



INDIANA UNIVERSITY

OFFICE OF THE EXECUTIVE VICE PRESIDENT
FOR UNIVERSITY ACADEMIC AFFAIRS

University Environmental Health and Safety

Bloodborne Pathogens Exposure Control Plan (ECP)

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1. INTRODUCTION

1.1. Purpose

The Indiana University Bloodborne Pathogens Exposure Control Plan (ECP) is intended to provide Indiana University employees with necessary information, work rules and forms to enable them to comply with the requirements of the OSHA Bloodborne Pathogens Standard 29 CFR 1910.1030. This Plan is intended to inform Indiana University employees of the potential hazards associated with contact with human blood or other potentially infectious materials (OPIM) and to provide information on appropriate safe work practices when working with or handling material contaminated with human blood or OPIM.

1.2. Scope

The Bloodborne Pathogens Exposure Control Plan (ECP) applies to all employees; including part-time, temporary, and probationary; who may as part of their jobs come in contact with persons, unconditioned primate animals, or items that are infectious or potentially infectious for bloodborne pathogens.

2. AUTHORITY AND RESPONSIBILITY

2.1. University Environmental Health and Safety (IUEHS) is responsible for:

- Providing overall administrative guidance and supervision for the Bloodborne Pathogens Exposure Control Plan;
- Aiding departments or sub-units in determining those employment positions or tasks qualifying for reasonable anticipation of exposure to bloodborne pathogens;
- Providing training for employees under this Plan;
- Providing personal protective equipment information for employees under this Plan;
- Maintaining a master file of employees trained in this Plan; and
- Reviewing and updating the Bloodborne Pathogens Exposure Control Plan annually and as new information becomes available.

2.2. Supervisors/Department/Managers/Principal Investigators are responsible for:

- Identify those employment positions within each department or appropriate sub-unit, which fit the definition of "occupational exposure" described in Section 1.2 and specify those tasks or procedures in which occupational exposure is likely to occur;
- Customize the ECP for specific areas by adding appropriate information for each department or laboratory in Appendix [C](#), [D](#), and [E](#);
- Enforce all elements of the Exposure Control Plan within the work setting;
- Ensure that all existing and new employees are informed and trained in all elements of the ECP;
- Establish and implement a written schedule for specific cleaning and methods of decontamination for affected work areas;
- Solicit input from non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation, and selection of effective engineering and work practice controls and shall document the solicitation in the ECP. Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure;
- Ensure all exposure incidents are reported to the Designated Medical Service Provider for the

- respective campus as soon as feasible after they occur;
- Offer hepatitis B vaccination and cover costs of the vaccination series for employees who have not previously been vaccinated;
 - Retain copies of the hepatitis B vaccination forms; and
 - Work with IUEHS for your respective campus to determine appropriate PPE selections and provide the appropriate PPE to employees.

2.3. Employees are responsible for:

- Attending annually required training sessions on controlling exposure to bloodborne pathogens in the workplace;
- Complying with all elements of the Bloodborne Pathogens Exposure Control Plan that apply to work related tasks and procedures with potential exposure. This will include:
 - Following appropriate work practices;
 - Using appropriate engineering controls; and
 - Using appropriate personal protective equipment.
- Reporting all exposure incidents to the work supervisor or other responsible individual immediately, or as soon as feasible, after they occur.

2.4. Designated Medical Service Providers are responsible for:

- Providing hepatitis B vaccination for employees with potential bloodborne pathogens exposure;
- Maintaining employee records relative to hepatitis B vaccination;
- Evaluating employees reporting exposure incidents and providing appropriate post-exposure evaluation and follow-up;
- Maintaining employee records relative to post-exposure incidents and treatment; and
- Notifying the respective campus IUEHS when exposure incidents have occurred.

3. PROGRAM ELEMENTS

3.1. Bloodborne Pathogens of Concern in Occupational Exposure

Hepatitis B virus, hepatitis C virus, and human immunodeficiency virus are the three bloodborne pathogens of greatest concern for occupational exposure. The elements of this Bloodborne Pathogens Exposure Control Plan shall also provide protection against other bloodborne diseases such as syphilis, malaria, babesiosis, brucellosis, leptospirosis, arboviral infections, relapsing fever, Creutzfeldt-Jakob disease, human T-lymphotropic virus type I, and viral hemorrhagic fever.

3.1.1. Hepatitis B Virus (HBV)

Hepatitis B virus infection is the major bloodborne occupational hazard to healthcare workers. Symptoms of the acute form of the disease may range from none, to mild flu-like symptoms, or to more severe symptoms including jaundice, extreme fatigue, anorexia, nausea, and abdominal pain. Outcomes of acute forms of the infection may include hospitalization, weeks to months of work loss, and, in severe cases, death.

An estimated 6% to 10% of individuals infected with hepatitis B virus become chronic HBV carriers, capable of infecting other individuals. HBV carriers are at high risk of developing chronic persistent hepatitis, chronic active hepatitis, cirrhosis of the liver and primary liver cancer.

There are several ways in which the virus can be transmitted. The most efficient and common means of occupational transmission is parenteral, or the direct inoculation of infectious material by piercing through the skin barrier. In the workplace this might occur as a result of needlestick or other accidental injury with a sharp, contaminated object, which is capable of penetrating the skin. Direct inoculation is also possible when preexisting lesions on hands from other injuries or from dermatitis provides a route for the virus to enter the body.

A second mode of transmission is for infected blood or OPIM to contact mucous membranes of the eye, nose, or mouth. Therefore, splashes of blood or serum into an individual's unprotected eyes or mouth in either clinical or laboratory settings pose a risk of infection. Hepatitis B can also be transmitted sexually, and perinatally (from infected mother to newborn infant). These modes of transfer indicate that occupational exposure to this pathogen can also have serious implications for the spouses, sexual partners, and families of infected individuals.

