ENVIRONMENTAL HEALTH AND SAFETY

University of Nebraska-Lincoln

BLOODBORNE PATHOGEN

EXPOSURE CONTROL PLAN

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1 Introduction

People have an increased risk of acquiring an infection when exposed to blood or body fluids from individuals infected with pathogenic agents. Examples of pathogens that can be transmitted via the blood include but are not limited to Hepatitis B Virus (HBV), Hepatitis C and Human Immunodeficiency Virus (HIV). These viruses and other similar agents are referred to as **bloodborne pathogens (BBP).** The purpose of the UNL Bloodborne Pathogen Exposure Control Plan (ECP) is to eliminate or minimize employee exposure to bloodborne pathogens.

1.1 Application

The ECP applies to all UNL employees who are "reasonably anticipated," as the result of conducting their job duties, to have risk of exposure to blood and other potentially infectious materials (OPIM). This means skin, eye, mucous membrane, or parenteral contact that may result from the performance of duties assigned to an employee and generally defined or implied in their job description. OPIM includes the following:

- Human blood, blood components, and products made from human blood.
- The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural 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.
- Any unfixed tissue or organ (other than intact skin) from a human (living or dead).
- HIV-containing cells or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions.
- All human cell cultures (established or primary) as outlined in Appendix C.
- Blood, organs, or other tissues from experimental animals infected with pathogens present in blood that can cause disease in humans.

The ECP ***does not*** apply to employees who may have incidental exposures, such as those that are neither reasonably nor routinely expected, and that the employee is not required to incur in the normal course of employment. The ECP ***does not*** apply to employees who voluntarily perform Good Samaritan acts, such as giving first aid or CPR, and who have no such assigned or implied job functions.

The following UNL departments/entities maintain their own Bloodborne pathogen program and exposure control plan:

- Campus Recreation

The University of Nebraska Medical Center Dental College and University Health Center run by Nebraska Medicine are outside of the administrative scope of UNL and are therefore not included in the scope of this plan.

1.1.1 Non-employees

Volunteers, unpaid student workers and other workers that are not paid by UNL are not covered by the OSHA Bloodborne Pathogens standard and therefore not subject to UNL's BBP ECP. However, non-employees at risk of exposure to blood or other potentially infectious material are still at risk of acquiring a bloodborne pathogen. Therefore, these workers must complete the UNL Volunteer form found on the Risk Management webpage (https://hr.unl.edu/benefits/riskmanagement/) and submit it to the applicable department business office to keep on file. They should also be advised of the risk of exposure to bloodborne pathogens and informed of precautions that they should take to reduce such risk, including the efficacy of Hepatitis B vaccination. Although, these workers are not covered by UNL worker's compensation policies, exposures and suspected exposures should be reported to EHS as described in Section 2.8.

1.2 Regulatory Authority

The ECP was written to comply with regulations contained in the Occupational Safety and Health Administration (OSHA) Standard, ***Occupational Exposure to Bloodborne Pathogens*** (29 CFR 1910.1030). These regulations are referred to in this document as the "standard." The standard is designed to protect workers from anticipated exposures to bloodborne pathogens.

Under certain circumstances, other regulatory requirements may apply to a given work process or area in addition to the ECP. All research and laboratory work involving human blood or OPIM, especially laboratories working with HIV and HBV must work in accordance with both the ECP and the UNL Biosafety Guidelines. This type of work is subject to review and approval by the UNL Institutional Biosafety Committee (IBC).

1.3 Glossary

A glossary of terms is provided in Appendix A.

2 Exposure Control Plan Elements

Eliminating the potential for exposure to bloodborne pathogens begins with recognizing where a hazard exists (Section 2.1 - *Communication Of Hazards To Employees*), and determining who is at risk of occupational exposures and under what conditions an employee is at risk (Section 2.2 - *Employee Exposure Determination*). After evaluating the exposure risk, steps can be taken to control the risk by using engineering controls, personal protective equipment, and safe work practices, including housekeeping (Sections 2.3, 2.4, and 2.5).

As required by the standard, other important aspects for controlling the risk of exposure to bloodborne pathogens include *employee training* (Section 2.6), *vaccination/post-exposure medical evaluations* (Section 2.7) and *recordkeeping* (Section 2.8). The standard also mandates specific work-practice controls for HIV/HBV laboratories, which are discussed in the EHS SOP, ***HIV and HBV Research Laboratories/Production Facilities***.

The ECP focuses on general safe-work practices and engineering controls. Additional safe-work practice and engineering controls are necessary for specific processes, such as cleaning up spills. These process-specific controls supplement the ECP. EHS has prepared several Safe Operating Procedures (SOPs) to cover specific safety procedures under the ECP. Supervisors are responsible for ensuring that their employees have access to the ECP and related EHS or work-site/task-specific SOPs. If EHS SOPs are insufficient or unavailable for specific processes, then the supervisor is responsible to develop written SOPs for use by employees under their supervision.

2.1 Communication of Hazards to Employees (Signs and Labels)

Potential presence of a biohazardous agent, including bloodborne pathogens, is generally communicated to employees via standard signage, placards, or labels. One exception is contaminated waste, which is sometimes placed in red bags without biohazard labels.

The biohazard symbol is shown below. It is generally colored orange or red, but is sometimes shown in black on an orange or red background:

Biohazard signs are posted at the entrance to bloodborne pathogen and/or HIV/HBV laboratories, as well as areas where other non-bloodborne human pathogens are present. Refer to the EHS SOPs ***Biohazard Door Postings*** and ***Door Postings for Potentially Hazardous Locations*** for additional discussion regarding use of the biohazard symbol at UNL facilities.

