

## TITLE:

**EHS-403, BLOODBORNE PATHOGENS EXPOSURE CONTROL PLAN**

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## Introduction

### 1.1 Purpose

This document serves as a broad-based exposure control plan for all Emory University personnel, whose occupational tasks or responsibilities include reasonable anticipated risk of exposure to human blood or other potentially infectious materials (OPIM) of human origin, including occupations with non-routine exposure. This document will hereafter be referred to as the Bloodborne Pathogen Exposure Control Plan (ECP) and complies with the Occupational Safety and Health Administration (OSHA) Occupational Exposure to Bloodborne Pathogens Standard (29 CFR 1910.1030), which was first published in 1991 because of significant health risks associated with exposure to viruses and other microorganisms that cause bloodborne diseases.

Per the OSHA Bloodborne Pathogen Standard, the organisms of primary concern are the human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). The intent of these rules is to reduce or eliminate occupational exposure to potentially infectious bloodborne pathogens. Fundamental to the control of occupational exposure is a set of rules and practices collectively defined as Universal Precautions. Under the Universal Precautions concept, all human blood, blood products and OPIM are treated as if they are known to be contaminated with bloodborne pathogens or infectious.

In addition to following Universal Precautions (UP), the regulation mandates specific employer actions that must be taken to minimize occupational exposure to bloodborne pathogens. These actions include:

- Written ECP (presented as this document)
- Employee exposure determination
- Guidance and information regarding safer sharps technology
- HBV vaccination program
- Medical policies
- Training program

### 1.2 Scope

This BBP-ECP applies to Emory University employees, including faculty, staff, student employees, contractors, and other people who have a potential for occupational exposure to blood or OPIM as defined in Section 1.3 Definitions.

### 1.3 Definitions

**Assistant secretary.** The Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

**Biologically hazardous conditions.** Equipment, containers, rooms, materials, experimental animals infected with HBV or HIV or combinations thereof that contain or are contaminated with blood or other potentially infectious material.

**Blood.** Human blood, human blood components, and products made from human blood.

**Bloodborne pathogens.** Human blood, human blood components, and products made

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from human blood.

**Clinical laboratory.** A workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

**Contaminated.** The presence, or the reasonably anticipated presence, of blood or OPIM on an item or surface.

**Contaminated laundry.** Laundry that has been soiled with blood or OPIM (may contain sharps).

**Contaminated sharps.** Any contaminated object that can penetrate the skin, including needles, scalpels, broken glass, broken capillary tubes and Pasteur pipettes, exposed ends of dental wires.

**Decontamination.** The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal.

**Director.** The Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

**Disinfect.** To inactivate virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms on inanimate objects.

**Engineering controls.** Controls (e.g. sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needle less systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

**Exposure incident.** A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of a personnel's duties.

**Handwashing facilities.** Facilities that provide an adequate supply of running, potable water, soap and single-use towels or a hot air-drying machine.

**Job Classification A Exposure.** Includes all employees whose occupational tasks or responsibilities include exposure or reasonable anticipated risk of exposure to human blood or OPIM.

**Job Classification B Exposure.** Includes all employees whose occupation does not routinely involve exposure or reasonable anticipated risk of exposure to human blood or OPIM on a routine or non-routine basis.

**Licensed healthcare professional.** A person whose legally permitted scope of

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practice allows him or her to independently perform the activities required by paragraph (f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

**HBV.** Hepatitis B virus.

**HIV.** Human immunodeficiency virus.

**Needleless systems.** A device that does not use needles for the collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established; the administration of medication or fluids; or any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

**Occupational exposure.** Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of personnel's duties. This definition excludes incidental exposures that may take place on the job, and that are neither reasonably nor routinely expected, and that the worker is not expected to incur in the normal course of employment.

**Other Potentially Infectious Materials (OPIM).**

OPIM as defined in the OSHA Bloodborne Pathogens standard (29 CFR 1910.1030(b)), means: The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

**Parenteral.** Exposure occurring as a result of piercing mucous membrane or the skin barrier, such as exposure through subcutaneous, intramuscular, intravenous, or arterial routes resulting from needle sticks, human bites, cuts and abrasions.

**Personal protective equipment (PPE).** Specialized clothing or equipment that is worn by personnel to protect him or her from a hazard. General work clothes, such as uniforms, pants, shirts, or blouses are not intended to function as protection against a hazard and are not considered to be PPE.

**Production facility.** A facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

**Regulated waste.** Any of the following: liquid or semi-liquid blood or OPIM; contaminated items that would release blood or other potentially infectious material in a liquid or semi-liquid state if compressed; Items which are caked with dried blood or

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other potentially infectious material and which are capable of releasing these materials during handling; contaminated sharps; pathological and microbiological waste that contains blood or OPIM.

**Research laboratory.** A laboratory that produces or uses research laboratory-scale amounts of HIV, HCV or HBV. A research laboratory may produce high concentrations of HIV, HCV or HBV, but not in the volume found in a production facility.

**Sharps with engineered sharps injury protections.** A non-needle sharp 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.

**Source individual.** Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

**Standard microbial practices.** Procedures comparable to those outlined in the current edition of the Biosafety in Microbiological and Biomedical Laboratories.

**Standard Precautions (SP).** SP were introduced in 1996 in the CDC/Healthcare Infection Control and Prevention Advisory Committee's "1996 Guideline for Isolation Precautions in Hospitals," added additional infection prevention elements to UP in order to protect healthcare workers not only from pathogens in human blood and certain other body fluids, but also pathogens present in body fluids to which UP does not apply. SP includes hand hygiene; the use of certain types of PPE based on anticipated exposure; safe injection practices; and safe management of contaminated equipment and other items in the patient environment. SP is applied to all patients even when they are not known or suspected to be infectious.

**Standard operating procedures (SOPs).** Any of the following, which address the performance of work activities so as to reduce the risk of exposure to blood and OPIM: written policies, written procedures, written directives, written standards of practice, written protocols, written systems of practice, elements of an infection control program.

**Sterilize.** The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacteria spores and mold spores, and the inactivation of viruses.

**Universal Precautions (UP).** A method of infection control that treats all human blood and OPIM as capable of transmitting HIV, HBV, HCV and other bloodborne pathogens. UP was originally recommended by the CDC in the 1980s, was introduced as an approach to infection control to protect workers from HIV, HBV, and other bloodborne pathogens in human blood and certain other body fluids, regardless of a patients' infection status.<sup>2</sup> UP is an approach to infection control in which all human blood and certain human body fluids are treated as if they are known to be infectious. The BBP standard requires the use of UP and

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extends UP to protect workers against pathogens found in saliva during dental procedures and body fluids in situations where it is difficult or impossible to differentiate between body fluids (e.g., vomit mixed with blood).

**Work practice controls.** Controls that reduce the likelihood of exposure to bloodborne pathogens by altering the way a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

## 1.4 Responsibilities

Emory University and all personnel have a joint responsibility to be well informed regarding the hazards associated with bloodborne pathogens. Delineation of these responsibilities is described below.

### ***Management***

Senior management supports this ECP as well as all safety programs by providing facilities, proper equipment, personal protective equipment (PPE) and oversight.

