Bloodborne Pathogen Exposure Control Plan

University of California, Davis

Version 1.0
## Revision History

### Bloodborne Pathogen Exposure Control Plan

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<tr>
<th>Version</th>
<th>Date Approved</th>
<th>Authors</th>
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<td>James Baugh, CBSP</td>
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<td>Brittany Anderson</td>
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Approved by: UC Davis Institutional Biosafety Committee

Next Review: 01/2019

Biosafety Officer: Philip Barruel

Approval Date: 01/22/18

Authors: James Baugh, CBSP

Approval Date: 01/22/18

Brittany Anderson

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# TABLE OF CONTENTS

## I. Introduction

A. Regulations ................................................................. 5  
B. Bloodborne Pathogens ............................................... 5  
C. Purpose ....................................................................... 7  
D. Applicability .............................................................. 8  
E. Roles and Responsibilities .......................................... 8  
F. Bloodborne Pathogen Training Requirements ............ 10

## II. Methods of Compliance

A. Risk Determination .................................................... 10  
B. General Universal Precautions ................................. 10  
C. Engineering Controls ............................................... 11  
D. Engineered Sharps Protection ................................. 11  
E. Restricted Access ..................................................... 11  
F. Labeling ................................................................. 12  
G. Work Practice Control ............................................. 13  
H. Hand Washing .......................................................... 13  
I. Decontamination ....................................................... 14  
J. Minimization of Aerosol Generation ......................... 15  
K. Personal Protective Equipment ............................... 15  
L. Transportation on Campus ........................................ 16  
M. Shipping of Samples ............................................... 16  
N. Medical Waste .......................................................... 17  
O. Research involving HBV, HCV, and HIV ................. 17  
P. BBP Spill Clean-up Procedures .................................. 17  
Q. Prohibited Practices ................................................ 18

## III. Medical Considerations

A. Hepatitis B Vaccination Offer/Declination .................. 19  
B. Post-Exposure Procedures ......................................... 20
Appendix A

Human Materials Subject to the BBP Standard

Appendix B

At-Risk Worker Job Classification List with BBP Exposure Determination

Appendix C

Waiver of Hepatitis B Virus Vaccine

Appendix D

Bloodborne Pathogen Training Requirements

Appendix E

BBP-ECP Regulatory Expectations

Appendix F

Criteria for Determining the Risk of Occupational Exposure to Hepatitis B Virus or other Bloodborne Pathogens

Appendix G

HIV, HBV, HCV in Research Laboratories
I. Introduction

A. Regulations

The Bloodborne Pathogen Standard was put into effect by the California Division of Occupational Safety and Health Administration (Cal/OSHA) as part of the California Code of Regulations (CCR) under Title 8 §5193. The purpose of the Bloodborne Pathogen Standard is to reduce occupational exposure to human materials and Other Potentially Infectious Materials (OPIM) that employees may encounter in their workplace. This Exposure Control Plan is designed to meet the letter and intent of the Cal/OSHA Bloodborne Pathogens Standard as well as the hazard communication requirements of the Injury Illness and Prevention Program Standard, Title 8, CCR 3203.

The objective of this plan is twofold:

- To protect employees, students, and volunteers from the health hazards associated with bloodborne pathogens.
- To provide appropriate post-exposure follow up and counseling should employees, students, and volunteers become exposed to bloodborne pathogens.

B. Bloodborne Pathogens

Bloodborne pathogens (BBPs) are microorganisms that can cause disease in healthy human beings; these include bacteria, viruses, parasites, and fungi. Exposure to BBPs may occur via a splash, spray, or aerosolization of potentially infectious material onto mucosal membranes (e.g., eyes, nose, or mouth) or penetration through breaches in the skin (e.g., an accidental needle stick from a BBP contaminated sharp).
Symptoms of acute infection from exposure to most BBPs initially present with very common mild, flu-like symptoms (e.g., fever, headache, fatigue, loss of appetite, general malaise).

Characteristics of the three most commonly occurring bloodborne pathogens: Human Immuno-deficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) are:

<table>
<thead>
<tr>
<th>HIV</th>
<th>HBV</th>
<th>HCV</th>
</tr>
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<tbody>
<tr>
<td>• Relatively fragile virus</td>
<td>• Very resilient virus</td>
<td>• Moderately hardy virus</td>
</tr>
<tr>
<td>• Can remain infective outside host for only a few hours (~4 hours or less)</td>
<td>• Remains infectious for weeks outside of host</td>
<td>• Remains infectious on hard surfaces from 16 hours up to 4 days</td>
</tr>
<tr>
<td>• Integrates into human genome and results in lifelong disease</td>
<td>• Remains infectious even in dried blood</td>
<td>• In liquid, HCV can survive up to 14 days at room temperature</td>
</tr>
<tr>
<td>• Carriers often succumb to opportunistic pathogens due to a severely impaired immune system</td>
<td>• HBV is 100 times more infectious than HIV</td>
<td>• 75-85% of HCV infected people develop a long-term chronic infection</td>
</tr>
<tr>
<td></td>
<td>• Acute infection for ~90% of healthy adults</td>
<td>• Large unknown carrier population</td>
</tr>
<tr>
<td></td>
<td>• Infants and young children very susceptible to chronic HBV infection</td>
<td></td>
</tr>
</tbody>
</table>

**HIV Treatment:**

An HIV vaccine is not currently available. Anti-retroviral prophylaxis is available and capable of suppressing viral replication, thereby significantly delaying the onset of Acquired Immune Deficiency Syndrome (AIDS), however, drug treatment must be continued throughout the life of the carrier.

