

## FESHM 4220: BLOODBORNE PATHOGENS

### Revision History

Author	Description of Change	Revision Date
Kelly Dombrowski	No changes to the chapter are needed.	July 2022
Caroline Hetfield & Kelly Dombrowski	Made significant changes, including but not limited to: <ul style="list-style-type: none"><li>• Revised some definitions and added others</li><li>• Updated Responsibilities section</li><li>• Reorganized the Basic Blood Spill Procedures and Lab Wide Procedures sections into separate sections as follows:<ul style="list-style-type: none"><li>• Prevention</li><li>• Engineering and Work Practice Controls</li><li>• Blood Spills and Housekeeping Procedures</li><li>• Labeling</li><li>• Employee Training</li><li>• Hepatitis B Vaccinations</li><li>• Exposure to Blood and Body Fluids</li><li>• Confidential Post-Exposure Evaluation</li><li>• Healthcare Professional’s Written Procedure</li><li>• Recordkeeping</li></ul></li><li>• Added a references section</li><li>• Added applicability for leased spaces.</li></ul>	November 2017
M. Strobel	<ul style="list-style-type: none"><li>• In “Job Classifications”, took out “Lifeguard” and added “Medical Assistant”</li><li>• Section 6.0 updated to more clearly state when to report to the Fermilab Occupational Medical Office or call x3131</li><li>• Removed references to appendices that need not be part of the chapter</li></ul>	February 2013

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## 1.0 INTRODUCTION

Healthcare workers and emergency responders are at a greater risk of exposure to the bloodborne pathogens hepatitis B, hepatitis C, and human immunodeficiency viruses (HIV), but anyone in the workplace exposed to blood or other potentially infectious materials can be at risk. An exposure can occur from punctures or cuts from contaminated objects, splashes to mucous membranes or contact with non-intact skin. This chapter provides guidance to Fermilab employees to eliminate or minimize the risk of transmission, and to help assure compliance with applicable standards.

This chapter only applies to the Fermilab site. Leased spaces will follow the rules and regulations set forth by the partnering institute and/or state or local codes and standards.

## 2.0 DEFINITIONS

At risk employees – Employees who have potential for occupational exposure to blood or other potentially infectious materials.

Bloodborne pathogen (BBP) – A pathogenic microorganism present in human blood that can be transmitted to and cause disease in others. These pathogens include but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HVC), and human immunodeficiency virus (HIV).

Exposure control plan (ECP) – Plan that explains ways to minimize or eliminate exposure to BBPs and is compliant with OSHA’s BBP standard (29 CFR 1910.1030).

Exposure incident – While in the course of work any employee, contractor, or visitor is exposed to blood, human tissue, or other potentially infectious materials. This can occur from a cut or puncture wound from an object that is contaminated with another person’s blood, from a splash of bodily fluid to mucous membranes of the eyes, nose, mouth, or exposure to non-intact skin (skin that is chapped, abraded, or compromised by dermatitis).

Occupational exposure to blood or OPIM – A reasonably anticipated skin, eye, mucous membrane or parenteral contact with blood or OPIM that may result from the performance of an employee’s duties.

Other potentially infectious materials (OPIM) – Any fluid/tissue normally confined to inside the body. This includes blood or body fluid/tissue visibly contaminated with blood, semen, vaginal secretions, amniotic fluid, and saliva in dental injuries/procedures. Unless visibly contaminated with blood, the following body fluids do not require *universal* precautions, though *standard* precautions are advised: nasal secretions, vomit and gastric secretions, sputum, feces, tears, sweat, saliva, and urine.

Regulated Waste – Liquid or semi-liquid blood or OPIM; contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed; items that are caked with dried blood or OPIM and can release these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or OPIM.

Sharps – Devices having corners, edges, or projections capable of cutting or piercing the skin, such as contaminated needles, scalpel blades, and broken glass.

Standard precautions – An approach to infection control recommended by the Centers for Disease Control for care of all persons, regardless of their diagnosis or infection status. These precautions apply to: Blood; all body fluids, secretions, and excretions, *except sweat*, regardless of whether or not they contain visible blood; non-intact skin; and mucous membranes. Standard precautions are designed to protect workers from possible infection with bloodborne pathogens, and to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection. When handling potentially infectious material, all persons should be assumed to be infectious and precautions should be taken to prevent spread of infection. Precautions include administrative, engineering, and work practice controls, as well as personal protective equipment (PPE).

