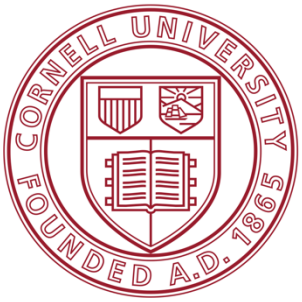

Cornell University

Research Laboratory Exposure Control Plan for Bloodborne Pathogens

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Introduction

To help protect individuals from the health hazards associated with research-related exposure to pathogenic organisms present in human and non-human primate blood and other body fluids, the Occupational Safety and Health Administration (OSHA) implemented "Occupational Exposure to Bloodborne Pathogens" contained in rule 29 Part 1910.1030 of the Code of Federal Regulations (CFR). The intent of this regulation is to minimize or prevent the transmission of bloodborne pathogens including, but not limited to, Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV), and Hepatitis C virus (HCV). Part of this regulation requires the development of a written Exposure Control Plan (ECP) to eliminate or minimize exposure to blood and other potentially infectious materials (OPIM). This Exposure Control Plan applies to all research labs working with human or non-human primate blood and other potentially infectious materials, in compliance with the OSHA Bloodborne Pathogens Standard 29 CFR 1910.1030 Exposure Control Plan requirements.

Cornell University Environment, Health and Safety (EHS) has developed this Exposure Control Plan for all research and diagnostic facilities working with blood and OPIM. Principle investigators will complete the Institutional Biosafety Committee (IBC) Memorandum of Understanding (MUA), which addresses exposure determination and laboratory-specific methods of compliance. This ECP and the MUA complement each other. Therefore, all individuals listed in the MUA who have research-related exposure must have access to a copy of their PI's MUA. Together, this ECP and the PI's MUA fulfill the OSHA requirements for an Exposure Control Plan to eliminate or minimize exposure to blood and other potentially infectious materials.

Additional IBC information about initiating or amending an MUA, as well as specific guidance on the handling of human and mammalian cell lines, can be found on the Cornell IBC website. The IBC reserves the authority to approve an MUA regardless of individual training and vaccination status.

The guidance provided by this document can be found in a condensed format on the Biological Reference Sheet (BARS) for Human Derived Materials, Including Blood and Cell Lines. This document offers standardized information regarding the health risks, recommended personal protective equipment (PPE), and handling conditions for human-derived materials in Cornell University laboratories.

This exposure control plan applies to all Cornell University vivarium, research laboratories, and diagnostic laboratories, with the exception of Weill Cornell Medical Center – New York City or Qatar.

Roles and Responsibilities

Department/Unit/Group

- Must comply with the contents of this Exposure Control Plan (ECP), which addresses the following elements of the OSHA Bloodborne Pathogens Standard: exposure determination, engineering controls, work practices and procedures, personal protective equipment, hepatitis B vaccination, and post-exposure evaluation and follow-up. The primary investigator's MUA complements this ECP with laboratory-specific exposure controls. This ECP applies to individuals who meet the Category 1 exposure determinations described in Section III.
- Must solicit input from laboratory personnel when the potential for research-related exposure exists and in the process of identifying, evaluating and selecting effective engineering and work practice controls. There is flexibility in choosing a method to solicit input from laboratory personnel (e.g., during a lab meeting); however, the opportunity must be documented in writing or electronically.

- Routinely evaluate safer devices to determine effectiveness and appropriateness in the workplace. Resources for engineered sharps safety device selection can be found at the CDC's Workbook for Designing, Implementing & Evaluating a Sharps Injury Prevention Program.
- Provide appropriate personal protective equipment in the appropriate sizes to laboratory personnel.
- Fund hepatitis B vaccination for personnel performing Category 1 activities.

Supervisor (Principal Investigator, Diagnostic Laboratory Director)

- Determine which job classifications and tasks/procedures are at risk of research-related exposure to bloodborne pathogens.
- Before handling these materials, ensure that personnel at risk for research-related exposure participate in the appropriate EHS training, including Laboratory Safety Training, Bloodborne Pathogens training, and BSL-2 Training.
- Ensure their staff are aware of this ECP and have access to IBC MUA (via printed hardcopy or electronically).
- Review and update IBC MUA at least annually or when new or amended tasks that affect research-related exposure of personnel require changes.
- Provide staff with the opportunity to ask questions regarding their risk of research-related exposure to bloodborne pathogens and this ECP.
- Provide their staff with laboratory-specific training and standard operating procedures (SOPs) to address the specific hazards associated with their laboratory's activities.
- Provide adequate and appropriate engineering controls, personal protective equipment, and disinfectant.
- Ensure that personnel follow Universal Precautions (i.e., utilize engineering controls, follow work practices, use personal protective equipment, etc.).
- If invasive procedures are done in human research participants, such as using needles for drawing blood, ensure that individuals with risk of research-related exposure participate in the annual review and selection process of effective engineering (e.g., sharps with engineered sharps injury protection) and work practice controls.
- Complete Cornell University accident report form, found on the Cornell EHS website, along with individual after an exposure.

