



UNIVERSITY *of* WEST FLORIDA

UWF

Blood-Borne
Pathogen Exposure
Control Plan

2019

Revised January 2019

UWF Department of Environmental
Health and Safety

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Introduction

Employees who work with blood products or body fluids, and employees who may come in contact with blood or body fluids, as a condition of their employment, have the potential to contract bloodborne diseases. The UWF Bloodborne Pathogen (**BBP**) Program has been developed to reduce the potential for contact with blood and body fluids and to comply with the adopted federal and state BBP standards.

These mandatory guidelines cover all University employees (faculty, staff, OPS staff, OPS students and volunteers) who, as a condition of their employment, can be expected to come in contact with blood, body fluids, or human tissue. Specific categories within the University include laboratory workers handling human blood or blood products and those who have CPR/First Aid duties as a condition of their employment (e.g. first responders, law enforcement, athletic trainers). Employees who do not have occupational CPR/First Aid responsibilities or who may use CPR/First Aid as a “good Samaritan” effort only, are not covered under the program. However, should an exposure event occur they will be offered the Hep B vaccine and other prophylaxis as needed within 24 hours of the exposure.

Authority

Code of Federal Regulations (CFR) 1910. 1030 (OSHA standard); Florida Administrative Code (FAC) 381-20.003(1)(c); (FAC) 17-712; (FAC) 10D-104; (FAC) 64E-6.

Responsibility

Department chairpersons and/or **Directors** are responsible to ensure that individuals within departments/divisions are in compliance with the BBP standard.

Faculty members, principal investigators or **laboratory supervisors** are responsible to ensure that the requirements and procedures outlined in the Exposure Control Plan that are appropriate to the individual work areas are carried out.

Employees are responsible for reporting exposures to their supervisors and complying with all components of the Exposure Control Plan.

Environmental Health & Safety (EH&S) is responsible for reviewing and overseeing the Exposure Control Plan. This includes coordinating compliance efforts for UWF, acting as a consultant for departments regarding implementation and enforcement, evaluating work practices and personal protective equipment, providing training/educational materials to departments, tracking employee training, and tracking medical monitoring.

Definitions

Blood refers to human blood, human blood components, and products made from human blood.

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

Decontamination is the use of physical or chemical means to remove, inactivate or destroy BBPs on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Engineering Controls are those controls (e.g. sharps disposal containers, self-sheathing needles) that isolate or remove the BBPs hazard from the workplace.

Exposure Incident is 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.

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

Other Potentially Infectious Materials (OPIM) other than human blood are potentially infectious for BBPs. These include 1) the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; 2) any unfixed tissue or organ (other than intact skin) from a human (living or dead); 3) HIV or HBV-containing cell or tissue cultures, organ cultures, culture medium or other solutions; and 4) blood, organs, or other tissues from experimental animals infected with HIV or HBV.

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

Personal Protective Equipment (PPE) is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g. uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be PPE.

Universal Precautions are an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other BBPs.

Work Practice Controls are those practices that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles).

Departmental Procedures

Work with blood products mandates the use of "Universal Precautions", that is, the assumption that all blood, body fluids, and tissue is infectious and thereby requiring that appropriate engineering and work practices are used.

Each department/division with employees who are included in these guidelines must develop a written "**Exposure Control Plan**" detailing infection control methods, personal protection equipment, specialized equipment and materials needed, disposal or disinfection of contaminated equipment, disposal of sharps or other infectious wastes, etc. Each department shall maintain a list of each employee, job classification, and procedures/tasks where exposure may occur. A copy of the list of employees shall be provided to the Office of EH&S. The Exposure Control Plan should be as concise as

possible, but thorough enough to cover the specific needs of each type of exposure potential. One copy of the plan should be maintained in a department file and one copy forwarded to the EH&S Office for review and approval. The EH&S Office will be available to assist any department in developing this plan as necessary. The plan must be reviewed annually and revised as necessary.

Each department/division must purchase, provide, and maintain PPE necessary to provide protection for each employee. PPE may include, but is not limited to, latex, nitrile or vinyl gloves, goggles, splash shields, lab coats, mouthpiece, and resuscitation bags.

The University must provide laundry facilities or other cleaning provisions for clothing that becomes contaminated in the course of duties. If laundry is provided to a commercial facility, that facility must be informed that the clothing is contaminated with blood and of the appropriate handling procedures.

Training

Scope

All employees with reasonably anticipated exposure to BBPs shall receive annual training regarding the prevention and control of BBPs.

- New employees with reasonably anticipated exposure to BBPs shall receive training upon assignment.
- Additional training shall be provided to employees as their job duties change.

Record-keeping

The dates of the training sessions, content outline, and attendees list shall be maintained by EH&S. Departmental compliance with the training requirement will be monitored by EH&S.

Content

The training program shall contain the following elements:

1. An accessible copy of the BBP standard.
2. A general explanation of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of modes of transmission of BBPs.
4. A review of the exposure control plan.
5. An explanation of the appropriate methods for recognizing procedures and other activities that may involve exposure to blood and OPIM.
6. An explanation of the use and limitations of practices that will prevent or reduce the likelihood of exposure.
7. Information on the types, proper use, location, removal, handling, decontamination, and/or disposal of PPE.
8. Information on the hepatitis B vaccine, including information on its efficacy, safety, and the benefits of being protected against hepatitis B.
9. An explanation of the post-exposure evaluation.
10. Information on the management of emergencies associated with BBPs.

