

Checklist for Biosafety Level 2 Laboratory Operations

Department _____ Building _____ Room # _____

Principal Investigator _____ Net ID _____ Phone # _____

Laboratory Contact _____ Net ID _____ Phone # _____

IBC Member(s) Present _____ Date Completed _____

The following statements are based primarily on the Biosafety Level 2 section of *Biosafety in Microbiological and Biomedical Laboratories, 5th edition, 2007* (<http://www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm>). Check the appropriate box for each statement. Please provide comments or an explanation for “No” or “NA” (Not Applicable) responses. This checklist may be used for in-house assessment or as part of a review completed by the Institutional Biosafety Committee. Contact the Biological Safety Officer (fac2@cornell.edu, 254-4888) if you have any questions or require assistance.

A. *Standard Microbiological Practices*

	Yes	No	NA
1. Access to the laboratory is limited or restricted at the discretion of the Principal Investigator or laboratory supervisor when experiments are in progress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Personnel wash their hands after they handle viable materials and animals, after removing gloves, and before leaving the laboratory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Eating, drinking, handling contact lenses, and applying cosmetics are not permitted in the laboratory. Persons who wear contact lenses in laboratories should also wear safety glasses, goggles or face shield. Food is stored outside the laboratory in cabinets or refrigerators designated for this purpose only.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Mouth pipetting is prohibited; mechanical pipetting devices must be used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be developed and implemented. Whenever practical, laboratory supervisors should adopt improved engineering and work practice controls that reduce risk of sharps injuries. Precautions, including those listed below, must always be taken with sharp items. These include:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Careful management of needles and other sharps are of primary importance. Needles <u>must not be</u> bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Non-disposable sharps must be placed in a hard walled sharps disposal container used for sharps disposal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plasticware should be substituted for glassware whenever possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Perform all procedures to minimize the creation of splashes or aerosols.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Decontaminate work surfaces and laboratory equipment routinely after completion of work, and after any spill or splash of potentially infectious material with a disinfectant effective against the agents of concern. Contaminated equipment is decontaminated before removal from the facility, sent for repair or maintenance, or packaged for transport.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Cultures, stocks, contaminated plasticware, and other regulated non-sharps wastes are discarded in red biohazard bags and treated as regulated medical wastes (RMW).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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| 9. Culture fluids and other contaminated liquid wastes are autoclaved or decontaminated with a suitable disinfectant before disposal down the sanitary drain. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Materials to be decontaminated outside of the immediate laboratory are placed in a durable, leak-proof container and closed for transport from the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. An effective integrated pest management program is required. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. A sign incorporating the universal biohazard symbol must be posted at the entrance to the laboratory when infectious agents are present. Posted information must include: the laboratory's biosafety level, the supervisor's name (or other responsible personnel), telephone number, and required procedures for entering and exiting the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. The laboratory supervisor must ensure that laboratory personnel receive appropriate training regarding their duties, the potential hazards associated with the work involved, the necessary precautions to prevent exposures, and exposure evaluation procedures (e.g., symptoms of a disease). Personnel must receive regular updates or additional training as necessary. Training is documented. Since personal health status may impact an individual's susceptibility to infection, ability to receive immunizations or prophylactic interventions, all laboratory personnel and particularly women of child-bearing age should be provided with information regarding immune competence and conditions (e.g., chronic disease, medications) that may predispose them to infection. Individuals having these conditions should be encouraged to self-identify to Occupational Medicine Gannett Health Services for appropriate counseling and guidance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments/Explanations for Standard Microbiological Practices