Individual

- Attend required training before handling Category 1 materials.
- Read and understand the content of this ECP and laboratory-specific MUA.
- Apply Universal Precautions (i.e., utilize the appropriate engineering controls, work practices, and personal protective equipment) when working with blood and OPIM. This includes wearing appropriate personal protective equipment (PPE), such as gloves, eye protection, and a lab coat, when working with blood and OPIM.
- Discuss the hepatitis B vaccination with your health provider or Cornell Health and submit the completed vaccination status form to Cornell Health
- Report any exposures to the supervisor and seek medical evaluation.

Environment, Health and Safety (EHS)

- Administer Bloodborne Pathogen initial and annual refresher training.
- Maintain training records related to general training for bloodborne pathogens.
- Review the exposure control plan annually.
- As necessary, investigate exposure incidents to determine root cause. Work with research leaders to implement corrective actions to address root causes
- Provide treating health care professionals with information regarding patient and exposure incidents.

Cornell Health

- Provide hepatitis B vaccination to Category 1 individuals (see the table in the next section).
- Provide medical surveillance.

Determination of Exposure

The PI or supervisor must identify **all individuals** with risk of research-related exposure in their IBC MUA. *This exposure determination must be made regardless of the use of engineering controls, personal protective equipment, or personnel status.* Potential routes of exposure, include percutaneous, mucous membrane, and nonintact skin exposures.

BBP Exposure Category	Relevant Tasks Performed (as noted in IBC MUA)	Hep B Vaccination Offered to Individuals?	BBP Training required by Cornell?
Category 1	Direct handling of human blood, body fluids, unfixed tissues or organs, or human cell lines (primary or established) as part of planned or anticipated research activities. Persons working with HIV-derived lentiviral vectors.	Yes	Yes
Category 2	Tasks that involve **no** anticipated exposure to human blood, body fluids, unfixed tissues or organs, or human cell lines (primary or established), and Category 1 tasks are **not** a condition for employment or anticipated in research activities.	No – at the discretion of employer/PI	No – at the discretion of employer/PI

Examples of Category 1 tasks that could present research-related exposure include (but are not limited to):

- Culturing of human cell lines
- Drawing of blood from human research participants
- Injection of human-derived cells into research animals
- Necropsies of unfixed human body parts
- Biopsies of human research participants
- Culture or manipulation of HIV-based lentiviral vectors

Methods to Control and Prevent Laboratory Exposures

A. Engineering Control and Work Practices

Engineering controls and work practices are the preferred means to eliminate or minimize exposure to bloodborne pathogens in the workplace. Examine and maintain or replace these controls regularly to ensure their effectiveness (e.g., keep standard operating procedures updated, maintain equipment in good condition, and ensure biosafety cabinets or other mechanical devices as certified as appropriate).

Additionally, the following rules apply:

1. Biosafety cabinets will be considered for containing any activities that involve potential splashes or sprays. If using a biosafety cabinet, it must be recertified at least annually. If the biosafety cabinet is moved from one location to another, even if the move is within the same room, it must be recertified before being used. Additional information about biosafety cabinet use and maintenance is found in the Cornell EHS biosafety manual.

2. Laboratory personnel must have access to adequate handwashing facilities (including water, soap, and clean towels). Wash hands immediately or as soon as possible after removing gloves and other protective equipment, after contamination of hands, or contact of unprotected body areas with blood or OPIM. Use a soap that produces a good

lather and wash thoroughly. Wash hands thoroughly, including the fingers, palms, and backs of the hands, and around the wrists.

a. Individuals may use an appropriate hand sanitizer or sanitizing towelettes if soap and water are not immediately available, though they must seek a handwashing facility as soon as possible. Sanitizers should contain between 60%-70% ethyl alcohol.

3. Use emergency showers and eyewashes for full-body exposures or exposures to the face or mucous membranes. Maintain clear access to emergency showers and eyewash stations at all times.
   a. Eyewashes will be flushed weekly to prevent rust and bacterial build-up in the water lines. The weekly flushing is the responsibility of the personnel occupying areas where eyewashes are present. More information on eyewash maintenance is available in the Cornell Chemical Hygiene Plan.
   b. Safety shower maintenance must be performed per the Cornell EHS Chemical Hygiene Plan.

4. Do not eat, drink, smoke, apply cosmetics or lip balm, or handle contact lenses in work areas where there is a reasonable likelihood of exposure to blood or OPIM. In addition, do not keep food and drink in refrigerators, freezers, shelves, or benchtops where blood or OPIM are present.