### ***Principal Investigators (PIs)/Supervisors***

PIs/supervisors are responsible for their laboratory's compliance with the ECP and are responsible for:

- Performing an occupational exposure determination for each employee
- Ensuring that all personnel are informed of the hazards associated with the work performed.
- Identifying and informing personnel on proper control measures, including available vaccinations/immunizations, safe work practices, standard operating procedures specific to the laboratory and use of engineering controls and PPE. NOTE: Where the scope of hazards is not adequately addressed by this document, hazard specific SOPs will be developed.
- Limiting access to work areas where potential biohazards are present until training and entry requirements are met
- Ensuring that personnel under their direction are properly trained and have a means to determine when an employee demonstrates proficiency.
- Ensuring personnel are aware of the purpose, significance, and provisions of Occupational Health according to Occupational Injury Management
- Enforcing all safety rules and policies.
- The ECP will be readily available to all personnel through their Supervisor or the Environmental Health and Safety Office (EHSO) website.
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### ***Personnel***

- All personnel working with bloodborne pathogens must accept a shared responsibility for operating in a safe manner.
- Personnel shall not engage in work for which they are not trained.
- Personnel shall report to their supervisor, management, or EHSO, potentially unsafe work conditions or practices.
- Personnel are also responsible for:
  - Knowing which tasks have a potential occupational exposure to bloodborne pathogens;

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- Following guidance provided in the ECP;
- Following Universal Precautions and standard microbial practices;
- Planning and conducting all operations in accordance with exposure control procedures and specific unit (departmental or laboratory) safety procedures.
- Completing the appropriate Bloodborne Pathogens Training module (initial and annual retraining) depending on job functions (e.g. researchers or non-researchers).
- Reporting hazardous conditions to the PI/supervisor/EHSO.
- Reporting job-related injuries or illnesses to the PI, supervisor, and EHSO and seeking medical treatment immediately. See instructions on how to report accidents and injuries at [www.emory.ehso.edu](http://www.emory.ehso.edu).
- Requesting information and training when unsure how to work with bloodborne pathogens.
- Wearing and properly maintaining the PPE necessary to perform each task to which he/she is assigned.
- Using engineering controls, including safe sharps technology and safety equipment properly.

***Emory University Environmental, Health and Safety Office (EHSO)***

EHSO is responsible for overseeing compliance with the OSHA Bloodborne Pathogens Standard and the ECP required therein and will develop the provisions of the ECP.

***Biosafety Officer (BSO), Director of EHSO and Research Health and Safety Committee (RHSC)***

The BSO, the Director of EHSO and the RHSC will work with management to assign areas of responsibility to departments, principal investigators, laboratory supervisors and other individuals as necessary, to implement and carry out the provisions of the ECP.

***Employee Health Services (EHS)/Occupational Injury Management (OIM)***

EHS shall be responsible for managing the HBV Vaccination Program and establishing and maintaining an accurate record for each employee with occupational exposure.

This must include the following as applicable:

- Hepatitis B status including the dates of all the Hepatitis B vaccinations and titers
- Medical records relative to the employee's ability to receive vaccination
- Results of examinations, medical testing, and follow up procedures
- Written opinions of a health professionals
- Information provided to health professionals

OIM will be responsible for providing appropriate treatment and counsel if personnel is exposed to bloodborne pathogens and will maintain the sharps injury log for the recording of percutaneous injuries from contaminated sharps.

All records will be kept confidential and will not be disclosed or reported without written consent from the employee.

**1.5 Training Requirements**



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All personnel in job classification A who have the potential for exposure to bloodborne pathogens shall participate in the Bloodborne Pathogen Training Program (this includes HIV and HBV training as referenced in 29 CFR 1910.1030(g) (2) (ix)).

Training will be provided at the time of initial assignment and at least annually thereafter. Annual training for all employees must be completed within one year of their previous training

The PI must assure that employees have prior experience working with human pathogens or tissue cultures before working with HIV or HBV.

Additionally, PI specific training is required for personnel in HIV and HBV research laboratories. This training must provide assurance that personnel are proficient in lab practices and operations before being allowed to work with HIV or HBV. The employee must not participate in work involving infectious agents until proficiency is demonstrated.

A training program must be provided to employees who have no prior experience in handling human pathogens. Initial work activities must not include the handling of infectious agents. A progression of work activities must be assigned as techniques are learned and proficiency is developed. The employer must assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

Additional training is provided when changes such as the modification of tasks or procedures affect the personnel's occupational exposure. The additional training may be limited to addressing only the new exposures created.

Training content will be presented to all personnel in job classification A as to accommodate all levels of education and literacy.

Training Topics – Topics covered in the training program include:

- The OSHA Bloodborne Pathogens Standard.
- The epidemiology and symptoms of bloodborne diseases.
- The modes of transmission of bloodborne pathogens.
- The ECP.
- Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and OPIM.
- A review of the use and limitations of methods that will prevent or reduce exposure, including engineering controls, administrative controls, safe sharps technology work practice controls, PPE, and universal precautions.
- Selection and use of PPE, including types available, proper use, location, removal, handling, decontamination, disposal.
- Visual warning of biohazards including labels, signs, and color-coded containers.
- The proper procedures and materials involved in the cleanup of spills of potentially infectious materials.
- Information on the HBV vaccine, including: its efficacy, its safety, method of administration, benefits of vaccination, and Emory's Vaccination Program.
- Actions to take and persons to contact in an emergency involving blood or OPIM.

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- The procedures to follow if an exposure incident occurs, including incident reporting.
- Information on the post-exposure evaluation and follow-up, including medical consultation.
- Recommendations specific to a department and unique threats posed by potentially infectious materials in that department.
- Training Methods - One or more methods may be used to deliver training content and include:
  - Personal instruction.
  - Computer aided interactive training.
  - Training manuals.
  - EHSO monthly newsletter, the “Lab Rat”.
  - The opportunity for personnel to ask questions.

### 1.6 Recordkeeping Requirements

Trainers will be familiar with the OSHA Bloodborne Pathogen Standard, the ECP and required elements of the bloodborne pathogen training. Emory University shall maintain the training records.

Training records include the following information:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons who conduct the training.
- Names and job titles of all persons who attend the training sessions.

Training records shall be maintained for a period of three years from the date on which training occurred.

- All training records shall be made available upon request to OSHA for examination and copying.
- Employees, employee representatives, and OSHA shall be provided with training records upon request for the purpose of examination and copying.
- All records that are required by law to be maintained will be made available upon request.

Emory shall establish and maintain medical records for each job classification A employee in accordance with this ECP. Medical records shall contain, at a minimum, the following information:

- Name and employee ID number of the personnel.
- Copy of the employee’s hepatitis B vaccination status, including the dates administered, and medical records relating to the employee’s ability to receive a vaccination.

In addition, Emory will maintain a copy of the medical history and all results of physical examinations, medical testing and follow-up procedures as they relate to either of the following:

- Personnel’s ability to wear protective clothing and equipment and receive

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vaccination.

- Post exposure evaluation after an occupational exposure incident.
- Employer's copy of the physician's written opinion.
- Copy of the information provided to the physician.

All medical records that are required by this ECP are kept confidential and are not disclosed or reported without the personnel's express written consent to any person within or outside Emory, except as may be required or permitted by law.

Emory shall maintain personnel medical records according to OSHA standards for the duration of employment plus 30 years.

OIM will maintain a Sharps Injury Log for five years following the end of the calendar year that the records cover. The sharps injury log contains, at a minimum:

- The type and brand of device involved in the incident
- The department or work area where the exposure incident occurred
- An explanation of how the incident occurred

## 1.7 Program Evaluation

The ECP shall be reviewed and updated at least annually or whenever necessary to reflect new or modified tasks and procedures, which affect occupational exposure, and to reflect new or revised personnel positions with occupational exposure. The review and update of such plans shall:

- Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.
- Document annual consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.
- Document the employer's solicitation from non-managerial personnel responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation and selection of effective engineering controls and work practices.

## 2.0 Exposure Determination

Personnel are placed in one of two categories regarding their potential occupational exposure. The exposure determination must be made without regard to the use of PPE.

### 2.1 Job Classification A Exposure

Includes all employees whose occupational tasks or responsibilities include exposure or reasonable anticipated risk of exposure to human blood or OPIM. See Appendix 1 for the list of job activities and PPE required.

The following personnel have risk of occupational exposure (job classification A):

- EHSO employees.
- Laboratory researchers including PIs, post-doctoral fellows, research associates, technicians and students.
- Building Services staff who provide services to the restrooms, University housing, and laboratory areas (Main Campus, Oxford Campus, Clinics,

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and Yerkes).