Universal precautions – An approach to infection control that treats all human blood and certain human body fluids as if they were known to be infectious for HIV, HBV and other bloodborne pathogens.

### **3.0 RESPONSIBILITIES**

A responsibilities section is included only if there are any responsibilities which are unusual, i.e., different than those indicated in [FESHM 1010](#).

#### **3.1 Division/Section/Project (D/S/P)**

Responsible for obtaining and maintaining all necessary personal protective equipment (PPE), and providing engineering controls required by this plan.

#### **3.2 Custodial Services Contractors**

Primary responsibility for cleaning up spills of blood or other potentially-infectious materials when the person who is the source of the material is unable to do so. Due to limited availability and/or access restrictions of custodial employees, other trained personnel may be called upon to clean up spills.

#### **3.3 Fermilab Occupational Medical Office (FOMO)**

Responsible for an annual review of the Exposure Control Plan (ECP), and ensuring all required medical actions are performed, including maintenance of appropriate employee health records.

#### **3.4 Fermilab Fire Department**

Provides annual BBP training to Fermilab employees who have potential exposure to blood and body fluids. The FMO and Fermilab Fire Department have select responsibility for cleaning up potentially-infectious materials that may contaminate their clothing, equipment, or facilities.

#### **3.5 ESHQ Hazard Control Technology Team**

Supplies sharps containers, leak proof, labeled bags, and Biohazard labels.

## 4.0 PROCEDURES

### 4.1 Prevention

Detailed written medical protocols are kept in the FOMO. These protocols relate to standard precautions, safe use of sharps and other potential exposure to blood or OPIM, engineering and work practice controls, Hepatitis B vaccinations, and components of the post exposure evaluation.

Use Standard precautions:

- Wash hands frequently and thoroughly after contact with blood or OPIM.
- Use Personal Protective Equipment (PPE): Gloves, gowns, shoe covers, eyewear, masks, and shields depending on the situation to prevent contact with eyes, nose, mouth, and skin.
- Gloves must be worn when contact with blood or body fluids is anticipated.
- Avoid cleaning up blood spills or body fluids unless properly trained.
- May clean up own blood or body fluids with 1:10 solution of bleach & water.

### 4.2 Engineering and Work Practice Controls

- Purpose is to eliminate or minimize employee exposure.
- Handwashing facilities or appropriate antiseptic hand cleansers must be available, in conjunction with clean cloth/paper towels or antiseptic towelettes.
- Employees must wash their hands immediately after removal of gloves or other personal protective equipment with soap and water, and/or flush mucous membranes with water immediately following contact with blood or body fluids. If hand cleansers or towelettes are used, hands must be washed with soap and running water as soon as feasible.
- Remove PPE after it becomes contaminated, and before leaving the work area. Any garment contaminated with blood or other potentially infectious material should be removed as soon as feasible and in such a way as to avoid skin contact with the contaminated surface of garment.
- Used PPE may be disposed of in appropriate containers, such as red, hard-sided containers with biohazard symbol or red biohazard bags.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses is prohibited in work areas where there is a reasonable likelihood of occupational exposure.
- Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or OPIM are present.
- All procedures should minimize splashing, spraying, spattering, and generation of droplets.

### 4.3 Blood Spills and Housekeeping Procedures

- All equipment and working surfaces shall be cleaned and decontaminated immediately after contact with blood or body fluids with an appropriate disinfectant.
- Protective coverings shall be removed and replaced as soon as feasible when they have become contaminated.

- Broken glassware should never be picked up directly. Use mechanical means, such as brush/dust pan, tongs, or forceps.
- Contaminated laundry should be handled as little as possible, with a minimum of agitation, and be bagged or containerized in the location where it was used, placed in a labeled or color coded leak-proof container. No rinsing or sorting should be performed in the location of use.
- Blood or OPIM spills that occur outside of the department will be cleaned up by housekeeping who are trained for this process, or other trained personnel. Cordon off the contaminated area until it is properly cleaned.

#### 4.4 Labeling

- The following labeling methods are used at Fermilab.

Item	Label Type (size, color, etc.)
Laboratory specimens	Ziploc bag with biohazard label
Contaminated Laundry	Red bag with biohazard label
Contaminated PPE	Red bag with biohazard label
Biohazard/Needle Containers plastic container	Biohazard label of “SHARPS” on a red, puncture proof, leak proof container
Small spill clean-up bag	Red bag with biohazard label

- Employees who are qualified BBP workers or are otherwise assigned to handle biological waste containers will ensure that appropriate containers/bags are used as required. Employees are to notify their supervisor and/or Division Safety Officer (DSO) if they discover regulated waste containers, refrigerators containing blood or other potentially infectious material, contaminated equipment, etc. without proper labels.