Post exposure prophylaxis for an HIV occupational exposure is time sensitive. The sooner drugs are delivered (less than two hours is preferred), the greater likelihood of preventing the virus from integrating into the genome and establishing a systemic infection.

**Hepatitis B & C Treatment:**

A very effective (>90%) HBV vaccine is readily available. Post-exposure prophylaxis for HBV exposure includes the Hepatitis B vaccine and HBV immune globulin. No HCV
vaccine is currently available, however current HCV treatment regimens have been shown to be effective at curing many genotypes of the virus.

**C. Purpose**

The UC Davis campus-wide Bloodborne Pathogen - Exposure Control Plan (BBP-ECP) describes how to eliminate or minimize the exposure of all UC Davis biomedical research personnel to human tissues, human blood products, and other potentially infectious materials (OPIM - defined in Appendix A) that might contain bloodborne pathogens (BBPs).

At-risk workers (listed in Appendix B) are defined as biomedical research personnel that work with, or around, materials that are subject to the BBP standard. This group of at-risk workers includes employees of the university that are paid for their services, as well as unpaid volunteers and students. This group of biomedical research personnel at UC Davis must know that there are a number of general principles that should be followed when working with BBPs, or materials potentially containing BBPs:

- An effective Hepatitis B Virus (HBV) vaccine is available for all research personnel who may be at occupational risk for exposure to HBV. This vaccination is offered to individuals at no cost and can be accepted at any time, but if personnel choose not to accept it, they must formally decline by signing an HBV vaccine declination form (Appendix C) and completing the UC Davis HBV vaccine declination online training module. HBV vaccine declination records must be kept on file with the Principal Investigator (PI) or supervisor responsible for the occupational safety of the employee, student, or volunteer. HBV vaccinations can be obtained at the Occupational Health Services Center – (Cowell building map, Davis campus) or Employee Health Services (Cypress building map, Sacramento campus).

- Appropriate personal protective equipment (PPE) such as gloves, eye protection, and barrier laboratory coats must be worn when handling human blood or OPIM. These PPEs must be provided by the employer, free of charge, to all research personnel.
• Safety engineered sharps and needleless systems must be used whenever possible especially when working with human blood or OPIM.
• All research personnel handling human blood or OPIM, must undergo BBP training that meets all of the expectations outlined in Appendix D. This must occur at the time of initial assignment of tasks where occupational exposures may take place and prior to the initiation of procedures involving bloodborne pathogen. Annual BBP refresher training is required thereafter.
• UC Davis researchers must institute as many engineering and work practice controls as reasonable to eliminate or minimize the risk of exposure to bloodborne pathogens.

D. Applicability
This BBP-ECP applies to all biomedical research personnel (listed in Appendix B) of the University of California, Davis, who may come in contact with BBP materials during the course of their work. This ECP also applies to research and teaching laboratories at UC Davis and complies with the California Occupational Safety and Health Administration (Cal/OSHA) Bloodborne Pathogens (BBP) Standard.

This exposure control plan does not apply to non-research support staff (e.g., custodians, facilities, police officers, or anyone else not listed in Appendix B). Any of these excluded groups that have job duties which involve potential exposure to bloodborne pathogens must have their own exposure control plan that defines job-specific guidelines for their work at UC Davis.

E. Roles and Responsibilities

Environmental Health and Safety (EH&S)
• Per the Bloodborne Pathogen Standard requirements listed in Appendix E, develop and maintain the campus wide Bloodborne Pathogen - Exposure Control Plan.
• Update the UC Davis campus wide plan BBP-ECP upon regulatory changes, or as necessary, including an annual assessment to determine the effectiveness of the BBP-ECP.
• Provide a current, digital copy of the campus wide BPP-ECP on the Biosafety BBP web page.

• Address all campus concerns or questions about working with BBPs at biosafety@ucdavis.edu or (530)752-1493.

**Principal Investigators (PIs) and Supervisors**

• Provide job specific training for all at-risk workers that are covered by the UC Davis Bloodborne Pathogen Exposure Control Plan.

• Identify tasks and procedures where occupational exposure may occur and implement control measures to mitigate these risks (including but not limited to administrative work practice controls and engineering controls, such as safe sharp devices).