5. Minimize splashing, spraying, spattering, and generation of droplets when performing all procedures involving blood or OPIM (e.g., sonication, homogenization, necropsies, etc.). Use a biological safety cabinet (BSC) for these laboratory procedures whenever possible.

6. Do not mouth pipette or suction blood or other potentially infectious materials. Use mechanical devices instead.

7. Place items such as gloves, paper towels, bench paper, plasticware, etc., contaminated with blood or other potentially infectious material in red biohazard bags.

8. Place all blood and body fluids specimens into well-constructed, appropriately labeled containers to prevent leaking during collection, handling, processing, storage, and transport.

9. Use a mechanical device such as tongs, forceps, a brush, dustpan, or even two pieces of cardboard, to pick up contaminated broken glassware; do not pick up sharp items with bare hands, even if wearing gloves. Store or process any reusable sharps in a way that ensures safe handling.

B. Labels and Signs

1. Warning labels that include the word "BIOHAZARD" and the universal biohazard symbol must be present in the HASP sheets affixed to doors leading to BSL-2 areas where work is conducted with blood or other potentially infectious materials and to containers of regulated medical waste, refrigerators, freezers, incubators, etc. used for storage or transport of blood or OPIM.

Figure 1. Biohazard Symbol.

2. Individual containers of blood or OPIM placed in labeled containers for storage (cryogenic storage boxes, microfuge tube racks, etc.) or transport need not be individually labeled with the biohazard symbol.

C. Safe Handling and Selection of Sharps

The use of sharps in laboratories carries the highest risk of exposure to users because of these objects' inherent ability to easily penetrate the skin, gloves, or clothing, potentially delivering blood or OPIM inside the body of an individual. The following rules apply:

1. Laboratories will minimize the use and handling of needles and other sharps. Evaluate procedures and products (e.g., needleless systems) to eliminate the need for and use of sharps. If sharps use is unavoidable (e.g., injection of infectious materials in research animals), consider the use of engineered sharps. When activated, engineered sharps include safety mechanisms that create a barrier, encapsulate, or withdraw the hazard (i.e., the needle tip, the scalpel blade), reducing the risk of an exposure incident. Resources for evaluating and selecting engineered sharps are available on the Cornell EHS website.

   Note: Needle-locking syringes or disposable syringe-needle units (where the needle is integral to the syringe) are **not considered engineered sharps** or SESIPs (Sharps with Engineered Sharps Injury Protection).
   Exception: If the use of engineered sharps would **compromise research protocols** or interfere with experimental outcomes, non-engineered sharps may be used. This exception must:
   - Be **documented** in the laboratory's risk assessment or IBC Memorandum of Understanding and Agreement (MUA).
   - Include alternative measures to minimize risks (e.g., additional PPE, enhanced work practices).
   - Be reviewed and re-evaluated annually.

2. Immediately, or as soon as possible after use with blood or OPIM, place contaminated hypodermic syringes, needles, scalpel blades, razor blades, and other items capable of causing puncture wounds in sharps containers. Have available multiple sharps disposal containers in the lab to facilitate easy disposal. Use a small container (e.g., quart-sized) inside the biosafety cabinet for direct disposal without manipulations (i.e., without removing the needle, without recapping).

3. Contaminated needles and other contaminated sharps must not be bent, sheared, broken, or recapped. However, if recapping of any needle is necessary, for example, as part of a medical procedure or protocol, or if a sharps container is not available, **one of the two following techniques must be used:**

   a. A mechanical device such as forceps to replace the cap on the needle or

   b. One-handed "scoop" technique is as follows:

      i. Place the cap on a flat surface, and then remove your hand from the cap.

      ii. Then, hold the syringe and use the needle to "scoop up" the cap with one hand.

      iii. Once the needle is covered, tighten the cap onto the needle hub by pushing the tip against an inanimate object or pulling the base onto the hub with the same hand holding the syringe/hub.

   Video demonstration of the needle injury prevention techniques described above.

4. Laboratory personnel performing invasive procedures utilizing sharps in human research participants (e.g., drawing blood) - OSHA mandates considering needleless systems and engineered sharps to isolate further or remove bloodborne pathogens hazards. If commercial systems are available, researchers performing these activities must consider these systems when using a device to access a vein or artery to withdraw blood or body fluids. Resources to help evaluate and select engineered sharps are available on the Cornell EHS biosafety website.

Key Compliance Note:

- Sharps use in BSL-2 and BSL-3 laboratories must comply with additional biosafety requirements, including using needle-locking syringes or disposable syringe-needle units (needle integral to syringe).

