



## **MODEL EXPOSURE CONTROL PLAN**

**Last revised 5/1/24**

**1. Purpose:** This document is intended to serve principal investigators (PIs) and other employers as a model for developing an Exposure Control Plan (ECP) as required under the OSHA Bloodborne Pathogens Standard. Bloodborne Pathogens (BBPs) include pathogenic microorganisms that are present in human blood, human tissues/cells, or other human body fluids (known as other potentially infectious materials or OPIM) which are known to cause disease. These include (but are not limited to) hepatitis B virus (HBV), hepatitis (HCV) and human immunodeficiency virus (HIV). The primary purpose of an ECP is to limit or reduce the risk of exposure to BBPs. This template provides an abbreviated format which is to be utilized in conjunction with the PI's Biological Hazard Registration ([BioRaft Safety Management System](#)) and [Laboratory Biosafety Manual](#) for development of a complete ECP. Chief ECP elements regarding staff training, work methods, personal protective equipment, and engineering controls must be addressed under the PI's BioRaft Biohazard Registration and Laboratory Biosafety Manual. This template provides general guidance on a particular standard-related topic but should not be considered a definitive interpretation for compliance with OSHA requirements. The reader should consult the [OSHA 1910.1030: Bloodborne Pathogens Standard](#) or contact Environmental Health and Safety (EHS-SRM) for specific compliance requirements.

**2. Scope / Applicability:** Virginia Commonwealth University is committed to providing a safe and healthful work environment for all staff and is committed to providing a positive culture of safety. In pursuit of this endeavor, employees with potential for exposure to BBPs are required to be protected under an ECP which must include all elements required under the OSHA BBP Standard.

### **3. Procedures and Methods for ECP Implementation:**

#### **a. Exposure Control Plan Administration:**

1) Principal Investigators are responsible for maintaining, reviewing, and updating the ECP at least annually, and whenever necessary to include new or modified tasks and procedures. The ECP





The list below should list the job classifications in which **some** employees have occupational exposure. Included is a list of tasks and procedures, or groups of closely related tasks and procedures (, in which occupational exposure may occur for these individuals:

JOB TITLE	DEPARTMENT/LOCATION	TASK/PROCEDURE

**c. Methods of Implementation and Control:**

1) **Universal Precautions:** All employees will utilize universal precautions as minimum precaution level for all applications with potential for exposure to bloodborne pathogens. Universal precautions assume that all human blood and OPIM contain bloodborne pathogens and appropriate safety measures are taken as written in the ECP.

2) **Exposure Control Plan:** Employees covered by the bloodborne pathogens standard receive an explanation of this ECP during their initial training session. It will also be reviewed in their annual refresher training. All employees have an opportunity to review this plan at any time during their work shifts. If requested, employees will be provide with a copy of the ECP free of charge within 15 days of the request. The PI is responsible for reviewing and updating the ECP annually or more frequently if necessary, to reflect any new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure.

3) **Engineering Controls, Work Practices, and PPE:** The OSHA Bloodborne Pathogen Standard specifies that engineering and work practice controls as well as appropriate training and PPE shall be used to eliminate or minimize employee exposure.



### Engineering Controls

Engineering controls are defined as "controls that isolate or remove the bloodborne pathogens hazard from the workplace. Some examples of Engineering Controls include but are not limited to:

- Sharps disposal containers
- Self-sheathing needles or sharps with engineered sharps injury protections
- Needleless systems

PIs who have staff exposed to contaminated sharps must consider and implement appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure. All engineering controls must be reviewed on a yearly basis on efficacy and safety, staff must be included in this review for feedback.

### Choosing safer medical devices

A key element in choosing a safer medical device, other than its appropriateness to the procedure and its effectiveness, is its availability on the market. If there is no safer option to the medical device that you are using for a particular procedure, you are not required to adopt a device different from the one currently being used. However, during the annual review of the ECP, you are required to consider new or prospective safer options and to document this effort in the ECP. With advances in medical technology, more devices are becoming available for different procedures. If no engineering control is available, work practice controls shall be used and, if occupational exposure still remains, personal protective equipment must also be used.