• Routinely perform updating of and training on the Lab-Specific BBP-ECP Fact Sheet. This training for all personnel must be documented annually.

• Ensure that at-risk workers wear appropriate personal protective equipment (PPE) and that adequate PPE supplies are available.

• Ensure that all research personnel who may have an occupational exposure risk to BBPs are offered Hepatitis B vaccination series.

• Maintain records of at-risk worker vaccination declinations.

• Ensure that all exposure incidents are reported to the appropriate Occupational Health group and that the provisions of post-exposure evaluations and follow-up are afforded.

**At-Risk Workers**

• Review and become familiar with the applicable components of the UC Davis campus-wide Bloodborne Pathogen Exposure Control Plan, as well as the lab-specific BBP-ECP fact sheet.

• Provide feedback to supervisor about ways in which job duties could be performed more safely.

• Complete annual BBP refresher training.

• Apply Universal Precautions to all manipulations and procedures involving materials that may harbor BBPs.
• Report any exposure, accident, overt biohazardous spill, injury or illness to their supervisor or to EH&S as soon as possible.

F. Bloodborne Pathogen Training Requirements

All at-risk workers with potential occupational exposure to BBPs shall complete UC Davis Bloodborne Pathogen online training. This training meets the expectations of the Bloodborne Pathogen Standard as defined in Appendix D. BBP training shall be administered as follows:

• Complete the UC Davis Bloodborne Pathogen Awareness online training module at the time of initial assignment to tasks where exposure to BBPs may occur and every three years thereafter.
• Annual refresher training throughout term of employment in which exposure to BBPs is reasonably anticipated.
• When changes affect the worker’s occupational exposure (e.g., introduction of new engineering, administrative or work practice controls; modifications of tasks or procedures; or institution of new tasks or procedures).

II. Methods of Compliance

A. Risk Determination

The first step in developing a BBP-ECP is determining the potential BBP risks that may be present in the laboratory. Appendix F lists criteria for determining whether there exists a risk for BBP occupational exposures in the research setting. Each PI-generated, lab-specific BBP-ECP fact sheet defines the potential sources of bloodborne pathogens within the lab, and lists specific lab operations that may increase the likelihood of BBP exposures, thereby defining the risks within each BBP workspace.

B. General Universal Precautions

Universal Precautions is an approach to infection control and involves behaving under the assumption that all human blood, blood products, and body fluids may be infectious.
Based on this assumption, all workers must utilize good work practices and engineering controls, as well as protective equipment, to minimize or eliminate exposure to bloodborne pathogens. Following Universal Precautions and good work practice requires strict adherence to all procedures in the subsequent sections of this document.

C. Engineering Controls

Engineering controls shall be used to eliminate or minimize exposure risks. Engineering controls shall be examined and maintained, or replaced, on a regular schedule to ensure their effectiveness. All procedures involving human blood or OPIM shall be performed in such a manner to minimize splashing, spraying, spattering, and generation of droplets.

Acceptable engineering controls include, but are not limited to: biological safety cabinets, bench top splash shields, sealed centrifuge rotors, aerosol tight centrifuge cups, fume hoods, sharps containers, local ventilation, handwashing sink, mechanical pipetting devices, and capped centrifuge tubes.

D. Engineered Sharps Protection

Needleless systems or safety engineered sharps devices are used to eliminate or reduce occupational injury due to sharps. These systems or devices are to be used whenever possible.

Examples of needleless systems and devices with engineered sharps injury protection: needle-free injectors, self-sheathing scalpels, self-sheathing hollow bore needles, self-sheathing injectable needles, self-sheathing intravenous catheters, self-sheathing vacutainer needles, plastic vacutainer tubes, plastic coated hematocrit tubes.

E. Restricted Access

Access to a laboratory is restricted to authorized personnel by the laboratory supervisor when work with human blood or other potentially infectious materials is in progress.
Individuals with reduced immunity who possess an increased risk of acquiring infection, or for whom infection may be unusually hazardous (e.g., patients recovering from surgery), should be aware of the increased risk to themselves and are encouraged to self-identify so that steps can be taken to further protect them.

When work with human blood, blood products, or OPIM is being performed, non-laboratory personnel, such as maintenance workers, delivery personnel, administrative staff, and personnel not affiliated with the University, are to be discouraged from entering. If it becomes necessary for them to enter a facility, the hazards of the work being performed must be fully explained to them, prior to entry.

F. Labeling

Labels

A biohazard warning label incorporating the universal biohazard symbol must be posted on access doors to the laboratory work area.

a. All human tissue, body fluid, or OPIM must be stored in a container labeled with a biohazard symbol.

b. Biohazard warning labels shall be affixed to containers of regulated waste, refrigerators, freezers, or other pieces of equipment used to manipulate blood or OPIM.

c. Biohazard labels should preferably be colored fluorescent orange or orange-red and include the universal biohazard symbol, along with the word “biohazard” as depicted at right.

Signs

Cal/OSHA requires employers to post warning signs at the entrance to work areas where exposure to bloodborne pathogens and OPIM is possible.

a. Warning signs shall be posted on the doors outside of the laboratories where blood and other OPIM are used.

b. All signs must include the following information
   - The international symbol for biohazard
The name of the specific biohazardous materials used in the location. If working with pathogens or select agents the sign should be placed inside the laboratory.

- Name, telephone number of the laboratory director or other responsible person
- Special requirements for PPE and other laboratory procedures.

G. Work Practice Control

The PI must develop comprehensive, risk mitigating work practices to protect at-risk workers from potentially infectious materials. These personnel are required at all times to comply with these practices. In the event they do not or cannot comply with any of these requirements, they must report the incident and circumstances to the PI or supervisor for investigation and documentation.

Compliant Sharps Containers:

- Immediately, or as soon as possible after use, contaminated disposable sharps must be placed in sharps containers that are rigid, puncture resistant, leak-proof, portable (if portability is necessary), and labeled as BIOHAZARDOUS SHARP WASTE.
- Must be easily accessible to personnel and located as close as possible to the immediate area where sharps are used or reasonably anticipated to be found.
- Maintained upright throughout use whenever feasible and replaced as necessary to avoid overfilling.
- Shall be closeable and sealable so that when sealed, the container is leak resistant and incapable of being reopened without great difficulty.

H. Hand Washing

All personnel must wash their hands with non-abrasive soap after handling blood, blood products, or other potentially infectious material, and immediately upon any direct contact with these materials. When handwashing is not feasible, personnel must use an
appropriate antiseptic hand cleanser in conjunction with a clean cloth or paper towels, or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as possible.

I. Decontamination

All research personnel are responsible for keeping their immediate work area clean and sanitary. If you become aware of needs beyond general housekeeping, report your concern to your PI/supervisor.

Equipment and Working Surfaces

All equipment and working surfaces must be cleaned and decontaminated using a hospital-grade disinfectant with an EPA Registration Number (TB bactericidal, HIV and HBV virucidal) for the appropriate contact time (e.g., 10% household bleach for 10 minutes of contact).

Decontamination must occur:

a. Immediately when surfaces are overtly contaminated, or after any spill
b. When the procedures are completed
c. At the end of the work day if the surface may have become contaminated since the last cleaning

Receptacles

All buckets, pails, cans, bins, baskets and similar receptacles intended for re-use that have a reasonable likelihood of becoming contaminated with human blood or OPIM must be inspected and decontaminated regularly, and as soon as possible after known or visible contamination.
Protective Coverings

Disposable protective coverings (e.g., plastic wrap or aluminum foil used to cover equipment and work area surfaces), must be removed and replaced as soon as feasible after they become contaminated or at the end of the work day if they may have become contaminated during the day.

J. Minimization of Aerosol Generation

All procedures must be performed carefully in order to minimize the creation of aerosols. Biological safety cabinets or other physical containment devices (e.g., aerosol tight centrifuge tubes, sealed centrifuge rotors, etc.) must be used whenever possible while performing operations that might result in the aerosolization of human source materials that may harbor BBPs.

Aerosol-generating procedures include, but are not limited to: centrifugation, mixing, pipetting, blending, homogenization, opening pressurized containers, sonication, vortexing, flow cytometry, and needle/syringe manipulations.

K. Personal Protective Equipment

Appropriate Personal Protective Equipment (PPE) should be used by all research personnel. Supervisors are required to provide PPE to all personnel, at no cost to the at-risk worker. Appropriate PPE includes, but is not limited to, laboratory coats, gowns, aprons, scrubs, safety glasses, safety goggles, disposable gloves, surgical masks, and face shields.

Protective Eyewear and Masks

Protective eyewear, including safety glasses or goggles, is required during laboratory operations that have the potential for generating splashes or droplets. Wear masks in combination with eye protection whenever splashes, spray, or droplets of blood or OPIM may be generated; and when eye, nose, or mouth contamination is anticipated.
Attire and Lab Coats

Long pants and closed-toed, closed-heeled shoes are required at all times in the laboratory (i.e., no visible skin from the waist down). Liquid-resistant lab coats, gowns, smocks, or uniforms must be worn while manipulating specimens that contain human material or OPIM. This protective clothing must be removed and left in the laboratory before visiting public spaces such as a dining area or administrative offices.

Gloves

Gloves must be worn by all personnel engaged in activities that may involve hand contact with human materials. Change gloves whenever they become contaminated, glove integrity is compromised, or when otherwise necessary. Do not wash or reuse disposable gloves. Gloves should be removed before touching common equipment (e.g., door handles, computers, or phones) in order to prevent the spread of contamination.

L. Transportation on Campus

Specimens of human blood, or OPIM, must be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping. If samples are transported outside of the laboratory into public spaces the container must be lidded, leak-proof, puncture proof, composed of a nonporous material, labelled with the Universal Biohazard Symbol and contain enough absorbent material inside to collect the spilled specimen.

M. Shipping of Samples

Specimens of human blood or OPIM shipped off campus must be placed in a compliant container that is appropriately labeled per Department of Transportation (DOT) and International Air Transport Association (IATA) shipping standards. Hazardous materials shipping requires current training, or it can be facilitated by the University. To request shipping services for all hazardous materials, email a completed Hazardous Material Information Sheet to hazshipping@ucdavis.edu
EH&S Biosafety provides guidance to assist with the classification, packaging and transportation of your hazardous materials shipment. Containers for shipping specimens must meet all regulatory requirements. International shipping may require permits and authorization from a number of agencies including the Department of Commerce, United States Department of Agriculture (USDA) or Centers for Disease Control (CDC). Contact Biosafety Staff at (530) 752-1493 or biosafety@ucdavis.edu with questions regarding shipping biohazardous materials.

N. Medical Waste

Disposal of all regulated medical waste generated during work with potential BBP materials must be in accordance with the California Medical Waste Management Act (California Health & Safety Code, Chapter 6.1). Refer to the UC Davis Medical Waste Management Plan for acceptable medical waste practices and procedures on our campus.

O. Research involving HBV, HCV, and HIV

Research involving HBV, HCV, or HIV must be registered with the UC Davis Institutional Biosafety Committee prior to the start of work. All work must comply with the Bloodborne Pathogen Standard requirements listed in Appendix G.

P. BBP Spill Clean-up Procedures

Reference biological and biohazardous spill response EH&S Safety Net #127 for detailed instructions. All significant BBP spills outside of containment must be reported to the Biological Safety Office BEFORE clean-up, but AFTER necessary personal decontamination. During non-holiday, normal business hours (8 a.m. – 5 p.m., Monday through Friday), the Biosafety Office may be reached at (530) 752-1493. If the incident occurs after hours, on a holiday, or over the weekend; please call 911 dispatch and ask for assistance from EH&S 24/7 on-call personnel.

For manageable BBP spills:
1. Remove any contaminated clothing
2. Evacuate the area if appropriate (Wait 30 minutes for settling time if aerosols present)
3. Locate Spill Kit
4. Don appropriate PPE
5. If broken glass is involved, pick up large pieces with forceps or tongs and dispose in a hard-walled medical waste sharps container
6. Distribute paper towels around the periphery of the spill, moving towards the center
7. Spray or carefully pour 10% bleach or other approved disinfectant on the paper towels
8. Allow at least 30 minutes of contact time
9. Pick up the paper towels with large forceps or tongs and put them in biohazardous waste bags (avoid direct contact with contaminated towels, even with gloved hands)
10. Repeat steps 6-9 at least once
11. Clean and disinfect the forceps or tongs and any other non-disposable items before returning them to the spill kit.
12. Doff PPE
13. Seal and transport the waste collection bag to medical waste accumulation site
14. Report the spill to the supervisor and the Biological Safety Office
15. If an occupational exposure occurred during clean up, seek medical attention

Q. Prohibited Practices

- Shearing or breaking of contaminated needles and other contaminated sharps is prohibited.
- Contaminated sharps shall not be bent, recapped, or removed from devices prior to decontamination.
- Sharps that are contaminated with blood or OPIM shall not be stored or processed in a manner that requires workers to reach by hand into the containers where these sharps have been placed.
- Disposable sharps shall not be reused.
- Broken glassware which may be contaminated shall not be picked up directly with the hands and must be cleaned up using mechanical means, such as a brush and dust pan, tongs, or forceps.
- The contents of sharps containers shall not be accessed unless properly reprocessed or decontaminated.
- Sharps containers shall not be opened, emptied, or cleaned manually in any manner which would expose workers to the risk of sharps injury.
- Mouth pipetting/suctioning of blood or OPIM is strictly prohibited.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are 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.

### III. Medical Considerations

#### A. Hepatitis B Vaccination Offer/Declination

The hepatitis B vaccine and vaccination series is available to all research personnel who have the potential for an occupational exposure to human source materials. These vaccinations are available at no cost and are administered by Occupational Health Services (Davis), Student Health Services, and Employee Health Services Clinic (Sacramento).

The hepatitis B vaccination shall be made available to at-risk workers after they have received the proper training and within 10 working days of initial assignment to a position involving potential BBP exposure.
Exceptions to the vaccination policy may be granted if the at-risk worker:

a. Has previously received the complete hepatitis B vaccination series (documentation is required).

b. Is immune to hepatitis B as documented through antibody testing.

c. Cannot take the vaccine for medical reasons (documentation of contraindications is required).

d. Has signed a statement declining to accept the hepatitis B vaccination (Appendix C). If they initially decline the hepatitis B vaccination, but at a later date decide to accept the vaccination, the supervisor must make the hepatitis B vaccination available at that time.

If, at a future date, a routine booster dose(s) of hepatitis B vaccine is recommended by the U.S. Public Health Service, your employer will make the booster dose(s) available at no cost.

B. Post-Exposure Procedures

A post exposure evaluation and follow up will be made available for all employees who have had an exposure incident. These medical evaluations and procedures are available at no cost to the employee.

In the event of a suspected occupational exposure to BBPs research personnel must:

a. Remove contaminated PPE and clothing

b. Wash the site of exposure with soap and water for 15 minutes (five minute eye rinse with running water)

c. Immediately seek medical treatment and evaluation from one of the providers listed below. If after hours, contact the on-call Occupational Health Physician at (530) 797-6691:
<table>
<thead>
<tr>
<th>BBP Exposure Location</th>
<th>Telephone</th>
<th>Preferred Medical Treatment Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Business Hours (8am-5pm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Davis Campus</td>
<td>(530) 752-6051</td>
<td>Occupational Health Cowell Building</td>
</tr>
<tr>
<td>Sacramento Campus</td>
<td>(916) 734-3572</td>
<td>Employee Health Services, Cypress Building, Suite A 2221 Stockton Blvd, Sacramento, CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After hours, holidays, and weekends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Davis Campus</td>
<td>(530) 797-6691</td>
<td>Follow telephone guidance</td>
</tr>
<tr>
<td>Sacramento Campus</td>
<td>(916) 734-3377</td>
<td>Mercy Urgent Care 3000 Q St., Sacramento, CA</td>
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</table>

Volunteers that meet the criteria outlined in Volunteer Service Policy, PPM 380-08 are eligible for treatment at Occupational Health, as well as workers compensation via EFR.

*Non-Employees and Volunteers not covered by PPM 380-08* - Immediately proceed directly to your Primary Care Physician or covered urgent care center.

d. Employees must notify the employer as soon as possible to initiate reporting requirements (UC Davis Safety Service injury reporting procedures outlined here: [http://safetyservices.ucdavis.edu/article/injury-reporting-procedure](http://safetyservices.ucdavis.edu/article/injury-reporting-procedure)).

e. Following an exposure report, the employer will immediately make available to the employee a confidential medical evaluation and follow up (Contact either Occupational Health Services - Davis or Employee Health Services - Sacramento).

**This medical attention includes:**
- Documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred
- Identification and documentation of the source of exposure
If the exposed person does not consent to the confidential medical evaluation performed by Occupational Health Services, the employer will immediately arrange for the exposed employee to receive these services from a separate healthcare professional.

If the exposure is from a primary human source, an attempt will be made to contact the donor of the material. If successful and consent is given, the donor’s blood will be tested as soon as feasible in order to determine if HIV, HBV, or HCV is present. If the donor cannot be located or consent cannot be obtained, this must also be documented. When the source individual’s consent is not required by law, that individual’s blood, if available, will be tested and the results will be documented. If the source individual is already known to be infected with HIV, HBV, or HCV, this testing does not need to be performed.

Results of the source individual’s testing will be made available to the exposed employee. Applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual will be provided.

If an exposure is suspected, a blood sample will be drawn as soon as possible and tested. If the employee consents to baseline blood collection but does not consent to HIV serologic testing, the sample will be preserved for at least 90 days. If within 90 days of the exposure incident, they elect to have the baseline blood sample tested, testing will be done as soon as feasible.

A physician will work closely with the supervisor to evaluate and follow up with the exposed employee. The physician will be provided with a copy of the appropriate sections of this exposure-control plan and supporting government regulations to make them aware of all responsibilities. The employee or employer will also provide that physician with a description of the routes of exposure, circumstances under which exposure occurred, results of the source individual’s blood testing (if available), and all medical records relevant to the appropriate treatment, including HBV vaccination status.

The exposed employee will be provided with a written evaluation from the treating physician within 15 days of the completion of the physician’s evaluation.
That report will contain the following:

a. The physician’s opinion as to whether the hepatitis B vaccination was recommended for the employee and if the employee received the vaccination;  
b. The healthcare professional’s written opinion for post-exposure evaluation and follow-up shall be limited to the following:
   • That the employee has been informed of the results of the evaluation,
   • That the employee has been told about any medical conditions resulting from exposure to human blood or OPIM which require further evaluation or treatment.

c. All other findings or diagnoses will remain confidential and will not be included in the written report to the employer.

C. Medical Records

All medical records shall be confidential and will not be disclosed to any person except where regulation requires per CCR Title 8 Section 5193. UC Davis shall comply with the requirements for transfer of records in accordance with CCR Title 8 Section 3204. Each employee medical record will be maintained for a period of at least the duration of employment, plus 30 years, and will include the following information:

   • The employee’s full name and social security number.
   • A copy of the HBV vaccination record or declination form.
   • A written record of all medical evaluations, results, recommendations, and follow-ups.
   • The attending physician’s written evaluation.
   • Copies of all other information provided by the healthcare professional.

D. Sharps Injury Log

All sharps related bloodborne pathogen exposure injuries must be reported immediately by contacting an Occupational Health physician. Additionally an Employer’s First Report (EFR) of the incident must be completed online within the EFR system. UC Davis Biosafety will initiate a review of the injury and enter the information into a sharps injury
log. The sharps injury log is maintained for five years by the UC Davis EH&S Biosafety Program staff. Sharps injury reporting records will be made available as required by CCR Title 8 Section 5193.
Human Materials Subject to the BBP Standard

The CalOSHA Bloodborne Pathogens Standard is designed to eliminate or minimize occupation exposures to human body fluids including the following:

1. Semen, vaginal secretions, cerebrospinal fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva from dental procedures, any body fluid visibly contaminated with blood such as saliva or vomit, and all body fluids in situations such as emergency response calls where it is difficult or impossible to differentiate between body fluids.

2. Any unfixed tissue or organ other than intact skin from a living or dead human, including primary and established cell lines of human origin that have not been screened against all human bloodborne pathogens.

3. Any of the following, if known or reasonably likely to contain or be infected with HIV, HBV, or HCV:
   a. Cell, tissue, or organ cultures from humans or experimental animals
   b. Blood, organs, or other tissues from experimental animals or
   c. Cell culture medium or other solutions
Appendix B

At-Risk Worker Job Classification List with BBP Exposure Determination

Category 1: The following are biomedical research personnel position descriptions at UC Davis in which all workers’ job classifications have exposure:

**Laboratory Personnel**
- a. Postdoctoral Fellows
- b. Graduate Students
- c. Registered Undergraduate Student Employees
- d. Laboratory Safety Officers
- e. Principal Investigators
- f. Laboratory Managers
- g. Research Associates
- h. Technicians
- i. Staff Scientists
- j. Visiting Scholars
- k. Laboratory Volunteers

**Clinical Personnel**
- a. Phlebotomists

Category 2: The following are position descriptions at UC Davis in which some workers have occupational exposure:

1. Environmental Health and Safety staff
2. Research and Instructional Safety personnel
3. Department Safety Coordinators
Appendix C

Waiver of Hepatitis B Virus Vaccine

I understand that, due to my occupational exposure to human blood or OPIM, 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 OPIM and I want to be vaccinated with the hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Date

Employee’s printed name

Employee’s signature

Date

Employer representative’s printed name

Employer representative’s signature
Appendix D

Bloodborne Pathogen Training Requirements

The training program shall contain at a minimum the following elements:

1. Copy and Explanation of Standard.
   a. An accessible copy of the regulatory text of this Standard and an explanation of its contents.

2. Epidemiology and Symptoms.
   a. A general explanation of the epidemiology and symptoms of bloodborne diseases.

3. Modes of Transmission.
   a. An explanation of the modes of transmission of bloodborne pathogens.

   a. An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan.

5. Risk Identification.
   a. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and OPIM.

   a. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, administrative or work practice controls, and personal protective equipment.

7. Decontamination and Disposal.
   a. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.

8. Personal Protective Equipment.
   a. An explanation of the basis for selection of personal protective equipment.

a. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.

10. Emergency Information.
   a. Information on the appropriate actions to take and persons to contact in an emergency involving blood or OPIM.

11. Exposure Incident.
   a. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident, the medical follow-up that will be made available and the procedure for recording the incident on the Sharps Injury Log.

   a. Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident.

   a. An explanation of the signs and labels and/or color coding required by the BBP standard.

   a. An opportunity for interactive questions and answers with the person conducting the training session.
Appendix E

BBP-ECP Regulatory Expectations

Title 8 CCR 5193 requires the following to be maintained by the ECP:

1. A list of all job classifications in which all employees in those job classifications have occupational exposure (see Appendix B).
2. Develop and maintain the Bloodborne Pathogen Program/Exposure Control Plan. A copy of the plan is available on a UC Davis Biosafety web page.
3. Provide exposure determination criteria for bloodborne pathogens for specific job categories or classifications.
5. Update the plan upon regulatory changes or as necessary.
6. A list of job classifications in which some employees have occupational exposure; and
7. 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 in job classifications in accordance with the provisions of subsection (c)(3)(A)2. of 8 CCR 5193.

The ECP must be in writing and shall contain the following:

a. The exposure determination as seen in Appendix F and described in the lab specific Bloodborne Pathogen Exposure Control fact sheet.

b. Schedule and Method of Implementation for the following:
   - Methods of compliance
   - HIV, HBV, and HCV Research Laboratories and Production Facilities (see Appendix G)
   - Hepatitis B vaccinations and post-exposure evaluation and follow-up
   - Communication of hazards to employees (signs, labels, BBP fact sheet)
   - Record keeping
• The procedure for evaluation of exposure incidents
• The procedure for gathering the information required by the Sharps Injury Log
• The procedure for the periodic determination of the frequency of use of the types and brands of sharps involved in the exposure incidents documented in the Sharps Injury Log
• The procedure for identifying currently available engineering controls, and selecting such controls, where appropriate, for the procedures performed by employees in their respective work areas or departments
• The procedure for obtaining the active involvement of employees in reviewing and updating the exposure control plan with respect to the procedures performed by employees in their respective work areas or departments.
Appendix F

Criteria for Determining the Risk of Occupational Exposure to Hepatitis B Virus or other Bloodborne Pathogens

If the answer to any of the following questions is ‘yes,’ the lab worker is considered to be at occupational risk of contracting HBV or other bloodborne pathogens.