The same symbol is also used on individual labels that are affixed to certain storage locations and vessels. With respect to the standard, warning labels are required on the following items:

- Refrigerators and freezers used to store blood or OPIM.
- Containers used to store or transport blood or OPIM.
- Waste collection containers, unless a red bag is used or the waste has been treated to render it non-infectious. Regulated waste that has been

decontaminated must have verification on the container that it was decontaminated (e.g., indicator tape or other approved indicator). Note: if using indicator tape, select a lead-free variety.

- Sharps containers, if the sharps may be contaminated with blood or OPIM.
- Equipment contaminated with blood or OPIM.

Labels and signs that meet the requirements of the standard are available from any of the UNL prime vendors for laboratory and safety equipment and consumables. Supervisors of individual work areas are responsible for ensuring the use of required labels, placards, signs, and waste collection containers, including sharps containers.

2.2 Employee Exposure Determination

All employees within certain job classifications are at risk of occupational exposure to bloodborne pathogens. These include, but are not limited to, athletic trainers, doctors, phlebotomists, child care workers and police officers. The list of job titles for which EHS has determined that all employees with that job title are at occupational risk is provided in Appendix B, Section B.1. As required by the standard, this exposure determination was made without regard to the use of personal protective equipment.

The ECP may also apply to other employees, depending upon specific tasks performed by those employees. In this case, some employees with a particular job title are covered under the ECP, while others are not. For example, the ECP would apply to a laboratory assistant in a HIV/HBV laboratory, but not to a laboratory assistant in a chemistry lab where blood and OPIM are not handled. A listing of job titles in which some employees may be covered, based on assigned tasks, is provided in Appendix B, Section B.2. The distinguishing factor for these groups of employees is whether there is the potential for "**reasonably anticipated**" skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's job tasks. This definition **excludes** incidental exposures that may take place on the job, that are neither reasonably nor routinely expected, and that the employee is not required to incur in the normal course of their employment.

For those job titles listed in Appendix B, Section B.2, supervisors, in consultation with EHS, are responsible for evaluating individual tasks performed by individual employees to determine who is at risk of occupational exposure to a bloodborne pathogen through performance of their job duties. If an employee is assigned a task that puts them at risk, they must participate in the BBP program. Employees must not be assigned at-risk tasks until they have completed all requirements of the ECP.

2.3 Engineering Controls

Engineering controls are the preferred method for providing protection from potential exposure to bloodborne pathogens. PPE and safe work practices supplement engineering controls. General engineering controls are listed below.

2.3.1 Needles

When possible, substitutes for needles should be used. When needles are necessary, use of safe needle devices, such as self-resheathing needles, are strongly encouraged unless there is no alternative for the specific application. 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) may be used for the injection or aspiration of blood or OPIM. Extreme caution must be used when handling needles and syringes. A needle must not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. Contact EHS for additional information on safe needle devices for a specific application.

2.3.2 Sharps Disposal Containers

Sharps disposal containers must be provided by the work area supervisor and used to contain contaminated sharps. Contaminated sharps disposal containers must be:

- Rigid and puncture-resistant.
- Leak resistant and designed so that they cannot be re-opened without great difficulty after being sealed.
- Red in color and have a biohazard label.
- Accessible to employees, and located as close as feasible to the immediate area where sharps are used.
- Remain upright throughout use and replaced when full.
- Decontaminated before disposal as ordinary trash, or managed through EHS. If autoclaved and disposed as ordinary trash, the container must have a visible indicator that it has been autoclaved (e.g., lead-free indicator tape), be defaced/void of biohazard symbols, and be physically placed in the dumpster by the employee generating and treating the waste.

Refer to the EHS SOP, ***Sharps - Handling and Disposing*** for more information.

2.3.3 Hand-washing Facilities

Hand-washing facilities that are readily accessible to employees must be provided in the immediate work area where there is potential for exposure to bloodborne pathogens. If hand-washing facilities are not feasible, antiseptic hand cleaner with cloth, paper towels, or antiseptic towelettes must be provided.

2.3.4 Other Engineering Control

Some work areas, particularly laboratories, are equipped with additional engineering controls such as autoclaves and biosafety cabinets. The Institutional Biosafety Committee, as described in the UNL Biosafety Guidelines, generally mandates use and availability of this type of equipment. Such equipment is

regularly inspected and maintained by UNL Facilities Management or an outside service provider. Service or maintenance needs should be reported to the Facilities Management Service Desk at (402) 472-1550. Refer to the EHS SOPs, ***Biosafety Cabinets*** and ***Autoclave Operation and Use*** for more information. Other SOPs related to engineering controls can be found on the EHS web page. Supervisors may have SOPs for certain site-specific engineering controls.

2.4 Personal Protective Equipment

Supervisory personnel shall ensure the availability of appropriate PPE to employees covered by the ECP. PPE, properly sized for the user, must be readily accessible in the work area or issued to the employee, and provided at no cost to the employee.

Supervisory personnel must provide for the cleaning or laundering of non-disposable PPE. Contaminated items may not be taken home and cleaned by UNL employees. All PPE must be removed before leaving the work area and placed in an appropriately designated and labeled area or container for storage, washing, decontamination, or disposal. Refer to the EHS SOP, ***Handling Laundry Potentially Contaminated with Bloodborne Pathogens*** for more information.

Selection of appropriate PPE is based on the degree of anticipated exposure. PPE is appropriate only if it does not permit blood or other potentially infectious material to pass through or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions and duration of use. **Table 1** on the next page provides PPE selection guidance.

