Biological Safety Cabinet

Category:	**QUALITY MANAGEMENT**		
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Approved by:	Dr. Alaa Abdullah AlMasud	Effective Date:	

1.0 PURPOSE

Air is drawn into cabinet by negative pressure and passes through a HEPA filter. The air flows in a vertical sheet that serves as a barrier between the outside and the inside of the cabinet. The cabinet exhaust air is also passed through HEPA filters. Aerosols are contained within the biological samples, and the work area is protected from outside contamination when the cabinet is operating under the manufacturer's recommended conditions.

2.0 SCOPE

The Occupational Health and Safety Procedures at the institution hosting the biobank will have procedures that should form the basis of safety precautions for chemical handling and disposal. However, this procedure covers basic steps that should be followed to ensure that personnel are adequately informed to avoid contamination, damage to the environment and personal injury. These procedures in this standard operating procedure (SOP) apply to Biological Safety Cabinet all at the biobank.

3.0 ROLES AND RESPONSIBILITIES

Explaining the responsibilities of each personnel and defining their roles in accordance with the SOP

Nourah's Tissue Biobank Personnel	Responsibility
Laboratory Technician/Technologist	to be familiar with all safety policies and procedures.
Pathologist/Pathologist assistant	to be familiar with all safety policies and procedures.
Tissue Biobank Manger or designate	To ensure compliance with all safety policies and procedures. Non-compliance should be reported to the lab director, head of quality and safety and provide training, monitoring and follow up.

4.0 MATERIALS, EQUIPMENT, AND FORMS

The materials, equipment and forms listed in the following list are recommendations only and may be substituted by alternative/equivalent products more suitable for the site-specific task or procedure.

Material to be used	Site
Biological safety cabinets Class II (BSCs)	1.604- 1.610 – 1.608 – 1.606

5.0 POTENTIAL HAZARDS

In this part of the SOP, we explain the potential hazards from chemicals and methodologies used in this procedure. It will also contain information on how to handle these chemicals and the level of biosafety

Material	Safety and handling

6.0 PROCEDURES

6.1 SAFE OPERATION UNDER A BIOLOGICAL SAFETY CABINET

6.1.1. Wear appropriate Personal Protective Equipment (PPEs).

6.1.2. Gloves should be pulled over the wrists of the gown rather than worn inside.

6.1.3. Masks and safety glasses may be required for some procedures.

6.1.4.Arms should be moved in and out slowly. The number of movements across the front opening should also be minimized by placing all necessary items into the cabinet before beginning manipulations.

6.1.5. Manipulations of materials within BSCs should be delayed for about **1 min** after placing hands and arms inside to allow the cabinet to adjust and to "air sweep" the surface of the hands and arms.

6.1.6. The front intake grill of BSCs must not be blocked.

6.1.7. All materials to be placed inside the cabinet should be surface decontaminated with 70% alcohol and removed from the cabinet when work is completed.

6.1.8. All materials should be placed as far back in the cabinet at least 6 inches inside the front grill intake without blocking the rear grill. Do not overcrowd and store in the work zone.

6.1.9. Bulky items, such as biohazard bags, sharp containers and autoclavable biohazard collection bags should be placed to one side of the interior of the cabinet.

6.1.10. Active work should flow from clean to contaminated areas across the work surface, **(Appendix A).**

6.2. MAINTENANCE

6.2.1 Cabinets should be turned on at least **5 min** before beginning work and after completion of work to allow the cabinet to "purge", i.e. to allow time for contaminated air to be removed from the cabinet environment.

6.2.2 Any malfunction in the operation of the BSC should be reported to biomedical engineer department (Ext:44827) and repaired before the BSC is used again.

6.2.3 It is recommended that the cabinet be left running. If not, it should be run for **15 to 20 min** to purge the atmosphere inside before it is switched off.

6.2.4 Do not shut down cabinets that function 24 hours a day, unless a malfunction occurs, or routine maintenance is required.

6.2.5 Daily, weekly and monthly maintenance and cleaning will be conducted for BSC, **(Appendix B).**

6.3. SPILLS

6.3.1. When a spill of biohazardous material occurs within a BSC, cleanup should begin immediately by the approved disinfectant, while the cabinet continues to operate.

6.3.2. While wearing PPE (gown and gloves), cover the spill area with plastic-backed pad. Do not place your head inside the cabinet to clean the spill.

6.3.3. Spray or wipe cabinet walls, work surfaces, and inside the front view sash with disinfectant known to be effective.

6.3.4. After **20 min** of contact time, soak up the disinfectant and discard the absorbent materials into a biohazard bag.

6.3.5. All materials that come into contact with the spilled agent should be disinfected and / or autoclaved. Wash hands and exposed skin area with antiseptic soap and water.

6.3.6. Use disposable absorbent pads on the work surface where appropriate to minimize splatter and aerosol generation in case of a spillage and discard it after usage.

6.4. ALARMS

6.4.1. Sash alarms are found only on cabinets with sliding sashes. The alarm signifies that the operator has moved the sash to an improper position. Corrective action for this type of alarm is returning the sash to the proper position.

6.4.2. Airflow alarms indicate a disruption in the cabinet's normal airflow pattern. This represents an immediate danger to the operator or product. When an airflow alarm sounds, work should cease immediately and the laboratory supervisor should be notified.

7.0 REFERENCES

7.1. Refer to 3-110203-861(4) policy of king Abdullah bin Abdulaziz hospital university

7.2. Laboratory Bio-safety Manual, third edition, WHO, Geneva, 2004.

7.3. CLSI. Laboratory Instrument Implementation, Verification, and maintenance; Approved Guideline. CLSI document GP31-A. Wayne, PA: Clinical and Laboratory Institute; 2009.

7.4. Biosafety in Microbiological and Biomedical Laboratories (BMBL). 4th Edition.

7.5. OSHA, Occupational Health and Safety Administration.

8.0 REVISION HISTORY

SOP No.	Date Revised	Author	Summary

9.0 APPENDICES

Appendix A: Work Flow in BSC

Appendix B :Safety Cabinet Maintenance Log Sheet