

**IUPUI/IUMC  
BLOODBORNE PATHOGEN STANDARD  
EXPOSURE CONTROL PLAN**

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## 1.0 Introduction

### 1.1 OSHA REGULATION

On December 6, 1991, the Occupational Safety and Health Administration (OSHA) promulgated a final rule entitled "Occupational Exposure to Bloodborne Pathogens". The purpose of this standard is to eliminate or minimize occupational exposure to the Hepatitis B virus (HBV), Human immunodeficiency virus (HIV), and other bloodborne pathogens. The revised Bloodborne Pathogens and NeedleStick Prevention Standard requirements (effective date April 18, 2001) include:

- Employers must implement the safer medical devices that are appropriate, commercially available, and effective [1910.1030(c)(1)(iv)(B)] and document consideration and implementation of safer medical devices annually.
  - Employers must get input for these devices from those responsible for direct patient care in [1910.1030(c)(1)(v)], or those employees with potential for exposure. This input must be documented.
  - Employers must train employees to use new devices and/or procedures and document training in the Exposure Control Plan
- Employers must maintain a log of injuries from contaminated sharps 1910.1030(h)(5)(i).

It has been well documented that employees with occupational exposure to blood and other potentially infectious materials containing bloodborne pathogens face a significant health risk. This risk can be minimized or eliminated using a combination of engineering and work practice controls, personal protective clothing and equipment, training, medical surveillance, Hepatitis B vaccination, warning signs or labels, and other provisions described in this plan.

### 1.2 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 (see below) that may result from the performance of an employee's duties.

**OHS/SHS** - IUPUI Occupational Health Services/Student Health Services

**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;
- 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 mucous membrane contact with blood or other body fluids that are visibly contaminated with blood.

### **1.3 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 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.

#### **1.3.1 Hepatitis B Virus (HBV)**

Hepatitis B virus infection is the major bloodborne occupational hazard to health care 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 needle stick 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 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.

### **1.3.2 Hepatitis C Virus (HCV)**

Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States. CDC staff estimate that during the 1980s, an average of 230,000 new infections occurred each year. Although since 1989 the annual number of new infections has declined by greater than 80% to 36,000 by 1996, data from the Third National Health and Nutrition Examination Survey (NHANES III), conducted during 1988-1994, have indicated that an estimated 3.9 million (1.8%) Americans have been infected with HCV. Most of these persons are chronically infected and might not be aware of their infection because they are not clinically ill. Infected persons serve as a source of transmission to others and are at risk for chronic liver disease or other HCV-related chronic diseases during the first two or more decades following initial infection.

Chronic liver disease is the tenth leading cause of death among adults in the United States, and accounts for approximately 25,000 deaths annually, or approximately 1% of all deaths. Population-based studies indicate that 40% of chronic liver disease is HCV-related, resulting in an estimated 8,000-10,000 deaths each year. HCV-associated end-stage liver disease is the most frequent indication for liver transplantation among adults. Because most HCV-infected persons are aged 30-49 years, the number of deaths attributable to HCV-related chronic liver disease could increase substantially during the next 10-20 years as this group of infected persons reaches ages at which complications from chronic liver disease typically occur.

HCV is transmitted primarily through large or repeated direct percutaneous exposures to blood. In the United States, the relative importance of the two most common exposures associated with transmission of HCV, blood transfusion and injecting-drug use, has changed over time. Blood transfusion, which accounted for a substantial proportion of HCV infections acquired greater than 10 years ago, rarely accounts for recently acquired infections. Since 1994, risk for transfusion-transmitted HCV infection has been so low that CDC's sentinel counties viral hepatitis surveillance system has been unable to detect any transfusion-associated cases of acute hepatitis C, although the risk is not zero.

Reducing the burden of HCV infection and HCV-related disease in the United States requires implementation of primary prevention activities to reduce the risk for contracting HCV infection and secondary prevention activities to reduce the risk for liver and other chronic diseases in HCV-infected persons.

### **1.3.3 Human Immunodeficiency Virus (HIV)**

HIV affects the immune system, leading to a wide range of clinical disorders, including AIDS, which usually lead 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.
- ✓ 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.

## **1.4 APPLICABILITY**

The IUPUI/IUMC Bloodborne Pathogens Exposure Control Plan applies to all employees of IUPUI and IUMC, including part-time, temporary, probationary, and agency staff utilized within the hospitals, who may as part of their jobs, come into contact with persons, unconditioned primate animals, or items that are infectious or potentially infectious for bloodborne pathogens.



Health care and laboratory employees whose work may involve the risk of exposure to blood or other potentially infectious materials may include, but are not limited to the following: physicians, surgeons, nurses, nurses aides, physician's assistants, pathologists, phlebotomists, medical technologists, medical assistants, therapists, therapy assistants, paramedics, emergency medical technicians, dentists, dental hygienists, dental assistants, dental lab technicians, laboratory and blood bank technologists, dialysis personnel, research laboratory personnel, research scientists, medical and dental teaching faculty, and animal laboratory personnel.

Others whose positions may include some occupational exposure tasks include workers in: law enforcement, sterilization services, janitorial/housekeeping services, laundry services, maintenance, central supply, equipment technicians, transportation service workers, or couriers involved in delivery and transport of potentially infectious materials.

## **2.0 Exposure Control Plan Responsibilities**

### **2.1 IUPUI DEPARTMENT OF ENVIRONMENTAL HEALTH AND SAFETY**

Provide overall administrative guidance and supervision for the Exposure Control Plan.

Aid departments or sub-units in determining those employment positions or tasks that qualify for reasonable anticipation of exposure to bloodborne pathogens.

Provide training to all non-hospital employees who have potential occupational exposure to bloodborne pathogens.

Aid departments or sub-units in determining appropriate personal protective equipment, work practices, engineering controls, and housekeeping schedules.

Maintain a master file of employees trained in this program.

Review and update the Exposure Control Plan annually and as new information becomes available.

### **2.2 HOSPITAL SAFETY OFFICE**

Secure from each hospital department a list of those staff members who, by nature of their work assignment (tasks), qualify for reasonable anticipation of exposure to bloodborne pathogens.

Assist with the identification process as needed.

Provide the department heads or their designated trainers with the training program as outlined in this guideline.

Aid hospital departments in determining the appropriate personal protective equipment, work practices, and/or engineering controls needed to protect staff within the work area.

At least annually, review the departmental policy and/or procedures that are developed as a subset of the overall Exposure Control Plan.

Review all injury reports to determine cause and remedial actions needed to reduce potential for further incidents.

Include in the annual/semi-annual departmental survey, observation of staff compliance with the Exposure Control Plan including training requirements.

Compile quarterly reports highlighting status and effectiveness of training, corrective actions, repetitive problems, trending and outcomes, incorporating summary data into overall quarterly Hospital Safety Committee reports which are submitted to Hospital Administration and relevant department heads.

Review the Exposure Control Plan annually for appropriateness and update as new information becomes available or guidelines are modified (see Appendix H).

## **2.3 DEPARTMENT OF INFECTION CONTROL/EPIDEMIOLOGY**

Assist departments with determination of employee exposure risk to bloodborne pathogens.

Facilitate educational train-the-trainer sessions for departmental supervisory/preceptor staff in the hospitals to assist with mandates for extensive employee training on bloodborne pathogens.

Serve as ongoing advisor/consultant for departments throughout the implementation and annual reviews of the Bloodborne Pathogens Program.

## **2.4 OCCUPATIONAL HEALTH SERVICE/STUDENT HEALTH SERVICE (OHS/SHS IN COLEMAN HALL)**

Provide hepatitis B vaccination to eligible employees.

Evaluate employees reporting exposure incidents and provide appropriate diagnostic tests, treatment, and follow-up evaluation.

Maintain employee records relative to hepatitis B vaccination and post-exposure incidents and treatment.

Maintain the Sharps Injury Log

## **2.5 DEPARTMENT CHAIRS, MANAGERS, & PRINCIPAL INVESTIGATORS**

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 Exposure Control Plan for specific areas by adding appropriate information for each department or laboratory in Appendices B-H.

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 Exposure Control Plan.

In accordance with 1910.1030(c) update the Exposure Control Plan to include:

- Any changes in technology that can reduce or eliminate employee exposure.
- Annually document the consideration and implementation of safer medical devices and/or engineering controls [1910.1030(d)].
- Any solicitation of input from non-managerial employees.
- Documented training in the safe use and disposal of safer medical devices.

## **2.6 EMPLOYEES**

Attend annually required training sessions on controlling exposure to bloodborne pathogens in the workplace.

Note: IUPUI staff and personnel that have previously attended a formal training session may use the on-line refresher at [www.ehs.iupui.edu](http://www.ehs.iupui.edu).

Comply with all elements of the Exposure Control Plan that apply to work-related tasks and procedures with potential exposure.

Report all exposure incidents to work supervisors or other responsible individual immediately, or as soon as feasible, after they occur.

## **3.0 Exposure Determination**

The Exposure Control Plan applies to all employees of IUPUI/IUMC with potential occupational exposure. Each department shall list employment positions and tasks that create potential exposure (see Appendix B). Each department shall then identify their staff members who are a part of the employment positions listed or are required to

complete any listed tasks. 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. This exposure determination shall be made without regard to the use of personal protective equipment. All employees must be notified concerning their occupational exposure status.

## **4.0 Procedures and Equipment for Reducing Exposure Risks**

### **4.1 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.

### **4.2 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, plexiglass 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 should be used in preference to other control methods in order to limit occupational exposure.

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), 1910.1030(d)(2)(i), OSHA Directive CPL 2-2.69.

Engineering Controls are measures (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace [1910.1030(b)].

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 F).

Note: Biological safety cabinets are to be certified at least annually according to the National Sanitation Foundation.

### **4.3 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 practices required in addition to those listed below should be specified for each department or laboratory in Appendix G of their Exposure Control Plan. The following work practice controls shall be instituted for employees with occupational exposure to blood and OPIM:

#### **4.3.1 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:

- a) whenever there is visible contamination with blood or body fluids;
- b) after completion of work;
- c) **after removing gloves and between glove changes;**
- d) **before leaving the work area;**
- e) before eating, drinking, smoking, applying cosmetics or lip balm, changing contact lenses;
- f) after using lavatory facilities;

g) before all other activities which entail hand contact with mucous membranes, eyes or breaks in the skin.

#### **4.3.2 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. Needle sticks 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 unless 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.

#### **4.3.3 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 OPIM.

Mouth pipetting/suction of 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:

- a) These containers must be closed prior to storage, transport or shipping.
- b) Biohazard labeling is required on the outside of each container.

c) 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.

#### **4.4 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. IUPUI/IUMC requires the use of appropriate personal protective equipment for all employees when engaged in tasks involving contact with blood, body fluids, or any OPIM for whom 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.

##### **4.4.1 Provision and Use of PPE**

Each department or laboratory 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.

IUPUI/IUMC 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 program.

#### **4.4.2 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.

##### 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):

- a) Sterile gloves should be used for procedures involving contact with normally sterile areas of the body.
- b) 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.
- c) 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.
- d) Use general-purpose utility gloves (e.g. rubber household gloves) for housekeeping chores involving potential blood 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.

#### Changing Gloves

Gloves shall be changed under the following circumstances:

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

Contaminated disposable gloves should 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).

#### **4.4.3 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 body fluid droplets. Examples are disposable facemasks, plastic or disposable face shields, protective eyeglasses with nonpermeable 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. Plexiglass splash shields, may be used in place of facial personal protective equipment. These protective devices shall be used while uncapping all blood or body fluid 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 eye wear and shields which are visibly contaminated should be washed with soap and water using gloved hands and then decontaminated with a hospital-grade EPA registered tuberculocidal disinfectant.

#### **4.4.4 Protective Body Clothing**

Protective body clothing, such as gowns, lab coats, lab jackets, or aprons, shall be provided to cover and protect work clothing and exposed skin from contamination with potentially infectious blood or body fluids. 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 should 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 rest rooms. Protective clothing shall be changed immediately, or as soon as possible, after becoming visibly contaminated with blood or body fluids.

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

#### **4.4.5 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)

### **4.5 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 should 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:

- a) after completion of procedures;
- b) immediately, or as soon as possible, after surfaces are overtly contaminated or after any spill of blood or OPIM; and
- c) 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:

- a) 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.
- b) 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, should never be picked up with unprotected hands. Mechanical means such as a brush and dustpan, tongs, or forceps should be used. These items should then be disposed with contaminated sharps.

Reusable sharps that are contaminated should 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.

## **4.6 CONTAINING AND HANDLING REGULATED WASTE**

### **4.6.1 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)]:

- a) closable and not able to be opened except by use of tools.
- b) puncture-resistant.
- c) leak-proof on bottom and sides to prevent leakage of contaminated liquids.
- d) labeled using the universal biohazard symbol and the word "biohazard".
- e) accessible, maintained upright, and not allowed to overfill.

Sharps containers must be easily accessible for use, maintained in an upright position during use, and replaced routinely so that they are not overfilled.

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

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.

### **4.6.2 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.

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

## **4.7 WASTE TREATMENT AND DISPOSAL**

### **4.7.1 Hospital Procedures**

Infectious waste generated in University and Riley Hospitals is collected by Environmental Services personnel and transported to the appropriate areas.

#### **4.7.2 University Procedures**

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. If an autoclave is unavailable for treatment on site, collection and transportation must be contracted out and paid for by individual labs.

#### **4.8 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 should 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.

### **5.0 Hepatitis B Vaccination/Screening**

The hepatitis B vaccine shall be made available to all employees of IUPUI/IUMC who are identified as having potential occupational exposure to bloodborne pathogens. Occupational Health Service shall provide HBV vaccinations. Each employee's department will pay the vaccination expense.

Vaccinations shall be available to all existing employees of IUPUI/IUMC 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 provided by OHS/SHS (Appendix A). Employees who decline the vaccination initially may elect to accept it at a later date if still employed in a position with occupational exposure.

## **6.0 Procedures for Spill Cleanup and Contaminated Clothing Handling**

### **6.1 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 potentially infectious materials:

- ✓ Vinyl or rubber gloves shall be worn during spill cleanup.
- ✓ Place paper towels on the spill and pour only enough 1:10 dilution of household bleach onto the paper towels to cover them. Note: All dilutions of bleach must be freshly made. After 24 hours, bleach loses the ability to decontaminate surfaces.
- ✓ After 15 minutes, remove the residue and/or soaked paper towels with additional clean paper towels. Dispose of all residue and paper towels in an infectious waste container.
- ✓ Apply a final application of 10% bleach or an approved tuberculocidal disinfectant to the spill area and clean up with paper towels.
- ✓ Remove gloves and wash hands.
- ✓ Large spill cleanup will be the responsibility of Environmental Health and Safety. Prior to arrival of cleanup staff, the spill area should be isolated of cordoned off to prevent contamination of other areas.

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

### **6.2 Contaminated Clothing Handling**

Protective clothing is provided by IUPUI/IUMC 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, rest rooms.

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 should be removed with a minimum of handling and minimum of agitation and placed in a plastic bag, which is to be closed while in the area/location in which the contamination occurred. Apparel should 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.

## **7.0 Post-Exposure Evaluation and Follow-up**

### **7.1 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, OHS/SHS shall provide a confidential medical evaluation and follow-up to the employee.

Exposure incidents must be documented on an Occupational Injury-Illness Report form available in each department. This completed form shall be provided to OHS/SHS at the time of medical evaluation and shall include the following information:

- ✓ The route(s) of exposure.
- ✓ 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.
- ✓ 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.

### **7.2 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.

### **7.3 POST-EXPOSURE PROPHYLAXIS AND FOLLOW-UP**

OHS/SHS 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 OHS/SHS protocols for postexposure prophylaxis to HBV or HIV shall be followed.

Postexposure 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.

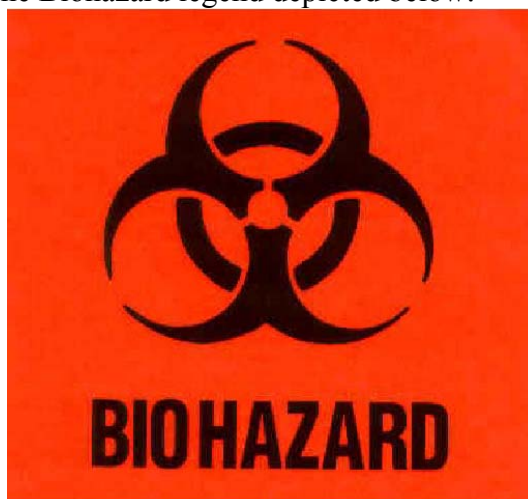
## **8.0 Biohazard Communication**

### **8.1 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.

## **8.2 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 production facilities.

## **8.3 INFORMATION AND 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 IUPUI 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. In accordance with OSHA regulations, IUPUI/IUMC staff may receive annual refresher training by attending regularly scheduled Bloodborne Pathogen Training session or online at [www.ehs.iupui.edu](http://www.ehs.iupui.edu).

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 content of the training program shall contain at a minimum the following elements:

- A copy of the standard and explanation of its contents.
- A general explanation of the epidemiology and symptoms of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne pathogens.
- An explanation of the IUPUI/IUMC Exposure Control Plan and the means by which employees can access a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.

- An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices and personal protective equipment.
- Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
- An explanation of the basis for selection of personal protective equipment.
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination shall be offered free of charge.
- Information on the appropriate actions to take and persons to contact regarding a personal exposure involving blood or other potentially infectious materials.
- Information on the post-exposure evaluation and follow up that IUPUI/IUMC is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels required by the Exposure Control Plan.
- Opportunities for interactive questions and answers between the trainer and the employees.

## **9.0 Recordkeeping**

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

### **9.1 MEDICAL RECORDS**

OHS/SHS 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.

#### **9.1.1 Contents**

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 results of all exams, tests, and follow up related to reported exposure incidents.
- Written medical opinion of post-exposure incidents.

### **9.1.2 Confidentiality**

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.

## **9.2 TRAINING RECORDS**

The Department of Environmental Health and Safety 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 training, and shall include the following information:

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

## **9.3 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.

# APPENDIX A

## I.U. HEPATITIS B VACCINE POLICY

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

If you do not wish to have the vaccine at this time, please sign the refusal form.

REFUSAL FORM FOR HEPATITIS B VACCINE

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 series at no charge to me.

[56 FR 64004, Dec. 06, 1991, as amended at 57 FR 12717, April 13, 1992; 57 FR 29206, July 1, 1992; 61 FR 5507, Feb. 13, 1996]

Date
Print Name & Soc. Sec. No.
Signature

\*\*\*\*\*  
If you did not sign the refusal for Hepatitis B, please have your supervisor complete the lower portion and return to Student Health.

\_\_\_\_\_, who is an employee in \_\_\_\_\_  
 Print Employee Name & Soc. Sec. No. Department

is not eligible to receive the Hepatitis B immunization series.

Account Number should be charged for the series.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature, Employee

Date \_\_\_\_\_ Signature, Supervisor \_\_\_\_\_

NEW EMPLOYEES WILL NOT BE GIVEN THE HEPATITIS B VACCINE UNTIL  
AUTHORIZATION FOR EMPLOYMENT IS DOCUMENTED.  
THIS FORM MUST BE RETURNED TO STUDENT EMPLOYEE HEALTH SERVICES

## APPENDIX B

### Department/Sub-Unit Exposure Determination List

#### Employment Positions

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

#### Tasks with Potential Exposure

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_

## **APPENDIX C**

**Changes in technology that eliminate or reduce exposure to  
bloodborne pathogens.**

## **APPENDIX D**

### **Document solicitation of input from non-managerial employees.**

## **APPENDIX E**

**Annual documentation of any consideration and/or implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.**



## **APPENDIX F**

### **Department/Sub-Unit Engineering Controls**

## **APPENDIX G**

### **Department/Sub-Unit Work Practice Controls**

**APPENDIX H**

**Record of ECP Review/Changes**