**Does the person?**

a) Handle human blood products (e.g., whole blood, plasma, serum, platelets, or white cells.

b) Handle primary and established cell lines of human origin that have not been screened against all human bloodborne pathogens.

c) Handle human body fluids such as semen, cerebrospinal fluid, vaginal secretions, joint fluid, pleural fluid, peritoneal fluid, pericardial fluid, or amniotic fluid.

d) Handle unfixed human tissue or organs (tissues and organs soaked in chemical preservatives such as alcohol or formaldehyde are “fixed”).

e) Handle blood, blood products, body fluids or unfixed tissues or organs of animals infected with the Hepatitis B Virus or other bloodborne pathogens.

f) Perform tasks which may potentially result in the lab worker’s exposed skin or mucous membranes coming in contact with human or animal blood, body fluids, organs, or tissues which are infected with the Hepatitis B Virus or other bloodborne pathogens.

g) Work with Hepatitis B virus or other bloodborne pathogens or with preparations, such as liquid solutions or powders containing the Hepatitis B virus.

h) Handle sharp instruments such as knives, needles, scalpels, or scissors, which have been used by others working with human blood, or other potentially infectious materials to include unfixed human organs, tissues or body fluids OR used by others working with similar body parts and fluids from animals infected with the Hepatitis B Virus or other bloodborne pathogens.
i) Work with animals, such as primates, that are infected with Hepatitis B or other bloodborne pathogens OR perform tasks where such animals are housed.

j) Enter areas where other individuals work with human or animal blood, body fluid, tissues or organs which are infected with the Hepatitis B Virus or other bloodborne pathogens AND perform tasks where any of the aforementioned body substances may come into contact with the laboratory worker's unbroken skin, broken skin, or mucous membranes.

k) Handle lentiviral vectors (HIV-1), human cell lines known to harbor and propagate HIV or human cells likely to support the replication of HIV and which have not been tested or verified to be free of HIV.
Appendix G

HIV, HBV, HCV in Research Laboratories

This subsection applies (in addition to the other requirements in this document) to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV, HBV, and HCV.

1. Special practices:
   a. Laboratory doors shall be kept closed when work involving HIV, HBV or HCV is in progress
   b. Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leak-proof, labeled or color-coded container that is closed before being removed from the work area.
   c. Access to the work area shall be limited to authorized persons. Written policies and procedures shall be established whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements, and who comply with all entry and exit procedures shall be allowed to enter the work areas and animal rooms.
   d. When OPIM or infected animals are present in the work area or containment module, a hazard warning sign incorporating the universal biohazard symbol shall be posted on all access doors.
   e. All activities involving OPIM shall be conducted in biological safety cabinets or other physical-containment devices within the containment space. No work with these OPIM shall be conducted on an open bench.
   f. Laboratory coats, gowns, scrubs, uniforms, or other appropriate protective clothing shall be used in the work area and animal rooms. Protective clothing shall not be worn outside of the work area and shall be decontaminated before being laundered.
   g. Special care shall be taken to avoid contact with OPIM. Gloves shall be worn when handling infected animals and when making hand contact with OPIM is anticipated.
h. Before disposal in a public landfill, all waste from work areas and from animals rooms shall be handled as medical waste, either incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.

i. Vacuum lines shall be protected with liquid disinfectant traps and HEPA filters or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary.

j. Hypodermic needles and syringes shall be used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe-needle units (i.e., the needle is integral to the syringe) shall be used when handling needles and syringes. A needle shall not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe shall be promptly placed in a puncture-resistant medical waste sharps container for disposal.

k. All spills shall be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials.

l. A spill or accident that results in an exposure incident shall be immediately reported to the laboratory director, principal investigator or other responsible person.

m. Written biosafety procedures shall be prepared and adopted into the accompanying lab-specific fact sheet. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

n. Each laboratory shall contain a facility for hand washing and an eye wash facility which is readily available within the work area. An autoclave for decontamination of regulated waste shall be available.

2. Containment requirements
   a. Certified biological safety cabinets (Class II, or III) or other appropriate combinations of personal protection or physical containment devices, such as
special PPE, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals, shall be used for all activities with OPIM that pose a threat of exposure to droplets, splashes, spills, or aerosols.

Biological safety cabinets must be certified by the employer that they meet manufacturers' specifications when installed, whenever they are moved, and at least annually.