D. Personal Protective Equipment

PPE must be readily accessible at the worksite or be issued to individuals. Individuals should choose the appropriate personal protective equipment based on the anticipated exposure. At a minimum, wear gloves made of latex, nitrile, or vinyl when there is a potential for contact blood or OPIM and when handling or touching contaminated items or surfaces. Consider puncture-resistant gloves when the hazards warrant their use (i.e., handling animals that are likely to bite or scratch, handling sharp and unwieldy objects). Personnel with latex sensitivities will consider using gloves made of nitrile or vinyl, and it is the department/unit/group's responsibility to provide alternatives to latex-based PPE. The following rules apply:

1. Gloves: Do not wash and reuse disposable gloves. However, heavy-duty vinyl or rubber gloves meant for reuse must be decontaminated if they remain in good condition. Replace any gloves that are torn, punctured, or other signs of deterioration.

2. Outerwear: Wear lab coats, gowns, or aprons to protect clothing from potential contamination. If blood or OPIM penetrates a garment, remove it immediately or as soon as possible.

3. Eye/face protection: When work procedures or splashes pose a hazard to the eyes, nose, or mouth, and working in a biosafety cabinet is not possible, wear appropriate face and eye protection, such as splash-proof goggles, face shield, or safety glasses, and a face mask. At a minimum, safety glasses are required in all laboratory spaces where chemicals are present.

4. PPE Removal: Only leave the laboratory after removing all PPE. Properly secure these materials for storage, washing, decontamination, or disposal, as described in the next section.
    a. One freshly gloved hand can manipulate door handles, etc., and transfer materials between rooms within a laboratory.

E. Laboratory Hygiene/Waste/Laundry

The primary investigator or supervisor will provide a disinfectant appropriate for the pathogens of concern.

Appropriate choice of disinfectant may be determined by

- Referring to the approved IBC Memorandum of Understanding and Agreement,
- Contacting the Biosafety Office at askEHS@cornell.edu, or
- Referring to the EPA’s website for selected registered disinfectants

Appropriate use may be determined by referring to the manufacturer’s use and contact time requirements.
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1. Laboratory Hygiene

a. Decontaminate work surfaces and associated equipment (centrifuges, micropipettes, etc.) with an appropriate disinfectant after procedures are completed, immediately when overtly contaminated, after any spill of blood or OPIM, and after the day's research activities.
b. Regularly inspect and decontaminate reusable biohazard waste receptacles.

2. Waste

Sharps and non-sharp items contaminated with blood or OPIM are Regulated Medical Waste (RMW). Properly segregate all regulated medical waste in either biohazard sharps containers or red biohazard plastic bags. Biohazard bags must be used in a manner that does not damage their integrity. When it is time to remove the regulated medical waste from lab spaces for disposal, each container or bag must be labeled at a minimum with a name and phone number for contact. Additional information, such as lab and building identification, is helpful for staff waste management. EHS recommends the use of printed labels for clarity. See Figure 2 for an example.

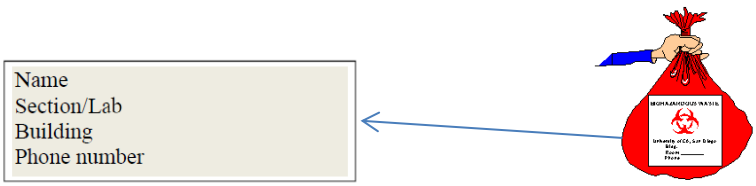


Figure 2 Example of labels with information which must be present on RMW bags and bins.

Within the College of Veterinary Medicine (CVM), laboratory personnel or designated department staff should transport regulated medical waste to the CVM Waste Management Facility in Schurman Hall. EHS staff will pick up regulated medical waste elsewhere on campus and in specific off-campus locations and deliver the waste to the CVM Waste Management Facility. Regulated medical waste must not enter the regular solid waste stream.

3. Laundry

Do not take potentially contaminated laundry home. Laboratory clothing, such as lab coats and scrubs, should be routinely laundered at facilities prepared to deal with contaminated laundry. Isolate contaminated laundry in an appropriate bag or container, handle it as little as possible, and launder it according to the laboratory-specific procedures. When clothing is overtly contaminated with infectious materials, decontaminate it by steam sterilization (autoclaving) or other proven effective means (e.g., soaking it in a bleach solution) before laundering. Laundering capabilities will vary from building to building; consult individual department/unit/group for assistance.

F. Hepatitis B Vaccination

Hepatitis B vaccination is provided at no cost for Category 1 personnel. Persons who have been previously with the complete hepatitis B vaccination series, have antibody testing results that shows immunity or a medical reason for not being vaccinated are exempted from vaccination by Cornell.

Individuals declining the vaccine must sign the declination statement in the Hepatitis B form . However, those who initially decline the vaccine may choose to receive it later at no charge if they are still performing Category 1 activities.