- Members of the Emory Emergency Medical Service (EEMS).
- Police and Fire Safety department.
- Division of Animal Resources.
- University Athletics.
- Roads and Grounds.
- HVAC
- Emory Recycling
- Pipe Services within Facilities Management
- Engineering and Information Technology personnel who provide services to laboratory or research areas (Main Campus, Oxford Campus, and Yerkes)
- Operations, Maintenance, or Facilities (staging/moving, electric shop, energy and utilities) personnel who provide services to laboratory or research areas (Main Campus, Oxford Campus, and Yerkes)

## 2.2 Job Classification B Exposure

Includes all employees whose occupation does not routinely involve exposure or reasonable anticipated risk of exposure to human blood or OPIM on a routine or non-routine basis. Employees in job classification B are not included in the bloodborne pathogen program.

Individual departments shall review and update their personnel exposure potentials annually or with any significant changes in work procedures. Significant changes shall be reported immediately to the BSO with the following information:

The names of department personnel who have potential occupational exposures.  
Job titles/classifications and an estimate of exposure frequency.

## 2.3 Tasks and Procedures

The BBP Occupational Exposure Determination Form is used to assist Principal Investigators, supervisors, managers, and EHSO in determining the personnel within departments that are at risk for occupational exposure to bloodborne pathogens.

If personnel perform procedures or tasks indicated on the questionnaire, then those persons must follow all safety precautions to minimize exposure and complete training /immunizations required by the Bloodborne Pathogen Standard and Emory's Bloodborne Pathogen Exposure Control Plan.

For specific departments, EHSO may request a completed Occupational Exposure Questionnaire from department representatives annually. (Appendix 1) The following are examples of tasks performed by personnel that present a potential for exposure to human blood or OPIM:

- Handling or Treating Biohazard Waste
- Performing Emergency Medical procedures (e.g. drawing blood)
- Administration of First Aid
- Phlebotomy
- Sanitizing Restrooms
- Cleaning Laboratory or Research Spaces
- Cleaning Biohazard or Body Fluid Spills
- Transporting biohazardous material

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- Administering Injections to Study Participants or Patients
- Handling Contaminated Sharps
- Sorting waste collected from multiple waste streams
- Handling potentially contaminated laboratory equipment
- Installation of IT network connectivity components in laboratories or operating rooms
- Performing Animal Necropsy Handling contaminated clothing or laundry
- Handling Animals Infected with Bloodborne Pathogens
- Performing repairs on pipes or drains in laboratories, operating rooms, or morgues
- Responding to emergency calls

### 3.0 Standard Work Practices

#### 3.1 OPIM

Where the scope of hazards is not adequately addressed by this general document, specific SOPs must be developed by department and laboratory supervisors. Personnel should consult their department operating procedures, job aids, and safety manuals for additional detailed information. Specific questions relating to the biosafety of a given operation or procedure should be reviewed with the department supervisor and the BSO.

The Emory University Biosafety Manual is a guidance document to inform and advise personnel of potential hazards when handling or using OPIM and provides instructions on practices and procedures used to minimize the potential for an occupational exposure. See Appendix 2 for a table of body fluids to which the BBP Standard, SP, and or UP apply.

#### 3.2 General Guidance

General safety principles shall be followed when working with bloodborne pathogens. These include, but are not limited to:

- The risk of exposure to bloodborne pathogens should not be underestimated.
- Personnel shall observe Universal Precautions. According to the concept of Universal Precautions, all human blood and OPIM are treated as if they are known to be infectious for bloodborne pathogens (e.g., HIV, HBV, HCV and others), regardless of the perceived status of the source.

Therefore, administrative controls (to include immunizations), proper engineering controls, work practices and PPE should be used to eliminate or minimize potential exposure to human blood and OPIM.

Universal Precautions apply to human blood and body fluids containing visible amounts of blood.

Universal Precautions currently do not apply to feces, nasal secretions, sputum, sweat, tears, urine, vomit or saliva unless they contain visible blood. In circumstances where it is difficult or impossible to differentiate between body fluid types, these fluids are

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assumed to be potentially infectious and Universal Precautions apply.

Preferentially, use engineering controls, followed by work-practice procedures, to eliminate or minimize personnel exposure.

All processing or analysis of human blood or OPIM should be conducted in laboratories at Biosafety Level 2 (BSL2), as defined by the U.S. Centers for Disease Control and Prevention (CDC) and National Institutes of Health (NIH) publication: Biosafety in the Microbiological and Biomedical Laboratories.

Procedures involving blood or OPIM need to be performed in such a manner as to minimize splashing, spraying, or aerosolization of these substances. Standard microbiological work practices will be utilized. Most procedures will require the use of engineering controls like biological safety cabinets (BSC).

Personnel should wear PPE appropriate for the potential exposure. Minimum PPE required for working with human blood and OPIM include a lab coat, eye protection and gloves.

- Use of needles and other sharps shall be avoided whenever possible.
  - Consider using needle-safe devices. A table of available devices is provided in Appendix 3
- Mouth pipetting is prohibited.
- Personnel shall not eat, drink, apply cosmetics or lip balm, smoke or handle contact lenses in work areas where there is a reasonable likelihood of exposure to blood or OPIM. In addition, food and drink shall not be stored in refrigerators, freezers or cabinets where blood or OPIM are present or other areas of possible contamination, such as counter tops. See the Emory University Consumption and Storage of Food and Beverages in Laboratory Areas.
- Observe signs and postings. Access to certain work areas may be restricted during the use of hazardous materials or special procedures.
- Special attention needs to be given to open lesions, dermatitis or other breaks in the skin compromising skin barrier protection. Appropriate gloves, such as medical exam gloves, must be worn. Additional barrier protection may need to be employed until the condition resolves.
- Laboratory doors must be kept closed.

## **4.0 Engineering Controls and Work Practices**

Engineering controls are used in combination with work practices and PPE to minimize or eliminate personnel exposure to human blood and OPIM. Engineering controls must be examined (at least annually) and maintained or replaced on a regular schedule to ensure their effectiveness.

It is the department supervisor and/or PI's responsibility to make sure tasks and procedures are reviewed to determine where engineering controls can be implemented or updated.

EHSO will work with supervisors and personnel to review areas to identify locations

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where:

- Engineering controls are currently employed.
- Engineering controls can be updated.
- Engineering controls are not currently employed, but where such controls could be beneficial.

#### **4.1 Hand Washing Facilities**

Hand washing facilities are readily accessible to personnel who have a potential for exposure.

When provision of handwashing facilities is not feasible or not immediately available, antiseptic cleanser or antiseptic towelettes may be used. However, when antiseptic or antiseptic towelettes are used, personnel must wash their hands with soap and water as soon as possible.

#### **4.2 Sharps**

See the *Emory University Safe Use of Sharps Guidelines*.

A high degree of caution is to be taken while using and disposing of sharps. Sharps include items such as needles, syringes, slides, pipettes, capillary tubes, scalpels, razor blades, etc. The use of sharps is minimized.

Immediately after use, contaminated non-reusable sharps must be disposed of in sharps containers (see Sharps Containers). These containers shall be puncture resistant, labeled or color-coded, leak-proof on the sides and bottom, and in accordance with the requirements set forth for reusable sharps.

Sharps with engineered sharps injury protection (safe sharps) include items such as self-sheathing needles, self-sheathing scalpels, and plastic capillary tubes and other safer medical devices and needleless systems. These and other safer sharps technology may be used for but not limited to withdrawing body fluids, inoculating animals, accessing a vein or artery, or administering medications. These devices are reviewed, introduced, and used in the workplace where appropriate. See Appendix 3 for a list of available needle-safe devices.