3.1.2. Hepatitis C Virus (HCV)

Hepatitis C is a contagious liver disease that ranges in severity from a mild illness lasting a few weeks to a serious, lifelong illness that attacks the liver. Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States. Approximately 75-85% of the people who become infected with HCV will develop chronic infection. HCV is spread primarily through contact with the blood of an infected person. Infection with HCV can either be "acute" or "chronic". It should be noted that chronic HCV infections are now the number one reason for liver transplants in the US.

HCV is usually spread when blood from a person infected with the hepatitis C virus enters the body of someone who is not infected. Previously infection mainly occurred through blood transfusions and organ transplants, but now, due to widespread screening of the blood supply, most people become infected during such activities as sharing needles, syringes, or other equipment to inject drugs, needlestick injuries in healthcare settings, and being born to a mother who has HCV. Other less common infections can occur through sharing personal care items that may have come in contact with another person's blood, such as razors or toothbrushes or having sexual contact with a person infected with HCV.

Approximately 70-80% of people with acute Hepatitis C do not have any symptoms. Some people can have mild to severe symptoms including fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, clay-colored bowel movements, joint pain, and jaundice. There are currently no vaccinations for hepatitis C. Information obtained from the [CDC Hepatitis C FAQs](#).

3.1.3. Human Immunodeficiency Virus (HIV)

HIV affects the immune system, leading to a wide range of clinical disorders, including AIDS, which usually leads to the death of the HIV patient. HIV is known to be transmitted through blood, semen, vaginal secretions and breast milk.

Documented modes of transmission include:

- Engaging in sexual intercourse with an infected person,
- Using contaminated needles,
- Having parenteral, mucous membrane or non-intact skin contact with HIV infected blood, blood components or blood products,
- Receiving transplants of HIV-infected organs or tissues,
- Through blood transfusions,
- Through semen used for artificial insemination, and
- Perinatal transmission.

HIV is not transmitted by casual contact such as: shaking hands, talking, sharing of food, eating utensils, plates, drinking glasses, or towels, sharing the same household facilities, hugging, or casual kissing on the cheek or lips.

Occupational exposure to HIV may occur through the contact described above with an infected individual or with specimens from infected individuals, from parenteral exposure (accidents involving a needle, scalpel, or other sharp instrument or object which has been contaminated with blood or body fluids from HIV-infected individual), or by splashes of infected blood or other body fluids to the mucous membranes of the mouth, nose, or eyes.

3.2. Exposure Determination

The Bloodborne Pathogen Exposure Control Plan applies to all employees with potential occupational exposure to human blood or OPIM. This exposure determination shall be made without regard to the use of personal protective equipment. Staff members identified in this manner are a part of this Bloodborne Pathogens Program and must comply with all aspects of the Exposure Control Plan. All employees must be notified by their supervisor concerning their occupational exposure status.

The following are jobs/position descriptions/categories/titles in which ALL employees have occupational exposure:

- Custodians/Building Services
- Housekeeping
- Plumber
- Police
- Childcare
- Health Clinics

The following are jobs/position descriptions/categories/titles in which SOME employees have occupational exposure and the tasks and procedures in which occupational exposure occurs:

- Maintenance – when working with plumbing or when working in areas that are used to house or manipulate materials that may contain bloodborne pathogens
- Transportation – those employees who perform clean-up of buses
- Recreational Sports – cleaning of equipment and cleanup of blood/OPIM
- Laundering – employees handling laundry and performing laundering duties
- Athletics - treatment of athletic injuries and laundering
- Anyone who is required as part of their job description to apply first aid or CPR
- Laboratory – when working with or in an area used to house or manipulate materials that may contain bloodborne pathogens
- Environmental Health and Safety – anyone working in areas that are used to house or manipulate materials that may contain bloodborne pathogens

3.3. Procedures and Equipment for Reducing Exposure Risks

3.3.1. Universal Precautions

Universal Precautions refer to approaches to infection control in which all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, or other bloodborne pathogens. These approaches recognize that there is no practical way to determine the health status of all patients who may be sources of bloodborne pathogens. Using this assumption when dealing with potentially infectious materials eliminates the need for decision-making to determine the extent of actual or potential disease hazards and establishes minimum standards for contamination control, which will effectively control bloodborne pathogens if they are present.

Universal Precautions shall be observed to prevent contact with blood or other potentially infectious materials. In situations where differentiation between body fluid types is difficult or impossible (e.g. poor lighting, uncontrolled or emergency situations), all body fluids shall be considered potentially infectious materials. In clinical areas, Universal Precautions are often referred to as Standard Precautions and are based on the same premise that handling all human blood and/or OPIM should involve practices based on unknown pathogens that may be present.

3.3.2. Engineering Controls

Engineering controls include all measures designed to reduce the potential for contact between workers and potentially infectious materials by either removing the hazard or isolating the worker from exposure. Examples of engineering controls include puncture resistant sharps containers, Plexiglas® splash shields, mechanical pipettes, self-sheathing needles, biological safety cabinets, and use of fluid resistant disposable barrier materials to cover and prevent contamination of environmental surfaces and equipment.

Appropriate engineering controls shall be provided by each department and shall be used in preference to other control methods in order to limit occupational exposure.

Note: Biological safety cabinets are to be certified at least annually according to the National Sanitation Foundation. Refer to the [IU Biosafety Manual](#) for further details.

