

Biohazard Laboratory Emergency Response Plan

1.0 Introduction

This Biohazard laboratory Emergency Response Plan (ERP) outlines emergency procedures required to ensure personnel safety and the containment of pathogens and toxins as a result of issues that may arise in the event of an emergency. These procedures will also ensure that Memorial University of Newfoundland (MUN) is compliant with applicable biosafety regulations and standards.

2.0 Scope

This ERP applies to all personnel (faculty, staff and students) of authorized biohazard laboratories (listed on an active biosafety certificate) and field sites under the authority of MUN.

3.0 Responsibilities

This section outlines responsibilities within the university for the implementation of this ERP.

a. Environmental Health and Safety (EHS)

- Review and amend this ERP as necessary.
- Provide guidance to all levels of management, employees and students on the development, maintenance, review and evaluation of lab-specific emergency response plans.

b. Department Heads

- Ensure this ERP is communicated to members of the university community, as required and that compliance is maintained.

c. Laboratory Supervisors/Principal Investigators

- Complete the fillable sections of this ERP as it relates to the specific area(s) under your control (i.e. lab-specific details).
- Ensure this ERP is implemented within areas of their control.
- Ensure that staff and students are trained on the details of this ERP prior to the commencement of work within the laboratory.
- Ensure that refresher training is provided to personnel under their supervision and a frequency identified under Memorials Biosafety program.
- Ensure that all ERP training (initial and refresher) is documented (see Appendix for training log) and records are available for review.

d. Biohazard laboratory personnel

- Ensure that ERP training is completed prior to the commencement of work within the laboratory and that ERP refresher training is completed as required (at least annually).
- Follow all requirements as outlined in the ERP.

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4.0 Incident/Accident reporting

All work-related incidents, injuries or occupational diseases (including exposures to potentially infectious or intoxicating biohazards and potential or known LAI's) must be reported.

The initial report should go to your direct supervisor who, with your assistance, enters the information into Memorial's Incident Management System (MIMS) within 24 hours by following the link below:

<http://www.mun.ca/MIMS/>

MUN's BSO must be informed as soon as possible, as a condition of MUN's Human Pathogen and Toxin license.

Incidents can also be reported using the [MUNSafe app](#). Please note that incidents requiring immediate response should be reported to Campus Enforcement and Patrol (864-4100).

5.0 Post-exposure response

Following a definitive exposure to infectious materials or toxins (i.e. personal contamination, exposure to aerosols, needle-stick, etc.), three basic steps must be followed in order:

1. Emergency first aid/Reporting – If emergency first aid is required, it should take precedence over everything else. Contaminated clothing should be removed and both the exposed person and responding person should thoroughly wash and disinfect hands prior to first response.

If emergency first aid is not required, immediately inform your supervisor of the details of the exposure. The supervisor must complete an investigation and submit an accident/incident report outlining the details of the exposure (see section 4.0 Incident Reporting).

2. Medical testing/treatment – As soon as possible, report to the emergency department of the closest local hospital for prescribed testing/treatment.

3. Follow-up – The BSO will follow up with the individual exposed and his/her supervisor to review the accident/incident report. During this follow-up, the root cause(s) of the exposure will be identified, and preventative measures put in place to minimize the likelihood of recurrence.

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6.0 Emergency Response Procedures

The instructions provided in each of the following sections are general, and do not include lab-specific details (i.e. locations of materials/equipment, evacuation route(s), assembly point(s), etc.). **Space has been provided in each relevant section (highlighted in yellow) for the addition of lab-specific details, and must be included in each laboratory's ERP.**

Principal Investigator:

Laboratory building and room number:

Location of biosafety documentation (e.g. biosafety certificate, pathogen safety data sheets, BSOP, etc.):

a. Personal exposure – in all instances, refer to section 5: post-exposure response

i. Inoculation with infectious materials (e.g. needle-stick)

- Flush the exposed area with plenty of warm water and soap (do not use abrasives).
 - If bleeding is present let bleed freely. DO NOT apply pressure.
- When bleeding ceases, apply topical disinfectant (located in first aid kit) to the exposed site (e.g., 70% ethanol, isopropanol, peroxide).
- Cover the puncture site with waterproof bandage (located in first aid kit).
- Proceed to a local emergency medical centre for medical testing/treatment.

Location of laboratory first aid kit:

Location of nearest emergency medical centre:

ii. Splash to the eyes/face

- Proceed or assist the person to the closest eyewash station, immediately.
- Activate eyewash and flush eyes for 15 minutes (use your fingers to maintain the eyes open during flushing period, if necessary).
- Dry face and eyes carefully with a paper towel. Discard the towel as biohazardous waste.
- If symptoms develop go to the closest emergency medical centre.

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- If the materials which spilled on the eyes or into the mouth or nose contains or is suspected of containing RG2 or above microorganisms, go to the nearest emergency medical centre even when symptoms do not develop.

Location of nearest emergency eyewash station:

Location of nearest emergency medical centre:

iii. Splash to the body

- Proceed or assist the person to the closest emergency shower station, immediately.
- Remove clothing and take a shower for 5 minutes.
- Dry the area of suspected contact with a paper towel – discard the towel as biohazardous waste.
- Apply topical disinfectant to the area of contact, if necessary.
- If symptoms develop go to the closest emergency medical centre.
 - If the materials which spilled on the eyes or into the mouth or nose contains or is suspected of containing RG2 or above microorganisms, go to the nearest emergency medical centre even if symptoms do not develop.
- When the splashing affects eyes, mouth, nose, or broken skin (a cut, abrasion, burn, etc.), proceed as explained prior for spills on eye and face.