Emory's Needlestick Prevention Committee considers recent changes in technology that eliminate or reduce exposure to bloodborne pathogens. Prior to making safer medical devices available for employee use, consideration is given to the device's ability to eliminate or minimize occupational exposure.

Broken glassware, which may be contaminated, is not picked up directly with the hands. It is cleaned up using mechanical means, such as a brush and dustpan, vacuum cleaner, tongs, cotton swabs or forceps.

Reusable sharps that are contaminated with blood or OPIM shall not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed. Reusable sharps need to be collected in specific sharps containers which are puncture resistant, leak proof on the sides and bottom.

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Reusable sharps must be autoclaved or decontaminated before reuse.

#### **4.3 Needles and Syringes**

Contaminated needles must not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe must be promptly placed in a labeled, puncture-resistant sharps container.

Recapping of needles is permissible only if no other alternate method is feasible and shall be done only through a mechanical device or one-handed technique. Labs can review EHSO's Safe Use of Sharps Guidelines for a description and portrayal of the "one-handed" technique.

Hypodermic needles and syringes are used only for parenteral injections and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe-needle units (i.e., the needle is integral to the syringe) are used for the injection or aspiration of other potentially infectious materials.

#### **4.4 Sharps Containers**

Containers for the disposal of sharps (needles, syringes, scalpels, contaminated Pasteur pipettes) must be closable, leak-proof on sides and bottom, puncture-resistant, labeled with a biohazard warning label and disposed of in accordance with the Emory University Safe Use of Sharps Guidelines.

These containers must be maintained upright through use, easily accessible to personnel, located as close as feasible to the immediate area of use or as reasonably can be anticipated to be found, are replaced routinely and are not allowed to overfill.

Sharps containers are closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport or shipping. The sharps container is placed in a secondary container provided by Emory's biomedical waste vendor. The secondary container shall be closable, constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping and labeled appropriately.

#### **4.5 Reusable Containers**

All containers intended for reuse which have a potential for becoming contaminated with blood or OPIM, shall be inspected, cleaned, and decontaminated on an as-needed basis and cleaned and decontaminated immediately after use, or as soon as possible upon visible contamination.

Reusable containers that have been contaminated with blood or other potentially infectious materials shall be washed and decontaminated prior to reprocessing. The process in which washing, or decontamination is performed should be based on minimization of exposure to bloodborne pathogens or OPIM.

Reusable containers must not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.



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Specimens of blood or OPIM must be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping. The container for storage, transport, or shipping must be red or labeled with a biohazard symbol and closed prior to being stored, transported, or shipped. When transporting samples, the primary containers must be packed into a secondary container.

Labeling with a biohazard symbol is also required when such specimens/containers are transported within buildings. However, when a facility utilizes Universal Precautions in the handling of all specimens, the labeling/color-coding of specimens is not necessary if containers are recognizable as containing specimens. This exemption only applies while such specimens/containers remain within the facility.

If outside contamination of the primary container occurs, the primary container must be placed within a second container that prevents leakage during handling, processing, storage, transport, or shipping and is labeled or color-coded. If the specimen can puncture the primary container, the primary container must be placed within a secondary container that is puncture-resistant in addition to the characteristics mentioned above.

Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use are exempted from the labeling requirements.

For more information on the packaging and transport of biological and infectious material contact EHSO.

**4.7 Autoclaves**

Autoclaves may be used for the decontamination of items such as reusable equipment, biohazardous waste, and other materials necessary to be sterilized. Autoclave efficiency should be verified by means of a biological indicator.

Prior to using any autoclave for the first time, personnel must be informed by their PI or Department supervisor/lab manager on proper procedures and potential hazards, e.g. heat exposure, pressurized vessel.

Contact EHSO at 404-727-5922 before using an autoclave to inactivate biohazardous waste

**4.8 Biological Safety Cabinets (BSC)**

Activities involving potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols shall be conducted in BSCs or other physical containment devices within the containment facility. This work shall not be conducted on the open bench, in a chemical fume hood, or in a laminar flow hood.

BSCs must be re-certified by an Emory approved vendor annually. New BSCs must be certified after installation and before use. Principal investigators or Department

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administrators are responsible for placing the purchase order for certification using the Emory express system.

Approved Class II BSCs or other appropriate physical containment devices shall be used under the following conditions:

- Whenever procedures with high potential for creating exposure to infectious aerosols, droplets, splashes or spills are conducted, these may include: centrifuging, grinding, blending, vigorous shaking or mixing, sonic disruption, opening containers of infectious materials whose internal pressures may be different from ambient pressures, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.
- Whenever high concentrations or large volumes of blood and OPIM are used, such materials may be centrifuged in the open laboratory if sealed heads or centrifuge safety cups are used and if they are opened only in a BSC.
- Certified biological safety cabinets or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals must be used for all activities with other potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols.

For additional information on the different types, proper use of, and maintenance of BSCs, refer to Appendix A of the CDC Biosafety in Microbiological and Biomedical Laboratories 5<sup>th</sup> Edition.

BSCs must be certified when installed, whenever they are moved, and at least annually. Contact EHSO at 404-727-5922 for more information.

#### **4.9 Ducted Exhaust Air Ventilation System**

The directional airflow created by the ducted exhaust air ventilation system shall draw air into the work area and disperse the exhaust away from occupied areas and air intakes by discharging to the outside.

The proper direction of the airflow shall be checked by laboratory personnel for negative airflow during the laboratory self-inspection process. EHSO shall validate the results during the laboratory validation. Contact Facilities if the airflow is determined to be positive.

### **5.0 Administrative Controls and Work Practices**

#### **5.1 Signs and Labels – Communication of Hazards to Personnel**

Biohazard warning labels must be fluorescent orange or orange-red, or predominantly so with letters and symbols in a contrasting color.

Biohazard warning labels shall be affixed to containers of infectious waste, refrigerators, incubators and freezers containing blood or OPIM, sharps containers, laundry bags and containers, contaminated laboratory equipment or other containers used to store or transport blood or OPIM.

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Biohazard warning labels must be affixed as close as feasible to the container by string, wire, adhesive or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels on containers of infectious waste. The following are exempt from the labeling requirement: containers of blood, blood components, or blood products that have been released for transfusion or other clinical use; individual containers of blood or OPIM that are placed in a labelled container during storage, transport, shipment or disposal.

Equipment that has become contaminated with blood or OPIM shall be decontaminated prior to it being serviced or shipped, unless the personnel can demonstrate that decontamination of such equipment or portions of such equipment is not feasible. The equipment shall be labeled with the biohazard warning label, and an Emory University Equipment Hazard Tag shall be completed which identifies which portions remain contaminated.

If the portions of the equipment cannot be decontaminated, this information must be conveyed to all affected employees, the servicing representative, and/or manufacturer, as appropriate, prior to handling, servicing, or shipping so that appropriate precautions can be taken. Regulated waste that has been decontaminated need not be labeled or color-coded.

A biohazard hazard warning sign shall be posted on all access doors when bloodborne pathogens, OPIM or infected animals are present in the work area or the area is designated as BSL-2 or higher.

## **5.2 Housekeeping**

Laboratory personnel shall maintain all equipment and work surfaces in a sanitary working condition.

Work surfaces are cleaned and decontaminated with an appropriate disinfectant in all the following circumstances:

- After completion of procedures.
- When surfaces are overtly contaminated.
- Immediately when blood or OPIM is spilled.
- At the end of the work shift if the surface may have become contaminated since the last cleaning.

Supervisors must ensure that the work area is maintained in a clean and sanitary condition and must implement and maintain a written cleaning schedule for the research facility. The schedule shall include methods of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present and tasks or procedures performed in area.

Protective covering such as plastic wrap, aluminum foil or imperviously backed absorbent paper may be used to cover equipment and environmental surfaces.

These coverings shall be removed and replaced when they become overtly contaminated or at the end of the work shift if they have become contaminated during

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that shift.