Wherever engineering controls will reduce employee exposure either by removing, eliminating, or isolating the hazard, they must be used, and changes to the Exposure Control Plan (ECP) must include these engineering controls [[1910.1030\(c\)\(1\)\(iv\)\(B\)](#), [1910.1030\(d\)\(2\)\(i\)](#), [OSHA Directive CPL 2-2.69](#)].

Engineering control mechanisms shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness. Each department or laboratory shall be responsible for evaluation and maintenance of engineering controls in their area ([Appendix C](#)).

3.3.2.1. ***Needlestick Safety and Prevention Act***

The Needlestick Safety and Prevention Act directed OSHA to revise its Bloodborne Pathogens standard (29 CFR 1910.1030). OSHA published the revised standard in the Federal Register on January 18, 2001; it took effect on April 18, 2001. The requirement to implement the use of engineering controls, which includes safer medical devices, has been in effect since 1992.

OSHA's Bloodborne Pathogens Standard, including its 2001 revisions, applies to all employers who have employees with reasonably anticipated occupational exposure to blood or other potentially infectious materials (OPIM). These employers must implement the applicable requirements set forth in the standard. Some of the new and clarified provisions in the standard apply only to healthcare activities, but some of the provisions, particularly the requirements to update the Exposure Control Plan and to keep a sharps injury log, will apply to non-healthcare as well as healthcare activities.

In addition to what is already required by the 1991 standard, the revised standard requires the documentation of (1) annual consideration and implementation of appropriate commercially available and effective safer medical devices designed to minimize occupational exposure and (2) solicitation of non-managerial healthcare workers in evaluating and choosing devices. The Plan must be reviewed and updated at least annually.

OSHA has an FAQ webpage on the Needlestick Safety and Prevention Act.

3.3.2.2. Sharps Injury Protection Program

Supervisors of all departments who have employees with occupational exposure to bloodborne pathogens must consider and, where appropriate, use effective engineering controls, including safer medical devices, in order to reduce the risk of injury from needlesticks and from other sharp medical instruments.

Supervisors must implement the safer medical devices that are appropriate, commercially available, and effective. An appropriate safer medical device includes only devices whose use, based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated.

Supervisors, in healthcare settings where employees are responsible for direct patient care, must establish a program for evaluating medical devices designed to eliminate or minimize occupational exposure. This program shall include an identification process, an evaluation process and a selection process. The consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure must be completed on an annual basis and thoroughly documented.

3.3.2.2.1. Identification Process:

All sharp devices that have available products with safer engineering features shall be identified, evaluated and selected.

3.3.2.2.2. Evaluation Process:

- Evaluation of the safer sharp devices must be documented on the "Safety Needle/Sharps Evaluation Form." See [Appendix G](#).
- Supervisors alone cannot identify, evaluate and select the safer sharps devices; supervisors must choose members of non-managerial employees who perform tasks with sharps exposure risks to be involved in this process.
- Supervisors must determine which products are to be evaluated and provide at least four or more test samples for each individual evaluating the product.
- Supervisors will ensure that visual instructions and a demonstration of the proper use of each device is provided.
- Supervisors will review the instructions and rating system on the evaluation form with each evaluator.
- Supervisors should encourage each evaluator to comment on the forms. This will provide a useful decision making tool.
- Supervisors will send (or fax) one copy of the completed evaluation forms to the IUEHS for the respective campus, and retain the original forms for their records.

Once the evaluation process is complete and the safer sharp device has been chosen, supervisors must implement use of the safer sharps devices as soon as possible.

If safer sharps devices are currently in use, the evaluation process must still be completed.

3.3.3. Work Practice Controls

Work practice controls are those measures 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). Specific work practice controls required in addition to those listed below should be specified for each department or laboratory in [Appendix D](#) of their Bloodborne Pathogen Exposure Control Plan. The following work practice controls shall be instituted for employees with occupational exposure to blood and OPIM.

3.3.3.1. Hand Washing

Hand washing facilities, which are readily accessible, shall be provided for employees.

When hand washing facilities are not available, employees shall be provided with antiseptic towelettes or an antiseptic hand cleanser and clean cloth/paper towels. When these alternatives are used, employees shall wash their hands with soap and water as soon as feasible.

Hands and any other exposed skin surfaces must be washed with soap and running water and mucous membranes should be flushed with water as soon as possible after contact with blood or OPIM.

Hands must be washed as follows:

- Whenever there is visible contamination with blood or OPIM;
- After completion of work;
- After removing gloves;
- Before leaving the work area;
- Before eating, drinking, smoking, applying cosmetics or lip balm, changing contact lenses;
- After using lavatory facilities and;
- Before all other activities which entail hand contact with mucous membranes, eyes or breaks in the skin.

3.3.3.2. Handling Contaminated Sharps

Any object, which is contaminated with blood or OPIM and is capable of penetrating the skin, is considered a contaminated sharp. Breakable equipment or supplies are potential sharps if they can create material capable of penetrating the skin. Examples of sharps include needles, scalpels, broken capillary tubes, certain dental instruments, and exposed ends of dental wires. Needlesticks are an efficient means of transmitting bloodborne diseases. Because of their high potential for transmitting bloodborne pathogens to employees, contaminated sharps should be handled as follows:

- Contaminated needles and other contaminated sharps or potential sharps shall not be recapped, removed or bent unless no alternative is feasible or required by a specific procedure.
- In situations where recapping or needle removal is required, it shall be accomplished only by means of a mechanical device or a one-handed technique.
- All contaminated sharps shall be transferred to rigid, puncture-resistant, labeled, leak-proof containers immediately or as soon as possible after use. They may not be stored or handled prior to decontamination in such a way as to require employees to reach their hands into the container to retrieve the item.