11. Review of signs, labeling, and containment procedures associated with prevention and control of BBPs.
12. Handling, use and disposal of BBPs, syringes, and biomedical wastes.

Hepatitis B Vaccination

The Hepatitis B Vaccine Series or booster if required or recommended by the physician shall be offered at no cost to employees identified as at-risk for occupational exposure to BBPs within ten working days of assignment via a University contracted licensed physician/health care professional.

Vaccine refusal shall be documented by the employee signing the Hepatitis B Vaccine Declination statement. The statement shall be maintained in the employee's human resources file, departmental file and EH&S file. Refusal of the vaccine is not final and the employee may request vaccination at any future time.

Medical Record-keeping

The University shall maintain medical records, as specified in the Standard, for the term of employment plus 30 years. Medical records shall be confidential and made available to the following people: the employee, anyone with consent of the employee.

Exposure Prevention

Universal Precautions

Universal Precautions shall be practiced to prevent employee exposure to blood and OPIM.

Engineering and Work Practice Controls

Engineering and work practice controls shall be used to eliminate or minimize employee exposure. PPE shall be used when occupational exposure may occur even though the engineering and work practice controls are in place.

Engineering controls shall be examined and maintained or replaced on a regular schedule.

1. Hand washing facilities shall be provided and maintained with adequate supplies.
2. Contaminated sharps and needles shall be disposed of in puncture resistant, labeled, leak-proof containers.
3. All specimens of blood or OPIM shall be placed in closable, leak-proof containers prior to transport. If contamination of the outside of the primary container is likely, then a second container such as a plastic bag should be placed over the primary container to prevent contamination and/or leakage during handling, storage or transport.
4. Eye wash stations shall be easily accessible and functional.

Work practice controls include general and site specific safety practices.

Examples include:

1. Hand washing shall be performed after removal of gloves and after contact with blood or OPIM.

2. Employees who have exudative lesions or weeping dermatitis shall refrain from handling blood or OPIM until the condition resolves.
3. Contaminated sharps and needles shall not be bent, recapped, or sheared.
4. Eating, drinking, smoking, handling contact lenses, and applying cosmetics are prohibited in work areas where there is a potential for blood or OPIM exposure.
5. Food and drink are prohibited in work areas where there is a potential for blood or OPIM exposure.
6. All procedures involving blood and OPIM shall be performed in such a manner to minimize splashing, spraying, spattering, generation of droplets, or aerosolization of these substances.
7. Mouth pipetting and suctioning are not allowed. Mechanical pipetting devices are used.

Personal Protective Equipment (PPE)

PPE, including gloves, gowns, laboratory coats, face shields, face masks, eye protection, foot coverings and other items shall be provided to employees, as appropriate, to prevent exposure to blood or OPIM. These items shall be worn selectively, as needed for the task involved. PPE shall be considered "appropriate" if it does not permit the passage of blood or OPIM through to an employee's skin, mucous membranes or street clothes.

Gloves

Disposable use gloves shall be worn when it is reasonably anticipated that the employee will have hand contact with blood or OPIM. The gloves shall be replaced when worn, torn or contaminated. They shall not be washed or decontaminated for re-use.

- Utility gloves may be decontaminated and re-used if not punctured.
- Latex free gloves will be provided as necessary.

Masks, eye protection, face shields

Masks in combination with eye protection devices (with side shields) or a chin-length face shield with a mask shall be worn when there is a reasonably anticipated chance of exposure to blood or OPIM through splashes, sprays, spatters or droplets.

Gowns, coats, aprons and other protective coverings

Protective coverings shall be worn depending upon the task and the degree of exposure anticipated.

Housekeeping

Cleaning, Disinfection, and Sterilization Practices

All environmental and work surfaces shall be properly cleaned and disinfected on a regular schedule and after contamination with blood or OPIM (see procedures).

1. Appropriate PPE shall be worn to clean and disinfect blood and OPIM spills.
2. Cleaning, disinfection, and sterilization of equipment shall be performed, as appropriate, after contamination with blood and OPIM.
3. Disinfectants must be EPA listed "tuberculocidal."

Waste

1. Gloves shall be worn by employees who have direct contact with contaminated waste.
2. All biohazardous and/or biomedical waste designated for removal and incineration off-site shall be labeled according to the US DOT rule and Florida statutes.
3. Each work area shall follow UWF policy for the management and disposal of biohazardous waste.

All infectious wastes shall be managed according to UWF Biological Waste Disposal Policy.

Labels

Warning labels as specified by the BBP standard shall be used. Red bags or red containers may be substituted for labels.

1. The labels shall include the biohazard symbol and be orange or orange red.
2. Warning labels shall be placed on containers of regulated waste, refrigerators and freezers containing blood or OPIM. Other containers used to store, transport or ship blood and OPIM shall also be labeled.
3. Warning labels should be affixed to contaminated equipment and state which portions of the equipment are contaminated.