Contact Cornell Health for vaccination and titer cost structures.

Post-Exposure Response

A. Exposure Incident

Appendix B contains the steps an individual must follow during an exposure incident. The primary investigator or supervisor will ensure that the individual seeks medical evaluation immediately. The Centers for Disease Control and Prevention (CDC) recommends that individuals seek medical evaluation within two hours of an exposure event. Any needlesticks must be

recorded through the online Cornell EHS Injury and Incident Reporting System, which complies with OSHA's Recordkeeping regulation (29 CFR Part 1904) OSHA 300 needlestick injury log.

B. Post-Exposure Evaluation:

The medical evaluation will include at least the following:

a. Documentation of the route(s) of exposure
b. Circumstances under which the exposure incident occurred.
c. Relevant information about the material involved in the exposure, such as the presence of known viruses or bacteria or the status of the source individual, in the case of human blood or OPIM, if known, and unless prohibited by state or local law
d. Immunization status of the exposed individual
e. Collection of blood for baseline testing
    - If the person consents to baseline blood collection after an exposure incident but does not give consent at that time for HIV serologic testing, the sample will be frozen for at least 90 days.
    - If, within 90 days of the exposure incident, the person elects to have the baseline sample tested, such testing will be done. Otherwise, the blood sample will be discarded.

The person will receive post-exposure prophylaxis when medically indicated and as recommended by the CDC, counseling concerning precautions to take, and information about signs and symptoms of potential illnesses of which to be aware.

C. Follow Up

Work with the medical provider to provide Cornell University Environment, Health, and Safety with a copy of the evaluating healthcare professional's written opinion within 15 days after the evaluation is complete. Information to be included:

- Whether the hepatitis B vaccination is indicated for the individual, and if the individual has received such vaccination.
- Results of the evaluation.
- Any medical conditions resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.

Any exposure incident must be reported using the Injury/Illness/Exposure reporting system, which is available on the EHS web page. EHS will then conduct an appropriate accident investigation.

Since Cornell Health does not treat employees, a copy of the treating healthcare provider's records will be supplied to Cornell Health. Students may be treated at Cornell Health for exposure.

Training

All Category 1 personnel will participate in a bloodborne pathogens training program maintained by EHS. Individuals must complete initial training at the time of initial assignment to tasks that involve blood or OPIM. Laboratory-specific training will be provided by Principal Investigators, supervisors, or other designees from research labs.

Annual refresher training is required as long as the individual has a potential research-related exposure. Both initial training and refresher training are offered at no cost for the individual.

The EHS initial training program will contain the following elements:

- Background on 29CFR 1910-1030 and how to obtain a copy of the regulatory text.
- An explanation of the exposure control plan and MUA and how to obtain a copy of each document.

- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood or OPIM.
- A general explanation of the epidemiology and symptoms of bloodborne diseases and the modes of transmission.
- An explanation of the use and limitations of methods to prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment.
- Information on the types and basis for selection of personal protective equipment, their proper use, and disposal.
- Discussion about the importance of signs, labels for hazard communication.
- Information on the efficacy, safety, and benefits of the hepatitis B vaccine.
- Who to contact and procedures to follow after an exposure incident.
- Information on the post-exposure evaluation and available medical follow-up.
- An opportunity for a question-and-answer period with the trainer.

Since bloodborne pathogens hazards and exposure controls vary from laboratory to laboratory, the PI, laboratory supervisor, or designee will provide task-specific training after laboratory personal have completed EHS's initial training, and whenever changes such as modifications of procedures or institution of new tasks or procedures affect the research-related exposure of laboratory personnel.

Information about specific hazards and procedures present in a research project will be found in the MUA that the PI must have filed with the IBC.

Recordkeeping

A. Medical Records

The medical records for an exposed individual will be maintained at Cornell Health, and will include:

- The name and social security number of the individual.
- A copy of the individual's hepatitis B vaccination status.
- A copy of all results of examinations, medical testing, and follow-up procedures after an exposure incident.
- A copy of the healthcare professional's written opinion.
- A copy of the information provided to the healthcare professional.

Cornell Health will ensure that individual medical records are kept confidential and are not disclosed or reported without the individual's express written consent to any person within or outside the workplace except as required by law. Cornell Health will maintain medical records for the individual's duration of employment plus 30 years.

B. Training Records

Training records shall be maintained for the individual's duration of employment plus 30 years and include:

- Dates of training sessions
- Names, departments, and net IDs of all persons attending the session.
- Name of person conducting the training

Individual training records will be provided upon request for examination to the individual, a representative of that individual, and OSHA.