3.3.3.3. Other Work Practice Controls

- All procedures involving direct handling of blood or OPIM should be accomplished in a manner, which minimizes splashing, spraying, spattering, or aerosol production of blood or OPIM.
- Mouth pipetting/suction of blood or OPIM and all other material is prohibited.
- Specimens of blood or OPIM must be placed in labeled containers, which prevent leakage and are of sufficient strength to prevent expulsion during collection, handling, processing, storage, transport, or shipping. The following container requirements must be met:
 - These containers must be closed prior to storage, transport or shipping.
 - Biohazard labeling is required on the outside of each container.
 - The specimen must be placed in a second container, which meets the same provisions as above if the outside of the primary container becomes contaminated or if the specimen could puncture the primary container.
- Contaminated equipment must be decontaminated, if feasible, using approved methods prior to servicing or shipment. When such decontamination is not feasible, the equipment must be clearly labeled as a biohazard to alert employees, as well as transportation and service personnel of the need to use Universal Precautions.
- Eating, drinking, smoking, applying cosmetics, and handling contact lenses are prohibited in work areas where blood or OPIM are used or stored.
- Food or drink storage is prohibited in work areas (e.g. refrigerators, freezers, shelves, cabinets, counter tops, bench tops) where blood or OPIM are used or stored. Refrigerators or freezers used for storage of blood or specimens may not be used for storage of food or drink and shall be labeled as such.

3.4. Personal Protective Equipment (PPE)

Personal protective equipment includes any item, which the employee wears or uses on his/her person to provide barrier protection of the skin or mucous membranes from contamination by blood or OPIM. Examples include: gloves, gowns, lab coats, face shields, masks, eye protection, mouthpieces, resuscitation bags, pocket masks, and other ventilation devices.

The use of appropriate PPE is required as supplementary protection in all situations where occupational exposure remains after institution of both engineering controls and work practice controls. Indiana University requires the use of appropriate personal protective equipment for all employees when engaged in tasks involving contact with blood, body fluids, or any OPIM where occupational exposure is reasonably anticipated.

The only exception to this requirement shall be those rare and extraordinary occasions when, in the professional judgment of the employee, wearing of required PPE would have prevented delivery of health or public safety services or would have posed an increased hazard to the employee or coworkers. Such situations must be investigated and documented to determine whether such occurrences can be prevented.

3.4.1. Provision and Use of PPE

Each Supervisor, Department, Manager, or Principal Investigator shall determine appropriate types of PPE necessary to provide barrier protection for their employees. Appropriate PPE shall be readily accessible to all employees for whom it is required and shall be provided in appropriate sizes.

The determination of the exact types of PPE is dependent on the procedure(s) being performed by each employee and the type and amount of exposure which is anticipated. PPE shall be judged as appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment shall be used. Contact IUEHS for your respective campus for assistance with determining required PPE as needed.

Departments shall provide, clean, launder, or dispose of all PPE at no cost to the employee. Only those items of clothing intended to protect the employee's person, work clothes, or street clothes against contact with blood or OPIM are considered to be PPE in this Plan.

3.4.1.1. Gloves

Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood or other potentially infectious materials (OPIM).

3.4.1.1.1. *Glove Selection*

The type of gloves (e.g. sterile surgical, non-sterile examination, or utility gloves) selected should be impervious to liquids and strong enough to withstand the rigors of the task to be performed. Use of vinyl or latex gloves is intended to cover defects in the skin on the hands and is not intended to provide protection from puncture wounds caused by sharps.

The following guidelines are recommended by the [Centers for Disease Control \(Morbidity and Mortality Weekly Report, Vol. 24, 6/24/88\)](#):

- Sterile gloves should be used for procedures involving contact with normally sterile areas of the body.
- Examination gloves should be used for procedures involving contact with mucous membranes, unless otherwise indicated, and for other patient care or diagnostic procedures that do not require the use of sterile gloves.
- Surgical and examination gloves may not be re-used. Washing gloves with soap or detergents may cause enhanced penetration of liquids through undetected holes in the glove. Disinfecting agents may cause deterioration.
- Use general-purpose utility gloves (e.g. rubber household gloves) for housekeeping chores involving potential blood or other potentially infectious materials contact and for instrument cleaning and decontamination procedures. Utility gloves shall be decontaminated when and if reused but should be discarded if they are peeling, cracked, discolored, punctured, torn, or if there is other evidence of deterioration.

3.4.1.1.2. Changing Gloves

Gloves shall be changed under the following circumstances:

Between patient contacts;

- If visibly contaminated with blood or OPIM (certain repetitive tasks in laboratory settings may be completed before gloves are changed, i.e. wiping the probe on a whole blood analyzer); and
- When physical damage to the integrity of the glove is observed (e.g. tearing, surface defects).

Contaminated disposable gloves shall be discarded into a waste container (biohazard waste container recommended) immediately after removal.

Employees with known minor skin defects (e.g. cuts, abrasions, burns, dermatitis, or exudative lesions) on arms, hands, face or neck must cover these areas with a water-resistant occlusive bandage in addition to the use of personal protective equipment.

Employees with weeping or exudative lesions or dermatitis, which cannot be securely covered, shall refrain from direct patient care and handling clean or soiled patient equipment (Indiana State Board of Health 410 IAC 1-4-8 Precautions).

3.4.1.2. Masks, Eye Protection, and Face Shields

These barrier devices are intended to protect the eyes, nose and mouth from coming into contact with blood or OPIM droplets. Examples are disposable facemasks, plastic or disposable face shields, protective eyeglasses with non-permeable side vents, and goggles.

Employees shall wear protective face shields or masks, and eye protection whenever splashes, spray, spatter or droplets of blood or OPIM may be generated and eye, nose or mouth contamination can be reasonably anticipated. Plexiglas® splash shields, may be used in place of facial personal protective equipment.

