Bloodborne Infectious Diseases
Exposure Control Plan
Pursuant to the requirements of the MIOSHA Bloodborne Infectious Diseases Standard
(R 325.70001 through R 325.700018)
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I. INTRODUCTION AND SCOPE

The WSU Exposure Control Plan has been developed and implemented to meet the requirements of the MIOSHA Bloodborne Infectious Diseases Standard (R 325.70001 through 325.700018).

Compliance with the Bloodborne Infectious Diseases Standard will reduce the risk of exposure to blood and other potentially infectious materials (OPIM) that may pose a risk of HIV (Human Immunodeficiency Syndrome), HBV Hepatitis B Virus, HCV (Hepatitis C Virus), and other bloodborne diseases.

OSHA has identified occupational settings where individuals are reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of their duties. These include in part, healthcare facilities, health clinics, research labs, linen services, law enforcement, fire and rescue, schools, lifesaving, and regulated biological waste removal services.

Wayne State University employs people in positions where they may be reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of their duties. Therefore, the University is required to comply with the state bloodborne infectious diseases standard.

The Office of Environmental Health and Safety (OEH&S) is charged with the overall responsibility for the development and implementation of the University bloodborne pathogen compliance program. OEH&S provides information and training to University employees on how to protect themselves from exposure to blood and other potentially infectious materials during the performance of their job. OEH&S also provides technical assistance to individual University departments in their efforts to comply with the standard.

Individual departments and units of the University will be responsible for ensuring that the provisions of the University’s Exposure Control Plan and the mandates of the MIOSHA standard are carried out.

Departments and units identified as having employees with occupational exposure include, but are not necessarily limited to:

- Athletics, Intramural and Recreation
- Bioengineering
- College of Nursing
- College of Pharmacy and Health Sciences
- College of Science
- Division of Laboratory Animal Resources
- Division of Research
- Facilities Planning and Management
- Health, Physical Education and Recreation
Employees incur risk each time they are exposed to blood or other potentially infectious materials (OPIM). Any exposure incident may result in infection and subsequent illness, therefore exposures must be prevented whenever possible. The goal of the Bloodborne Pathogen Standard is to reduce the significant risk of infection by:

- Eliminating or limiting occupational exposure to blood or OPIM.
- Providing the hepatitis B vaccine.
- Providing post-exposure medical evaluation and follow-up.

All University employees who hold positions determined to have occupational exposure are entitled to the protection afforded by the standard.

II. DEFINITIONS

For purposes of this Plan, the following definitions shall apply:

**Blood:** human blood, human blood components, products made from human blood

**Bloodborne Pathogens:** pathogenic microorganisms that are present in human blood and can cause disease in humans, including, but not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV)

**Clinical Laboratory:** workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials

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

**Contaminated Laundry:** laundry which has been soiled with blood or other potentially infectious materials or may contain sharps

**Contaminated Sharps:** any contaminated object 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 a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal

**Engineering Controls:** controls such as sharps disposal containers, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems, that isolate or remove the bloodborne pathogens hazard from the workplace
**Exposure Incident:** a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties

**Handwashing Facilities:** facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines

**Licensed Healthcare Professional:** a person whose legally permitted scope of practice allows him or her to independently perform the activities required by Section (VI) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up

**HBV:** hepatitis B virus

**HCV:** hepatitis C virus

**HIV** means human immunodeficiency virus.

**Needless Systems:** devices that provide an alternative to needles for various procedures to reduce the risk of injury involving contaminated sharps

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

**OPIM or Other Potentially Infectious Materials:** the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

2. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

**Parenteral:** piercing the skin or the mucous membranes through such events as needlesticks, human bites, cuts, and abrasions

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

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

**Regulated Waste (Infectious Waste, Biohazardous Waste):** liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials 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 materials.

**Research Laboratory:** a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.

**Source Individual:** any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

**Supervisor:** laboratory supervisor, principal investigator, foreman, course instructor, advisor, or any other individual who is responsible for supervising the activities of employees, students or volunteers.

**Sharps with Engineered Sharps Injury Prevention:** non-needle sharps or needle devices containing built-in safety features that are used for collecting fluids or administering medications or other fluids, or other procedures involving the risk of sharps injury.

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

**Universal Precautions:** an approach to infection control whereby all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, HCV, and other bloodborne pathogens.

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

### III. EXPOSURE CONTROL PLAN

Based on the requirements established by the MIOSHA Bloodborne Infectious Diseases Standard, Wayne State University’s Exposure Control Plan has been developed and designed to eliminate or limit employee occupational exposure to bloodborne pathogens during the performance of their duties.