- **Hand Protection**. Employees must don gloves when there is potential for direct skin contact with blood or OPIM, including contact with potentially contaminated surfaces. Disposable (single-use) gloves, such as surgical or examination gloves must be replaced immediately when contaminated or compromised (e.g., torn or punctured). Disposable gloves may not be washed or decontaminated for reuse. Utility gloves must be discarded if they are cracked, peeling, discolored, torn, punctured, or exhibit other signs of deterioration, but may be decontaminated for reuse if the integrity of the glove is maintained. Tear- and puncture-resistant gloves must be provided for procedures which involve a high risk of laceration, but which do not require a high degree of dexterity.
- **Eye and Mouth Protection.** Mask and eye protection or a chin-length face shield must be worn as appropriate if splashes, sprays, spatters, or droplets of blood or OPIM may be generated and if there is likelihood for eye, nose, or mouth contamination. To prevent direct mouth-to-mouth contact, pocket masks, resuscitation bags, or other ventilation devices must be provided to trained employees who are assigned responsibility for resuscitation.
- **Body Protection**. Gowns, smocks, lab coats, aprons, clinic jackets, or similar outer garments must be worn to protect all areas of exposed skin that have a

Table 1: PPE selection guidance

	Personal Protective Equipment (X=required)							
Task/Hazard	Disposable Gloves*	Safety Glasses	Gown/ Lab Coat	Face Mask	Face Shield	Impervious Coveralls	Shoe Covers	Resuscitation device
Handling/manipulating closed containers of PIM	**X**	**X**						
Handling/manipulating small, open containers of PIM	**X**	**X**	**X**					
Handling/manipulating large, open containers of PIM	**X**	**X[1]**	**X**	**X[1]**	**X[2]**	**X**	**X**	
Administering CPR	**X**	**X**						**X**
Administering first aid for a small cut or bleeding wound	**X**	**X**						
Administering first aid for a heavily-bleeding wound	**X**	**X**		**X**		**X**	**X**	
Cleaning up a spill of PIM	**X**	**X**	**X**	**X**		**As needed**	**As needed**	

**Note: Some individuals may be sensitive to latex or be at risk of developing latex allergies. Therefore, gloves constructed of nitrile are preferable to latex.*

[1]For clean-up of large spills, safety glasses and a facemask should be worn together.

[2]*A face shield can be worn in place of safety glasses and a facemask.*

significant likelihood for contamination. The materials and type of construction will depend upon the task and degree of exposure anticipated. Garments soiled by blood or OPIM must be removed immediately or as soon as possible. Surgical caps or hoods and shoe covers or boots should be worn if gross contamination is possible.

2.5 Safe Work Practices

Because the risk of exposure to bloodborne pathogens cannot be completely eliminated by the use of engineering controls and personal protective equipment, safe work practices, including universal precautions and housekeeping, are essential for protecting employees.

2.5.1 Universal Precautions and General Safe Work Practices

- All employees subject to the UNL ECP must observe universal precautions, meaning that they treat all blood and OPIM as if it is known to be infectious for HIV, HBV, or other bloodborne pathogen. General safe work practices include the following:
- Handle blood and OPIM to minimize and eliminate, where possible, splashing, spraying, and aerosolization. Refer to the EHS SOP, ***Avoiding the Production of Biological Aerosols*** for more information.
- Do not mouth pipette. Use pipette bulbs or other suction devices.
- Handle sharps to prevent needle-sticks, punctures, or cuts to the skin. Refer to Section 2.3.1 regarding safe needle devices. Do not handle or pick-up broken glassware with bare hands. Instead, use a brush and dustpan, tongs, forceps, or other mechanical device.
- Wash hands and any other exposed skin areas diligently with soap and water following contact with blood or OPIM. Wash hands immediately after removing gloves or other protective clothing, as soon as possible after contact with blood or OPIM, and upon leaving the work area. Hand washing must be completed using appropriate facilities. Use of waterless antiseptic hand cleanser alone is appropriate only where hand-washing facilities are not available or feasible. When waterless antiseptic cleanser or towelettes are used, washing with soap and water must be accomplished as soon as possible.
- Suspected or known contamination of mucous membranes must be flushed with water immediately after contamination.
- Eating, drinking, and/or personal grooming (including touching of face, eyes, nose, and mouth) is not allowed in areas where bloodborne pathogen materials are located. Such activities must be limited to designated areas away from the work area. Food/drink and personal grooming items (e.g., makeup, hand cream, etc.) must be kept in designated areas outside the work area.
- Keep all non-intact skin (sores, cuts, open acne) covered while working with blood or OPIM or when exposures might occur.

- Specimens of blood or OPIM must be placed in closed, leak-proof containers during collection, handling processes, storage, transport, and shipment. If contamination outside of the primary container is likely, a second leak-proof container shall be placed over the first and tightly closed to prevent leakage. All containers must be labeled in accordance with Section 2.1.

Spill response procedures, materials, and equipment must be located in areas where spills of PIM are possible. These resources can be shared among various areas as long as the materials are readily available. Refer to the EHS SOP, ***Cleaning up Spills of Bloodborne Pathogens*** for more information.

2.5.2 Housekeeping

Housekeeping is important to prevent employee exposures, and primarily involves the routine and effective decontamination of work surfaces and potentially contaminated equipment. There are many suitable disinfectants on the market, but a common and cost-effective disinfectant is a freshly prepared 10% solution of household bleach (1 part bleach and 9 parts water).

In general, chemical disinfectants act by coagulating organism protein. The efficiency of a particular disinfectant depends on concentration of the disinfectant, concentration and type of organism, cleanliness of the surface, time of contact, and physical and chemical factors in the surrounding environment or in the medium being used. Refer to the EHS SOP, ***Chemical Disinfectants for Biohazardous Materials*** for more information.