Exposure Management

Exposure management including post exposure prophylaxis shall be done according to the UWF guidelines, in compliance with OSHA standard 1910.1030 and Florida statutes.

UWF employees who have been determined to be at risk shall receive education regarding the management of exposures to BBPs that shall include the following:

1. Wound and skin exposures shall be immediately and thoroughly washed with soap and water.
2. Eye and mucous membrane exposures shall be rinsed in running water for 15 minutes.
3. Exposures shall be reported to the supervisor and EH&S.
4. The health care provider shall provide a confidential medical evaluation and follow-up of all exposure events to employees. The follow-up shall include these components:
 - a) The route and circumstances of the exposure shall be documented.
 - b) The identification of the source individual shall be documented unless it is unfeasible or prohibited by state law.
 - c) The source individual shall be tested for HIV, HBV, or HCV according to Florida Statutes. Re-testing the source individual is not necessary when that individual is known to be positive for HIV, HBV, or HCV. Those results shall be disclosed to the exposed employee according to Florida statutes.
 - d) Serologic testing of the exposed employee shall be offered within the provisions of Florida statutes for HIV. If the employee consents to baseline blood collection, but chooses not to be tested for HIV at that time, the sample shall be

held for 90 days after the incident, enabling the employee to have HIV testing within the 90 days.

5. The evaluation and follow-up protocols are based upon U.S. Public Health Service recommendations. A written follow-up letter shall be provided to the exposed employee within 15 days of the completion of the evaluation. The letter shall document:
 - a) That the employee has been informed of the results of the evaluation.
 - b) That the employee has been informed about any medical conditions resulting from exposure to blood or OPIM which require any further evaluations or treatment.
 - c) The hepatitis B immunization status and the need for immunization.
 - d) The letter shall not include any confidential material.
 - e) The medical personnel responsible for evaluation of exposures shall be knowledgeable about the OSHA BBP standard 1910.1030 and relevant Florida Statutes. The medical personnel shall provide the results of the source individual's blood testing and the immunization status to the medical evaluator. A description of the exposed employee's duties as they relate to the incident shall also be given to the evaluator.

HIV and HBV Research and/or Production Laboratories

There are special requirements for research laboratories and production facilities engaged in the culture, production, concentration, experimentation and manipulation of HIV and HBV. These requirements apply in addition to the other requirements of the BBP rule. These requirements DO NOT apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissue or organs.

Assessment: Monitoring, Review and Update

Monitoring

1. Each department chairperson or director shall be responsible for monitoring his or her department's or division's compliance with the BBP standard.
2. EH&S shall assist departments in monitoring compliance with the BBP standard.

Review and Update

EH&S shall review and assess the Exposure Control Plan annually. Input from the departments and from campus-wide monitoring will be used to update this plan as needed. This review must include changes in the technologies that reduce or eliminate exposures to BBPs and the consideration and implementation of available and effective safer medical devices designed to eliminate or minimize occupation exposures into use in the workplace.

Universal Precautions Policy

According to the concept of Universal Precautions, all human blood, human blood components, products made from human blood and certain other materials are treated and handled as if known to be infectious for HIV, HBV and other BBPs.

The OPIM which require Universal Precautions include 1) the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid,

pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; 2) any unfixed tissue or organ (other than intact skin) from a human (living or dead); 3) HIV-containing cell or tissue cultures, organ cultures and HIV or HBV-containing culture medium or other solutions; and 4) blood, organs or other tissues from experimental animals infected with HIV or HBV.

The following shall be observed:

PPE shall be used to prevent skin and mucous membrane contact with blood and OPIM. These may include the use of gloves, masks, protective eyewear or face shields and gowns or aprons, as appropriate for the task.

Hands and other skin surfaces shall be washed immediately after contact with blood or OPIM. Hands shall be washed each time gloves are removed.

Sheathing safety syringes or needle-less systems will be used when possible. All sharps (needles, scalpels and razor blades) shall be disposed of in labeled, leak-proof, puncture-proof sharps containers. Needles shall not be bent, sheared or recapped. Sharps containers shall be available in the area where sharps are being used.

Employees who have exudative lesions or weeping dermatitis shall refrain from handling blood or OPIM until the condition resolves.

Biological Safety Cabinets (BSC) are required for procedures (vortexing, grinding, blending etc.) that may generate an aerosol hazard.

Disinfection & Sterilization Procedures

Blood spills

All blood and OPIM spills must be decontaminated with a freshly prepared 1:10 dilution of household chlorine bleach or other properly-prepared, EPA-registered tuberculocidal disinfectant.

Disinfection and cleaning

Surfaces contaminated with blood or OPIM should be cleaned using a freshly prepared 1:10 dilution of household chlorine bleach solution that is prepared at least daily. The contaminated area should be flooded with the bleach solution and then cleaned up using paper towels. Ten minutes of exposure is required for disinfection. Gloves should be worn during the clean-up procedures. Chlorine bleach can corrode some items and surfaces; items treated with chlorine should be rinsed thoroughly to remove chlorine residue.