The plan will be reviewed and updated annually and whenever necessary to reflect new or modified tasks and procedures which may affect exposure, new or revised employee positions with occupational exposure, or changes in the regulatory requirements.

Departments and other areas where there is a potential for exposure will have a copy of the Exposure Control Plan. Upon request, the Office of Environmental Health and Safety will provide the exposure control plan to all University employees, employee representatives, and regulatory authorities. The plan is also available on-line at: [www.oehs.wayne.edu](http://www.oehs.wayne.edu).
Departments and laboratories are responsible for the development and implementation of task-specific standard operating procedures (SOPs) that address the following areas:

- Employee recognition of reasonably anticipated exposure to blood or OPIM.
- Appropriate selection, use, maintenance, and disposal of PPE.
- Contingency plans for foreseeable circumstances that prevent following the recommended SOPs.

IV. EXPOSURE DETERMINATION

The provisions of WSU's Exposure Control Plan apply to all employees who have a reasonably anticipated risk of exposure to blood or other potentially infectious materials (OPIM) as the result of required occupational tasks. This exposure determination has been made without regard to the use of personal protective equipment.

**All employees in the following job classifications** have reasonably anticipated risk of exposure to bloodborne pathogens and are included in the Exposure Control Plan:

- Athletic Trainer
- Animal Transportation Technician
- Athletic Coach
- Athletic Director
- Athletic Trainer
- Bone Density Technician
- Child Care Service Coordinator
- Child Care Service Worker
- Classroom Attendant
- Custodian
- Custodial Supervisor
- Custodial Technician
- Environmental Health Specialist
- Environmental Health Manager
- Groundskeeper
- Hazardous Materials Manager
- Hazardous Materials Specialist
- Hazardous Materials Technician
- Health Physics Assistant
- Health Physics Technician
- Histotechnologist
- Housekeeper
- Impact Sled Technician
- Laboratory Animal Aide
- Laboratory Animal Leader
- Laboratory Animal Supervisor
- Laboratory Animal Technician
- Lifeguard
- Medical Assistant
- Medical Technologist
- Morgue Assistant
- Morgue Supervisor
- Nurse Practitioner
- Pipefitter
- Plumber
- Public Safety Captain
- Public Safety Director
- Public Safety Lieutenant
- Public Safety Officer
- Public Safety Sergeant
- Registered Nurse
- Student Intramural Official
- Student Recreation Area Manager
- Student Swimming Pool Supervisor
- Substitute Teacher
- Teacher
- Veterinary Technician
- Veterinary Technician Assistant
- Veterinary Technician Sr.
- Vivarium Technician
**Some employees in the following job classifications** are required to perform duties that have a reasonably anticipated risk of exposure to bloodborne pathogens. Employees in these job classifications who work in a research or teaching laboratory are the employees who may be at risk of exposure. The tasks that may involve occupational exposure are listed below the job classifications.

Assistant Professor  
Associate Professor  
Clinical Assistant Professor  
Clinical Associate Professor  
Clinical Instructor  
Clinical Professor  
Graduate Research Assistant  
Graduate Student Assistant  
Graduate Teaching Assistant  
Instructional Assistant  
Laboratory Aide  
Laboratory Supervisor  
Laboratory Technician  
Laboratory Technician, Senior  
Part-Time Faculty  
Post-Doc Fellow  
Professor  
Research Assistant  
Research Associate  
Research Scientist  
Research Technician  
Research Technologist  
Senior Research Scientist  
Student Assistant  
Student Laboratory Assistant  
Student Research Assistant  
Visiting Assistant Professor  
Visiting Associate Professor  
Visiting Instructor  
Visiting Professor

A partial list of laboratory tasks that may involve a risk of exposure to blood or other potentially infectious materials for some employees in these job classifications includes:

- Processing, handling and analyzing human blood, tissue, organs, cells or OPIM
- Transporting human samples
- Disposing of biohazardous waste
- Working with research animals that may have been injected with human cell lines.

**V. METHODS OF COMPLIANCE**

**A. Universal Precautions**

Universal precautions will be observed by all University employees to prevent contact with blood and other potentially infectious materials (OPIM).

OPIM are defined by MIOSHA as:

- 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 in situations where it is difficult or impossible to differentiate between body fluids.
- Any unfixed tissue or organ (other than intact skin) from a human, living or dead.