Work surfaces must be cleaned and disinfected as follows:

- After completion of procedures where contamination is likely.
- When surfaces are overtly contaminated, including spills or leaks of PIM.
- At the end of a work shift, if the surface may have become contaminated since the last cleaning.

Equipment that may become contaminated with blood or OPIM shall be decontaminated as follows:

- All pails, cans, bins, containers, and receptacles of any kind used to transport contaminated items and have reason to be contaminated must be decontaminated after use and upon visible contamination.
- Reusable items, including reusable sharps that have been contaminated with blood or OPIM must be washed and decontaminated following use. It is generally recommended that these items be placed in a pail of liquid disinfectant after use and prior to washing, unless disinfected by autoclaving. Reusable sharps may not be stored or processed in a manner that requires reaching of hands into containers where sharps have been placed. Strainers or tongs can be used to retrieve items from the disinfectant pail.

2.6 Employee Training

All employees who are assigned tasks that may place them at risk for occupational exposure to bloodborne pathogens must complete formal initial training prior to conducting any such tasks. In addition, they must also participate in refresher training at least annually, or sooner, if new tasks or procedures are assigned for which the employee has not been previously trained. EHS has developed bloodborne pathogen training that meets the requirements of the standard.

Regardless of the training option selected, the following parameters must be observed.

- Covered employees must be allowed to participate in training during normal working hours and at no cost to them.
- Training documentation is required. Records will be maintained by EHS if the training was delivered or sponsored by EHS. Site-specific training must be documented by the supervisor or department. Form EHS-BBP-04 can be used to document site-specific training.
- Training must be delivered only by individuals who are knowledgeable of the OSHA Bloodborne Pathogens Standard, 29 CFR 1910.1030 and the UNL written Exposure Control Plan (ECP). Training materials must meet the requirements of 29 CFR 1910.1030.
    - Site-specific training shall include location of PPE and work/task specific procedures. This training is usually conducted by the supervisor, but EHS is available to assist if needed.
- Training material and information must be appropriate in content and vocabulary to the educational level, literacy, and language background of participating employees.
- Training sessions must afford employees ample opportunity for discussion and answering of questions concerning the ECP and specific “at-risk” work tasks assigned to the employee. If the UNL web-based training module is used as a training tool, the supervisor or other previously trained designee must be immediately available to answer questions that the participating employee may have as they arise. Alternatively, if the course is taken during normal standard business hours (8am to 5pm, Monday through Friday) EHS representatives are available to answer questions. Supervisors must supplement all EHS training materials with instruction on the employee’s specific at-risk job functions.
- The following are available on or from the EHS web site and in written format upon request: UNL ECP, BBP-related forms, supplemental EHS procedures, and the OSHA bloodborne pathogen standard, 29 CFR 1910.1030.

2.7 Hepatitis B Vaccination

All employees who are at *occupational risk* of exposure to bloodborne pathogens shall be offered a HBV vaccine following receipt of the required training outlined in Section 2.6 and within 10 working days of initial assignment to at-risk tasks. The

employee will not be offered vaccination if the employee has previously received the complete HBV vaccination series, antibody testing has revealed the employee to be immune, or the vaccine is contraindicated for medical reasons. The HBV vaccine is administered in three doses (initial, 1-month following the initial dose, and 6-months following the initial dose). Requirements regarding HBV immunization are as follows:

- Vaccinations must be given under the supervision of a licensed health care professional, at a reasonable time and place. UNL's occupational health provider (CHI Health Company Care) or the University Health Center offer the HBV vaccine.
- The HBV vaccination must be given at no cost to the employee. Generally, the employing department is responsible for associated costs.
- Employees are ***not*** required to participate in a prescreening program as a prerequisite for receiving the HBV Vaccination.
- Administration of the HBV vaccination is not a condition of employment. Employees have the option to decline the Hepatitis B Vaccination. Employees must sign a ***Hepatitis B Vaccination Declination Statement*** (EHS-BBP-02), if they choose not to be vaccinated. Copies of completed Declination Statements must be retained as records by the supervisor and/or department. An employee who first declines the vaccination may, at a later date, opt to receive the vaccine at no personal cost.
- Should the United State Public Health Service (USPHS) recommend booster doses later, employees must be offered them.

2.8 Post-Exposure Evaluation and Follow-up

In the event of an exposure incident, as defined in Appendix A, taking the steps listed below is essential to reducing the risk of illness associated with the exposure. The most serious occupational exposures involve a puncture wound, such as a needle stick, and contact of an open wound with blood or OPIM from an infected source.

2.8.1 Emergency first aid

- Puncture/open wound exposure: Wash affected area immediately and thoroughly with water and antibacterial soap. Apply band-aid or bandages.
- Eye splash: Flush eyes thoroughly for 15 minutes. Remove contact lenses and do not reinsert until the health care provider gives approval. Disposable lenses should be discarded.
- Other mucous membrane splash: Flush affected area for 15 minutes.
- Contact with intact skin: Wash thoroughly with soap and water.

2.8.2 Notification and Source Testing

- EHS and the supervisor or person in charge should be notified immediately of the incident. Notifying EHS is important so that action can

be taken to coordinate with the medical provider so that the source individual is contacted, if applicable and lawful.