These protective devices shall be used while uncapping all blood or OPIM samples when the risk of droplet formation and spattering is present (e.g. when uncapping sample tubes), although it is preferable that such work be performed within a biosafety cabinet.

Employees shall remove masks, eye protection, and face shields when leaving the work area. All disposable masks and shields shall be discarded in an infectious waste container when visibly contaminated or penetrated by blood or OPIM. Reusable eyewear and shields which are visibly contaminated shall be washed with soap and water using gloved hands and then decontaminated with a hospital-grade EPA registered tuberculocidal disinfectant.

3.4.1.3. Protective Body Clothing

Protective body clothing, such as gowns, lab coats, or lab jackets, shall be provided to cover and protect work clothing and exposed skin from contamination with potentially infectious blood or OPIM. Use of protective clothing may be required during patient treatment, when handling contaminated materials, or during decontamination procedures.

Protective gowns or laboratory coats may be made of cloth or of disposable fluid resistant material depending on the degree and type of contamination, which is anticipated. Protective clothing items shall be long-sleeved and kept buttoned or fastened at all times to maximize protection of exposed skin and work clothes.

All protective clothing items shall be removed before leaving the laboratory or work area. Contaminated or soiled gowns or coats may not be worn in public areas. Public areas include, but are not limited to, employee break rooms, lounges, eating areas, storage areas, and restrooms. Protective clothing shall be changed immediately, or as soon as possible, after becoming visibly contaminated with blood or other potentially infectious materials.

Contaminated gowns or coats shall be laundered or disposed of according to departmental policy for infectious waste or contaminated linen. Protective clothing must not be taken home to be washed or discarded.

3.4.1.4. Cardiopulmonary Resuscitation Masks

Employees whose tasks include participation in cardiopulmonary resuscitation (CPR) shall use a one (1) way mask when performing mouth-to-mouth resuscitation. Masks shall be provided and made readily available wherever the need for CPR may be reasonably expected to occur (Source: [Indiana Department of Health 410 IAC 1-4-8](#)).

3.5. Housekeeping

All work areas shall be maintained in a clean and sanitary condition. To ensure this, each department, sub-unit, or laboratory shall establish and implement a written schedule for specific cleaning and methods of decontamination for affected work areas. Frequency and methods of decontamination shall be based on the location within the facility, the type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the work area. These schedules and instructions must be responsive to the following elements:

All equipment and working surfaces must be cleaned, then decontaminated after contact with blood or OPIM.

Contaminated work surfaces must be decontaminated with an appropriate disinfectant at the following times:

- After completion of procedures;
- Immediately, or as soon as possible, after surfaces are overtly contaminated or after any spill of blood or OPIM; and
- At the end of the work shift if the surface may have become contaminated since the last cleaning.

Solutions that are acceptable disinfectants include, but are not limited to the following:

- Sodium hypochlorite, five-tenths percent (0.5%) concentration, by volume (common household bleach in ten percent (10%) concentration in water). The solution shall be dated and shall not be used if it is more than twenty-four (24) hours old; and
- Other chemical agents that have an EPA registration number and a TB kill claim, as required by CDC, may also be used.

The use of protective barrier coverings such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper is useful in covering work surfaces or for covering equipment or items which may be difficult to clean and decontaminate effectively. When such barrier coverings are used, they must be removed and replaced as soon as they become overtly contaminated or at the end of the shift if they have become contaminated during the shift.

Broken glassware, which might be potentially contaminated, shall never be picked up with unprotected hands. Mechanical means such as a brush and dustpan, tongs, or forceps must be used. These items shall then be disposed with contaminated sharps.

Reusable sharps that are contaminated shall not be stored or processed in such a way that employees are required to reach by hand into containers where these sharps have been placed.

3.6. Containing and Handling Regulated Waste

3.6.1. Contaminated Sharps Containers

All contaminated sharps and potential sharps must be discarded immediately after use, or as soon as possible into appropriate containers, which meet the following requirements [[1910.1030\(d\)\(4\)\(iii\)\(A\)\(1\)](#)]:

- Closable and not able to be opened except by use of tools.
- Puncture-resistant.
- Leak-proof on bottom and sides to prevent leakage of contaminated liquids.
- Labeled using the universal biohazard symbol and the word "biohazard".
- Accessible, maintained upright, and not allowed to overfill.

When moving containers of contaminated sharps, the containers must be closed so that their contents do not spill or protrude.

See the Indiana University Biosafety Manual Section 3.14 for detailed waste disposal requirements.

If leakage of the primary container is anticipated, it must be placed into a second container, which is closable, labeled, and shall safely contain all contents without leaking.

3.6.2. Other Regulated Waste Containers

Regulated waste shall be placed in containers, which are closable and labeled using the universal biohazard symbol and the word "biohazard". Containers must be constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping. Containers must be closed prior to being handled, stored, or transported. Please note that red bags and red disposal containers are not permitted for use and disposal at IU.

If outside contamination of a regulated waste container occurs, it must be placed in a second container, which meets the requirements stated above.

3.6.3. Waste Treatment and Disposal

Infectious waste generated in University areas may be autoclaved on site or collected in a biohazard container for treatment. If waste is autoclaved, the container must be labeled as "treated" prior to disposal with general refuse. Liquid infectious waste may be bleached and then poured down the drain. Refer to the Indiana University Biosafety Manual Section 3.14 for additional disposal details. If an autoclave is unavailable for treatment on site contact IUEHS for your respective campus for assistance.