### 5.3 Personal Protective Equipment (PPE)

PPE will be chosen based on the anticipated exposure to blood or OPIM. The PPE will be considered appropriate only if it does not permit blood or OPIM to pass through or reach the personnel's clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the PPE will be used.

Supervisors will enforce the use of PPE by persons in the work area. Some facilities may have specific PPE guidelines, e.g., Yerkes National Primate Research Center. The supervisor must ensure that the employee uses appropriate PPE unless the supervisor shows to EHSO that the employee temporarily and briefly declined to use PPE when, under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of healthcare or public safety services or would have posed an increased hazard to the safety of the worker or co-worker.

When the employee makes this judgment, the circumstances must be investigated and documented by EHSO in order to determine whether changes can be instituted to prevent such occurrences in the future.

Personnel shall routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when working with human blood or OPIM. PPE must be removed prior to leaving the work area and must be decontaminated before being laundered.

Emory will ensure that appropriate PPE in the appropriate sizes is readily available at the worksite or is issued to employees.

PPE will be supplied, cleaned, laundered, repaired or replaced, and disposed of by Emory at no cost to personnel. See the Emory University Procurement Website for more information.

PPE that is contaminated or penetrated by blood or OPIM must be removed immediately or as soon as feasible. All PPE must be removed prior to leaving the work area. When PPE is removed it must be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.

### 5.4 Gloves

Special care must be taken to avoid skin contact with blood or OPIM. Gloves shall be worn:

- When handling any blood or OPIM.
- When handling infected animals
- When handling items or surfaces contaminated or potentially contaminated with blood or OPIM.
- When servicing equipment/facilities where surfaces may be contaminated.

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Disposable gloves shall not be used when visibly soiled, torn, punctured, or when their ability to function as a barrier is compromised. Gloves shall be changed when visibly contaminated and prior to leaving the work area.

The “Beak Method” is recommended to prevent contamination of bare hands upon glove removal (Appendix 4):

- Using one gloved hand, pinch and pull the base of the other gloved hand.
- Use the middle finger to scoop the cuff of the glove and pull the glove inside out over all the fingers and thumb to form a “beak”.
- With the beaked hand, pinch the opposite glove at the base and pull the cuff so that it rolls inside out and off the hand. Dispose the glove into the appropriate waste container.
- With the ungloved hand, use the index finger to pull the beaked glove off at the base of the beak and dispose.

Disposable or single use gloves must not be washed or decontaminated for re-use. Personnel that are allergic to gloves normally provided shall be provided with hypoallergenic gloves, glove liners, powderless gloves, and other similar alternatives; and Utility gloves (e.g., rubber household gloves) may be used for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures.

Utility gloves may be decontaminated and reused, but shall be discarded if they are peeling, cracked, or discolored, or if they have punctures, tears, or show other evidence of deterioration or inability to function as a barrier.

Phlebotomies may be necessary for personnel and the use of gloves can be optional based on the professional judgement of the supervisor. Personnel must not be discouraged from using gloves during phlebotomy. Gloves must be available to all employees who wish to use them.

Gloves must be used for phlebotomy in the following circumstances:

- When the employee has cuts, scratches, or other breaks in the skin
- When the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual or when in phlebotomy training.

## **5.5 Protective Clothing**

Lab coats, disposable gowns, aprons or fluid resistant clothing shall be worn during procedures that are likely to generate splashes of blood, other body fluids or OPIM. The type and characteristics will depend upon the task and degree of exposure anticipated.

Surgical caps or hoods and shoe covers, or boots shall be worn, where appropriate, if there is a reasonable anticipation of gross contamination.

Lab coats shall be cleaned and laundered as needed or when the garment is soiled with blood or OPIM. Lab coats must be cleaned by an Emory approved vendor. Lab coats

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must not be taken home or to a dry-cleaning service. All protective clothing must be removed prior to leaving the work area.

**5.6 Masks, Eye Protection, Face Shields and Respirators**

Surgical masks in combination with eye protection (goggles, glasses with side shields, or face shields) shall be worn whenever splashes, spray, splatter, or droplets of blood or OPIM may be generated, and when eye, nose or mouth contamination can be reasonably anticipated.

Personnel using respirators, including disposable dust mist and High-Efficiency Particulate Air (HEPA) respirators (N95s or N100s) shall participate in the Emory University Respiratory Protection Program. Personnel using respirators must receive medical clearance, appropriate training, and fit testing annually. Contact EHSO for further details.

Surgical masks shall not be used as an alternative to a respiratory protection device.

**5.7 Decontamination**

Decontamination will be accomplished by utilizing an appropriate disinfectant such as bleach or other EPA-registered disinfectants. A list of EPA-registered disinfectants can be found here: <https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>

Chlorine-containing solutions have broad-spectrum activity. Sodium hypochlorite is the most common base for chlorine disinfectants. According to CDC, common household bleach (5% sodium hypochlorite) can be diluted 1/10 to 1/100 with water to yield a satisfactory disinfectant solution for HIV and other BBPs.

Diluted solutions may be kept for extended periods if kept in a closed container and protected from light. A 1:50 dilution of chlorine bleach stored at room temperature in a closed plastic container will deteriorate to the equivalent of a 1:100 dilution after one month (Amer. J. Nursing, 93: 12. 1993). However, it is recommended to use freshly prepared solutions for spill clean-up purposes. Excess organic materials inactivate chlorine-containing disinfectants and are strong oxidizers and very corrosive.

All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials must be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

Contaminated materials that are to be decontaminated at a site away from the work area must be placed in a durable, leak-proof, labeled or color-coded container that is closed before being removed from the work area.

**5.8 Vacuum Lines**

Vacuum lines should be protected with liquid disinfectant traps and HEPA filters or

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filters of equivalent or superior efficiency.

Filters must be checked routinely and maintained or replaced as necessary.

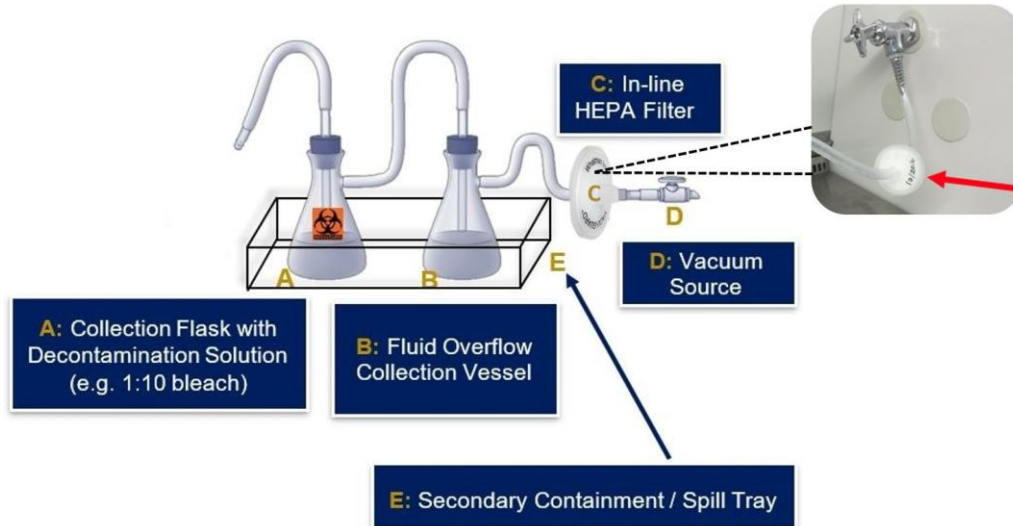


Figure 1 Setup for vacuum lines - modified from the CDC BMBL 6<sup>th</sup> Ed.

## 5.9 Regulated Medical Waste Disposal – Including Sharps Container Disposal

Personnel must follow site-specific procedures for disposal of biohazardous wastes, including blood specimens or blood products.

Disposal of all regulated waste must be in accordance with applicable regulations. All regulated waste must be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.

Regulated waste must be placed in containers which are: closable; constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping; labeled or color-coded, and closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

Liquid waste and solid waste should be separated prior to disposal.

Solid waste should be packed into sturdy containers lined with red bags. Solid waste should be transferred to Stericycle containers that are labeled and sealed shut once the container reaches 3/4ths of its capacity.

Liquid waste must be collected into a leak-proof container and disinfected using a chemical disinfectant (e.g. bleach). The liquid should be in contact with the chemical disinfectant for a minimum of 30 minutes before disposal into sanitary sewer.

If outside contamination of the regulated waste container occurs, it must be placed in a secondary container. The secondary container must be closable; constructed to contain all contents and prevent leakage of fluids during handling, storage, transport, or shipping; labeled or color-coded and closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

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Disposable lab coats, towels, uniforms, and other garments that are contaminated or potentially contaminated with blood or OPIM shall be disposed of as regulated medical waste.

The contaminated laundry must be placed in a bag or container which is labeled with the biohazard symbol. Biohazard warning labels are required to be fluorescent orange, orange-red, or predominantly so, with lettering and symbols in a contrasting color. The labeling or color coding of the bag must permit all employees to recognize the container as requiring compliance with Universal Precautions.

Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through or leakage from the bag or container, the laundry shall be placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior. Double plastic bags can be used.

Contaminated laundry must be bagged or containerized at the location and handled as little as possible with minimal agitation. Contaminated laundry must not be sorted or rinsed at the location of use.

Employees who have contact with contaminated laundry must wear protective gloves and other appropriate PPE.

**5.11 Human Cell Cultures**

Treat all human cell lines as OPIM.

Established human cell lines<sup>1</sup> that are characterized<sup>2</sup> as free of contamination from human hepatitis viruses, human immunodeficiency viruses and other recognized bloodborne pathogens, are not to be considered as OPIM and are not covered by the OSHA Bloodborne Pathogens Standard.

Established human or animal cell lines that are potentially infected or contaminated with bloodborne pathogens are covered by the Bloodborne Pathogens Standard.

The final judgment for making the determination that human or animal cell lines in a culture are free of bloodborne pathogens will be made by the BSO in consultation with the department supervisor/research group, and in accordance with the requirements of the Bloodborne Pathogen Standard. Documentation that such cell lines are not OPIM shall be on file with the department supervisor.

All primary human cell explants and in vitro passages of human tissue explant cultures (human cell strains) must be regarded as containing bloodborne pathogens and are subject to Universal Precautions and the requirements of this ECP. Non-transformed, human cell strains characterized by documented, reasonable laboratory testing, to be free of HIV, hepatitis viruses, or other bloodborne pathogens may be exempted from the ECP requirements.

However, tissue explants or subsequent cultures derived from human subjects known to carry bloodborne pathogens (e.g., HIV, HBV) or deliberately infected with bloodborne pathogens, must be handled in accordance with the Bloodborne Pathogens Standard



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and Emory's ECP. The same applies for animal tissues and explants or cell lines contaminated by deliberate infection with bloodborne pathogens.

## 6.0 Emergency and Medical Procedures

### 6.1 Emergency Procedures

All personnel working in laboratories should review emergency procedures in the Emory *Just in Time Guide to Campus Emergencies* posted in University laboratories and available on the web, <http://emergency.emory.edu>. Personnel must wash hands and any other skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials.

### 6.2 Spills

Spills must be immediately contained and cleaned up by trained staff. Trained staff must handle all spills of blood or OPIM in accordance with the Emory University *Biosafety Manual* and the campus emergency guide. For instructions on when and how to cleanup and report spills to EHSO Spill Team: EHSO Spill Team can be contacted at 404.727.2888 (24 hour response line).

Spills or accidents that result in an exposure incident must be immediately reported to Occupational Injury Management (OIM), EHSO and the supervisor.

Injuries must be reported through the Health and Occupational Management at Emory (H.O.M.E) reporting system.

Emory HR website (<https://hrprod.emory.edu>) > Self-Service > Workplace Health> Log into HOME>Report incident

### 6.3 Reporting of Exposures, Injuries and Illnesses

It is mandatory that all work-related exposures to human blood, tissues, OPIM, work related injuries or work-related illnesses shall promptly be reported to OIM located at Employee Health Services (EHS) and the affected individual's supervisor to ensure adequate medical attention is given and proper records are maintained.

If an injury or exposure occurs after normal work hours, personnel are to follow the University's after-hours reporting procedures.

Emory HR website (<https://hrprod.emory.edu>) > Self-Service > Workplace Health> Log into HOME>Report incident

OIM: 7:30 am- 4pm 404-686-8587

After Hours, Weekends, Holidays: NP on Call: 404-686-5500 PIC# 50464

Personnel must inform OIM located at Employee Health Services and their supervisor as soon as possible or no later than the next workday. Personnel from Yerkes must inform the Safety Officer at Yerkes and their supervisor as soon as possible or no later than the next workday.

If personnel obtain medical attention from their own physician for a work-related exposure, injury, or illness, they still must report the incident to OIM at Employee Health

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Services and their supervisor as soon as possible or no later than the next workday.

If personnel have an injury or exposure at an International site where studies are being carried out, they must report to the BSO as soon as possible.

#### **6.4 Health Surveillance**

The initial evaluation will be given prior to the job assignment and shall include an occupational/medical history, including HBV vaccination status and any medical problem that could interfere with a personnel's ability to use PPE or receive vaccination.

The health assessment is limited to those systems and areas which, in the opinion of the examining physician, need to be evaluated to determine whether any medical problems exist to meet the above criteria.

Personnel with impaired immune systems should notify EHS and receive counseling about the potential risk associated with patient care or handling biohazardous materials. Such impaired personnel shall continue to follow recommendations for infection control to minimize risk of exposure to infectious agents.

An accurate record for each personnel subject to medical surveillance under this document will be maintained and will include:

- The name and employee ID number of the individual.
- A copy of his/her HBV vaccination status, including the dates of all the HBV vaccinations and any medical records relative to the personnel's ability to receive vaccination.
- A history as it relates to the personnel's ability to wear protective clothing and equipment and receive vaccination or the circumstance of an occupational exposure incident.
- A copy of all results of physical examinations, medical testing and follow-up procedures as they relate to the personnel's ability to wear protective clothing and equipment and receive vaccination or to post-exposure evaluation following an occupational exposure incident.
- A copy of the physician's written opinion and a copy of information provided to the physician.

The personnel's medical records will be kept confidential and will not be disclosed or reported without the personnel's express written consent to any person within or outside the workplace except as required or permitted by law. These records will be maintained in accordance with OSHA requirements (29 CFR 1910.1020).

All medical evaluations and procedures, when determined to be necessary, are available at no cost to the employee. Any evaluations or procedures will be performed by a licensed medical professional at Employee Health Services or Student Health Services.

#### **6.5 Hepatitis B Virus Vaccine**

- HBV vaccination for personnel under job classification A consists of

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- vaccination (2-3 doses depending on vaccine)
- Antibody titer check
- The vaccine will be offered within ten working days of their initial assignment to work involving the potential for occupational exposure to blood or OPIM.
- A routine booster dose(s) of HBV vaccine may be recommended and shall be available to persons at risk of further exposure. This shall be determined by the examining physician.

Personnel who decline the HBV vaccine will sign a copy of the declination for HBV vaccination. Personnel who initially decline the vaccine but who later wish to have it may then have the vaccine provided to them by EHS at no cost to the employee. Personnel will not participate in a prescreening program as a requirement for receiving hepatitis B vaccination

The supervisor has responsibility for assuring that the vaccine is offered, administered, and any waivers are signed and submitted.  
Refer to the Emory University Hepatitis B Immunization Review and Declination Form (Appendix 5).