#### 4.5 Employee Training

Training is provided by the ESH&Q Section through the on-line course FN000208/CR, Bloodborne Pathogens. Initial employee training is required, and on an annual basis thereafter for all employees who have potential for exposure.

#### 4.6 Hepatitis B Vaccinations

The HBV vaccination series is available to employees with potential exposure to infectious materials, at no cost, after training, and within 10 days of initial assignment. FOMO administers and provides an explanation of HBV vaccinations, including vaccine effectiveness, safety, benefits, route of administration, and availability. Vaccination is encouraged unless documentation exists that the employee has previously received the series, antibody testing reveals that the employee is immune, or medical evaluation shows that vaccination is contraindicated. Employees who decline vaccination at

the time it is offered must sign a Vaccine Declination form. If they choose to receive the vaccine at another time, they may do so.

#### 4.7 Exposure to Blood or Body Fluids

- Wash cuts and sharps injuries with soap and water immediately.
  - Use of antiseptic or bleach has not proven to reduce the risk of transmission.
  - Puncture wounds can be cleaned with an alcohol-based cleanser, chloroxylenol or chlorhexidine.
- Contain the bleeding with direct pressure, use of gloves if possible.
- Flush splashes to the nose, mouth, or skin with water immediately.
- Irrigate eyes with clean water, saline, or sterile irrigation solution immediately.
- Report **immediately** to the Medical Department, or call EXT 3131 if after hours.
- Consider the following fluids as a risk for exposure to bloodborne pathogen:
  - Blood, cerebrospinal fluid, peritoneal fluid, semen, synovial fluid, pericardial fluid, vaginal secretions, pleural fluid, amniotic fluid.
  - Body fluids that have not been shown to pose a risk for transmission of bloodborne pathogens, unless blood is visible include: urine, stool, tears, saliva, gastric secretions or vomitus, sweat, non-purulent sputum, nasal discharge.

#### 4.8 Confidential Post-Exposure Evaluation (In Medical or Fire Department)

- Details of the events surrounding the injury is obtained and documented.
- The severity of exposure and the potential to transmit HBV, HCV, and HIV is determined.
- Counseling is provided following the exposure and includes an explanation of the post exposure management plan. (Note: The exposed employee's blood shall be collected as soon as feasible after consent is obtained.)
- The source individual will be identified and documented (unless employer can establish that identification is infeasible or prohibited by state or local law), and consent for testing will be sought, if testing is need.
- Pertinent and relevant employee information is obtained as part of the evaluation, and documented.

#### 4.9 Healthcare professional's Written Opinion

- The employer shall obtain and provide the employee with a copy of the evaluating Healthcare professional's written opinion within 15 days of the completion of the evaluation and shall include:
  - Whether Hepatitis B vaccine is indicated, or has been received.
  - The results of the evaluation.

- That the employee has been told about any medical condition(s) resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

All other findings or diagnoses shall remain confidential and shall not be included in the written report.

#### 4.10 Recordkeeping

Training records are generated electronically in the ESH&Q TRAIN database for each employee upon successful completion of the on-line training.

Medical records must be kept for 75 years per DOE records retention requirements, and maintained according to 29 CFR1910.20. These confidential records shall include at a minimum:

- Name and employee ID number of the employee.
- A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations, the immune response, and any medical records relative to the employee's ability to receive vaccination.
- A copy of all results of examinations, medical testing, and follow-up procedures.
- A copy of the healthcare professional's written opinion.
- A copy of information provided to the provider.

#### 4.11 Organization-Specific Information

Organization	Phone number
FOMO	3232
Custodial Services	2798
Fermilab Fire Department / Emergency	3131
Fermilab Fire Department / Non- Emergency	3428

## 5.0 REFERENCES

- OSHA 29CFR1910.1020, Access to Employee Exposure and Medical records
- OSHA 29CFR1910.1030, Bloodborne Pathogens
- CDC: Exposure to Blood, What Healthcare Personnel Need to Know.
- Post-Exposure Prophylaxis in the health care setting, HIV Provider Reference Series, Mountain Plains AIDS Education and Training Center.
- Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for post-exposure Prophylaxis; prepared by the U.S. Public Health Service Working Group, September 2013.