3.7. Laundry

All employees who have contact with contaminated laundry must wear protective gloves and other appropriate personal protective equipment. All contaminated laundry shall be handled as little as possible with minimum agitation during handling. All contaminated laundry shall be bagged or put into containers at the location where it is used. It shall not be sorted or rinsed prior to being placed in bags or containers.

All soiled laundry is considered contaminated (biohazardous). Bags or containers for contaminated laundry shall be clearly labeled or color-coded as containing potentially infectious material. When contaminated laundry is wet or when it is determined that there is a reasonable likelihood of leakage from the bag or container, it must be placed and transported in bags or containers which shall prevent liquids from soaking through or leaking to the exterior.

3.8. Hepatitis B Vaccination

The hepatitis B vaccine shall be made available to all employees of Indiana University who are identified as having potential occupational exposure to bloodborne pathogens. The Designated Medical Service Provider for the respective campus shall provide HBV vaccinations. Each employee's department will pay the vaccination expense.

Vaccinations shall be available to all existing employees of Indiana University with the potential for occupational exposure after receiving training regarding the risk of exposure to bloodborne pathogens and within 10 working days of initial assignment to jobs with occupational exposure. Vaccination is not indicated for employees who have already had the HBV series, who have had antibody testing documenting immunity to HBV, or who have medical contraindications to the vaccine. Pre-screening is not a prerequisite for receiving the vaccination.

Any employee who initially declines the recommended vaccination shall be required to read and sign the declination form ([Appendix B](#)). Employees who decline the vaccination due to already being vaccinated also need to read and sign the declination form. Employees who decline the vaccination initially may elect to accept it at a later date if still employed in a position with occupational exposure.

3.9. Procedures for Spill Cleanup and Contaminated Clothing Handling

3.9.1. Spill Cleanup

The following steps shall be taken in cleaning up small (specimen-size, less than 100 ml or 4 oz.) spills of human blood or other potentially infectious materials.

- Wear latex or nitrile gloves for spill cleanup.
- If broken glass is present, use forceps to pick up and place in sharps container.
- Absorb blood with paper towels and add diluted disinfectant in sufficient quantity to ensure decontamination, let sit for 15 minutes.
- Using a detergent solution, clean the spill site of all visible blood.
- Discard all materials into trash container.
- Wash hands with soap and water.
- Report all spills to IUEHS Biosafety for your respective campus.
- If an injury has occurred, complete an [Occupational Injury/Illness Report form](#) and seek medical evaluation.

Contact IUEHS for your respective campus for large spill clean-up. Prior to arrival of cleanup staff, the spill area should be isolated or cordoned off to prevent contamination of other areas.

Note: If broken glass or other sharps are located in the spilled material, they must be picked up with tongs or other mechanical device. Staff must never pick up broken glass with their hands.

3.9.2. Contaminated Clothing Handling

Protective clothing is provided by departments or laboratories and is to be worn anytime contact might be made with human blood, body fluids, cell lines or cultures, or any other potentially contaminated materials during the performance of normal job duties. Therefore, contamination of personal clothing/uniforms should not occur.

Contaminated clothing may not be worn in public areas that includes, but is not limited to; staff break rooms, lounges, eating areas, storage areas, and restrooms.

In the unlikely event contamination of personal clothing does occur, remove clothing as soon as feasible after contamination and before leaving the area/location where the contamination occurred.

Apparel shall be removed with minimal handling and minimal agitation and placed in a plastic bag, which is to be closed while in the area/location in which the contamination occurred. Apparel shall not be rinsed prior to being placed in bags.

- Clean any areas of skin that may have been contaminated with soap and water.
- Change into clean dry clothing.
- Follow procedures in place for contaminated lab coats.

3.10. Post-Exposure Evaluation and Follow-up

3.10.1. Immediate Action and Medical Examination After Exposure

Exposure incidents are defined as any specific occupational incident involving eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials. Employees are required to report all exposure incidents to their work supervisor. Following a report of an exposure incident, the [Designated Medical Service Provider](#) for the respective campus shall provide a confidential medical evaluation and follow-up to the employee.

Immediately following a suspected exposure:

- Make the site bleed, if practical;
- Wash the area with soap and water for 15 minutes, or if exposure to the eye, use eyewash for 15 minutes;
- Notify supervisor/manager/department head/PI of the incident; and
- Supervisor should fill out an incident report.

Exposure incidents must be documented on an Occupational Injury/Illness Report form. This completed form shall be provided to the Designated Medical Service Provider for the respective campus at the time of medical evaluation and shall include the following information:

- The route(s) of exposure, and
- The circumstances under which the exposure incident occurred including:
 - Type and brand of device involved;
 - Department or area of incident;
 - Detailed description of the incident; and
 - Identification and documentation of the source individual if possible.

Whenever possible, and with consent of the individual, the source should be tested to determine HIV and HBV status unless it is already known. The results of these tests shall be disclosed to the exposed employee but may not be otherwise disclosed to preserve the confidentiality of the source individual.

3.10.2. Collection and Testing of Blood for HIV/HBV Status

The testing of the exposed employee's blood shall be done as soon as feasible after obtaining consent. If the employee consents to baseline blood collection and testing, the sample may be tested for HIV, HBV, HCV, or all three.

3.10.3. Post-Exposure Prophylaxis and Follow-Up

The Designated Medical Service Provider for the respective campus shall provide counseling to employees as part of the post-exposure treatment as well as medical evaluation of all reported illnesses following the exposure incident. When post-exposure prophylaxis is medically indicated, the Designated Medical Service Provider for the respective campus protocols for post-exposure prophylaxis to HBV or HIV shall be followed.

Post-exposure evaluations will also be made available to the employee at 6 weeks, 3 months, and 6 months after baseline.