Work surfaces, biosafety cabinets, and other laboratory equipment may be cleaned and disinfected with a freshly prepared 1:10 dilution of household chlorine bleach. Other EPA approved disinfectants may be used for routine cleaning and disinfection if they are labeled "tuberculocidal."

If you have questions about a specific item or about the efficacy of a specific disinfectant, please call the EH&S Office for assistance at 474-2177.

Sterilization

Objects to be sterilized should first be thoroughly cleaned to remove blood, tissue, food, and other organic residue.

Steam sterilization is the best way to achieve inactivation of biological agents. If the item may be damaged by heat, pressure, or moisture, or if it is otherwise not amenable to steam sterilization, please call the EH&S Office 474-2177.

University of West Florida Biological Waste Disposal Policy

This policy is intended to provide guidance and insure compliance with NIH/CDC guidelines, the State of Florida Administrative Code 64E-6, and restrictions of the local County landfill.

Each department/division must provide and maintain equipment and supplies necessary to adequately and safely maintain infectious materials and waste materials. This equipment may include labels, signs, sharp containers, biohazard bags and containers, disinfecting solutions, hand washing facilities, etc. if blood, other body fluids, or infectious wastes are stored, they must be stored in a secure and dedicated storage container labeled as specified in FAC 10D-104.

All infectious wastes are temporarily stored, transported, and disposed in compliance with Florida Department of Environmental Protection (DEP) and Florida Department of Health (DOH) rules (FAC 17-712 and FAC 10D-104).

Biological Waste Segregation and Handling

The generator must segregate biological waste from other types of waste at the point of origin into the following categories:

1. **Infectious, Potentially Infectious, or R-DNA Biological Waste**

- a) any material containing or contaminated with **human pathogens**
- b) any material containing or contaminated with **animal pathogens**
- c) any material containing or contaminated with **plant pathogens**
- d) any material containing or contaminated with **recombinant DNA**
- e) laboratory and clinical wastes containing **human or primate blood, blood products, tissue, and OPIM** including:
 - i) absorbent materials contaminated with blood, blood products, or OPIM
 - ii) disposable devices that have been contaminated with blood, body fluids or OPIM

Laboratory waste containing infectious, potentially infectious, or rDNA must be inactivated prior to leaving the facility. The preferred method is steam sterilization (autoclaving), although incineration or chemical inactivation (e.g. treatment with household bleach) may be appropriate in some cases.

- Storage of all non-inactivated waste in this category is restricted to within the generating laboratory. Infectious or pathogenic waste must be held in a closed/covered biowaste container and may not be stored longer than 24 hours prior to inactivation.
- Biological waste containers and bags for material that is infectious/potentially infectious to humans must be labeled with the biohazard symbol.
- Filled or partially filled biological waste containers and boxes should not be held for more than 30 days.

2. Non-infectious Biological Waste

This category includes the following

- **Used culture ware and molecular biology labware** (tissue culture dishes and flasks, petri dishes, centrifuge tubes, test tubes, pipettes, vials, etc.) from clinical or biomedical labs that is **NOT contaminated** with any of the biological wastes listed in category 1 above.
- **Gloves used in clinical or biomedical labs** that are **NOT contaminated** with any of the biological wastes listed in category 1 above.
- **Disposable PPE used in clinical or biomedical labs** that is **NOT** contaminated with any of the biological wastes listed in category 1 above.
- Unused medical devices.
- Items **contaminated with blood from animals** not known to, or expected to, contain pathogens.

The material should be placed in the red bag-lined cardboard biological/biomedical waste box.

This material does not require inactivation prior to leaving the facility. Note that chemically contaminated material (i.e. DNA extraction tubes contaminated with phenol/chloroform, specimen cups containing formalin, chemically contaminated gloves, etc.) must be handled as chemical waste.

3. Sharps

Sharps are instruments that are *intended to cut or penetrate skin* and include **metal** lancets, scalpel blades, needles, or syringe/needle combinations. **These must be placed in red, hard plastic sharps boxes**, even if unused. If these sharps are contaminated with infectious, potentially infectious, or rDNA materials, the sharps box must be autoclaved before disposal.

- Close the sharps box when it is $\frac{3}{4}$ full. Do not store closed sharps boxes for more than 30 days. Sharps boxes are placed into the red bag-lined cardboard biological waste box for disposal.
- Biological waste items in category 1 and 2 above *that can cut, but are not intended to do so*, should be disposed of in a manner that prevents harm; a bag does not provide adequate protection. Examples of such materials include fragile glass, glass slides and cover slips, razor blades, pipettes and pipette tips.

- You may use a sharps box for these items. Boxed/sleeved and bagged items containing infectious, potentially infectious, or r-DNA material must be inactivated before disposal.

4. **Mixed radioactive/biological waste**

The infectious, potentially infectious, or r-DNA component(s) of mixed radioactive/biohazardous waste shall be inactivated (if possible) prior to its release to Radiation Safety Services for disposal as radioactive waste. Please check with the Radiation Safety Officer (857-6221) regarding the best method of inactivation.