### Work Practice Controls

Each laboratory must develop Standard Operating Procedures (SOPs) for safely working with human blood or OPIMs using universal precautions as a basis for all work with human blood or OPIMs. The SOPs must be specific to the experiment or procedures. SOPs must be written and include step by step procedures for each procedure detailing any safety precautions as well as appropriate PPE.

SOP examples include but are not limited to:

- SOP for safely centrifuging blood samples
- SOP for safe pipetting
- SOP for biological waste disposal
- SOP for proper use of Biosafety Cabinets



- SOP for using a safety engineered medical device
- SOP for appropriate sharps disposal

Each PI must determine the risks of each procedure or experiment, procure the appropriate PPE, develop SOPs and train each employee on each SOP that is applicable to them. Employees must show competency on the safe handling of human blood or OPIMs. SOP competency can be part of the laboratory's lab specific training for each employee.

#### Personal Protective Equipment (PPE)

PPE is provided to all employees at no cost to them. Specific details regarding PPE usage and training are provided on the PI's Biohazard Registration. Basic PPE requirements for bloodborne pathogens include but not limited to:

- Nitrile gloves
- Safety glasses
- Lab Coat

Specific PPE requirements must be reviewed based on a risk assessment. EHS-SRM is available for consultations.

#### **d. Regulated Medical Waste (RMW) and Housekeeping:**

##### 1) Regulated medical waste or RMW (Biohazardous Waste):

NOTE: Biohazardous waste is different than chemical hazardous waste and each waste stream must be segregated appropriately.

Receptacles to be used for RMW must be:

- hard sided
- closable
- leak proof
- appropriately labeled
- lined with a red biohazard labelled bag

RMW shipping boxes must not be used for as the laboratory's RMW receptacle. RMW waste containers must not be filled more than  $\sim \frac{3}{4}$  of the volume of the containers so that the bag can be tied without needing to push down on the waste which can create aerosols. Once full (not exceeding  $\frac{3}{4}$ ), tied and taped biohazard bags must then be placed in a RMW shipping box. These boxes must also be lined with a red bag and must be taped and labeled according to the instructions on the box. Most vendors have a weight limit on shipping boxes that



are also written on the instructions. To procure red biohazard bags and shipping biohazard boxes, place a work order through Facilities Management. All RMW receptacles must be cleaned and disinfected whenever the liners are changed. The outside of the containers must be disinfected daily.

2) Contaminated sharps must be discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak proof on sides and bottoms, and labeled or color coded appropriately. These may be purchased from any lab supply vendor.

Disposable Sharps or Needles must:

- NOT be disposed of in any other waste receptacle besides the appropriate sharps containers.
- NOT be recapped unless an approved method with justification is reviewed and approved by EHS-SRM
- Be disposed of immediately after use in a sharps container
- Not be bent sheared or broken in any way

Sharps containers must:

- NOT be filled over the marked fill line (usually  $\frac{3}{4}$ )
- Be closed completely according to the manufacturer instructions
- Once closed completely must be placed in the RMW receptacle or in a shipping box.
- Must not be used for the disposal of liquids (residual liquids in syringes, etc. is ok)

3) Laundry: Gross contaminated items should be disposed of through the RMW waste stream. PI's laundering potentially contaminated articles through contract service providers must ensure that soiled articles are securely sealed within appropriate bags or containers prior to relinquishing to contractor. If the PI plans to launder potentially contaminate articles in house, the [Biosafety Office](#) should be contacted for guidance.

4) Housekeeping: Specific housekeeping procedures must be identified on the PI's Biological Hazard Registration. Proper housekeeping is important to prevent accidents and injuries in the laboratory. Proper management of sharps, cleaning up of spills, putting materials away when finished, proper disinfection protocols, and procedures for cleaning the lab at the end of a shift are important. Teamwork in cleaning the lab assures accountability.



**e. Hepatitis B Vaccination:** The PI is responsible to ensure that appropriate training to employees on hepatitis B vaccinations. Training must address safety, benefits, efficacy, methods of administration, and availability. Employee health can provide this information to the employees if needed. The hepatitis B vaccination series is available at no cost after training and within 10 days of initial assignment to employees identified in the exposure determination section of this plan. Vaccinations may be arranged through VCU Employee Health Services. HBV Vaccination is encouraged unless: employee has previously received the series, antibody testing reveals that the employee is immune, or medical evaluation indicates that vaccination is contraindicated. Employees choosing to decline vaccination must sign a declination form (attached as appendix). Employees who decline may request and obtain the vaccination at a later date at no cost. Documentation of refusal of the vaccination is maintained in the PI's central files.