When, and if, a safe and effective HIV vaccine becomes available, it will be offered to all personnel occupationally exposed to blood or other materials potentially infectious for HIV. Additional vaccinations for specific infectious agents shall be provided on an individual basis if safe and effective vaccines are available.

## **6.6 Sharps Injury Log**

In accordance with 29 CFR 1910.1030, Emory University will maintain a sharps injury log of percutaneous injuries from contaminated sharps. The sharps injury log shall be maintained for the period required by 29 CFR 1904.33.

The sharps injury log shall contain, at a minimum:

- The type and brand of device involved in the incident (if known).
- The department, location or work area where the exposure incident occurred.
- An explanation of how the incident occurred, including body parts affected, objects or substances involved.
- The level of detail presented should be sufficient so that the intended evaluation of risk and device effectiveness can be accomplished.

The information in the sharps injury log shall be recorded and maintained in a manner as to protect the confidentiality of the injured employee.

## **6.7 Post-Exposure Examination and Follow-Up**

Emory will provide each exposed employee with an opportunity to have a confidential medical evaluation and follow-up appointment subsequent to a reported occupational exposure incident to blood or other potentially infectious material. The evaluation and follow-up appointment shall include, at a minimum, all the following elements:

- Documentation of the route or routes of exposure and the circumstances under which the exposure incident occurred.

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- Identification and documentation of the source individual, unless Emory can establish that identification is infeasible or prohibited by state or local law, shall include all the following:
  - After consent, the source individual's blood shall be tested as soon as feasible to determine HIV, HBV or HCV infectivity. If consent is not obtained, Emory shall establish that legally required consent cannot be obtained. If the source individual's consent is not required by law, his or her blood, if available, shall be tested and the results documented.
- If the source individual is already known to be infected with HIV, HBV or HCV, testing need not be repeated.
- Results of the source individual's testing shall be made available to the exposed personnel, and the personnel shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
- The exposed personnel's blood shall be collected as soon as feasible and tested after consent is obtained.

Post exposure prophylaxis, when medically indicated, is provided as recommended by the United States Public Health Service (USPHS), as well as counseling on risk reduction and the risks and benefits of HIV testing in accordance with state law. If available, an evaluation of reported illnesses will be discussed.

Emory will provide a copy of this ECP to the health care professional that is responsible for the hepatitis B vaccination. In addition, the health care professional who evaluates personnel after an exposure incident is provided with all of the following information:

- Description of the affected personnel's duties as they relate to the personnel's exposure incident.
- Documentation of the route or routes of exposure and the circumstances under which exposure occurred.
- Results of the source individual's blood testing, if available.
- All medical records which are relevant to the appropriate treatment of the personnel, including vaccination status, which is maintained by Emory.
- Description of any PPE used or to be used.

For each exposure evaluation, Emory shall obtain and provide the personnel with a copy of the evaluating health care professional's written opinion within 15 working days of the completion of the evaluation. The written opinion will be limited to the following information:

- The health care professional's recommended limitations upon the personnel's use of personal protective clothing or equipment.
- Whether HBV vaccination is indicated for personnel and if the personnel has received such vaccination.
- Statement that the personnel has been informed of the results of the medical evaluation and has been told about any medical conditions which have resulted from exposure to blood or other potentially infectious material and which require further evaluation or treatment. The written opinion obtained by Emory shall not reveal specific findings or diagnoses that are unrelated to the personnel's ability to wear protective clothing and equipment or receive

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vaccinations. Such findings and diagnoses shall remain confidential.

Emory EHS shall maintain all medical records that are required by these rules.

## 7.0 References

- Emory University Guidelines for the Safe Use of Sharps.
- OSHA Bloodborne Pathogens Standard 29 CFR 1910.1030.
- CDC / NIH Biosafety in the Microbiological and Biomedical Laboratories.
- Emory University Chemical Hygiene Plan.
- Emory University Personal Protective Equipment Guidelines.
- Emory University Biosafety Manual.
- Emory University Consumption and Storage of Food and Beverages in Laboratory Areas.
- Emory University Equipment Hazard Tag.
- Emory University Respiratory Protection Program.
- Emory University Hepatitis B – Immunization Review and Declination Form.
- Office of Critical Event Preparedness and Response (CEPAR).
- Worker protections against occupational exposure to infectious diseases [[osha.gov/SLTC/bloodborne/pathogens/worker\\_protections.html](https://www.osha.gov/SLTC/bloodborne/pathogens/worker_protections.html)] last accessed: January 2, 2020

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## Appendix 1. List of activities assigned to Job Classification A

Name of Task/Procedure	Brief Description	PPE Provided
<i>Cleaning Laboratory Spaces</i>	Removing non-hazardous waste from laboratories; cleaning vacant laboratories in preparation for a new occupant	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Handling/Treating Biohazardous or Biomedical Waste</i>	Packing and transporting Stericycle Boxes; Treating biohazardous waste or other potentially infectious waste with disinfectant;	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Cleaning up Body Fluid Spills</i>	Spills involving vomitus, blood or other potentially infectious materials (OPIM)	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Equipment Decontamination</i>	Decontaminating laboratory equipment that was used to handle or store blood or OPIM	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Administering Injections</i>	Injecting material of human source into human subjects or animal subjects	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Performing Vascular Access Procedures</i>	Drawing blood samples; administering IV drugs or nutrition	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Handling Contaminated Sharps</i>	Handling syringes, deployed stun gun darts, etc. that may be contaminated with blood or OPIM	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Animal Blood or Plasma Collection</i>	Procurement of blood or blood components for donation or research purposes	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Animal Necropsy</i>	Removing organs or other tissue from experimental animals infected with BBP	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Animal Husbandry Activities</i>	Handling animal carcasses, cages, bedding, excreta from experimental animals infected with BBP	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection

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Name of Task/Procedure	Brief Description	PPE Provided
<i>Administering First Aid</i>	Care of injured persons following an incident (e.g. nosebleeds, muscle strains, muscle sprains)	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Emergency Response Activities</i>	Resuscitation (CPR), Defibrillation, Advanced First Aid, Emergency Spill Response, Emergency Evacuation Response	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Transport of infectious material</i>	Collection and or packaging of infectious material (cells, tissue, body fluids of human or animal origin) for transport within or outside the University	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Utilizing an Autoclave for Decontamination</i>	Decontamination of biohazardous waste; glassware; surgical instruments, etc.	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Conducting Inspections</i>	Conducting inspections of research and animal facilities to verify compliance with regulatory requirements	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Handling contaminated clothing or laundry</i>	Collection of clothing or laundry that maybe contaminated with blood or human body fluids (e.g. removal of sheets from student housing or clothing considered evidence by law enforcement)	<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection
<i>Performing repairs on pipes or drains in laboratories, operating rooms, or mortuaries</i>		<input type="checkbox"/> Hand Protection <input type="checkbox"/> Eye/Face Protection <input type="checkbox"/> Protective Clothing <input type="checkbox"/> Respiratory Protection

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## Appendix 2. Body Fluids to which the BBP Standard / Universal Precautions (UP) and Standard Precautions (SP) apply

Exposure to...	Covered by	
	BBP/UP	SP
Blood	X	X
Semen <sup>1</sup>	X	X
Vaginal secretions <sup>1</sup>	X	X
Cerebrospinal fluid <sup>1</sup>	X	X
Synovial fluid <sup>1</sup>	X	X
Pleural fluid <sup>1</sup>	X	X
Pericardial fluid <sup>1</sup>	X	X
Peritoneal fluid <sup>1</sup>	X	X
Amniotic fluid <sup>1</sup>	X	X
Saliva in dental procedures <sup>1</sup>	X	X
Any body fluid that is visibly contaminated with blood <sup>1</sup>	X	X
All body fluids in situations where it is difficult to differentiate between body fluids <sup>1</sup>	4. (See reference below)	X
Urine <sup>2,3</sup>		X
Feces <sup>3</sup> , Nasal secretion <sup>3</sup> , Sputum <sup>3</sup> , Vomit <sup>3</sup> , Breast milk <sup>3</sup> , Saliva <sup>3</sup>		X

Modified from Table 1 of the OSHA standard. Body fluids to which the BBP standard, and Standard Precautions apply. (Worker protections against occupational exposure to infectious diseases. Comparing the universal precautions of OSHA's Bloodborne Pathogens standard to the standard precautions and the transmission-based precautions used by healthcare practitioners for infection control

[<https://www.osha.gov/bloodborne-pathogens/worker-protections>]

1. The CDC initially defined "universal precautions" as applying to blood and other body fluids containing visible blood. See: CDC (1988). "Update: Universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. *MMWR Morb Mortal Wkly Rep*, 37(24): 377-82, 87-8." OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies universal precautions to the prevention of contact with blood or other potentially infectious materials (OPIM). See footnote 1 for additional information about OPIM.