B. Special Practices

- | | Yes | No | NA |
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| 1. All persons entering the laboratory must be advised of the potential hazards and meet specific entry/exit requirements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Laboratory personnel must be provided medical surveillance and offered appropriate immunizations for agents handled or potentially present in the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. A laboratory-specific biosafety manual, standard operating procedures must be prepared and adopted as policy. The biosafety manual must be available and accessible. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. The laboratory supervisor must ensure that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with infectious agents. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Potentially infectious materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Incidents that may result in exposure to infectious materials must be immediately evaluated and treated according to procedures described in the laboratory biosafety safety manual. All such incidents must be reported to the laboratory supervisor and documented via the University reporting system (http://prp.ehs.cornell.edu/Acc-Inj/). Medical evaluation, surveillance, and treatment should be provided by Occupational Medicine Gannett Health Services or personal physician and appropriate records maintained. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Projects that utilize biohazardous and/or recombinant DNA materials are registered with the Institutional Biosafety Committee. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Animals and plants not associated with the work being performed must not be permitted in the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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| 9. All procedures involving the manipulation of infectious materials that may generate an aerosol should be conducted within a biosafety cabinet (BSC) or other physical containment devices. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. On campus transport (between laboratories, buildings) of cultures, tissues, or specimens is conducted in closed, leak proof, break resistant containers, lined with absorbent material and labeled with the biohazard sign and contact information. Off campus transport must comply with domestic (US DOT) and/or international regulations (ICAO), including <u>required training</u> . | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Regulated medical wastes (pre-treated or untreated) are transported by self (if within the Vet College) or EH&S to the CVM Waste Management Facility for final transport and disposal. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Stock cultures of infectious agents are secured against unauthorized access (e.g., locked freezers, secured laboratories). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Hypodermic syringes and needles, when not in use, are secured (e.g., locking cabinet, drawer) against unauthorized access. A log of stock materials and their distribution is maintained. A Certificate of Need from the NYS Department of Health is on file. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments/Explanations for Special Practices

C. Safety Equipment (Primary Barriers)

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| 1. Properly maintained biological safety cabinets, preferably Class II, or other appropriate physical containment devices must be used whenever: | | | |
| a. Procedures with a potential for creating infectious aerosols or splashes are conducted. These may include pipetting, centrifuging, grinding, blending, shaking or mixing, sonic disruption, opening containers of infectious materials whose internal pressures may be different from ambient pressures, intranasal inoculation of animals, and harvesting infected tissues from animals or eggs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory if sealed rotor heads, centrifuge safety cups, or gasket-containing centrifuge tubes are used. These rotors, safety cups, or tubes are packaged and opened only in a biological safety cabinet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Biological safety cabinets are certified annually, when cabinets are moved, or when HEPA filters are changed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Face protection (goggles, mask, face shield or other platter guards) is used for anticipated splashes or sprays of infectious or other hazardous materials to the face, when the microorganisms must be manipulated outside the biological safety cabinet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Protective laboratory coats, gowns, smocks, or uniforms designated for laboratory use must be worn while working with hazardous materials. Remove protective clothing before leaving for non-laboratory areas (e.g., cafeteria, library, administrative offices). Dispose of protective clothing appropriately, or deposit it for laundering by the institution. It is recommended that laboratory clothing not be taken home. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Gloves must be worn to protect hands from exposure to hazardous materials. Glove selection should be based on an appropriate risk assessment. Alternatives to latex gloves should be available. Gloves must not be worn outside the laboratory. In addition, BSL-2 laboratory workers should: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a. Change gloves when contaminated, integrity has been compromised, or when otherwise necessary. Wear two pairs of gloves when appropriate. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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| b. | Remove gloves and wash hands when work with hazardous materials has been completed and before leaving the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. | Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste. Hand washing protocols must be rigorously followed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Eye and face protection (goggles, mask, face shield or other splatter guard) is used for anticipated splashes or sprays of infectious or other hazardous materials when the microorganisms must be handled outside the BSC or containment device. Eye and face protection must be disposed of with other contaminated laboratory waste or decontaminated before reuse. Persons who wear contact lenses in laboratories should also wear eye protection. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments/Explanations for Safety Equipment

D. Laboratory Facilities (Secondary Barriers)

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| 1. | Each laboratory must have a sink for hand washing. The sink may be manually, hands-free, or automatically operated. It should be located near the exit door. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | Laboratory doors should be self-closing and have locks in accordance with the institutional policies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | The laboratory should be designed so that it can be easily cleaned and decontaminated. Carpets and rugs are not permitted. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | Laboratory furniture must be sturdy and capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment are accessible for cleaning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a. | Bench tops must be impervious to water and resistant to moderate heat, acids, alkalis, organic solvents, and chemicals used to decontaminate the work surface. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. | Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | BSCs must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, supply and exhaust vents, and other possible airflow disruptions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Vacuum lines should be protected with High Efficiency Particulate Air (HEPA) or their equivalent. Liquid disinfectant traps may be required. Portable vacuum pumps may also be used (also properly protected with traps or filters). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, they must be fitted with screens. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | Laboratory doors are kept closed whenever work with biohazardous materials is conducted. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | An autoclave for pre-treatment of laboratory wastes is available. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | An eyewash facility must be readily available within the laboratory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments/Explanations for Laboratory Facilities