**f. Incidents and Post-Exposure Evaluation and Follow-Up:**

Exposure incidents must be reported immediately to VCU Employee Health Services, which will provide confidential medical evaluation and follow-up. PIs are responsible for ensuring the following: documentation of route(s)/cause of exposure, ID of source individual (if possible) and obtaining consent for testing determine BBP status\*, and conveying of source individual's test results to employee's health care provider. The PI must also assure that exposed employee is provided with test results and information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual.

After obtaining consent, PI's are responsible for ensuring collection of exposed employee's blood as soon as feasible following exposure incident, and for arranging testing to determine HBV and HIV serological status. If an employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve baseline blood sample for at least 90 days; if exposed employee elects to have baseline sample tested during waiting period, perform testing as soon as feasible

*\*If source individual is already known to be HIV, HCV and/or HBV positive, new testing need not be performed.*



1) Administration of Post-Exposure Evaluation and Follow-Up:

The PI must ensure that health care professional(s) responsible for employee's hepatitis B vaccination and post-exposure evaluation and follow-up are provided with a copy of OSHA's bloodborne pathogens standard and are also provided with a description of the employee's job duties relevant to the exposure incident, the related route(s) of exposure, circumstances leading to the exposure, results of the source individual's blood test (if available), and relevant employee medical records, including vaccination status. The PI must provide the employee with a copy of the evaluating health care professional's written opinion within 15 days after completion of the evaluation.

2) Procedures for Evaluating Circumstances Surrounding Exposure Incident: The PI will review the circumstances of all exposure incidents to determine cause of the incident and identify needed corrective measure in relation to engineering controls, work practices followed, devices utilized, PPE, and employee training regimen.

**i. Employee Training:** All employees who have occupational exposure to bloodborne pathogens receive training covering the epidemiology, symptoms, and transmission of bloodborne pathogen diseases. Each employee who has exposure to bloodborne pathogens must take the VCU BBP training in BioRAFT. Additionally, task-specific training and a full review of this ECP is to be provided by the PI for all new staff and prior to existing staff conducting new procedures with potential for BBP exposure. Training is to be conducted on a yearly basis to remain in compliance with the OSHA BBP standard. Employees must also be trained in the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices and personal protective equipment. Training must therefore include instruction in regard to new techniques and practices associated with new engineering controls.

Training must also include information regarding infection control, PPE, basic BBPs information such as symptoms, routes of infection and

**j. Recordkeeping:**

1) Training Records: Training records are completed for each employee upon completion of training. These documents will be kept for at least three years. Training records for BioRAFT are retained





within BioRAFT, any lab specific training records can be uploaded to the documents section of the lab's BioRAFT profile. All records must include: dates of training sessions, contents or summary of training sessions, names and qualifications of persons conducting training, names and job titles of all persons attending training sessions. Bloodborne Pathogen refresher training is required annually.

2) Medical Records: Medical records are maintained for each employee with occupational exposure in accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records." The PI is responsible for maintaining the required medical records for the duration of employment plus 30 years. Employee medical records are provided upon employee request or to anyone having written consent of the employee within 15 working days.

3) OSHA Recordkeeping: The PI must document all exposure incidents involving BBPs per requirements of OSHA BBP Standard

4) Sharps Injury Log: All percutaneous injuries from contaminated sharps are recorded in a Sharps Injury Log to include: date of the injury, type/brand of device involved, department or work area where incident occurred, and an explanation of how incident occurred. The log is reviewed at least annually as part of the annual evaluation of the ECP and is maintained for at least five years following the end of the calendar year covered. If a copy is requested by anyone, any personal identifiers must be removed from the report.

**Principal Investigator Certification:** *I attest that the conditions of this ECP will maintained for all staff with potential for occupational exposure to BBPs:*

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Principal Investigator: Name, Signature and Date