Location of nearest emergency shower station:

Location of first aid kit:

Location of nearest emergency medical centre:

iv. Exposure to aerosol, ingestion

- Upon an aerosol exposure, wash area of contact immediately and profusely with water for 5 minutes.
- Dry with a paper towel and discard the paper towel as biohazardous waste.
- If symptoms develop after the exposure, attend the nearest emergency medical center.
- If the eyes, nose, or mouth were exposed and the aerosolised material comes from a source containing or suspected of containing RG2 microorganisms, go to the nearest emergency medical centre even if symptoms do not develop.

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Location of nearest emergency medical centre:

b. Biohazard spills

- Response to biological spills is detailed in BSOP-03 found on the EHS>Biosafety website (https://www.mun.ca/health_safety/OHSMS/BSMS/Biosafetyoperatingprocedures.php).
- Each authorized biohazard laboratory must have fully stocked biohazard spill kit (see BSOP-03 for kit contents) which includes a copy of the spill response procedures.

Location of laboratory biohazard spill kit:

c. Fires/Building evacuation

Various incidents may require the evacuation of the building in which the laboratory is located. Incidents include fire, floods, gas leaks, spills, etc. When the building evacuation alarm is activated, and it is safe to do so, quickly:

- Stop work.
- Discontinue any equipment. Cover all containers, extinguish any open flames.
 - when working with animals, ensure the animal is back in its cage before evacuating.
- Close the sash of the BSC (leave BSC running).
- Remove personal protective equipment (PPE), taking care not to contaminate yourself and the work area and wash your hands.
- Leave the building by the shortest safe route and proceed to the designated assembly point.
 - Do not delay leaving the building to try to “save” an experiment.
- Provide information to emergency response personnel if you have knowledge of the emergency.

If you discover a Fire in the lab

- If working with biohazardous material, seal or place the material inside a functioning BSC (leave running), remove your PPE and wash your hands.
- Activate the nearest pull station and evacuate the lab immediately.

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- Warn others immediately to leave the building at the nearest safe exit or fire stair. Assist any handicapped person to reach the stairwell.
 - Assemble in the designated assembly point.
- Attempt fire suffocation with a cover or extinguisher ONLY if safe (small, contained fire & exit route clear) and able (i.e. you are trained to do so), up to 1-minute maximum, otherwise,
- Leave the fire area and close doors.
- Return to the lab only when advised by a person of authority, e.g., fire warden, campus security staff, emergency responders, safety personnel.

Location of nearest pull station:

Location of laboratory emergency evacuation plan:

Location of assembly point:

- **Upon re-entry**
 - Upon re-entry to the building, all storage units of pathogens should be checked for integrity and theft of inventory items.
 - Any damage, theft or suspicion of theft should be reported immediately to the Supervisor and to the Biosafety Officer.

d. Power Outage

In the event of general power outage:

- Stop all experimental activity. Close all containers, put out burner flames.
- If operating in the BSC, close all open containers and close the cabinet sash.
- All work shall be discontinued until the main power failure is resolved.
- If the emergency power does not function correctly, secure the infectious material and evacuate the building.

If a power outage affects primary containment devices (e.g. BSC) follow the instruction described in section 6. e below.

e. Failure of primary containment device (e.g. BSC fan failure)

DO NOT use a BSC if the alarm sounds or if there are other indications of cabinet malfunction such as no airflow or sudden change in magnehelic readings or unusual noises/vibrations. Follow the steps outlined below when in presence of a faulty BSC. The following steps are the same if the BSC can remain on or if it must be turned off. They key is to close all containers as soon as possible.

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- If working with infectious material, immediately stop and cover the material.
- Remove gloves, wash hands and don fresh gloves before proceeding.
- Seal, surface decontaminate and remove any biohazardous material.
- Thoroughly decontaminate all BSC surfaces.
- Collect all waste into waste bag. Seal bag and surface decontaminate.
- Decontaminate gloves and leave them in BSC.
- Wait the appropriate contact time for decontamination solution.
- Place a sign on the cabinet to indicate that it is broken and must not be used until further notice.
- Turn off BSC. Report the issue with your supervisor and via MIMS.

Report the issue to your supervisor, who in turn will contact the Biosafety Officer or the office of Health, Safety & Wellness for equipment repair.

f. **Medical emergencies**

- Call CEP at 864-4100 (9-864-4100 from the Health Sciences Centre).
- Perform first aid as needed, if you are trained to do so.
- If able to do so, exit the CZ with the injured following containment exit procedures.
- If remaining in the CZ, prepare a path for first responders, clear of experiments and enlist help to guide them in.

g. **Infected animal escapes**

Rodents

- Rodent cages are only opened in the biological safety cabinet, for the purposes of cage change/cleaning, and experimental procedure involving injection of the agent. An escape can happen only through human error at these times, and escape would be onto the room floor. The room has a door with a door sweep to keep a rodent from possibly running under to door.
- Immediately recover animal and place back in its cage.
- Decontaminate the BSC and the floor (refer to section 6b).

Woodchucks

- Woodchucks are triple contained within the ACS facility and woodchuck room:
 - cages (primary)
 - room (secondary)
 - dedicated corridor in ACS facility (tertiary).

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- In the event that a woodchuck escapes its primary cage, or its housing room (secondary) or its dedicated corridor (tertiary), ACS staff should be called to assist in re-capture (netting) and placement back into the primary cage.
 - The room and hallway should then be mopped.
- If a woodchuck escapes the ACS facility through the dock area (tertiary), CFIA will be notified for recapture (all animals are identified by tattoo or microchip).

Version History:

Version	Date	Author(s)	Notes
1.0	2020-01-29	Rod Hobbs	First writing.