Annual & Periodic Review

EHS is responsible for reviewing and updating this Exposure Control Plan annually to reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens, or when updated regulations or policies require changes. This ECP, along with MUA must

be readily available and accessible for individuals who have research-related exposure. Revisions to this Written Program will be made as necessary. Revisions to this Guidance Document will be communicated through the EHS website.

Responsible Manager

Cornell EHS Biosafety is responsible for change control. Official changes to this plan will be made using EHS resources.

Related Documents/Procedures

Cornell University Biosafety Written Programs – compliance with the Biosafety Written Programs is required for all persons handling human materials.

Definitions

Blood: Human blood, its derived components, and products that are made from human blood.

Bloodborne Pathogens: Pathogenic microorganisms including, **but not limited to**, Hepatitis B virus (HBV), Hepatitis C virus (HCV), and Human Immunodeficiency Virus (HIV), which may be present in human blood and can cause disease in humans.

Engineering Controls: Equipment, workstations, devices, or any other relevant aspect of the work environment that isolate or reduce bloodborne pathogen hazards from blood and other potentially infectious materials.

Engineered sharps means a non-needle (e.g., scalpel, razor blade) or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

Exposure Control Plan: OSHA Regulatory document required by each employer having an employee(s) with occupational exposure as defined in 29 CFR 1910.1030 designed to eliminate or minimize employee exposure to blood and OPIM.

Exposure Determination: EHS categorization of whether an individual may be exposed to blood or other potentially infectious materials during their research activities.

Exposure Incident: A specific eye, mouth, other mucous membranes, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an individual's duties.

Hazard Assessment Signage Program (HASP): The Cornell University hazard communication signage program

Needleless Systems: Devices that do not use needles for: (1) the collection or withdrawal of bodily fluids after initial venous or arterial access is established; (2) the administration of medication or fluids; or (3) any other procedure involving the potential for research-related exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Research-related exposure: Described as reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials (body fluids, unfixed tissues, and organs, cell lines, etc.) that could result from the performance of an individual's duties.

Other Potentially Infectious Materials (OPIM): include, but are not limited to:

- Unfixed human tissue or organs (other than intact skin in a living human being).
- Human cell, tissue, or organ cultures.

- Blood, organs, and tissues from animals experimentally infected with human pathogens (such as HIV or HBV) or inoculated with human cells.
- Body cavity fluids such as cerebrospinal, synovial, pericardial, pleural, amniotic, semen and vaginal secretions, saliva and blood from injuries to the mouth or dental procedures, other body fluids, and any body fluid that is visibly contaminated with blood.
- Blood, cell lines, and other materials are derived from **non-human primates.**

Personal Protective Equipment (PPE): reusable or disposable protective gear worn to protect the body from exposures or injuries, including mucous membrane protection (face shields, eye protection, surgical masks), laboratory coats, gloves, and closed-toed shoes.

Sharps: Needles, syringes, syringes with needles attached, scalpels, razor blades, glass Pasteur pipettes, glass blood vials, glass slides, glass coverslips, and broken glass. Other items that can puncture a plastic waste containing bag (e.g., micropipette tips, serological pipettes, broken plastic containers, etc.) must be considered sharps when used with blood or OPIM.

Source individual: The individual from whom the primary blood or OPIM used in research has originated.