- HIV-containing cell or tissue cultures, organ cultures, and HIV, HBV or HCV-containing culture medium or other solutions; and blood, organs, or other tissue from experimental animals infected with HIV, HBV, HCV or any other human, bloodborne pathogen.

The underlying concept of universal precautions is that all blood and certain body fluids are considered to be infectious for bloodborne pathogens. Employees must treat all blood and OPIM as if they are known to be infected with a bloodborne pathogen. This can be accomplished through a combination of engineering and work practice controls, use of personal protective equipment, and good housekeeping.

The only exception to the use of universal precautions is in unexpected, extraordinary circumstances involving the provision of healthcare or public safety services. An example would be a medical emergency where an employee is unable to put on gloves, don a gown, or tie on a face-mask immediately. This DOES NOT mean that an employee can decide not to use personal protective equipment because he/she considers it impractical. It is only an option in rare situations where the employee decides that such equipment will prevent the proper delivery of medical care or emergency services, or it will create a greater hazard to his/her safety if such equipment is used.

B. Engineering and Work Practice Controls

Engineering and work practice controls are the primary means of reducing employee exposure in the workplace, by either removing the hazard or isolating the worker from exposure. Engineering controls eliminate or reduce employee exposure by acting on the source of the hazard, and not relying on the employee to take self-protective action. These controls may include process or equipment redesign, (e.g. use of self-sheathing needles), process or equipment enclosure, (e.g. biosafety cabinets) and employee isolation.

Work practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. The protection they provide is based more upon the behavior of the employer and employee. Engineering and work practice controls should be used together to ensure the maximum protection for employees.

Where the risk of occupational exposure still remains after the implementation of engineering and work place controls, University departments must provide and assure that employees use personal protective equipment to further protect themselves.

Engineering and work practice controls that should be in place include:
1. Handwashing Facilities

In all facilities where employees are reasonably anticipated to come into contact with blood or other potentially infectious materials, hand washing facilities should be readily accessible. Where hand washing facilities are not feasible, departments will provide other means (antiseptic hand cleanser with clean cloth/paper towels or antiseptic towelettes) by which employees can wash their hands. When these other methods are used, employees will be instructed to wash their hands as soon as feasible with soap and warm running water.

Employees are required to wash their hands or any other skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following exposure of those body areas to blood or other potentially infectious materials. Employees are also required to wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.

2. Contaminated Sharps

Contaminated needles and other contaminated sharps will not be bent, recapped, or removed unless it can be demonstrated by the department that no alternative is feasible or that such action is required by a specific medical or dental procedure. Under these circumstances, recapping or needle removal shall be accomplished through the use of a mechanical device or one-handed technique.

Immediately or as soon as feasible after use, contaminated sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:

- puncture resistant
- appropriately labeled or color-coded
- leak proof on the sides and bottom
- not handled in a manner that requires employees to reach by hand into the sharps container.

3. Sharps Injury Prevention

Principle Investigators or designated laboratory supervisors shall 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.
All sharp devices that have available products with safer engineering features shall be identified, evaluated and, if appropriate, selected.

Safer medical devices must be implemented 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.

**Evaluation Process:**

- Evaluation of safer sharps devices must be done annually and documented on the Safer Devices and Sharps Evaluation Form. (Appendix D)

- Principal Investigators, or designated laboratory managers, must choose members of the non-managerial employees who perform tasks with sharps exposure risk to assist in the evaluation of safer sharps devices.

- Once the evaluation process is complete, if a new device has been chosen, its use must be implemented as soon as possible.

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

**4. Additional Work Practices**

- Eating, drinking, smoking, applying cosmetics, and handling contact lenses are activities that are prohibited in work areas where there is a reasonably anticipated risk of occupational exposure.

- Food and drink will not be stored in refrigerators, freezers, shelves, cabinets, or on bench tops where blood or OPIM are present.

- All procedures involving blood or OPIM shall be performed in a manner that minimizes the risk of splashing, spraying, or the generation of aerosols of these substances.

- Mouth pipetting or suctioning of blood or OPIM is strictly prohibited.

- Specimens of blood or OPIM shall be placed in containers which prevent leakage during collection, handling, processing, storage, transport and shipping. The container for storage, transport or shipping shall be labeled or appropriately color-coded and closed prior to being stored, transported or shipped. When universal precautions are utilized in the handling of specimens, the labeling/color-coding of specimens is not necessary,
provided the containers are recognizable as containing specimens. This exception only applies while such specimens/containers remain within the facility. Appropriate packing, labeling and color-coding is required when such specimens or containers leave the facility.

- If the outside of the container becomes contaminated, the primary container will be placed inside a second container which prevents leakage during handling, processing, storage, transport, or shipping and will be appropriately labeled or color-coded. If the specimen could puncture the primary container, it will be placed inside a secondary container that is also puncture resistant.

- Equipment which may become contaminated with blood or other potentially infectious materials will be examined prior to servicing or shipping and will be decontaminated, unless it can be demonstrated that decontamination of the equipment or portions of the equipment is not feasible. This equipment will be appropriately labeled in a readily observable area stating what area on the equipment is still contaminated. The department is responsible for ensuring that this information is conveyed to all affected employees, the servicing representative, and/or the manufacturer as appropriate, before handling, servicing or shipping, so that appropriate precautions will be taken.

C. Personal Protective Equipment (PPE)

- Where there is occupational exposure, each department will provide, at no cost to the employee, appropriate personal protective equipment (PPE) such as, but not limited to, gloves, gowns, lab coats, face shields, masks or other ventilation devices.

- PPE should not permit blood or OPIM to pass through to or reach the employee’s clothing, skin, eyes or mouth under normal conditions of use and for the duration of time in which the protective equipment will be used.

- The PPE shall be available in the appropriate sizes for the employee and be readily accessible at the work site. Departments will repair or replace, clean, launder and dispose of PPE whenever necessary at no cost to the employee.

- Departments and supervisors will ensure that the employee uses PPE, unless it can be demonstrated that they temporarily and briefly declined to use it when, under rare circumstances, it was the employee’s judgment that its use would have prevented delivery of health care or public safety services, or it would have posed an increased hazard to the safety of the worker or a co-worker.
• PPE will be removed prior to leaving the work area. If a piece of protective clothing is penetrated by blood or OPIM, it will be removed as soon as possible and placed into a designated container or area for storage, washing, decontamination and/or disposal.

1. Gloves

Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, OPIM, mucous membranes, no-intact skin. Gloves shall be worn when performing vascular access procedures and when handling contaminated items or touching contaminated surfaces.

Disposable (single use) gloves such as surgical or examination gloves, shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or when their ability to function as an effective barrier is compromised. Disposable gloves will not be washed or decontaminated for reuse.

Heavier utility gloves may be decontaminated for reuse if the integrity of the glove is not compromised. If the gloves are cracked, torn, punctured or deteriorated and no longer work as an effective barrier, they must be discarded.

If an employee is allergic to the gloves provided, hypoallergenic gloves, glove liners, powderless gloves, or other alternatives will be provided at no cost to the employee.

2. Facial Protection

Masks and eye protection devices such as goggles or glasses with solid side shields, or chin-length face shields, will be worn whenever splashes, spray or aerosols of blood or OPIM may be generated, and there is a potential for mucous membrane (eyes, nose, mouth) to be exposed to the material.

3. Protective Clothing

Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments will be worn in areas where there is a potential for occupational exposure.

The type of clothing selected will depend upon the tasks being carried out and the degree of exposure anticipated. In situations where gross contamination can be reasonably anticipated, (e.g. autopsies, orthopedic surgery), surgical caps or hoods, and shoe covers or boots will be worn.
D. Housekeeping

Supervisors shall ensure that worksites are maintained in a clean and sanitary condition. Each affected department or area (such as a laboratory) will determine and implement an appropriate written schedule for cleaning and a method of decontamination based upon the type of surface to be cleaned, type of material present, and the tasks or procedures being performed there.

All equipment, environmental surfaces, and working surfaces will be cleaned and decontaminated after contact with blood or other potentially infectious materials. Contaminated work surfaces will be decontaminated with an appropriate disinfectant, such as a 1:10 solution of household bleach or an approved germicidal cleaner, after completion of procedures; immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the work shift if they have become contaminated since the last cleaning.

Protective coverings (e.g. plastic wrap, aluminum foil, or imperviously-backed absorbent paper), used to cover equipment and environmental surfaces, will be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the work shift if they have become contaminated during the shift.

All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood of becoming contaminated with blood or other potentially infectious materials will be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

Broken glassware that may be contaminated will not be picked up directly by hand. A mechanical means, such as a brush and dustpan, tongs or forceps will be used.

Reusable sharps containers that are contaminated with blood or OPIM shall not be stored or processed in a manner that requires employees to reach by hand into the containers.

