicing MSCs is covered by the University. Any MSC that does not comply with the regulatory standards and cannot be fixed, must be decommissioned. The University will arrange for the disposal of the MSC. The cost of a replacement will be covered by the University only if the MSC is in a communal laboratory or used solely for teaching purposes.

### Purchasing new MSCs for research and teaching

COSHH regulations state that MSCs used to work with Hazard Group 2 (HG2) pathogens or above, must be decontaminated before replacing HEPA filters or carrying out any internal work. This is normally done by gassing or fogging a biocidal product capable of at least a log 6 kill. In the past, formaldehyde fogging has been used for this purpose. After the classification of formaldehyde as a category 1B carcinogen in 2016, the HSE recommended users looking into the development of alternative gaseous disinfectants for rooms and equipment “whilst there is time to do so”. From 1st February 2022, new rules have come into force (article 5 of the Biocidal Products Regulation (BPR, ratified by the European Commission in 2020)) limiting the use of formaldehyde as a biocidal only when “there is evidence that the substance is essential or that not using it would have a disproportionate adverse impact on society”.

Vaporized Hydrogen Peroxide (VHP) is considered a safer alternative to formaldehyde fogging and there is no current restriction to its use.

For the reasons cited above, all new MSCs at St Georges will have to come fitted with ports for VHP treatment.

### Disinfection of MSCs for HEPA filter change or internal work

If possible, any MSC that requires HEPA filter change or internal work, will be treated with VHP. The university will cover the cost of the treatment by external contractors. In cases where the use of VHP is not possible, the course of action should be decided by individual risk assessments. Formaldehyde fogging must only be used as last resort in accordance with the BPR proviso that the chemical is essential or that not using it would have a disproportionate adverse impact on society.

### non-pathogens related Disinfection of the MSC’s chamber

Occasionally, users may want to disinfect an MSC’s chamber even if it has not been used to work with pathogens; for example, to stop cross contaminations with a different organism or to stop contamination of cultures with environmental agents. Because this type of treatment doesn’t require penetration of the HEPA filter by the disinfectant, it can be safely and efficiently achieved in any type of MSC using VHP. Considering the BPR’s restrictions, formaldehyde fogging of MSCs for the purpose of stopping cross contamination is not allowed at St George’s. Users are encouraged to apply Good Microbiological Practice to prevent contamination of samples.

Because this type of decontamination is related to the particulars of research projects and does not relate to health and safety, PIs will be responsibility for covering the costs. Research Operations staff will arrange MSCs to be treated if requested by PIs, who will be asked to provide a subproject code. The cost of the treatment will be cheaper if made to coincide with the annual servicing of safety cabinets or in June and December.

# Version Control

V1.0 26/05/2022 by Ariel Poliandri

V2.0 15/07/2022 by Ariel Poliandri