- If identified, the source individual will be encouraged upon consent to report to CHI Health Company Care for blood testing as soon as feasible in order to determine HBV and HIV infectivity. If consent is not obtained, EHS (or the medical providers, as applicable) shall establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, shall be tested and the results documented.
- When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.
- Results of the source individual's testing shall be made available to the medical provider and the exposed employee, and the employee shall be informed by the medical provider of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

2.8.3 Treatment

- The employee must seek medical attention immediately (within three (3) hours of the exposure) through CHI Health Company Care or CHI Health St Elizabeth's Emergency Room. Refer to the **Exposure Care Kit** (Form EHS-BBP-03) for instructions. Also, see EHS SOP, ***On-The-Job and Student Injuries***.
- When getting treatment for a potential exposure incident, the employee should provide the attending physician the following information:
  - A description of their job duties, the circumstances under which the exposure incident occurred, and the nature of the exposure.
  - Their HBV immunization status.
  - Name and contact information of source individual, if applicable or known; or, in the case of research samples, information known regarding the status of the source material with respect to potential bloodborne pathogens.
  - The **Exposure Care Kit** (Form EHS-BBP-03) contains a form to capture this important information to assist the medical professional providing treatment.
- At the initial post-exposure visit, the attending physician will:
  - Assess whether an "exposure incident" occurred, and if so, document the route(s) of exposure and the circumstances of the exposure incident.
  - Initiate contact with the source individual to obtain consent and testing of their blood, if agreed upon with UNL as an additional service.
  - Collect a baseline blood sample for testing, if employee consents is obtained. If the exposed employee consents to baseline collection, but not

to HIV testing at that time, the medical provider must preserve and maintain the sample for not less than 90 days.

- Administer post-exposure prophylaxis, when medically indicated, as recommended by the United States Public Health Service and with the employee's consent.
- Counsel the employee on risk reduction and the risks and benefits of HIV testing, in accordance with the laws of the State of Nebraska.
- Evaluate reported illness subsequent to exposure.

2.8.4 Medications

- In some cases, the attending physician may prescribe prophylactic medication. In accordance with the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard, employers are responsible for all medical consultation costs, including post-exposure evaluation and prophylactic treatment.
- UNL's Workers' Compensation provider offers **First Script** (a prescription program for work-related injuries) to cover pharmacy costs associated with compensable occupational injuries. When an exposure incident occurs, you present a completed First Script enrollment form with the doctor issued prescription to the pharmacist. For more information on the First Script program contact UNL Human Resources (402.472.8414 or 402.472.2600).
- Discuss with your supervisor, your department's procedure for payment of prophylactic medications in the event that the associated costs are not reimbursed by Worker's Compensation.

2.8.5 Follow up

- A written professional medical opinion will be transmitted to EHS within 15 days. EHS will forward a copy to the employee and the UNL's Department of Human Resources. The medical opinion will contain **only** the following information:
  - Recommendation for receiving HBV vaccination and whether or not the employee received the HBV vaccination.
  - Confirmation that the medical professional informed the employee of the results of the post-exposure evaluation.
  - Confirmation that the employee has been informed of medical conditions that may result from exposure to blood or OPIM and which may require further evaluation or treatment.
- The employee or supervisor should complete a **First Report of Alleged Occupational Injury/Illness** form and fax it to the UNL's Department of Human Resources at 402.472.8381. The first report of injury begins the workers compensation claim process.
- Employees should seek medical attention for subsequent illnesses potentially related to a prior exposure incident.

2.8.6 Student Exposures to Bloodborne Pathogens

- Students who experience a potential Bloodborne pathogen exposure are encouraged to seek immediate medical consultation. This is particularly important if the student is not vaccinated against Hepatitis B. Costs associated with medical follow-up are only eligible for Worker's Compensation benefits if the potential exposure occurred while conducting work for compensation as a student employee.

2.9 Summary of Recordkeeping Requirements

Several different types of records may be generated in the process of implementing and maintaining the ECP, including medical records (e.g., immunization records, post exposure follow-up, etc.), training records, and a sharps injury log.

- Medical records are maintained for each employee subject to the ECP by the medical provider (CHI Health Company Care), in accordance with 29 CFR 1910.1020. This record shall be maintained for the duration of employment plus 30 years. The records are kept confidential and not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by section (h) of 29 CFR 1910.1030. These records include:
    - Name and social security number of the employee
    - A copy of HBV vaccination status including dates of vaccination, and any medical records relative to an employee's ability to receive vaccination;
    - Records of medical examinations, medical testing, and follow-up procedures.
    - Employer's copy of the healthcare professional's medical written opinions
    - A copy of the information provided to the healthcare professional following an exposure incident
- ***Hepatitis B Vaccination Declination Forms, EHS-BBP-02***, are retained by the supervisor for the duration of time that the employee is assigned tasks that render them subject to the ECP, or until such time as they receive the vaccine.
- Training records are maintained by EHS when the training is obtained through the EHS office. These records are maintained for a minimum of three (3) years from the date of training. Supervisors are responsible for retention of training records related to task or work site-specific training and training obtained from sources other than EHS. Site-specific training can be documented using the ***Site-Specific Training Verification Roster, EHS-BBP-04.***
- Worker Compensation claim forms are maintained by UNL's Department of Human Resources for a period of seven (7) years. Accident/Exposure Incident follow-up reports are maintained by EHS for the current fiscal year.

3 Responsibilities

3.1 Environmental Health and Safety

- Develop and maintain the ECP.
- Oversee implementation of the ECP in applicable departments via periodic audits and inspections.
- Determine, in consultation with supervisory personnel, those job classifications in which all employees with a particular task are at occupational risk and those tasks that result in reasonably anticipated exposure to bloodborne pathogens. .
- Provide program support to departments and supervisors upon request to include guidance for procuring and using appropriate personal protective equipment, adequacy of standard procedures for handling and disposing of waste, and evaluation of tasks that present an occupational exposure risk.
- Develop and offer initial and refresher training related to Bloodborne pathogens exposure.
- Develop procedures for disposal of biohazardous waste. Oversee biohazardous waste contract vendors.
- Assist departments and supervisors in arrangements for occupational medicine support of the program.
- Support the post exposure follow-up process as described in Section 2.8.
- Review and update the ECP at least annually and whenever necessary to:
    - Reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure;
    - Reflect changes in technology that eliminate or reduce exposure to Bloodborne pathogens.

3.2 Department Heads/Chairs

- Provide supervisors with the resources necessary for implementing the Exposure Control Plan. Ensure that the UNL ECP is implemented within their reporting unit.
- Provide resources to cover costs associated with administration of Hepatitis B Vaccination as described in Section 2.7.
- In collaboration with EHS and Supervisors, document consideration and implementation of appropriate commercially available and effective safer medical devices (e.g. safety needles, etc.) designed to eliminate or minimize occupational exposures.

3.3 Supervisory Personnel

- Ensure employees who have job titles listed in Appendix B, Section B.1, participate fully in the BBP program and adhere to the ECP, including but not limited to safe work practices, PPE, training, immunization, and post-exposure follow-up.
- Ensure that employees who conduct tasks that put them at risk of occupational exposure to bloodborne pathogens participate fully in the BBP program and adhere to the ECP, including but not limited to safe work practices, PPE, training, immunization, and post-exposure follow-up. See Appendix B, Section B.2. As necessary, seek consultation with EHS to determine if an employee conducts tasks that put them at-risk of occupational exposure.
- Maintain an up-to-date roster of employees under their supervision that are required to participate in ECP. Notify EHS if an at-risk employee's job title is not listed in Appendix B, Section B.2.
- When not specified in the ECP or supporting materials (i.e., EHS training materials), develop additional work practice procedures as necessary to minimize the risk of exposure to Bloodborne pathogens for specific tasks or processes. Train employees in these procedures and maintain documentation of such training and procedures. See Section 2.9 for recordkeeping requirements.
- Ensure that appropriate engineering controls are utilized and maintained.
- Ensure that appropriate PPE is available and in good working condition for all employees who are at risk of exposure to Bloodborne pathogens.
- Ensure that any employee who has experienced an occupational exposure incident to blood or OPIM is offered post-exposure medical services as outlined in Section 2.8 and ensure that a First Report of Alleged Occupational Injury or Illness form is completed and submitted to UNL's Department of Human Resources.
- Assist, as required, with post exposure follow-up investigation.
- As applicable, determine who is authorized to enter restricted areas in accordance with the EHS SOP, ***HIV and HBV Research Laboratories/Production Facilities*** and ensure that such personnel are appropriately trained.
- Purchase, make available, and ensure the use of placards, signs, labels, and sharps and waste collection containers as specified in Section 2.1.

3.4 Employees

- Participate in initial and refresher bloodborne pathogen training.
- Opt to receive or decline the HBV vaccination.
    - Sign a ***Hepatitis B Vaccination Declination Statement*** (EHS-BBP-02) if you decline to receive the HBV vaccination from UNL. This

includes cases where the employee received Hepatitis B vaccination prior to employment with UNL.

- Pre-enroll in the **First Script** prescription program when a compensable occupational exposure to blood or OPIM occurs. Contact UNL Human Resources for a copy of the enrollment form (402.472.8414 or 402.472.2600).
- Know which job tasks have the potential for occupational exposure to bloodborne pathogens and adhere to precautions and controls designed to minimize associated risk.
- Don all PPE required for specific tasks.
- Practice good personal hygiene habits.
- Report all occupational exposure incidents and seek medical attention.

APPENDIX A: Glossary

Most of the terms used in the ECP, and provided here, are taken from OSHA's Bloodborne Pathogen Standard, 29 CFR 1910.1300. Other definitions provided here are for specific words related to an infection control program.

Blood means human blood, blood components, and products made from human blood. The term "human blood components" includes plasma, platelets, and serosanguinous fluids (e.g., exudates from wounds). Also included are medications derived from blood, such as immune globulins, albumin, and factors 8 and 9.

Bloodborne Pathogen means any pathogenic organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV). Pathogenic microorganisms can also cause diseases such as hepatitis C (HCV), malaria, syphilis, babesiosis, brucellosis, leptospirosis, arbovirus infections, relapsing fever, Creutzfeldt-Jakob disease, adult T-cell leukemia/lymphoma (caused by HTLV-I), HTLV-I associated myelopathy, diseases associated with HTLV-II, and viral hemorrhagic fever.

Bloodborne Pathogen/Exposure Control Plan means the written plan at UNL to prevent employee exposures to bloodborne pathogens in the workplace. This document is also referred to as the ECP.

Clinical Laboratory means a workplace where diagnostic or other screening procedures are performed on blood or OPIM.

Contaminated means the presence or the reasonably anticipated presence of blood or OPIM on an item or surface.

Contaminated Laundry means laundry that has been soiled with blood or OPIM or may contain contaminated sharps.

Contaminated Sharps means any object contaminated with blood or OPIM that can penetrate the skin, including any of the following: needles, scalpels, broken glass, broken capillary tubes, exposed ends of dental wires, and other sharp instruments used in a like manner that are contaminated.

Decontamination means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or items 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.

Disinfect means to inactivate virtually all recognized pathogenic organisms, but not necessarily all microbial forms, on inanimate objects.

ECP means Exposure Control Plan, or UNL Bloodborne Pathogen/Exposure Control Plan.

Engineering Controls means controls that isolate or remove bloodborne pathogen hazards from the workplace. Examples include safer medical devices, such as sharps with engineered sharp injury protection (SESIPs) and needleless systems.

Exposure Incident means a specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral contact with blood or OPIM resulting from the performance of an employee's duties. In this definition, "non-intact skin" includes skin with dermatitis, hangnails, cuts, abrasions, chafing, acne, etc.