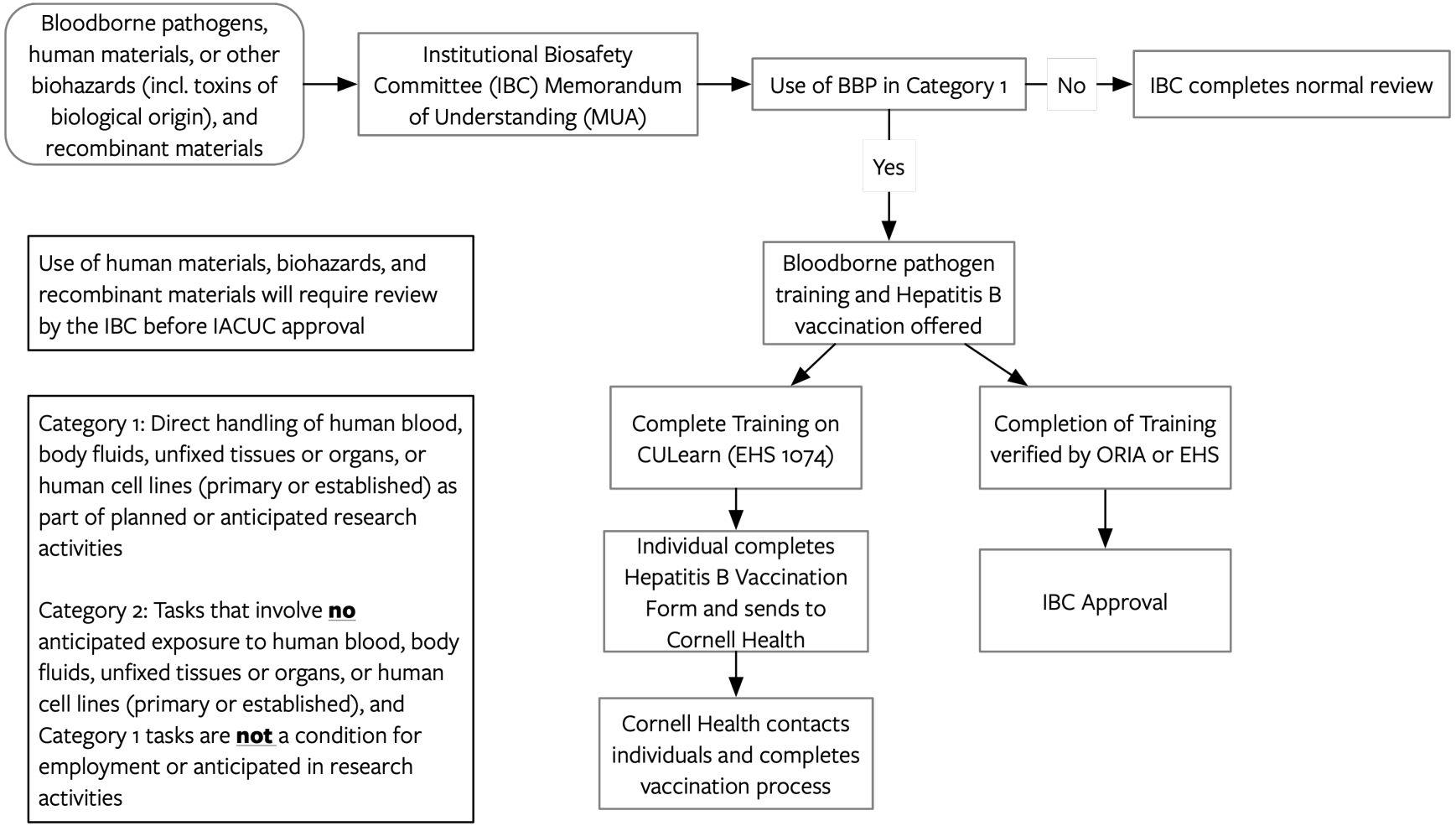
Universal Precautions: the application of safeguards or barriers to minimize or prevent contact with human blood or other potentially infectious materials, regardless of the perceived health status of the source individual or material (i.e., treating all human blood and bodily fluids as potentially infectious).

Document Control and Review History

Statement of Compliance
This Exposure Control Plan is reviewed at least annually and updated as necessary to reflect changes in tasks, procedures, or technology that may affect occupational exposure to bloodborne pathogens, in accordance with OSHA 29 CFR 1910.1030(c)(1).

Review Date	Summary of Substantive Changes	Review Type	Approved by
Dec 2025	Annual review completed; no substantive programmatic changes required	Annual Review	EHS Biosafety/Joshua E. Turse, Biosafety Officer
Dec 2024	Reviewed links, modified the statement of scope to clarify that this program does not cover WCMC Added Appendix C: Lab-Specific Bloodborne Pathogens Training Checklist	Annual review	EHS Biosafety/Joshua E. Turse, Biosafety Officer
Dec 2023	Reviewed links, modified the statement of scope to clarify that this program does not cover WCMC	Annual review	EHS Biosafety/Joshua E. Turse, Biosafety Officer

Appendix A: BBP Screening Process Overview



Use of human materials, biohazards, and recombinant materials will require review by the IBC before IACUC approval

Category 1: Direct handling of human blood, body fluids, unfixed tissues or organs, or human cell lines (primary or established) as part of planned or anticipated research activities

Category 2: Tasks that involve **no** anticipated exposure to human blood, body fluids, unfixed tissues or organs, or human cell lines (primary or established), and Category 1 tasks are **not** a condition for employment or anticipated in research activities

Appendix B. Exposure Response Quick Reference Guide

In the event of an exposure to blood or other potentially infectious materials:

1. **Immediately wash** the exposed skin area thoroughly with soap and water, or **flush** mucous membranes with copious amounts of water. Call 607-255-1111 if you need assistance.
2. **Communicate** the exposure incident to the supervisor.
3. **Seek medical evaluation** as soon as possible, within 2 hours of exposure. Area providers include:

   a) **Cayuga Medical Center**, Emergency Room (phone: 607-274-4411)
   101 Dates Drive, off of Route 96 North, Ithaca

   b) **Well Now Urgent Care**, (phone: 607-319-4563)
   740 South Meadow Street, Ithaca

   c) **Cayuga Immediate Care** (phone: 607-319-4900)
   401 Cayuga Park Lane, Suite 101

4. After a medical evaluation, complete the online injury/illness report with assistance from your supervisor: https://ehs.cornell.edu/incident-reporting

Appendix C: Lab-Specific Bloodborne Pathogens Training Checklist

Purpose:
This checklist ensures Principal Investigators (PIs) supplement Cornell's central Exposure Control Plan (ECP) by providing lab-specific training and discussing risks, tasks, and controls identified in the **IBC Memorandum of Understanding and Agreement (MUA)**.