5. **Mixed chemical/biological waste**

The infectious, potentially infectious, or r-DNA component(s) of mixed chemical/biohazardous waste shall be inactivated (if possible) prior to turning it over to EH&S Hazardous Materials Management for chemical disposal. Precautions should be taken to prevent the generation and release of toxic chemicals during the inactivation process. In general, autoclaving is not recommended. Please contact the EH&S for guidance.

Chemical waste must be segregated, stored, labeled, and handled per the requirements outlined in the Chemical Waste Management Guide

6. **Animal Carcasses and Other Animal Material**

No animal carcasses or tissue pieces shall be disposed of as regular trash. Animal carcasses and other animal material that may contain infectious animal or human pathogens require containment (bags, sealed containers labeled with the biohazard symbol). The disposal of preserved (formalin, formaldehyde, Carosafe, Wardsafe, etc.) animal carcasses, other animal materials and tissue shall be disposed of as chemical waste.

Packaging and Labeling Biological Waste

Use the following materials to package biological waste.

1. **Corrugated biological/biomedical waste cardboard boxes or hard plastic biological/biomedical waste boxes**

Sturdy, pre-printed cardboard biowaste boxes displaying the biohazard sign are used as the terminal receptacle. Do not overfill; boxes must weigh less than 45 lb. Tape all seams.

- A temporary storage area for infectious wastes has been designated in Building 58/Room 124. Wastes must be brought to this area in appropriate red bags or sharp containers.
- Prior arrangements shall be made with the Laboratory Manager before wastes are delivered.

2. **Biohazard bags – used for the initial collection of certain biological wastes**

All biohazard bags must meet impact resistance (165 grams), tearing resistance (480 grams), and heavy metal concentration (<100 PPM total of lead, mercury, chromium and cadmium) requirements. Documentation from the manufacturer regarding these requirements must be available.

- Do not put liquids into the bags. Label the biohazard bag with the date put in use, generator's (PI/area supervisor) name, lab location (room number) and phone number.
- Red biohazard bags are placed in a red bag-lined biowaste box for disposal.
- The generator must order and supply biohazard bags (e.g. Fisher Scientific #01-828E autoclavable red bags for the 30 gallon waste boxes).

3. **Sharps Boxes**

Closed sharps boxes are labeled with the date closed, generator's (PI/area supervisor) name, lab location (room number), UWF, UWF address and phone number, and then put into a biomedical/biological waste box for disposal.

- Sharps boxes are available for Biology and Chemistry teaching labs in the scientific store room B58/124, they can be ordered from Fisher Scientific or other lab supply vendors.

Transport

Transport biohazardous waste outside of the laboratory in a closed, leak-proof bag or container; bags must be contained in a leak proof tray.

- Do not leave inactivated waste unattended.
- Laboratory staff needing to transport properly packaged and labeled biowaste boxes to a secure storage/pick up area must protect the boxes from the weather and not leave the boxes unattended.

Training

All employees who handle biological waste shall be trained regarding the proper segregation, handling, packaging, labeling, storage, and treatment of biological waste. Refresher training is required annually.

- Training may be accomplished through the UWF Bloodborne Pathogen Training Program. For assistance, please call the EH&S Office.
- According to Florida Statute (Ch. 64E-16 F.A.C.), records of the training session shall be maintained for each employee, along with an outline of the training program.

Recommendations for the Care of UWF Employees Potentially Exposed to HBV, HCV, or HIV

Exposure prevention remains the primary strategy for reducing occupational BBP infections; however, occupational exposures will continue to occur. Health-care organizations should make available to their personnel a system that includes written protocols for prompt reporting, evaluation, counseling, treatment, and follow-up of occupational exposures that might place HCP at risk for acquiring a bloodborne infection. HCP should be educated concerning the risk for and prevention of bloodborne infections, including the need to be vaccinated against hepatitis B.

Employers are required to establish exposure-control plans that include post exposure follow-up for their employees and to comply with incident reporting requirements mandated by the 1992 OSHA BBP standard (2). Access to clinicians who can provide post exposure care should be available during all working hours, including nights and weekends. HBIG, hepatitis B vaccine, and antiretroviral agents for HIV PEP should be

available for timely administration (i.e., either by providing access on-site or by creating linkages with other facilities or providers to make them available off-site). Persons responsible for providing post exposure management should be familiar with evaluation and treatment protocols and the facility's plans for accessing HBIG, hepatitis B vaccine, and antiretroviral drugs for HIV PEP.

HCP should be educated to report occupational exposures immediately after they occur, particularly because HBIG, hepatitis B vaccine, and HIV PEP are most likely to be effective if administered as soon after the exposure as possible. HCP who are at risk for occupational exposure to BBPs should be familiarized with the principles of post exposure management as part of job orientation and ongoing job training.

Hepatitis B Vaccination

Any person who performs tasks involving contact with blood, blood-contaminated body fluids, other body fluids, or sharps should be vaccinated against hepatitis B. Pre-vaccination serologic screening for previous infection is not indicated for persons being vaccinated because of occupational risk, unless the hospital or health-care organization considers screening cost-effective.