Occupational Exposure means "reasonably anticipated" skin, eye mucous membrane, or parenteral contact with blood or OPIM that my result from the performance of an employee's duties. These are the duties that are assigned to an employee and generally defined or implied in their job description. This definition excludes incidental exposures that may take place on the job, and that are neither reasonably nor routinely expected, and that the employee is not required to incur in the normal course of employment. Determination of potential for occupational exposure is conducted without regard to personal protective equipment.

Other Potentially Infectious Materials (OPIM) means (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); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV. ***See* Appendix C *for additional information about human cell lines covered by the Bloodborne Pathogens Standard.***

Parenteral Exposures means those exposures occurring as the result of piercing mucous membranes or skin barrier, such as exposure through subcutaneous, intramuscular, or arterial routes resulting from needle sticks, human bites, cuts, or abrasions.

Production Facility means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Personal Protective Equipment (PPE) means specialized clothing or equipment that is worn by an employee to protect him or her from a hazard. General work clothes, such as uniforms, pants, shirts, or blouses, that are not intended to function as protection against a hazard, and are not considered to form a protective barrier, are not considered to be personal protective equipment.

Regulated Waste means any of the following: liquid or semi-liquid blood or other potentially infectious material; contaminated items that would release blood or other potentially infectious material in a liquid or semi-liquid state if compressed; items that are caked with dried blood or OPIM and are capable or releasing these materials during handling; contaminated sharps; and pathological microbiological wastes containing blood or other potentially infectious material.

Source Individual means any individual, living or dead, whose blood or OPIM may be a source of occupational exposure to a UNL employee.

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

Universal Precautions means a method of infection control requiring that all human blood and certain human body fluids be treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

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

APPENDIX B: Employee Exposure Determination

B.1. Employees Required to Participate in the Exposure Control Program

The University of Nebraska-Lincoln Bloodborne Pathogen/Exposure Control Plan applies to all employees whose job classification identifies work where there exists a known reasonably anticipated risk of exposure to bloodborne pathogens. Below is a list of job classifications for which employees in that classification have a risk of exposure. These employees must participate in the Exposure Control Program.

- Athletic Trainer (and Assistants)
- Biosafety Officer/Assistant Biosafety Officer
- Biosafety Specialist
- Police Officer, Sergeant or Captain
- Community Service Officer
- Child Care Worker (Teacher, Assistant, Director, Asst. Director, Kitchen Manager, Program Coordinator)
- Lifeguards
- Custodial II
- Custodial Leader
- Custodial Supervisor
- Custodial Specialist
- Custodial Manager
- Housing Student Mechanic

The following list of job titles of UNL employees also fall under the OSHA Bloodborne Pathogens Standard, but are not included under this ECP because they are covered under ECPs administered by other departments, institutions or entities: ***Physician, Nurse (e.g. LPN, NP, or RN), Medical Technologist, Dentist, and Dental Hygienist***. If an employee has a job title similar to one listed here, and is not covered under another ECP, please contact EHS at 402.472.4925.

B.2. Employees with Specific Tasks Requiring Participation in the Exposure Control Program

Below is a list of job classifications where some, but not all employees in that classification, may be at risk of occupational exposure to bloodborne pathogens. Associated with those jobs are examples of tasks that may be performed, even on an occasional basis, which may result in an exposure. If there are employees in the listed job classifications performing tasks listed, or other tasks where exposure to bloodborne pathogens can be anticipated, then these employees must participate in the UNL Exposure Control Program.

Not all employees with a job classification listed below may be performing exposure risk tasks. It is the responsibility of the supervisor to make the final determination so that where applicable, the employee(s) is entered into the Exposure Control Program.

Note: If the tasks listed below are conducted as **part of a collateral activity**, then participation in the bloodborne pathogen program **is not** required. For example, if an employee is trained in first aid/CPR, but is not paid or responsible for administering these skills but performs these tasks of their own free will, this is a collateral activity and does not necessitate participation in the program. It is assumed that the application of these skills will be by choice and not as part of a required task.

Employees in the following job classifications may be required to perform tasks that could involve occupational exposure to blood or OPIM.

CLASSIFICATION	EXAMPLE OF A REQUIRED TASK THAT MAY RESULT IN OCCUPATIONAL EXPOSURE
Athletic Coaches and Assistants	Administering first aid/CPR, or performing routine duties in situations where human blood is present.
Building Service Technician II; Building Service Technician III, Manager; Building Mechanic III; Material Service Worker; Facilities Assistant, Facilities Associate	Cleaning of body fluid spills; Handling contaminated laundry or other items that may be contaminated
Clinic Clerk (as applicable)	Handling human blood samples in containers that may be contaminated.
Residence Hall Custodian, Asst. Manager	Cleaning of body fluid spills; handling contaminated laundry; handling of biowaste; contact with potentially contaminated sharps
Custodian	Cleaning of body fluid spills; handling contaminated laundry; handling of biowaste; contact with potentially contaminated sharps
Groundskeeper (all classifications)	Cleaning up spills of blood or other PIM
Hazardous Materials/Environmental Specialist	Cleaning up spills of blood or other PIM; handling waste
Hazardous Materials/Environmental Technician	Cleaning up spills of blood or other PIM; handling waste
Health Aide	Administering first aid/CPR
Laboratory Manager, Assistant, Technologist, Histological Technician, Radiology Technologist	Handling/testing human blood samples or working with human, nonhuman primate, or certain mammalian cell lines; spill cleanup; handling contaminated waste;

