Exposure Control Plan

(Conforms to 29 CFR 1910.1030)

Definitions


**Bloodborne Pathogens** means pathogenic microorganisms that are present in human/non-human primate blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**Clinical Laboratory** means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

**Contaminated** means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

**Contaminated Laundry** means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

**Contaminated Sharps** means any contaminated object that can penetrate the skin including, but not limited to, needles, pipettes, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

**Decontamination** means 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.

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

**Exposure Incident** means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

**Handwashing Facilities** means a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.
Licensed Healthcare Professional is a person whose legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f) of the Federal OSHA Blood Borne Pathogen Standard ("Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up").

HBV means hepatitis B virus.

HIV means human immunodeficiency virus.

Needleless systems means 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 means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials (OPIM) means:

The following human/non-human primate 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/non-human primate (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 means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Personal Protective Equipment (PPE) is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.
Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in large volume.

Sharps with engineered sharps injury protections means 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 means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human/non-human primate blood and certain human/non-human primate body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

**Exposure determination**

**Exposure Classification I**

Employees who may reasonably expect to be exposed to blood borne pathogens as part of their routine duties include:

- Physicians
- Nurses
- Veterinarians
- Veterinary Technicians
Biologists
Microbiologists
Biology/Microbiology Technicians and Laboratory Aides
Lab Supervisors and technicians
Animal Handlers
Chemists and Biochemists
Flow Cytometer Operators
EHS Personnel handling biowaste
Plumbers/plumbing shop personnel
Nurse Practitioners
Radiology technicians
Custodial/housekeeping personnel (in certain facilities)

**Exposure Classification II**

Employees not normally exposed to blood borne pathogens:
- Department chairs and above
- Housekeeping aides
- Facilities staff (other than plumbers or plumbing shop personnel)
- EHS personnel who do not handle biowaste
- Quality Assurance auditors

**Tasks and procedures that may result in exposure**

Sharps pick-up
Trash pick-up
Biological Safety Cabinet decontamination and certification

Processing/handling human tissue and fluids

Processing/handling non-human primate tissue and fluids

Laundry processing

Work with inactivated extracts

Human tissue xenografts

Handling human tissue cells or cell lines

Handling infected or possibly infected animals

Processing blood

Handling emergencies and first aid

Work with HIV, HBV, or other infectious cultures

Needle stick

**Methods of compliance:**

Assume all human and animal body fluids are infectious (Universal Precautions).

Use of engineering & work practice controls to eliminate or reduce employee exposure including Personal Protective Equipment (PPE).

Personal protective equipment, including lab coats and gowns, gloves, safety glasses with side shields, foot and head covers, and HEPA masks, is provided by the Employee's Department and its use ensured by each lab supervisor.

Engineering controls are kept on a regular preventive maintenance schedule.

Biological safety cabinets are evaluated by an NSF 49 certified technician (or someone working under the direct supervision of an NSF 49 certified technician) at least annually and whenever moved.

Readily accessible hand washing facilities with liquid soap or antiseptic cleansers and clean towels are in each lab as well as eye wash facilities.
Employees must wash hands (no bar soap) immediately after PPE removal, i.e., gloves, and if there is any contact with blood or infectious material.

Contaminated needles and other sharps shall not be bent, recapped, or removed unless there is no alternative and, in the case of recapping or removal, a one-handed method or mechanical device must be used.

Contaminated sharps must be disposed of in containers that are puncture resistant, labeled or color-coded properly, leak proof on sides and bottom, and closable on top.

The sharps containers are removed and properly autoclaved or discarded by the personnel assigned to that lab whenever full.

Eating, drinking, smoking, chewing, applying lip balm or cosmetics (non-petroleum based hand cream is OK), and handling contact lenses are prohibited in the labs.

Food, drink, and drink containers are not kept in the labs.

Magazines and newspapers will not be taken home if brought into a lab but must be left in the lab and disposed of with the regular lab trash.

Splashing, spraying, spattering and droplet generation (aerosols) will be minimized by using centrifuge covers and other techniques designed to reduce aerosol formation. No mouth pipetting is allowed.

Blood specimens or infectious materials are transported and stored in leak-proof containers.

Equipment is decontaminated with EPA List A approved disinfectant prior to servicing.

Each lab using blood borne pathogens must have a written cleaning schedule including autoclaving, decontamination procedure using bleach or EPA List A approved germicides, and laundry handling. The lab supervisor is responsible for this schedule. An autoclave must also be conveniently available. The EPA List A sterilants can be found at:

http://www.epa.gov/oppad001/list_a_sterilizer.pdf

Each lab supervisor is responsible for reviewing the effectiveness of the individual controls, and making corrections to conform to the Bloodborne Pathogens Standard.

MSDS (Material Safety Data Sheet) is available for every chemical in use in the facility, per OSHA requirement.
Cleaning, Laundering, and Disposal. The employer shall clean, launder, and dispose of personal protective equipment (including lab coats) at no cost to the employee. In no event shall such PPE be taken home for cleaning, laundering, or disposal. The employer shall provide, repair, and replace such PPE as necessary at no cost to the employee.
Special requirements for HIV, HBV research labs:

All biological waste will be incinerated or decontaminated; chemically disinfected materials will be shipped to the incinerator in proper containers.

Lab doors will be kept closed, and access limited to authorized persons. Appropriate warnings will be posted on all access doors.

All activities will be conducted in biosafety cabinets (BSC II A or B), using only certified cabinets. Cabinets must be certified annually and when moved.

Vacuum lines must be protected with disinfectant traps and HEPA filters.

Spills must be immediately contained and cleaned up; any personnel exposure will be reported at once to CompEndium, the Supervisor, Risk Management, and EHS.

Lab personnel are required to follow the written biological safety procedures contained in this manual.

Laundry contaminated with blood or other potentially infectious materials will be placed in appropriate containers in each lab area; this material will be autoclaved before it is sent to be laundered.

Containers and storage areas must be labeled with the official biohazard symbol.

Training

Frequency:

New employees will be trained in the following by their immediate supervisors within 10 working days of initial assignment; all employees will be re-trained whenever tasks or assignments are changed. Supervisors may request assistance with this training from either EHS or the Occupational Health Nurse (Sue Pedric at the time of this writing).

Components:

1. Explanation of epidemiology, symptoms, and transmission modes of bloodborne diseases.
2. How to recognize bloodborne hazards.
3. How to prevent or reduce exposure.
4. How to minimize aerosol production.
5. Handling needles properly.
6. Information and instruction on Personal Protective Equipment location, selection, removal, decontamination, and disposal.
7. Instruction on hand washing procedures.
8. Information on biological waste handling and disposal.
9. Information on the Hepatitis B vaccine.
10. Opportunity for interactive questions and answers with a technically-qualified person.
12. Explanation of the Exposure Control Plan and distribution of a copy to each person in the class.
13. Information on any post-exposure evaluation and follow-up of an actual exposure incident.
15. Explanation of color coding and labeling.

EHS strongly recommends that a quiz be administered to document the employee’s training. EHS will provide a copy of an appropriate quiz if requested.

**Supervisor’s responsibilities**

Supervisors are required to ensure employee proficiency in biological safety practices prior to their being allowed to work with Potentially Infectious Material (PIM), and to provide employee’s training in the handling of human pathogens or tissue prior to their being allowed to work with PIM. Records of such training shall be sent to EHS, who will maintain them for a minimum of three years.

**Testing, Vaccination and Post-Exposure Follow-up**

**Testing and Vaccination**

New employees, or employees newly assigned to job functions involving exposure to PIM/OPIM, will be offered the HBV vaccination within 10 working days of initial assignment to a position requiring work with PIM. The employee may decline the vaccination by signing the HBV Declination Form (shown on the next page). The cost(s) of the vaccinations will be borne by the employee’s department.

New employees, or employees newly assigned to job functions involving exposure to PIM/OPIM, may not work with PIM until at least 10 days after receiving the first of the three HBV injections.

**Post-exposure Evaluation**

**Exposure documentation.** The exposure must be immediately reported to the exposed employee’s supervisor, then CompEndium, Risk Management, and EHS.

**Medical Evaluation.** Occupational exposures should be considered urgent medical concerns to ensure timely post exposure management and administration of HBIG,
hepatitis B vaccine, and/or HIV PEP. The exposed employee will be offered medical evaluation, post-exposure prophylaxis blood testing for HIV, HBV, HCV and counseling by a Physician as directed by OSHA.

These evaluations and procedures shall be conducted according to recommendations of the U.S. Public Health Service current at the time these evaluations and procedures take place, except as specified by OSHA in paragraph (f) of the BBP Standard.

Testing

Procedure. The exposed employee shall contact Redfern Health Center. At Redfern’s discretion the employee may be sent for referral to an infectious disease specialist for post-exposure evaluation and treatment. Responsibilities are outlined below for Redfern Health Center, the infectious disease specialist, the employee and Clemson University:

Redfern Health Center will provide:

- Initial assessment by RHC M.D. to determine if exposure occurred from contact with blood or other potentially infectious materials (exposure as defined previously).
- Testing of the source individual’s blood, as soon as feasible and after consent is obtained, to determine HBV, HCV and HIV infectivity. The source will be counseled on the need for this testing, and the source has the right to refuse. If consent is not obtained, RHC shall document that legally required consent cannot be obtained. If the source individual’s blood status is already known to be positive for HBV, HCV or HIV, that specific test need not be repeated.
- Complete confidentiality concerning the HIV, HCV and HBV infectivity of the source. This obligation for confidentiality extends to any employee to whom this information is disclosed/obtained.
- Collection and testing of the exposed individual’s blood, as per OSHA requirements and soon as feasible and after consent is obtained, to determine HBV, HCV and HIV infectivity. If the Redfern Physician chooses to refer the exposed employee to an Infectious Disease specialist, all lab results will be directed to the specialist.
- Form on which employee will document job duties related to the exposure, the circumstances under which the exposure occurred, identification of the source individual, unless identification is infeasible/impossible. If contaminated sharp was involved, documentation will include specific instrument and task.
- At the Redfern Physician’s discretion, referral to infectious disease specialist. Employee will be directed to seek immediate service by this physician, as certain treatments should be initiated within 24-36 hours post exposure.
- Copy of OSHA Bloodborne Pathogen Standard.
- Copy of medical records relevant to the appropriate treatment of the employee, including vaccination status.
- Packet of information for exposed employee to present to infectious disease specialist to include the above forms, OSHA standard and records should the Redfern Physician refer the exposed employee to a specialist.
In the event of a referral, the Infectious Disease Specialist will provide:

- Receive and review the initial lab results, and continue the collection and testing of the exposed employee’s blood, after consent is obtained. Testing will include HBsAg, anti HCV and HIV antibody. The employee may refuse this service, or may have the blood collected and preserved for 90 days, during which the employee may choose whether or not to have the blood tested.
- Information to exposed employee of the results of the testing of blood from source individual and exposed employee. The employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
- Post exposure prophylaxis as recommended by the US Public Health Service.
- Counseling of exposed employee.
- Evaluation of reported illnesses.
- Hepatitis B vaccination, to employee, if not already administered.
- Report to CU Risk Management within 10 days of evaluation.
- Results of blood tests of the source, if requested by the exposed employee.
- Should the exposed employee develop a bloodborne disease as a result of the exposure, the infectious disease specialist shall report such to the University’s Office of Risk Management for inclusion in the University’s OSHA 300 log.

Employee will provide:

- Description of employee’s duties.
- Full documentation of circumstances under which the exposure occurred and route of exposure.

Clemson University will provide:

- Payment through Worker’s Compensation for testing of source.
- Payment through Worker’s Compensation for testing of exposed employee if source is unknown.
- Payment through Risk Management for testing of exposed employee if source is known.
- Payment through Worker’s Compensation for testing of exposed employee if source test results are positive (tested at 3 months, 6 months and 12 months post exposure).
- Payment through Risk Management for testing of exposed employee if infectious disease specialist recommends follow-up testing (usually 3 months, 6 months and 12 months post exposure).
- Investigation of causes. An investigation of the cause(s) of the exposure will be conducted by the exposed employee’s supervisor. EHS reviews accident/exposure reports from Risk Management weekly, and may decide to conduct an independent investigation.
- Agent identification. If the work involved use of a neat agent, the agent will be reported to the employee’s supervisor, CompEndium, and Risk Management at the time of the initial report.
• Evaluation of the engineering controls. EHS may investigate the engineering controls in place, the work practices used, and the PPE and clothing worn at the time of the exposure.
• A copy of the infectious disease specialist’s written opinion to the exposed employee within fifteen (15) days of the completion of the evaluation.
Hepatitis B Vaccine Declination (29 CFR 1910.1030):

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, 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 at no charge to me.

Employee Signature

Employee Name (printed)

Date

Witness Signature

Witness Name (printed)

Date
Exposure Control Plan Checklist

Principal Investigator

Project/proposal #

Date project starts

Date project ends

Does this project involve:

Work with animals or non-human primates (NHP) that are infected with HIV, hepatitis B virus (HBV) or other human bloodborne pathogens?  Yes  No

Handling any form of human or NHP blood products, body fluids, or unfixed tissues or organs?

Handling blood products, body fluids or unfixed tissues or organs of animals infected with HIV, HBV, or other human bloodborne pathogens?

Work with HIV, HBV, or other human bloodborne pathogens or with preparations containing these pathogens?

Handling sharps (knives, needles, scalpels, scissors, etc.) potentially contaminated with the above listed material?

Work close to and enter areas where other individuals work with NHP or human blood products, body fluids, tissues or organs, or with blood products, body fluids, tissues or organs of animals infected with HIV, HBV, or other human bloodborne pathogens?

If the answer to ANY of the above questions is “yes”, employees working in or around this project are considered at occupational risk of contracting HIV, HBV, or other human bloodborne pathogens. All employees who have an occupational risk of contracting HIV or HBV are eligible to receive HBV vaccine and should be tested at least once a year for HIV (those actively working with HIV must be tested every six months).

Principal Investigator’s signature:

Date:

Signature of reviewer: 

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