Hepatitis B vaccine should always be administered by the intramuscular route in the deltoid muscle with a needle 1--1.5 inches long. Hepatitis B vaccine can be administered at the same time as other vaccines with no interference with antibody response to the other vaccines. If the vaccination series is interrupted after the first dose, the second dose should be administered as soon as possible. The second and third doses should be separated by an interval of at least 2 months. If only the third dose is delayed, it should be administered when convenient. HCP who have contact with patients or blood and are at ongoing risk for percutaneous injuries should be tested 1--2 months after completion of the 3-dose vaccination series for anti-HBs. Persons who do not respond to the primary vaccine series (i.e., anti-HBs <10 mIU/mL) should complete a second 3-dose vaccine series or be evaluated to determine if they are HBsAg-positive.

Revaccinated persons should be retested at the completion of the second vaccine series. Persons who do not respond to an initial 3-dose vaccine series have a 30%--50% chance of responding to a second 3-dose series. Persons who prove to be HBsAg-positive should be counseled regarding how to prevent HBV transmission to others and regarding the need for medical evaluation. Non-responders to vaccination who are HBsAg-negative should be considered susceptible to HBV infection and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood. Booster doses of hepatitis B vaccine are not necessary, and periodic serologic testing to monitor antibody concentrations after completion of the vaccine series is not recommended. Any blood or body fluid exposure sustained by an unvaccinated, susceptible person should lead to the initiation of the hepatitis B vaccine series.

Management of Exposures to HIV

Clinical Evaluation and Baseline Testing of Exposed HCP

HCP exposed to HIV should be evaluated within hours (rather than days) after their exposure and should be tested for HIV at baseline (i.e., to establish infection status at the time of exposure). If the source person is seronegative for HIV, baseline testing or further follow-up of the exposed person normally is not necessary. Serologic testing should be made available to all HCP who are concerned that they might have been occupationally infected with HIV. For purposes of considering HIV PEP, the evaluation also should include information about medications the exposed person might be taking and any current or underlying medical conditions or circumstances (i.e. pregnancy, breast feeding, or renal or hepatic disease) that might influence drug selection.

PEP for HIV

The following recommendations ([Table 4](#) and [Table 5](#)) apply to situations when a person has been exposed to a source person with HIV infection or when information suggests the likelihood that the source person is HIV-infected. These recommendations are based on the risk for HIV infection after different types of exposure and on limited data regarding efficacy and toxicity of PEP. Because most occupational HIV exposures do not result in the transmission of HIV, potential toxicity must be carefully considered when prescribing PEP. To assist with the initial management of an HIV exposure, health-care facilities should have drugs for an initial PEP regimen selected and available for use. When possible, these recommendations should be implemented in consultation with persons who have expertise in antiretroviral therapy and HIV transmission.

Timing and Duration of PEP

PEP should be initiated as soon as possible. Animal studies have demonstrated the importance of starting PEP soon after an exposure. If questions exist about which antiretroviral drugs to use or whether to use a basic or expanded regimen, starting the basic regimen immediately rather than delaying PEP administration is probably better. Although animal studies suggest that PEP probably is substantially less effective when started more than 24--36 hours post exposure, the interval after which no benefit is gained from PEP for humans is undefined. Therefore, if appropriate for the exposure, PEP should be started even when the interval since exposure exceeds 36 hours. Initiating therapy after a longer interval (e.g., 1 week) might be considered for exposures that represent an increased risk for transmission. The optimal duration of PEP is unknown. Because 4 weeks of ZDV appeared protective in occupational and animal studies (100,123), PEP probably should be administered for 4 weeks, if tolerated.

BOX 1. Recommendations for the contents of the occupational exposure report

- date and time of exposure;
- details of the procedure being performed, including where and how the exposure occurred; if related to a sharp device, the type and brand of device and how and when in the course of handling the device the exposure occurred;
- details of the exposure, including the type and amount of fluid or material and the severity of the exposure (e.g., for a percutaneous exposure, depth of injury and whether fluid was injected; for a skin or mucous membrane exposure, the estimated volume of material and the condition of the skin [e.g., chapped, abraded, intact]);
- details about the exposure source (e.g., whether the source material contained HBV, HCV, or HIV; if the source is HIV-infected, the stage of disease, history of antiretroviral therapy, viral load, and antiretroviral resistance information, if known);
- details about the exposed person (e.g., hepatitis B vaccination and vaccine-response status); and
- details about counseling, postexposure management, and follow-up.

BOX 2. Factors to consider in assessing the need for follow-up of occupational exposures

- **Type of exposure**
 - Percutaneous injury
 - Mucous membrane exposure
 - Nonintact skin exposure
 - Bites resulting in blood exposure to either person involved
- **Type and amount of fluid/tissue**
 - Blood
 - Fluids containing blood
 - Potentially infectious fluid or tissue (semen; vaginal secretions; and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids)
 - Direct contact with concentrated virus
- **Infectious status of source**
 - Presence of HBsAg
 - Presence of HCV antibody
 - Presence of HIV antibody
- **Susceptibility of exposed person**
 - Hepatitis B vaccine and vaccine response status
 - HBV, HCV, and HIV immune status

BOX 3. Evaluation of occupational exposure sources

Known sources

- Test known sources for HBsAg, anti-HCV, and HIV antibody
 - Direct virus assays for routine screening of source patients are **not** recommended
 - Consider using a rapid HIV-antibody test
 - If the source person is **not** infected with a bloodborne pathogen, baseline testing or further follow-up of the exposed person is **not** necessary
- For sources whose infection status remains unknown (e.g., the source person refuses testing), consider medical diagnoses, clinical symptoms, and history of risk behaviors
- Do not test discarded needles for bloodborne pathogens

Unknown sources

- For unknown sources, evaluate the likelihood of exposure to a source at high risk for infection
 - Consider likelihood of bloodborne pathogen infection among patients in the exposure setting

BOX 4. Situations for which expert* consultation for HIV postexposure prophylaxis is advised

- Delayed (i.e., later than 24–36 hours) exposure report
 - the interval after which there is no benefit from postexposure prophylaxis (PEP) is undefined
- Unknown source (e.g., needle in sharps disposal container or laundry)
 - decide use of PEP on a case-by-case basis
 - consider the severity of the exposure and the epidemiologic likelihood of HIV exposure
 - do not test needles or other sharp instruments for HIV
- Known or suspected pregnancy in the exposed person
 - does not preclude the use of optimal PEP regimens
 - do not deny PEP solely on the basis of pregnancy
- Resistance of the source virus to antiretroviral agents
 - influence of drug resistance on transmission risk is unknown
 - selection of drugs to which the source person's virus is unlikely to be resistant is recommended, if the source person's virus is known or suspected to be resistant to ≥ 1 of the drugs considered for the PEP regimen
 - resistance testing of the source person's virus at the time of the exposure is not recommended
- Toxicity of the initial PEP regimen
 - adverse symptoms, such as nausea and diarrhea are common with PEP
 - symptoms often can be managed without changing the PEP regimen by prescribing antimotility and/or antiemetic agents
 - modification of dose intervals (i.e., administering a lower dose of drug more frequently throughout the day, as recommended by the manufacturer), in other situations, might help alleviate symptoms

*Local experts and/or the National Clinicians' Post-Exposure Prophylaxis Hotline (PEpline [1-888-448-4911]).

TABLE 3. Recommended postexposure prophylaxis for exposure to hepatitis B virus

Vaccination and antibody response status of exposed workers*	Treatment		
	Source HBsAg [†] positive	Source HBsAg [†] negative	Source unknown or not available for testing
Unvaccinated	HBIG [‡] x 1 and initiate HB vaccine series [§]	Initiate HB vaccine series	Initiate HB vaccine series
Previously vaccinated			
Known responder**	No treatment	No treatment	No treatment
Known nonresponder ^{††}	HBIG x 1 and initiate revaccination or HBIG x 2 ^{‡‡}	No treatment	If known high risk source, treat as if source were HBsAg positive
Antibody response unknown	Test exposed person for anti-HBs [¶] 1. If adequate,** no treatment is necessary 2. If inadequate, ^{‡‡} administer HBIG x 1 and vaccine booster	No treatment	Test exposed person for anti-HBs 1. If adequate, [¶] no treatment is necessary 2. If inadequate, [¶] administer vaccine booster and recheck titer in 1–2 months

* Persons who have previously been infected with HBV are immune to reinfection and do not require postexposure prophylaxis.

[†] Hepatitis B surface antigen.

[‡] Hepatitis B immune globulin; dose is 0.06 mL/kg intramuscularly.

[§] Hepatitis B vaccine.

** A responder is a person with adequate levels of serum antibody to HBsAg (i.e., anti-HBs ≥ 10 mIU/mL).

^{††} A nonresponder is a person with inadequate response to vaccination (i.e., serum anti-HBs < 10 mIU/mL).

^{‡‡} The option of giving one dose of HBIG and reinitiating the vaccine series is preferred for nonresponders who have not completed a second 3-dose vaccine series. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

[¶] Antibody to HBsAg.

TABLE 4. Recommended HIV postexposure prophylaxis for percutaneous injuries

Exposure type	Infection status of source				
	HIV-Positive Class 1*	HIV-Positive Class 2*	Source of unknown HIV status†	Unknown source‡	HIV-Negative
Less severe§	Recommend basic 2-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors¶	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted
More severe¶¶	Recommend expanded 3-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors¶	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted

* HIV-Positive, Class 1 — asymptomatic HIV infection or known low viral load (e.g., <1,500 RNA copies/mL). HIV-Positive, Class 2 — symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load. If drug resistance is a concern, obtain expert consultation. Initiation of postexposure prophylaxis (PEP) should not be delayed pending expert consultation, and, because expert consultation alone cannot substitute for face-to-face counseling, resources should be available to provide immediate evaluation and follow-up care for all exposures.

† Source of unknown HIV status (e.g., deceased source person with no samples available for HIV testing).

‡ Unknown source (e.g., a needle from a sharps disposal container).

§ Less severe (e.g., solid needle and superficial injury).

** The designation “consider PEP” indicates that PEP is optional and should be based on an individualized decision between the exposed person and the treating clinician.

¶ If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued.