A written evaluation of the exposure incident shall be provided to the employee within 15 days of the completion of evaluation.

3.11. Biohazard Communication

3.11.1. Labels

Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material. Labeling also applies to other outer containers used to store, transport or ship blood or other potentially infectious materials. Labels are also required for equipment to be serviced or transported that have parts that are unable to be decontaminated. These labels must identify which portions of the equipment remain contaminated.

These labels must meet the following criteria:

- Include the Biohazard legend depicted below:



- Have a fluorescent orange or orange-red colored background with lettering or symbols in a contrasting color.

The following are exceptions to the labeling requirements:

- Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use are exempted from the labeling requirements.
- Individual containers of blood or OPIM that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.

3.11.2. Signs

Signs which are fluorescent orange or orange-red, with lettering or symbols in a contrasting color, and bearing the biohazard legend shall be posted at the entrance to research laboratories and HIV and HBV production facilities (See Appendix F).

4. TRAINING & RECORDKEEPING

4.1. Training

All employees with occupational exposure to bloodborne pathogens shall participate in a training program, which shall be provided during working hours and at no cost to the employee. Training shall be provided to all existing Indiana University employees as part of the initial implementation of this Plan and at least annually thereafter. New employees shall participate in a training program at the time of initial assignment to tasks where occupational exposure may take place. Indiana University staff may receive annual training by attending scheduled Bloodborne Pathogen Training session or online through E Training.

The training program shall be designed so that content and vocabulary are appropriate for the educational level, literacy, and language of employees. Training shall be conducted by an individual who is knowledgeable in the subject matter covered in the content of the training program.

The training program shall be compliant with [29 CFR 1910.1030\(g\)\(2\)\(ii\)](#).

4.2. Recordkeeping

Appropriate records shall be kept for all employees with occupational exposure documenting HBV vaccinations or declination, exposure incidents, and training relative to occupational exposure to bloodborne pathogens.

4.2.1. Medical Records

The [Designated Medical Service Provider](#) for the respective campus shall establish and maintain records for employees with occupational exposure for the duration of employment and for a period of 30 years after termination of employment.

All medical records of employees with occupational exposure to bloodborne pathogens shall include the following elements:

- The employee's name and social security number;
- Hepatitis B vaccination status;
- Copies of the results of all exams, tests, and follow up related to reported exposure incidents; and
- Written medical opinion of post-exposure incidents.

All employee medical records shall be kept confidential. Medical records shall not be disclosed or reported without the employee's written consent to any person within or outside the workplace except as required by this Plan or by law.

4.2.2. Training Records

IUEHS and each affected department shall maintain records of employees trained in this Program.

All training records shall be kept for three (3) years from the date of trainings, and shall include the following information:

- Dates of training sessions;
- Names, identifying numbers or other identifying information, and positions of employees attending each session;
- Contents or summary of training sessions; and
- Names and qualifications of trainers.

4.2.3. Availability of Records

All employee medical and training records shall be provided upon request for examination and copying to the subject employee, to employee representatives, to representatives of accrediting agencies, to the Director or Assistant Secretary of OSHA in accordance with 29 CFR 1910.20 or to the Indiana State Department of Health in accordance with 410 IAC 1-3-23.

5. REFERENCES

- Occupational Safety & Health Administration, Bloodborne Pathogen Standard, [29 CFR 1910.1030](#)
- [Information for Employers Complying with OSHA's Bloodborne Pathogen Standard](#)
- [Bloodborne Pathogens Training Materials](#)
- OSHA's Bloodborne Pathogen [Fact Sheet](#)
- [IU Biosafety Manual](#)

6. REVISIONS

Revised: July 25, 2017

APPENDIX A – Definitions

Blood - human blood, human blood components, and products made from human blood.

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

Contaminated - the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Sharps - any contaminated object that is sharp or has the potential to be a sharp that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination - the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on an item or surface 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.

HBV - hepatitis B virus.

HCV - hepatitis C virus.

HIV - human immunodeficiency virus.

Occupational Exposure - any reasonably anticipated skin, eye, mucous membrane, or parenteral contact (i.e. piercing through the skin or mucous membrane) with blood or other potentially infectious materials that may result from the performance of an employee's duties.

OPIM - other potentially infectious material.

Other Potentially Infectious Material (OPIM) - materials other than blood, which pose a potential health risk, including:

- 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) All human or primate cell or tissue cultures, organ cultures, and cell lines (including established, continuous cell lines). HIV or HBV containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV should be considered potentially infectious; and
- 4) Blood or body fluids of animals that have been intentionally or are suspected of having been exposed to pathogens in research, in production of biologicals, in the in vivo testing of pharmaceuticals, or other procedures.

PPE - personal protective equipment.

Regulated Waste - 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 other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious material.

Sterilize - the use of a physical or chemical procedure to destroy all microbial life.

Universal Precautions - An approach to infection control, which treats all blood and other potentially infectious materials as if known to be infectious for HIV, HBV, and other bloodborne pathogens. This approach includes the use of barrier precautions by employees to prevent direct skin, parenteral, or mucus membrane contact with blood or other body fluids that are visibly contaminated with blood.

APPENDIX B: INDIANA UNIVERSITY HEPATITIS B VACCINATION PROGRAM

The hepatitis B vaccine is available to all employees who could be expected to come in contact with human blood or other potentially infectious materials in the course of their work. There is **no charge** to the employee.

To accept the hepatitis B vaccination, have your supervisor complete the information below and return to the Designated Medical Service Provider for the respective campus.

_____, who is an employee in _____
Print Employee Name and IU I.D. # Department
is _____ is not _____ eligible to receive the hepatitis B immunization series.