Instructions:
PIs must use this checklist to review lab-specific hazards, procedures, and controls with all personnel working with bloodborne pathogens or other potentially infectious materials (OPIM). Reference the **central ECP** and the lab's **IBC MUA** throughout the training.

Overview of the Exposure Control Plan (ECP)

[ ] Explain that Cornell's central ECP serves as the primary document outlining overall policies and compliance with OSHA's BBP Standard.
[ ] Provide access to the central ECP and explain where to locate it (e.g., Cornell EHS website).
[ ] Reference the **IBC MUA** as the document identifying **lab-specific tasks, hazards, and controls**.

Lab-Specific Hazards and Risk Assessment

[ ] Discuss all **specific BBP hazards** identified in the lab's IBC MUA:

- Human blood, body fluids, OPIM, or human-derived cell lines.
- HIV-derived lentiviral vectors or any other BBP-related materials.

[ ] Review **tasks and procedures** that pose risks (e.g., handling sharps, culturing cell lines, necropsies, or blood draws).
[ ] Explain routes of exposure: mucous membranes, percutaneous, non-intact skin, and ingestion.

Lab-Specific Work Practices and Engineering Controls

[ ] Review safe work practices for tasks identified in the IBC MUA (e.g., safe pipetting, no mouth pipetting, minimizing splashes/aerosols).
[ ] Demonstrate the proper use of **engineering controls**, including:

- Biosafety cabinets for aerosol- or splash-generating tasks.
- Sharps disposal containers for safe handling of needles, scalpels, etc.

Location and maintenance of eyewash stations and safety showers.
[ ] Discuss handwashing protocols and when to use hand sanitizers.

Personal Protective Equipment (PPE)

[ ] Identify the **required PPE** for lab-specific tasks (e.g., gloves, lab coats, face shields, eye protection).
[ ] Demonstrate proper donning, doffing, and disposal of PPE.

[ ] Provide the location of PPE supplies and procedures for reporting shortages or defects.

Sharps Safety and Handling

[ ] Discuss how sharps are used in the lab and review:

- Elimination or minimization of sharps whenever possible.
- Use of **safety-engineered sharps** (e.g., retractable needles, needleless systems).

[ ] Demonstrate proper handling of sharps:

No bending, recapping, or shearing needles (except with approved methods).
Immediate disposal of sharps into puncture-resistant containers.

Spill and Decontamination Procedures

[ ] Review lab-specific procedures for cleaning spills of blood or OPIM.
[ ] Identify the appropriate disinfectants and their contact times (e.g., PreEmpt, Bleach).
[ ] Demonstrate decontamination of work surfaces, equipment, and reusable tools.

Waste Management

[ ] Identify procedures for segregating and disposing of **regulated medical waste** (sharps, biohazard bags).
[ ] Review proper labeling of biohazard waste containers (e.g., lab name, contact information).

Post-Exposure Response

[ ] Discuss steps to take after an exposure incident, including:

- Immediate actions: washing, flushing, and reporting the incident.
- Use of the Cornell **EHS Injury/Incident Reporting System**.

[ ] Review medical follow-up procedures and explain the importance of timely evaluation.

Hepatitis B Vaccination

[ ] Explain the availability of the Hepatitis B vaccine.

Q&A and Discussion

[ ] Provide an opportunity for lab personnel to ask questions regarding lab-specific hazards, tasks, and controls.
[ ] Emphasize the importance of following the lab-specific IBC MUA and central ECP.

PI Acknowledgment:

I have reviewed the above topics with my laboratory personnel as part of their lab-specific bloodborne pathogens training.

PI Name: _____

Research Laboratory Exposure Control Plan for Bloodborne Pathogens

Date: _____

Signature: _____

Personnel Acknowledgment:
I have received lab-specific training on bloodborne pathogens and understand the risks, tasks, and controls as outlined in the IBC MUA and Cornell's central ECP.

Name	Signature	Date

Key Notes for PIs:

- The central Cornell ECP provides the overarching framework for compliance.
- The **IBC MUA** documents specific lab hazards, tasks, and controls—ensure it is up to date and accessible to lab personnel.
- This checklist ensures lab personnel receive training tailored to their lab's specific risks while remaining compliant with OSHA's Bloodborne Pathogens Standard.