¶¶ More severe (e.g., large-bore hollow needle, deep puncture, visible blood on device, or needle used in patient’s artery or vein).

TABLE 5. Recommended HIV postexposure prophylaxis for mucous membrane exposures and nonintact skin* exposures

Exposure type	Infection status of source				
	HIV-Positive Class 1†	HIV-Positive Class 2†	Source of unknown HIV status‡	Unknown source§	HIV-Negative
Small volume**	Consider basic 2-drug PEP**	Recommend basic 2-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors¶	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted
Large volume¶¶	Recommend basic 2-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors¶	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted

* For skin exposures, follow-up is indicated only if there is evidence of compromised skin integrity (e.g., dermatitis, abrasion, or open wound).

† HIV-Positive, Class 1 — asymptomatic HIV infection or known low viral load (e.g., <1,500 RNA copies/mL). HIV-Positive, Class 2 — symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load. If drug resistance is a concern, obtain expert consultation. Initiation of postexposure prophylaxis (PEP) should not be delayed pending expert consultation, and, because expert consultation alone cannot substitute for face-to-face counseling, resources should be available to provide immediate evaluation and follow-up care for all exposures.

‡ Source of unknown HIV status (e.g., deceased source person with no samples available for HIV testing).

§ Unknown source (e.g., splash from inappropriately disposed blood).

** Small volume (i.e., a few drops).

¶ The designation “consider PEP” indicates that PEP is optional and should be based on an individualized decision between the exposed person and the treating clinician.

¶¶ If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued.

¶ Large volume (i.e., major blood splash).

BOX 5. Occupational exposure management resources

National Clinicians' Postexposure Prophylaxis Hotline (PEpline)

Run by University of California–San Francisco/San Francisco General Hospital staff; supported by the Health Resources and Services Administration Ryan White CARE Act, HIV/AIDS Bureau, AIDS Education and Training Centers, and CDC.

Phone: (888) 448-4911

Internet: <<http://www.ucsf.edu/hivcntr>>

Needlestick!

A website to help clinicians manage and document occupational blood and body fluid exposures. Developed and maintained by the University of California, Los Angeles (UCLA), Emergency Medicine Center, UCLA School of Medicine, and funded in part by CDC and the Agency for Healthcare Research and Quality.

Internet: <<http://www.needlestick.mednet.ucla.edu>>

Hepatitis Hotline.

Phone: (888) 443-7232

Internet: <<http://www.cdc.gov/hepatitis>>

Reporting to CDC: Occupationally acquired HIV infections and failures of PEP.

Phone: (800) 893-0485

HIV Antiretroviral Pregnancy Registry.

Phone: (800) 258-4263

Fax: (800) 800-1052

Address:

1410 Commonwealth Drive

Suite 215

Wilmington, NC 28405

Internet:

<http://www.glaxowellcome.com/peg_reg/antiretroviral>

BOX 5. (Continued) Occupational exposure management resources

Food and Drug Administration Report unusual or severe toxicity to antiretroviral agents.	Phone: (800) 332-1088 Address: MedWatch HF-2, FDA 5600 Fishers Lane Rockville, MD 20857 Internet: < http://www.fda.gov/medwatch >
HIV/AIDS Treatment Information Service.	Internet: < http://www.hivatis.org >

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Packaging and Shipping of Biological Materials

This policy is intended to provide guidance and insure compliance with DOT/IATA/ICAO* regulations.

Relevant Categories:

1. Category A Infectious substances
2. Category B infectious substances (now includes diagnostic or clinical specimens)
3. Exempt specimens
4. Regulated medical waste or biomedical waste

Requirements:

In addition to the OSHA BBP training and compliance, anyone involved in the packaging and/or shipping of biological materials, particularly infectious substances, must be trained.

Training is required every 2 years. The EH&S Office conducts training sessions as needed.

- * DOT – Department of Transportation
- IATA – International Air Transport Association
- ICAO – International Civil Aviation Organization

**THE UNIVERSITY OF WEST FLORIDA
HEPATITIS B VACCINATION INFORMATION AND CONSENT/DECLINATION FORMS**

Hepatitis B Vaccination: Consent Form

I understand that due to my potential occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. I have read the information about hepatitis B and the hepatitis B vaccine provided to me by my employer and I have had the opportunity to ask questions about the virus and the vaccine. I understand the benefits and risks and potential side effects of hepatitis B immunization and **I accept this opportunity to receive the HBV vaccine series.** I agree to receive the three doses required for the optimum immune response. However, as with all medical treatment, I understand there is no guarantee that I will become immune or that I will not experience adverse side effects from the vaccine.

Printed Name of person consenting to receive HB vaccine

Signature of person consenting to receive HB vaccine

Date

Hepatitis B Vaccination Record

	DATE	GIVEN BY	LOT #
Primary dose			
1 month after primary dose			
6 months after primary dose			

Hepatitis B Vaccination: Declination Form

I understand that, due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no cost to me. However, **I decline this opportunity to receive the hepatitis B vaccination** at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no cost to me.

Printed Name of person declining to receive HB vaccine

Signature of person declining to receive HB vaccine

Date