Account/PO Number _____ should be charged.

Date

Signature, Employee

Date

Signature, Supervisor

If you do not wish to have the vaccine at this time, please sign the refusal form below.
REFUSAL FORM FOR HEPATITIS B VACCINE:

- I have received and completed the HBV vaccine series

- 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 charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination at no charge to me.

Date

Print Name & Employee I.D. #

Signature

NEW EMPLOYEES WILL NOT BE GIVEN THE HEPATITIS B VACCINE UNTIL AUTHORIZATION FOR EMPLOYEMENT IS DOCUMENTED. THIS FORM MUST BE RETURNED TO THE DESIGNATED MEDICAL SERVICES PROVIDER FOR YOUR RESPECTIVE CAMPUS AND THE DEPARTMENT MUST RETAIN A COPY.

APPENDIX C: ENGINEERING CONTROLS

DEPARTMENT: _____

Check All That Apply:

- Puncture resistant sharps container
- Isolation of hazard
- Isolation of worker from hazard
- Resuscitation bags
- Biological safety cabinets
- Use of disposable barrier materials to cover and prevent the contamination of surfaces
- Plexiglas® splash shields
- Self-sheathing or retractable needles
- Mechanical pipettes
- Other (please list): _____

Supervisor: _____

Date: _____

APPENDIX D: WORK PRACTICE CONTROLS

DEPARTMENT: _____

Check all that apply:

- Adhere to universal precautions
 - Wash hands immediately after removing gloves
 - Wash hands whenever visibly contaminated with blood or OPIM
 - Wash hands before eating, drinking, applying cosmetics, contact lenses and leaving lab
- Other work practices employed:

The following are prohibited:

- Eating/Drinking in affected areas
 - Applying cosmetics/lip balm in affected areas
 - Mouth pipetting
 - Storage of food/drink in locations where blood and OPIM are kept
 - Shearing and breaking of needles
 - Recapping, removing or bending needles
- Other work practices prohibited:

Supervisor: _____

Date: _____

APPENDIX E: Documentation of consideration of technology that may reduce or eliminate exposure to bloodborne pathogens including consideration and/or implementation of appropriate commercially available and effective safer medical devices.

(Each department or sub-unit shall document here annually.)

APPENDIX F: HIV and HBV LABORATORIES OR PRODUCTION FACILITIES

HIV and HBV laboratories shall, at a minimum, meet the following criteria:

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

HIV and HBV production facilities shall, at a minimum, meet the following criteria:

- The surfaces of doors, walls, floors and ceilings in the work area shall be water resistant so that they can be easily cleaned. Penetrations in these surfaces shall be sealed or capable of being sealed to facilitate decontamination.
- Each work area shall contain a sink for washing hands and readily available eyewash facility. The sink shall be foot, elbow, or automatically operated and shall be located near the exit door of the work area.
- Access doors to the work area or containment module shall be self-closing.
- An autoclave for decontamination of regulated waste shall be available within or as near as possible to the work area.
- A ducted exhaust-air ventilation system shall be provided. This system shall create directional airflow that draws air into the work area through the entry area. The exhaust air shall not be recirculated to any other area of the building, shall be discharged to the outside, and shall be dispersed away from occupied areas and air intakes. The proper direction of the airflow shall be verified (i.e. into the work area).

Employees in HIV and HBV laboratories and production facilities shall receive initial training in bloodborne pathogens as well as:

- The employer shall assure that employees demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV.
- The employer shall assure that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.
- The employer shall provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The employer shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

APPENDIX G: SAFETY NEEDLE/SHARPS EVALUATION FORM

Evaluator's Name:

Job Title:

Department:

Date:

Supervisor's Name:

Telephone #:

Name of Device:

Name of Manufacturer:

Applications of Device:

Number of Times Used:

Please circle the most appropriate answer for each question. A rating of one (1) indicates the highest level of agreement with the statement, five (5) the lowest. Not applicable (NA) may be used if the question does not apply to this product.

Please explain all problems with the device in the comments section.

Agree.....Disagree

- | | | |
|-----|--|--------------|
| 1. | The safety feature can be activated using a one-handed technique. | 1 2 3 4 5 NA |
| 2. | The user's hands remain behind the needle/sharp until activation of the safety mechanism is complete. | 1 2 3 4 5 NA |
| 3. | The safety feature does not interfere with normal use of this product. | 1 2 3 4 5 NA |
| 4. | Use of this product requires you to use the safety feature. | 1 2 3 4 5 NA |
| 5. | A clear and unmistakable change (either audible or visible) occurs when the safety feature is activated. | 1 2 3 4 5 NA |
| 6. | The device is easy to handle while wearing gloves. | 1 2 3 4 5 NA |
| 7. | The device is easy to handle when wet. | 1 2 3 4 5 NA |
| 8. | The device does not require more time to use than a non-safety device. | 1 2 3 4 5 NA |
| 9. | The safety feature operates reliably. | 1 2 3 4 5 NA |
| 10. | The exposed sharp is blunted or covered after use and prior to disposal. | 1 2 3 4 5 NA |
| 11. | The safety feature works well with a wide variety of hand sizes and with a left-handed person as easily as with a right-handed person. | 1 2 3 4 5 NA |
| 12. | Use of this product does not increase the number of sticks to the patient. | 1 2 3 4 5 NA |
| 13. | Sterilization (if applicable) of this device is as easy as a standard device. | 1 2 3 4 5 NA |
| 14. | The product does not require extensive training to be operated correctly. | 1 2 3 4 5 NA |
| 15. | The device can be used without causing more patient discomfort than a conventional device. | 1 2 3 4 5 NA |

Would you recommend using this device?

Yes No

Comments: