

## Bloodborne Pathogen Exposure Program

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THE CURRENT APPROVED VERSION OF THIS DOCUMENT IS LOCATED IN THE EHS DOCUMENT CONTROL SYSTEM.

- 1.0 Purpose:** The purpose of this program is to eliminate or minimize employee occupational exposure to human blood, other human body fluids or tissues, and comply with the OSHA Bloodborne Pathogen Standard 29 CFR 1910.1030. This program, combined with the completed implementation plan template, shall comprise the complete exposure control plan for each employing unit on campus where blood or other infectious materials are worked with.
- 2.0 Scope:** The program will apply to all faculty, staff, and students employed by or enrolled at the UW Madison and who are occupationally exposed to blood or other potentially infectious materials.
- 3.0 Related Documents:**

### 3.1 Regulatory References

- Biohazard Recognition and Control Manual: University of Wisconsin-Madison
- CDC-NIH Biosafety in Microbiological and Biomedical Laboratories (2007)
- Code of Federal Regulations 29 CFR 1910.1030: Department of Health and Human Services, Occupational Exposure to Bloodborne Pathogen Standard
- Code of Federal Regulations 42 CFR 72.3 Department of Transportation, Interstate Shipment of Etiologic Agents
- Wisconsin Department of Commerce 32.50 Incorporation of standards by reference

### 3.2 Bloodborne Pathogen Forms

- Hepatitis B Vaccine Declination Form (OH-FRM-003)
- Hepatitis B Vaccine Guidance Document (OH-GUI-002)
- Hepatitis B Vaccine Consent Form (OH-FRM-002)
- Blood and Blood Contaminated Material Clean-up (OH-SOP-001)
- Implementation Plan for Control of Bloodborne Pathogens Exposures (OH-FRM-001)

### 3.3 Other Related References

- National Collegiate Athletic Association (NCAA) Guideline 21: [Bloodborne Pathogens and Intercollegiate Athletics](#)
- Bloodborne Fact Sheets: U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

## 4.0 Definitions:

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

**Bloodborne Pathogens** – pathogenic microorganisms that can cause disease in humans. These pathogens include but not limited to hepatitis B (HBV) and human immunodeficiency virus (HIV). These pathogens have been detected in blood, blood components, urogenital

secretions, urine, saliva, and cerebrospinal fluid. Of these materials, human blood presents the greatest potential for transmitting infections.

**Body Substance Isolation (BSI)** – a practice of isolating all body substances (blood, urine, feces, etc.) of individuals undergoing medical treatments, particularly emergency medical treatment of those who might be infected with illnesses' such as HIV or hepatitis so as to reduce as much as possible the chances of transmitting these illnesses. BSI is similar in nature to universal precautions, but goes further in isolating workers from pathogens, including substances not currently known to carry bloodborne pathogens.

**CFR** – Code of Federal Regulations

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

**Contaminated** – the presence of blood or the reasonably anticipated presence of blood or other potentially infectious materials (on a surface or item).

**Contaminated Laundry** – laundry which has been soiled with blood or other potentially infected material or which may contain sharps.

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

**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 no longer capable of transmitting infectious particles; and the surface or item is rendered safe for handling, use, or disposal.

**Engineering Controls** - (e.g., sharps disposal containers, self sheathing needles) controls that isolate or remove the bloodborne pathogen hazards from the workplace.

**Exposure Control Plan** - the OSHA Bloodborne Pathogens Standard requires that every employer with employees at occupational risk of exposure to bloodborne pathogens "establish a written control plan designed to minimize or eliminate employee exposure." The plan must: identify all employees with occupational exposure, specify measures which must be taken to minimize exposure risk, and develop procedures for evaluating exposure incidents

**Exposure Incident** - 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.

**Gloves** – The most widely used form of personal protective equipment. They act as a primary barrier between hands and bloodborne pathogens. Latex or vinyl gloves are used for medical, dental or laboratory procedures. Heavy duty utility gloves may be used for housekeeping duties.



**Hand washing Facilities** - a facility providing an adequate supply of running potable water, soap, and single use towels.

**HBV** - hepatitis B virus

**HCV** - hepatitis C virus

**HIV** - human immunodeficiency virus.

**Institutional Biosafety Committee (IBC)** – campus committee that reviews and approves recombinant DNA activities and other activities that may pose a biological hazard.

**Needleless Systems**- devices that do 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.

**Medical waste** - sharps contaminated with blood, infectious or biologically contaminated material that can cause accidental injury.

**Occupational Exposure** - reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or any other potentially infectious material that may result from the performance of an employee's duties.

**Other Potentially Infectious Materials (OPIM)** - includes the following: (1) human body fluids: cerebrospinal, synovial, pleural, pericardial, peritoneal, amniotic, semen, vaginal secretions saliva in dental procedures; all body fluids, secretions, and excretion except sweat; all body fluids in situations when it is difficult to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human living or dead; (3) HIV-containing cell or tissue culture, organ culture, and HIV, HCV, or HBV-containing culture medium or other solutions; and (4) blood, organs or other tissues from experimental animals infected with HIV, HCV, or HBV.

**Parenteral** - piercing of mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

**Personal Protective Equipment (PPE)** - specialized clothing or equipment worn by an employee for protection against a hazard. It includes: gloves, gowns, face shields, masks, protective eyewear, mouthpieces and resuscitation bag or other ventilation devices. General work clothes (e.g. uniforms, pants, shirts or blouses) not intended to function as protection against a hazard is not considered to be personal protective equipment.

**Production Facility** - facility engaged in industrial-scale, large volume (10 liters or more) or high concentration production of HIV, HBV, or HCV.

**Regulated Waste** - liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials 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, also called Biohazardous Waste.

**Research Laboratory** - a laboratory producing or using research laboratory scale amounts of HIV, HCV, or HBV. Research laboratories may produce high concentrations of HIV, HCV, or HBV but not in the volume found in production facilities.

**Routes of Exposure** – include the inadvertent introduction of blood or infectious materials by parenteral or percutaneous inoculation, direct contact with skin broken by cuts, scratches, abrasions, or dermatitis, and exposure of mucous membranes to droplets.

**Sharps Injury Log** - log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee. This log will contain: the type and brand of device involved in the incident, the department or work area where the exposure incident occurred, and an explanation of how the incident occurred. The Worker's compensation form can be used as the sharp injury log. Document the required information listed above on the form. Also keep a copy of the submitted form for future reference.

**Sharps** - an item that is designed to cut or puncture skin. Sharps include unused, disinfected or contaminated: needles, syringes with needles, scalpel blades, lancets, and razor blades, broken vials and laboratory slides contaminated with infectious agents or human blood.

**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.

**Standard Precautions** - concept that synthesizes the major features of Universal Precautions and Body Substance Isolation and applies them to all patients receiving care in hospitals and clinics, regardless of their diagnosis or presumed infection status. Standard Precautions apply to: blood, all body fluids, secretions, and excretions regardless of whether or not they contain visible blood (the only exception is sweat), non-intact skin, and mucus membranes. Standard precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in the hospital and clinic setting.

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

**Universal Precautions** - an approach to infection control. According to the concept of Universal Precautions, all human blood and certain other human body fluids are treated as if known to be infected with HIV, HBV, or other bloodborne pathogens.

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

## 5.0 Role(s) and Responsibilities:

- 5.1 Supervisors and Principal Investigators shall:
  - 5.1.1 Identify the persons in their work group who have occupational exposure to blood or other infectious materials and are included in the exposure control plan.
  - 5.1.2 Provide necessary engineering controls and personal protective equipment for staff and students in their workgroup.
  - 5.1.3 Assure staff and students work in a safe and responsible manner.
  - 5.1.4 Follow and enforce practices and procedures described in this manual, the UW Implementation Plan for Control of Bloodborne Pathogens Exposures, and the UW Madison Biological Recognition and Control.
  - 5.1.5 Inform lab workers, maintenance personnel, or guests about the bloodborne pathogen material contained in the lab, consequences of exposure to that material, and proper behavior in that lab.
  - 5.1.6 Restrict lab access following the recommendations of the CDC- NIH BMBL and the OSHA Bloodborne Pathogen Standard.
  - 5.1.7 Train staff and students in good microbiological technique.
  - 5.1.8 Maintain records of continuing education and training in laboratory safety for staff.
- 5.2 Employees shall:
  - 5.2.1 Participate in the health surveillance program for bloodborne pathogens or sign the declination form. Employees may always change their mind and participate at any time.
  - 5.2.2 Successfully complete annual BBP training.
  - 5.2.3 Follow safe work practices identified by the supervisor, including engineering controls and PPE use.
  - 5.2.3 Notify supervisor immediately and initiate first aid if they incur a bloodborne exposure.
  - 5.2.4 Ask their supervisor or the Occupational Health Officer questions that pertain to safe work with blood or infectious materials.
- 5.3 Faculty shall:

- 5.3.1 Assure students who have exposure to BBP are informed and trained according to this plan.
- 5.3.2 Assure students have access to necessary engineering controls and PPE.
- 5.3.3 Assure students are encouraged to participate in the same health surveillance services as staff including vaccinations and post exposure medical follow up.
- 5.3.4 Refer students to University Health Services for medical services associated with this plan.
- 5.4 Students with exposure to BBP shall:
  - 5.4.1 Successfully complete annual BBP training.
  - 5.4.2 Follow safe work practices identified by the instructor, including engineering controls and PPE use.
  - 5.4.3 Notify instructor immediately and initiate first aid if they incur a bloodborne exposure.
  - 5.4.4 Ask their instructor or the Occupational Health Officer questions that pertain to safe work with blood or infectious materials
- 5.5 The Occupational Health Program shall:
  - 5.5.1 Manage overall implementation of the Bloodborne Pathogen Exposure Control Plan on campus
  - 5.5.2 Evaluate bloodborne exposures that occur among UW staff and students.
  - 5.5.3 Provide oversight of the BBP program by monitoring compliance and annually evaluating the exposure control plan and program.
- 5.6 The Occupational Health committee:
  - The Occupational Health Committee provides oversight for the campus Occupational Health Program and as such also provides oversight for implementation of the campus exposure control plan.

## 6.0 Program Requirements

### 6.1 Compliance Methods

- 6.1.1 Universal precautions will be required at the university in order to prevent contact with blood or other potentially infectious materials.

- 6.1.2 When universal precautions are observed; all blood or other potentially infectious material will be considered infectious regardless of perceived status of the source individual.

## 6.2 Exposure Determination

- 6.2.1 Supervisors and Principle Investigators are to perform an exposure determination concerning which employees may incur occupational exposure to blood and other potentially infectious materials. This determination must be documented on the Implementation Plan for Control of Bloodborne Pathogens Exposures (OH-FRM-003).
  - 6.2.1.1 The exposure determination is made without regard to the use of personal protective equipment.
  - 6.2.1.2 The exposure determination is required to list all job classifications in which all employees may be expected to incur such occupational exposures regardless of frequency.
  - 6.2.1.3 Each work unit or laboratory shall complete the List of Personnel Occupationally Exposed to Blood or Other Potentially Infectious Materials in Implementation Plan for Control of Bloodborne Pathogens Exposures (OH-FRM-001). This is a list of all tasks and procedures or groups of closely related tasks and procedures, in which occupational exposure occurs and that are performed by employees. It must be updated annually and located in the office of the supervisor or principal investigator.

## 6.3 Post-Exposure Evaluation and Follow-Up

Exposure incidents are events where blood or other potentially infectious materials contact the eye, mouth, other mucous membrane, non-intact skin, or parenteral contact (e.g. needlestick).

- 6.3.1 Should a needle-stick or accidental inoculation occur, encourage bleeding, followed by immediate, thorough washing and cleansing of the wound with soap and water. If an eye exposure occurs, irrigate through the use of an eyewash for 15 minutes. Note that this will seem like a very long time and users should be encouraged to do so even though it may not seem comfortable.
- 6.3.2 Prompt evaluation and treatment is essential for exposures.
- 6.3.3 Report the incident immediately to the supervisor or instructor. A confidential post-exposure medical evaluation and follow-up must be made available to the employee or student immediately following an exposure incident.



- 6.3.4 For exposures related to patient care, employees can be seen by UW Hospital Employee Health located at 600 Highland Avenue, Madison, WI. The phone number is 263-7535. For other exposures, such as those relating to the use of stem cells or recombinant organisms, employees and students with any exposure can be seen at University Health Services located at 333 East Campus Mall, The phone number is 608-265-5610.
- 6.3.5 The components of this confidential post-exposure medical evaluation, follow-up and counseling includes:
- Documentation of the incident is through an injury report. The required information should include the route(s) of exposure, the date, time of exposure, and the job activity being performed. If the incident is from a sharp (needlestick), complete the sharp injury log information on the Worker's Compensation form.
  - Identification of the source individual, including a blood test to determine the source individual's HBV and HIV antibody status.
- 6.3.6 A hepatitis B vaccine will be offered if prior vaccine had not previously been obtained.
- 6.3.7 The exposed employee will get blood test for HBV and HIV or retention of a baseline serum specimen for 3 months following the exposure incident. Post-exposure prophylaxis is dispensed as medically indicated.
- 6.3.8 Counseling and evaluation of reported illnesses to include a written assessment of the employee's risk and recommended follow-up due to an exposure incident which is given to the employee within 15 days of the exposure.
- 6.3.9 An accurate medical record will be maintained on each employee and kept in the **EHS Department-Occupational Health program**.
- 6.3.10 The record will include: name and identifying number, Hepatitis B vaccine status and dates or Hepatitis B vaccine declination, patient antibody testing consent, employee's decision follow-up to occupational exposure, and evaluation of employee after occupational exposure and health care professional's written opinion concerning an occupational exposure.
- 6.3.11 All medical record information and pertinent information documentation will be kept confidential. This information must comply with [29 CFR 1910.1020](#) and be kept for length of employment plus 30 years.

6.3.12 Workers compensation forms (Employee's Work Injury and Illness Report, Supervisor & Safety Coordinator Investigation Report for Injury or Illness, and Employer's First Report of Injury or Disease) shall be filled out and returned to the workers compensation department as soon as possible. When employees report to a medical facility for treatment, they should indicate the event was work-related and that billing should be directed to UW Workers Compensation, 21 N. Park Street, Madison, WI. If medications are prescribed, workers compensation can provide a temporary prescription card to pay for medications. They can be reached at 608-262-5650.

#### 6.4 Hepatitis B Immunization

6.4.1 The UW provides, at no cost, hepatitis B vaccine to all employees who have exposure to human blood or OPIM during the course of performing their duties.

6.4.2 Immunizations must be offered after the worker has received training and within 10 days of initial assignment. Workers should be instructed on the efficacy, safety, method of administration, and benefits of the immunization. Refer to the [Hepatitis B Vaccine Facts Sheet](#) from the CDC

6.4.3 The vaccine is not mandatory. If workers do not want to receive the hepatitis B vaccine, they must sign a declination.

6.4.4 If employees decline, they must complete Hepatitis B Vaccine Declination Form (OH-FRM-003).

6.4.4.1 If employees accept, they must complete Hepatitis B Vaccine Consent Form (OH-FRM-002) for individuals that will receive the series of vaccinations. Also have the individual read the Hepatitis B Vaccine Guidance Document (OH- GUI-002) prior to receiving the immunization.

6.4.5 The employee may, at any time, request the vaccine, even if they have previously declined.

6.4.6 If an employee previously started the vaccination series, but did not complete it, it will need to be repeated.

6.4.7 For staff who have patient contact in healthcare setting or who work in clinical diagnostic laboratories, annual titer testing must be offered.

6.4.8 If an employee fails to develop titer after completion of one series of vaccinations, the series can be repeated. If after the second attempt titer is not achieved, the employee is deemed to be a non-converter and further attempts are not indicated. They employee may still have immunity;

however their titer status should be discussed with attending medical professionals should an exposure occur.

## 6.5 Engineering and Work Practice Controls

- 6.5.1 Engineering and work practice controls shall be used to eliminate or minimize employee exposure.
- 6.5.2 All procedures involving blood or other potentially-infectious material must be performed in a manner which minimizes splashing, spraying and spattering and generation of these substances.
- 6.5.3 All potentially contaminated laboratory materials should be collected in biohazard containers and decontaminated, preferably by autoclaving or incineration, before disposal.
- 6.5.4 Laboratory work surfaces should be chemically decontaminated with an appropriate disinfectant ([EPA registered disinfectants for HIV and HBV](#)) upon completion of work activities and following any spill of potentially infectious material.
- 6.5.5 Glassware and other reusable items should be autoclaved prior to being washed and reprocessed. Alternatively, immersion in an effective chemical disinfectant can be used as a decontamination procedure.
- 6.5.6 Mechanical pipetting devices are used for all liquid transfers. Mouth pipetting or mouth suctioning of blood or other potentially infectious material by mouth is prohibited. Use mechanical pipetting devices for the manipulation of all laboratory liquids. Pipette tips are disposed of in biohazard sharps containers.
- 6.5.7 Specimens of blood or other potentially infectious materials must be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping. The containers should be labeled "Biohazard" and should be either red or red-orange in color.
- 6.5.8 Biological safety cabinets or other containment (e.g., fume hood, if sterility is not needed) are recommended for certain aerosol-generating procedures involving clinical materials (e.g., blending, sonicating, vigorous mixing, and harvesting of tissues from infected donors). If available, a biological safety cabinet or vented hood should be utilized for handling damaged containers.
- 6.5.9 Horizontal laminar flow cabinets (such as clean benches) should never be used as containment devices since they do not afford operator protection.

- 6.5.10 Only personnel authorized by the laboratory supervisor are allowed in the laboratory. Casual visitors (e.g., family members, tour groups) are discouraged. Non-laboratory personnel are closely supervised, and appropriate protective measures and/or equipment (e.g., clothing) are used to ensure that they do not cause a hazard to themselves or the laboratory staff.
- 6.5.11 Service and maintenance personnel are not permitted to enter a biohazard area until the laboratory's safety requirements are reviewed, the instrument is decontaminated and appropriate personnel protective equipment is used and worn.
- 6.5.12 Laboratory doors will remain closed when work is in progress. Access to animal houses must be kept closed when work is in progress and will be restricted to authorized persons.

#### 6.5.13 **Centrifuging Specimens**

- 6.5.13.1 Tubes containing blood should be capped and centrifuged in either sealed trunion buckets (adapters are available for most centrifuges) or rotor heads with covers.
- 6.5.13.2 If such equipment is not available, blood should be spun in unbreakable, screw-capped tubes.
- 6.5.13.3 After centrifugation, buckets, rotor heads, or screw-capped tubes should be opened within a biological safety cabinet or fume hood, if available.
- 6.5.13.4 If such containment equipment is unavailable, care should be taken to minimize creating aerosols when transferring blood elements.
- 6.5.13.5 Centrifuges should be routinely cleansed with an effective, non-corrosive disinfectant. If an accidental breakage of tubes containing known or suspected agents should occur, allow 30-60 minutes for aerosol settling before opening the centrifuge.
- 6.5.13.6 Most centrifuge buckets can be decontaminated by autoclaving following an accident, and other interior parts.
- 6.5.13.7 Laboratory workers should be aware that some centrifuges designed for preparing blood films or fluids for cytological studies may disseminate hazardous aerosols

#### 6.5.14 **Automated Equipment**

- 6.5.14.1 Specialized instruments and automated processors are used to perform biochemical, immunological, and other laboratory assays. For the most part, these devices do not present a significant risk of disseminating pathogenic organisms.
- 6.5.14.2 Some procedures involved in the handling, preparation, and delivery of specimens can create a potential for release of infectious material. Wear gloves, to clean and chemically disinfect all tubing periodically, and to assure that wash fluids or reservoir contents are appropriately decontaminated (by chemicals or autoclave) prior to disposal.
- 6.5.14.3 Cell sorters and flow cytometers may generate droplets containing infectious agents. Protective transparent shielding must be used between the operator and the source of droplets. If test results are not affected, samples can be inactivated with buffered formalin (1%) prior to assay
- 6.5.14.4 Microplate assay manipulations such as inoculation, diluting, washing, and harvesting involved often produce splattering, spillage, and dissemination of droplets. Users must wear protective gloves and clothing and, when feasible, perform all test operations in a biological safety cabinet. If a biosafety cabinet is not available, a fume hood, or if neither of the previous are available manipulations are to be performed on plastic-backed paper.
- 6.5.14.5 If available, use automated titrators to reduce aerosol release when using an automated microplate system.
- 6.5.14.6 Plastic plate covers for microplates are available to minimize spillage.
- 6.5.14.7 Presently there are no sealed buckets for centrifuging microplates, and care should be exercised to use balanced plates when sedimentation is necessary.

### 6.5.15 Contaminated Equipment

- 6.5.15.1 Equipment which has been contaminated with blood or other potentially-infectious materials must be decontaminated before being serviced or shipped unless it can be shown that decontamination of the equipment is not feasible.

- 6.5.15.2 Equipment, or portions thereof, which have not been decontaminated, requires a warning label be affixed by appropriate personnel.
- 6.5.15.3 The University will convey all information to all affected employees. The servicing representative and or manufacturer's representative as appropriate prior to handling servicing or shipping so that appropriate precautions are taken.

#### 6.5.16 Specimen Receipt

- 6.5.16.1 Incoming clinical specimens should be received in a designated area of the laboratory by a staff member trained to handle and segregate such material.
- 6.5.16.2 This person should wear gloves and inspect parcels for leakage indicative of broken or improperly sealed containers.
- 6.5.16.3 Intact cartons can be carefully opened on counters of impervious material that can be easily decontaminated following manipulations.
- 6.5.16.4 Broken tubes should be discarded in appropriate containers for decontamination.
- 6.5.16.5 Leaking tubes or tubes with evidence of blood on the outside should be handled with the utmost care when transferring contents. Patient information on contaminated labels or request slips should be recopied.
- 6.5.16.6 All contaminated or soiled materials should be discarded in a biohazard bag for suitable disposal. The work area should be cleansed with a chemical disinfectant after specimen receipt and handling.

### 6.6 Communication of Hazards to Employees

#### 6.6.1 Signs

- 6.6.1.1 The principal investigator or the designated employee is responsible for obtaining and posting biohazard signs at the entrances to clinical and research laboratories as well as HBV, HCV, and HIV Research laboratories. The signs shall be fluorescent orange-red or predominantly so, with lettering or symbols in a contrasting color.

6.6.1.2 Signs must bear the biohazard legend with the name of the infectious Agent, if known, special requirements for the area, and the name and telephone number of laboratory director or other responsible persons.

## 6.6.2 Labels

6.6.2.1 Warning labels must be affixed to containers of regulated waste and to refrigerators and freezers containing blood or other potentially infectious materials.

6.6.2.2 Labels must be fluorescent orange or orange-red or predominantly so, with lettering or symbols in a contrasting color.

6.6.2.3 Labels must include the biohazard legend.



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

6.6.2.5 Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.

6.6.2.6 Contaminated equipment must be labeled in accordance with the requirements mentioned above and must state which parts of the equipment remain contaminated.

## 6.6.3 Employee Training

6.6.3.1 OSHA requires that all employees with occupational exposure potential participate in a training program during working hours which will be provided at no cost to the employee. Students with exposure must participate as well.

6.6.3.2 The training must be at the time of initial assignment and at least annually thereafter.

6.6.3.3 The training must include:

- an accessible copy of the OSHA rules and regulations;
- an overview of bloodborne pathogens;
- an explanation of the institution's exposure control plan;
- identification of high risk procedures and situations; information of the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment;
- the correct use of appropriate personnel protective equipment and engineered controls as well as safe work practices (e.g., hand washing, no recapping of needles by hand, etc.) for the work site.
- an explanation of the benefits, risks, and free availability of the hepatitis B vaccine;
- First aid procedures if an employee or student receives a biohazardous exposure (e.g., puncture, laceration, splash to mucous membrane, etc.)
- information about the UW's post-exposure protocol;
- an explanation of the signs and labels and/or color coding used to identify hazards;
- an opportunity for interactive questions and answers with the person conducting the training.

**6.6.3.4 The supervisor must keep a record of all training given, including the dates of the training sessions, the names and qualifications of the trainers, the contents or a summary of the training sessions, and the names and job titles of all persons attending the sessions. Records of training must be maintained for 3 years from the date training occurred. Attendance records of training programs meeting the requirements of the regulations will be maintained in employee's personnel file in their department office for review**



6.6.3.5 Because of the risk inherent from exposure to these agents, additional training requirements are placed on HIV, HCV, and HBV labs.

6.6.3.6 A progression of work activities should be assigned as techniques are learned and proficiency is developed.

6.6.3.7 Supervisors must assure that all employees demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to begin work with HIV or HBV and must assure that employees have prior experience in handling of human pathogens or tissue culture before working with HIV or HBV.

## 6.7 Personal Hygiene

6.7.1 Eating, drinking, smoking, applying cosmetics or lip balm, handling contact lenses and gum chewing are prohibited in areas where there is a reasonable risk of occupational exposure to bloodborne pathogens.

6.7.2 Food and drink must not be kept in lab refrigerators, freezers, or cabinets or on countertops, shelves and bench tops where blood or other potentially infectious materials are present. These refrigerators must have biohazard stickers and "No Food/ No Beverages" signs.

6.7.2.1 Food or beverages must be consumed only in safe designated areas.

6.7.3 Use of hand cream should occur only if approved for glove use..

6.7.4 Hands should be kept away from the face and head area.

### 6.7.5 Hand Washing.

6.7.5.1 Personnel must wash their hands or any other skin surface with nonabrasive soap and water; or flush the mucous membranes with water, for at least 20 seconds, immediately or as soon as possible following contact with blood or potentially infectious materials. Hand washing prevents transferring contamination from hands to other areas of the body or other surfaces that may later be contacted.

6.7.5.2 Personnel should wash their hands frequently: after completion of laboratory activities, following removal of protective clothing or other personal protection equipment (including gloves), and before exiting the laboratory.

- Mechanical liquid soap dispensers are preferable to bar soap.

- Where hand washing facilities are not available, antiseptic hand cleanser or antiseptic towelettes should be provided. Use these as temporary measures only.

6.7.6 All labs in which potentially infectious materials and hazardous materials are handled must have accessibility within 10 seconds to safety shower that can deliver a minimum of 20 gallons per minute of potable water for a period of 15 minutes.

## 6.8 Laundry Practices

6.8.1 Lab coats and protective clothing shall be supplied and laundered, repaired, replace or dispose of by the employer on a routine basis at no cost to that employee if the job requires exposure to bloodborne pathogens. Contact the University of Wisconsin Purchasing Services to initiate a contracted service with outside vendors.

6.8.2 If a garment(s) is penetrated by blood or other potentially infectious materials, the garment must be removed immediately or as soon as feasible. If disposable, the garment shall be disposed of appropriately. If the garment is reusable, it will be treated with an appropriate, approved disinfectant as soon as feasible or laundered.

6.8.3 Handle contaminated laundry as little as possible and with minimal agitation. Place soiled laundry in labeled or color-coded leak-proof bags or containers without sorting or rinsing. Potentially contaminated laundry should not be washed in work areas.

6.8.4 Employees are forbidden to take contaminated protective equipment or garments home for cleaning.

## 6.9 Personal Protective Equipment (PPE)

6.9.1 The employer will provide appropriate protective equipment if the employee's job requires exposure to bloodborne pathogens, and will assure it is cleaned, repaired, replaced or disposed of at no cost to the employee.

6.9.2 The employee must be trained to use the PPE properly.

6.9.3 Protective equipment must be appropriate for the task and must be used each time a task is performed.

6.9.4 The equipment must be checked prior to application to insure it is free of physical flaws that could compromise safety.

6.9.5 If, when wearing equipment, it is penetrated by blood or OPIM, remove it as soon as possible.

- 6.9.10 Before leaving the work area, remove all protective equipment and place it in the designated area or container for washing, decontamination, or disposal.
- 6.9.11 Gowns, aprons, surgical caps or hoods and/or shoe covers or other protective body covering must be worn in instances where gross contamination can be anticipated. Open-toed or perforated shoes are prohibited.
- 6.9.12 Gloves must be worn when there is anticipated hand contact with blood, specimens containing blood, blood-soiled items, body fluids, body excretions, body secretions, potentially infectious materials, mucous membranes or non-intact skin.
- 6.9.13 Remove gloves, wash hands, and properly dispose of gloves when handling telephones, door knobs, or notebooks to prevent disseminating infectious material throughout the laboratory.
- 6.9.14 Remove gloves when they become: contaminated, damaged, as soon as an operational phase is completed, or before leaving the work area.
- 6.9.15 Never wash or decontaminate gloves for reuse.
- 6.9.16 Wash hands thoroughly after gloves are removed.
- 6.9.17 If the employee is allergic to latex or vinyl gloves, the supervisor must provide hypoallergenic gloves, glove liners, powder less gloves, or another alternative.
- 6.9.18 Since gloves can be torn or punctured by sharps, bandage any cuts before donning gloves.
- 6.9.19 The employee must follow a safe procedure for glove removal, being careful that no substances from the soiled glove contact their hands.
  - 6.9.19.1 With both hands gloved, peel one glove off from top to bottom and hold it in the gloved hand.
  - 6.9.19.2 With the exposed hand, peel the second glove from the inside, tucking the first glove inside the second.
- 6.9.20 Laboratory coats should be worn while working with potentially infectious materials and should be removed and left within the laboratory prior to exiting.

6.9.21 Eye protection and face masks should be worn for procedures where there is a possibility of splashing materials into the eyes, nose, or mouth.

## 6.10 **Housekeeping and Medical Waste**

6.10.1 Supervisors are responsible to assuring that the work site is maintained in a clean and sanitary condition. All equipment and environmental surfaces must be properly cleaned and disinfected after contact with blood, OPIM, or after completion of procedures.

6.10.2 Clean and decontaminate all working surfaces at the end of each work shift.

6.10.3 Clean all equipment and environmental working surfaces as soon as possible after contact with potentially infectious materials.

6.10.4 All bins, pails, cans and similar receptacles intended for reuse, which have the potential for contamination, must be inspected and decontaminated on a regular basis.

6.10.5 As a component of this facility's exposure control plan, the supervisor will determine and implement a written schedule for cleaning and decontamination of its facilities and will list housekeeping specifics in the Implementation Plan for control of Bloodborne Pathogen Exposures (OH-FRM-003).

6.10.6 The two approved medical waste disposal methods are (1) disinfection and disposal to normal trash and (2) Madison Environmental Resources Inc. (MERI) collection. MERI collection is primarily for non-autoclaved, contaminated wastes and is regulated to sharps containers for the UW Madison Campus. This material is disinfected at the MERI facility prior to ultimate disposal.

6.10.6.1 Only boxes in the MERI container will be removed by MERI.

- Medical waste from BL3 labs must be disinfected prior to disposal

6.10.6.2 Disinfection and disposal of biohazardous waste to normal trash.

- Prior to autoclaving or other means of disinfection, properly label the container with the words "BioHazard" or "Infectious Waste" or use the universal biohazard symbol.

6.10.6.3 After autoclaving or other forms of decontamination, deface the "Biohazard" label and discard in the regular trash.

- 6.10.7 Replace protective coverings (e.g., aluminum foil, plastic wrap, etc.) on equipment or surfaces at the end of the work shift, or immediately after the surface is contaminated.
  - 6.10.8 Containers with biohazardous waste must be color coded or identified with a biohazard label must be provided for disposal of potentially infectious waste or specimens. These closable containers or bags are designed to prevent leakage of fluids during handling, storage, transport, or shipping.
  - 6.10.9 Once decontaminated, the labeling must be defaced or marked to indicate that the contents have been rendered noninfectious.
  - 6.10.10 Biosafety warning signs that are designed to alert to possible hazards, and guide to the appropriate precautions for hazards are to be posted on laboratory doors.
  - 6.10.11 The biohazard label must be fluorescent orange or orange-red with lettering or symbols in a contrasting color.
  - 6.10.12 Warning labels are to be used to designate contaminated equipment.
  - 6.10.13 Bags or containers bearing the biohazard sign are to be used to alert that the container holds blood or other potentially infectious material.
  - 6.10.14 Dispose of the entire bundle promptly.
  - 6.10.15 UW Hospital and Clinics and certain other buildings on campus may have more stringent procedures for the disposal of medical and infectious waste and these must be followed.
  - 6.10.16 For further information view the University of Wisconsin Madison Biohazard Recognition and Control manual for information on autoclaving, chemical disinfection, and other disposal procedures for medical and infectious waste.
- 6.11 Management of Hypodermic Needles and Medical Sharps
- 6.11.1 The use of hypodermic needles and syringes in HIV and HBV laboratories is permitted only for (1) parenteral injection and (2) aspiration of fluids from laboratory animals and diaphragm bottles.
  - 6.11.2 Because contamination may not be readily apparent, all waste sharps must be properly contained to minimize the risk of injury and exposure.
  - 6.11.3 Only needle-locking syringes are permitted for the injection and aspiration of potentially infectious materials.

- 6.11.4 If appropriate sharps with engineered sharps injury protections, or needleless systems shall be provided, and used in laboratory or clinical situations which may involve an exposure to a bloodborne pathogen.
- 6.11.5 Do not reuse needles or other sharps.
- 6.11.6 Place the sharps collection container as close as possible to the area where sharps are used.
- 6.11.7 Do not overfill sharps containers.
- 6.11.8 Keep the sharps collection container upright during use.
- 6.11.9 Use secondary containment if leakage is possible.
- 6.11.10 Report any sharps containers that are mounted too high or otherwise not easily accessible to those who use them.
- 6.11.11 Contaminated needles or other contaminated sharps shall not be bent, recapped, sheared, broken, or removed manually. A mechanical device such as a self-sheathing needle or a one-handed technique may be used to recap or remove needles.
- 6.11.12 Do not handle needles more than necessary: open, use and dispose of needles in one step.
- 6.11.13 Do not recap needles unless you use a modern, specially-designed recapping device that prevents injury or you use a one-handed technique.
- 6.11.14 Do not cut, shear or bend needles. This is forbidden by OSHA because studies show these practices increase the number of needle sticks.
- 6.11.15 Whenever possible, do not remove the needle from the syringe barrel.
- 6.11.16 Discard the empty syringe barrel and needle together. Needle sticks are often caused by attempts to recap or remove syringe needles.
- 6.11.17 Immediately, or as soon as possible after use, sharps will be placed in designated sharps container that meet OSHA standards, and easily accessible to those who use them.
- 6.11.18 Sharps containers should be labeled “Sharps” and if the sharps are contaminated with human blood or other biohazards, the container must also be labeled with the international biohazard symbol. The containers are to be puncture resistant, leak proof on the sides and bottom, and be labeled or color-coded red.

6.11.19 The UW sharps disposal policy requires work groups to:

- Segregate sharps from other wastes.
- Place sharps in approved sharps container with tight-fitting lid.

Fill container only 3/4 full and then seal with the provided lid; do not overfill containers. Disinfecting sealed sharps containers is not usually needed but is required for waste from BL3 labs.

- Carry the sharps container to the building's MERI collection site.
- Contact the building manager for the collection bin's location.
- Once decontaminated, deface any biohazard markings and biohazard symbols. Alternatively, place the autoclaved sharps container in a black or opaque bag, labeled "Autoclaved Sharps", and deposit in the MERI collection bin.
- Not dispose of sharps in Madison landfills.

6.11.20 Disposal of other Regulated Sharps

6.11.20.1 Some sharps and laboratory glass have special disposal requirements such as those with chemical or radioactive materials.

- Radiation Safety is not allowed to dispose of any "medical" waste. It must be disinfected first. Waste sharps and laboratory glass that are contaminated with radioactive materials must be therefore disinfected first and then disposed of according to the University's Radiation Safety Regulations.
- The Chemical Safety Program of EHS should be contacted regarding disposal of chemically-contaminated sharps. In some cases autoclaving may not be appropriate as it may volatilize contaminants.

6.11.21 Biohazardous Glass Disposal

- 6.11.21.1 Do not pick up broken glass which may be contaminated directly with gloved or bare hands, use tongs, forceps or a dustpan and brush.
- 6.11.21.2 Do not put needles and other sharps in glass disposal boxes.
- 6.11.21.3 Autoclave / disinfect contaminated material.
- 6.11.21.4 For unbroken glass and other non-sharp items autoclaving is usually the simplest decontamination method, although an overnight soak in an appropriate disinfectant (e.g., a fresh 10% bleach solution). Place autoclaved or disinfected materials in a box.
- 6.11.21.5 Before use with broken glass and wet wastes, line a sturdy cardboard box with a plastic bag and secure seams and corners with waterproof tape or duct tape. Do not use masking, lab, medical or cellophane tape, because these will disintegrate or come unstuck when wet. This will insure containment of slivers, glass fragments, other small pieces, and moisture from these wastes.
- 6.11.21.6 When setting out laboratory glass for disposal, be sure there are no harmful contaminants on the glass.
- 6.11.21.7 Tape the box closed.
- 6.11.21.8 Mark or label the box “Hazardous Glass for Disposal, No Needles” and write the lab's room number on the box, and deface the biohazard symbol.
- 6.11.21.9 The most commonly accepted practice to discard waste glass is to place the taped, marked box in the hallway next to the door for removal by the custodian.
- If boxes are in a bag, use a clear bag so the contents can easily be identified.
  - Do not block aisles or place in a foot traffic area. Check with the Custodial Dept. (3-3082) or building manager for details on glass disposal in your building.
- 6.11.21.10 Hazardous glass and plastic are other, non medical and uncontaminated laboratory items that may cause an injury if not contained. This waste type includes Pasteur pipettes,



other pipettes, pipette tips, slides, coverslips and broken or fragile glass. These wastes must be disposed of separately in a suitable cardboard box.

6.11.21.11 Double-boxing may be necessary for heavy boxes and for broken glass and pipettes that can pierce one layer of cardboard. The box must be able to withstand handling and dropping by custodians and waste handlers and may be exposed to the weather. Broken glass and Pasteur pipettes can find their way through small openings in cardboard boxes, and injure the workers handling them. Do not make the box too heavy, a heavy box is particularly susceptible to breaking open if it is dropped or thrown.

## 6.12 Manifests

6.12.1 Copies of waste manifests should be forwarded to and maintained by the Environmental Health and Safety Department, Chemical Safety Section. Manifests will be retained and made available to the Wisconsin Department of Natural Resources for inspection and copying for a period of three years.

## 6.13 HIV, HCV, and HBV Research Labs

6.13.1 Research labs which use HIV or HBV are required to adhere to practices outlined by CDC and NIH for biosafety level 2 (BL-2) labs.

6.13.2 Appropriate precautions must be followed when handling human blood, blood products and body fluids, as well as certain tissues. The extent of precaution depends on the degree of exposure. The full complement of precautions should be utilized when handling known HIV- or hepatitis-infected materials or large quantities of blood.

6.13.3 HCV, HIV, or HBV research labs are required to have a hand washing facility and an eye wash station which is readily available within the work area.

6.13.4 These labs must also have an autoclave available for decontamination of regulated.

6.13.5 Vacuum lines in HIV, HCV, and HBV research laboratories and production facilities must be protected with liquid disinfectant traps and high-efficiency particulate air (HEPA) filters, or filters of equivalent or superior efficiency. These filters must be checked as soon as necessary by appropriate personnel.

6.13.6 A fluorescent orange-red biohazard sign on a door indicates that HIV, HBV, HCV or other biohazardous work takes place within. The sign should list any special requirements for entering the facility.

6.13.7 Special training for work with HIV, HCV, and HBV is required (see training section 4.4)

6.14 Transfer of HIV, HCV, and HBV

6.14.1 For the purposes of this plan HIV, HCV, and HBV will be considered etiological agents as defined by the Department of Health and Human Services. Transfer of HIV or HBV from a University research laboratory or production facility to another researcher, university or other facility must comply with the regulations pertaining to the packaging and shipment of etiological agents as described in 42 CFR 72.3.



6.15 Hepatitis B Vaccine Consent form (OH-FRM-002) Placeholder

## Hepatitis B Vaccine Consent Form

(Please access Occupational Health Website and print out Form OH-FRM-002 and place in a binder labeled Bloodborne Pathogen Manual)

This page may be used as a divider for your Bloodborne Pathogen binder.

6.16 Hepatitis B Vaccine Declination form (OH-FRM-003) Placeholder

## Hepatitis B Vaccine Declination Form

(Please access Occupational Health Website and print out Form OH-FRM-003 and place in a binder labeled Bloodborne Pathogen Manual)

This page may be used as a divider for your Bloodborne Pathogen binder.

6.17 Hepatitis B Vaccine Guidance Document (OH-GUI-002) Placeholder

## Hepatitis B Vaccine Guidance Document

(Please access Occupational Health Website and print out Form OH-GUI-002 and place in a binder labeled Bloodborne Pathogen Manual)

This page may be used as a divider for your Bloodborne Pathogen binder.

6.18 Blood and Blood Contaminated Material Clean-up (OH-SOP-001) Placeholder

## Blood and Blood Contaminated Material Clean-up

(Please access Occupational Health Website and print out Form OH-SOP-001 and place in a binder labeled Bloodborne Pathogen Manual)

This page may be used as a divider for your Bloodborne Pathogen binder.

6.19 Implementation Plan for Control of Bloodborne Pathogens Exposures (OH-FRM-001) Placeholder

## Implementation Plan for Control of Bloodborne Pathogens Exposures

(Please access Occupational Health Website and print out Form OH-FRM-001 and place in a binder labeled Bloodborne Pathogen Manual)

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**7.0 Document Revision:**

Revision History		
Revision Number	Revision Date	Description of Revision
1		
2		
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