CLASSIFICATION	EXAMPLE OF A REQUIRED TASK THAT MAY RESULT IN OCCUPATIONAL EXPOSURE
Maintenance Mechanic II	Handling contaminated laundry. Contact with blood or bodily fluids during maintenance of sanitary sewer installations in BSL-2 laboratories, clinics or dental offices.
Plumber/Pipe Fitter I, II	Contact with blood or bodily fluids during maintenance of sanitary sewer installations in laboratories that fall within the scope of the ECP, clinics or dental offices.
Postdoctoral/Research Associate	Drawing human blood samples; collecting or handling swabs of human specimens; analyzing human blood; working with human, non-human primate, or certain mammalian cell lines; spill cleanup; handling contaminated waste.
Professor	Drawing human blood samples; collecting or handling swabs of human specimens; analyzing human blood; working with human, non-human primate, or certain mammalian cell lines; spill cleanup; handling contaminated waste
Psychiatrist Psychologist	Contact with patients where bites, scratches or similar contact is probable
Recreation Therapy	Administration of first aid or treatment of injuries
Research Technician, Specialist, Scientist, Manager - Lab	Drawing, handling, processing, testing human blood or working with human, nonhuman primate, or certain mammalian cell lines; spill cleanup; handling contaminated waste
Research Technologist I,II	Drawing, handling, processing, testing human blood, or working with human, non-human primate, or certain mammalian cell lines; spill cleanup; handling contaminated waste
Student Athletic Trainer/Staff	First aid and treatment of athletic/recreation injury: CPR

CLASSIFICATION	EXAMPLE OF A REQUIRED TASK THAT MAY RESULT IN OCCUPATIONAL EXPOSURE
Student Worker	Handling human blood samples; first aid/CPR; spill cleanup; handling contaminated waste; unpacking human blood samples; housekeeping involving contact with blood or body fluids, handling contaminated laundry; handling and washing equipment or athletic wear that may be contaminated with blood; washing glassware contaminated with blood; working with human, non-human primate, or certain mammalian cell lines
Therapist/Pathologist or Aide	Contact with patients where bites, scratches or similar contact is probable

APPENDIX C: APPLICATION OF THE EXPOSURE CONTROL PLAN TO HUMAN CELL CULTURES

From a letter of interpretation of the OSHA BBP Standard (29 CFR 1910.1030) *dated 6/21/1994*

All primary human cell **explants** from tissues and **subsequent *in vitro*** passages of human tissue explant cultures (human cell "strains"[3]) must be regarded as containing bloodborne pathogens and should be handled with Universal Precautions and are subject to the requirements of the ECP. Non-transformed, human cell "strains" characterized by documented, reasonable laboratory testing[2], to be free of HIV, hepatitis viruses, or other bloodborne pathogens may be exempted from the ECP requirements. However, if such tissue explants or subsequent cultures are derived from human subjects known to carry bloodborne pathogens (e.g., HIV, HBV), or are deliberately infected with bloodborne pathogens, they must be handled in accordance with the bloodborne pathogens standard and the UNL ECP. The same applies for animal tissues and explants or cell lines contaminated by deliberate infection with bloodborne pathogens.

Established human cell lines[1] which are characterized[2] as free of contamination from human hepatitis viruses, human immunodeficiency viruses, and other recognized bloodborne pathogens, are **not** to be considered as OPIM and are **not** covered by the bloodborne pathogens standard and the UNL Exposure Control Plan.

Established human or animal cell lines that are potentially infected or contaminated with bloodborne pathogens, are covered by the provisions of the UNL Exposure Control Plan.

The final judgment for making the determination if human or animal cell lines in culture are free of bloodborne pathogens will be made by the UNL BSO and/or the Institutional Biosafety Committee (IBC) in consultation with the Principal Investigator (PI), in accordance with the requirements of the bloodborne pathogen standard. Documentation that such cell lines are not OPIM should be on file with the PI for review.

Definitions

1 Human cell lines are defined as ***in vitro*** or animal passaged (e.g., nude mouse) cultures or human cells that fulfill traditional requirements of a **cell line** designation. That is:

- Immortalized cells;
- Cultures transformed by spontaneous mutation;
- Cultures transformed by natural or laboratory infection with an immortalizing agent (e.g. Epstein-Barr virus (EBV).

Human cell lines may be adulterated with laboratory pathogens introduced by cultivation with other cell cultures, or cells may be physically contaminated by other cultures handled in the same lab. Cells should be documented to be pure cells and shown to be free of bloodborne pathogens in order to be exempted from the ECP requirements.

2 Characterization of human cells, for exclusion from compliance with the bloodborne pathogen standard, must include (1) screening of the cell lines or "strains" for viruses characterized as bloodborne pathogens (e.g., HIV, HBV, EBV), **and** (2) determining that the cells are ***not*** capable of propagating such viruses. Most cell lines are screened only for human mycoplasmas and are determined to be free of bacterial and mycotic contaminants. Testing to identify latent viruses capable of infecting humans such as Herpesviruses (e.g., EBV), or papilloma members of the **Papovavirus group**, etc., may include:

- Antigenic screening for viral or agent markers;
- Co-cultivation with various indicator cells that allow contaminants to grow;
- Using molecular techniques (polymerase chain reaction or nucleic acid hybridization).

Cell lines obtained from commercial vendors or other sources documented as free of human bloodborne pathogens and protected by the employer from environmental contamination may be excluded from the bloodborne pathogens standard.

3 Human cell "strains" are cells propagated ***in vitro*** from primary explants of human tissue or body fluids which have finite lifetime (non-transformed) in tissue cultures for 20-70 passages. Human cell "strains" must be handled as potential biohazards unless characterized by documented testing to be free of bloodborne pathogens.