2 Although an infectious dose or ID50 of Zika virus is not known, urine of Zika patients is known to have significant viral load. For example, Fourcade et al. (2016) detected as much as 74,000 copies of viral RNA per mL of urine in a Zika-infected male and as much as 5,550 copies/mL in a Zika-infected female. See: Fourcade, C., Mansuya, J. M., Dutertre, M., Delpech, M., Marchou, B., Delobel, P., ... & Martin-Blondel, G. (2016). Viral load kinetics of Zika virus in plasma, urine and saliva in a couple returning from Martinique, French West Indies. *Journal of Clinical Virology*, 82: 1-4.

3. Under the category "Any body fluid that is visibly contaminated with blood," UP and the BBP standard would apply when there is visible contamination of these fluids with blood.


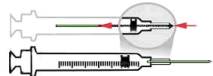


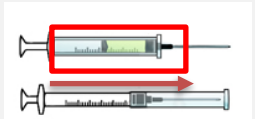
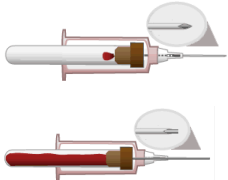
4. UP as originally defined by CDC does not necessarily apply in situations where it is difficult or impossible to differentiate between body fluids; OSHA's BBP standard expanded application of UP under the standard to include such situations.



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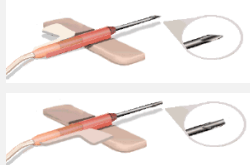
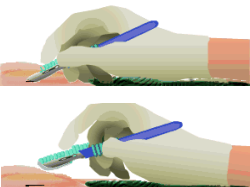
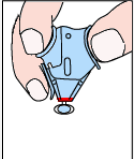

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### Appendix 3. Sharp-safe devices available in the market

Feature/Technology	Photo Example	Recommendations for Use	Emory Express Key Search Words
<b>Needle Shield</b>		The needle shield should completely enclose the needle and prevent finger access when activated.	Needle holder with safety shield; Needle shield
<b>Retractable Sharp</b>		The sharp should be fully retracted within the housing of the device.	
<b>Fixed Recessed Needle</b>		The housing should extend beyond, i.e., fully cover the sharp and prevent finger access	
<b>Colored Feature or Component</b>		The use of color should achieve a specific purpose, (e.g., differentiate device models or sizes) and conform with user conventions (e.g., orange hubs and needle cover for insulin syringes).	
<b>Self-re-sheathing needles</b>		After the needle is used, the user should slide the sleeve forward over the needle where it locks in place and provides a guard around the used needle.	
<b>Blunt-tipped blood drawing needles</b>		The blunt point tip of the needle should be activated before it is removed from the vein or artery.	Blunt tip

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<p><b>Winged Steel Needles</b></p>		<p>After placement, the third wing should be rotated to flat position, which blunts the needle before it is removed from the subject.</p>	<p>Winged needle</p>
<p><b>Re-sheathing disposable scalpels</b></p>		<p>For single-use disposable scalpels, the shield should be advanced forward over the blade after use, containing and removing the hazard.</p>	<p>Safe shield scalpel; surehold safety scalpels</p>
<p><b>Retracting Finger Prick Lancets</b></p>		<p>The single use lancet retracts automatically after use, containing and removing the hazard.</p>	<p>Safety lancets; retracting lancets</p>
<p><b>Closed System Drug-Transfer Device (CSTD)</b></p>		<p>The CSTD is an airtight, leakproof system that utilizes a membrane-to-membrane technology which mechanically prohibits transfer of environmental contaminants into the system and escape of drug or vapor concentrations outside the system. It protects the worker, the environment, and the research.</p> <p>Recommended for handling hazardous drugs</p>	<p>Closed system transfer device</p>

Resources:

- <https://internationalsafetycenter.org/wp-content/uploads/2018/01/ISC-Summary-Safer-Medical-Device-Terms.pdf>
- <https://www.osha.gov/SLTC/etools/hospital/hazards/sharps/sharps.html#safer>
- <https://www.bd.com/en-us/offerings/capabilities/hazardous-drug-safety/phaseal-system>
- <https://www.fda.gov/media/71142/download>

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## Appendix 4. “Beak Method” Glove Removal

“Beak Method” Glove Removal Steps		
		
<p><b>STEP 1:</b> Using one gloved hand, pinch and pull the base of the other gloved hand.</p>	<p><b>STEP 2:</b> Use the middle finger to scoop the cuff of the glove.</p>	<p><b>STEP 3:</b> Pull the glove inside out over all the fingers and thumb to form a “beak.”</p>
		
<p><b>STEP 4:</b> With the beaked hand, pinch the opposite glove at the base and pull the cuff.</p>	<p><b>STEP 5:</b> Roll the glove inside out and off the hand.</p>	<p><b>STEP 6:</b> With the ungloved hand, use the index finger to pull the beaked glove off at the base of the beak and dispose into the appropriate waste container.</p> <p>Always wash your hands after glove removal.</p>



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## Appendix 5. Hepatitis B Immunization Review and Declination Form



### HEPATITIS B - IMMUNIZATION REVIEW AND DECLINATION FORM

**Instructions:** This form fulfills OSHA's Bloodborne Pathogen Standards requirement for Hepatitis B vaccination [29 CFR 1910.1030(f)(1)(ii)(D)] and post vaccination serologic testing for anti-HBs recommended 1-2 months after the last vaccine dose. Complete each section and submit the completed form along with any accompanying vaccination records to EHSO.

#### PART I: VACCINATION APPLICABILITY

Vaccination is applicable

#### PART II: TRAINING

Received BBP training (provide date of training) - \_\_\_\_\_

*"Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(I) [of 29 CFR Part 1910] and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons." [29 CFR Section 1910.1030(f)(2)(i)]*

#### PART III: VACCINATION REVIEW OR DECLINATION

**Vaccine Review**

I understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring infection and may require vaccination for Hepatitis B and serologic testing for antibodies for Hepatitis B (titer check):

Vaccination received through Emory's Employee Health Services

Vaccination was received from outside source - provide proof of vaccination (e.g., location, date)

\_\_\_\_\_  
Employee Printed Name

\_\_\_\_\_  
Employee ID #

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

I decline hepatitis B vaccination at this time

I decline hepatitis B antibody titer check

I understand that by declining this vaccine and/or titer check, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series and serologic testing for antibodies for Hepatitis B (titer check) at no charge to me.

\_\_\_\_\_  
Employee Printed Name

\_\_\_\_\_  
Employee ID #

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

#### PART III: FORM SUBMISSION

Completed Hepatitis B - Immunization Review and Declination Forms will be filed in your employee health medical records.

**Submit your form to the EHSO Biosafety Office**  
using the SUBMIT button

or

**print, sign, and email to biosafe@emory.edu**

**SUBMIT**

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