E. Regulated Waste

Regulated waste will be place in containers that are:

- Closable
- Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping
- Appropriately labeled or color-coded
- Closed prior to removal to prevent spills of material during handling, storage, and transport
If outside contamination of the regulated waste container occurs, it will be placed in a second container that meets the same requirements as the primary container.

Collection and disposal of regulated waste will be done in accordance with all applicable federal, state and local regulations, by the WSU Office of Environmental Health and Safety.

Contaminated sharps will be discarded immediately, or as soon as feasible, into containers that are:

- Closable
- Puncture resistant
- Leak-proof on sides and bottom
- Appropriately labeled or color-coded

During use, sharps containers will be:

- Easily accessible to personnel and located as close as is feasible to the area where sharps are used
- Maintained in an upright position throughout use
- Replaced routinely and not allowed to overfill

Sharps containers are provided free of charge by the Office of Environmental Health and Safety. To arrange for sharps disposal, or receive empty containers, submit requests at [www.oehs.wayne.edu/hazardous/biological-waste.php](http://www.oehs.wayne.edu/hazardous/biological-waste.php), or contact OEH&S at 7-1200.

When moving contaminated sharps containers from the area of use, the containers will be:

- Closed immediately prior to removal or replacement
- Placed in a secondary container that meets the same requirements as the primary container if leakage is possible

Sharps containers will not be reopened, emptied, or cleaned manually, or handled in any way that may expose an employee to the risk of a needlestick injury.

**F. Contaminated Laundry**

Contaminated laundry will be handled as little as possible, with a minimum of agitation. It will be bagged or put into containers at the location where it was used. Contaminated laundry will not be sorted or rinsed at the location where it was used. It will be placed in bags or containers appropriately labeled or color-coded. When a department utilizes universal precautions in the handling of all soiled laundry,
alternative labeling or color-coding is sufficient, if it permits all employees to recognize the containers as requiring compliance with universal precautions. Whenever contaminated laundry is wet and may be reasonably expected to soak or leak through a normal container, the laundry will be placed and transported in bags or containers that prevent soak-through and/or leakage of fluids to the exterior.

The department will provide employees who may have contact with contaminated laundry with the appropriate personal protective equipment including gloves and protective clothing.

When a department ships contaminated laundry off-site to a second facility that does not utilize universal precautions in the handling of all laundry, the department generating the contaminated laundry will place such laundry in bags or containers which are appropriately labeled or color-coded.

The department shall ensure that all contaminated laundry is cleaned and laundered in such a way that any bloodborne pathogens present are inactivated or destroyed.

VI. HIV AND HBV RESEARCH FACILITIES

- Research laboratories engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV are required to comply with the special provisions outlined in this section in addition to the other requirements contained in this plan. They also must follow any additional guidelines established by the National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC).

- These special provisions do not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissue, or organs.

- The requirements are as follows:

  - All regulated waste will be incinerated or decontaminated by a method, such as autoclaving, known to effectively destroy bloodborne pathogens.
  - Laboratory doors will be kept closed when work involving HIV or HBV is in progress.
  - Contaminated materials that are to be decontaminated at a site away from the work area will be placed in a durable, leak proof, labeled or color-coded container that is closed before being removed from the work area.
  - Access to the work area will be limited to authorized persons. Written policies and procedures will be established whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements,
and who comply with all entry and exit procedures will be allowed to enter the work areas and animal rooms.

- When other potentially infectious materials or infected animals are present in the work area or containment module, a hazard warning sign incorporating the universal biohazard symbol will be posted on all access doors. Hazard warning sign will comply with the signs and labels requirements contained in this plan.

- All activities involving potentially infectious materials will be conducted in biological safety cabinets or other physical containment devices within the containment module. No work with this material will be conducted on an open bench.

- Laboratory coats, gowns, smocks, uniforms, or other appropriate personal protective clothing will be used in the work areas and animal rooms.

- Personal protective clothing will not be worn outside of the work area and will be decontaminated before being laundered.

- Special care will be taken to avoid skin contact with potentially infectious materials. Gloves will be worn when handling infected animals and when making hand contact with potentially infectious materials is unavoidable.

- Before disposal, all waste from work areas and animal rooms will either be incinerated or decontaminated by a method, such as autoclaving, known to effectively destroy bloodborne pathogens.

- Vacuum lines will be protected with liquid disinfectant traps and high efficiency particulate air (HEPA) filters, or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary.

- Hypodermic needles and syringes will be used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe units (where the needle is integral to the syringe) will be used for the injection or aspiration of other potentially infectious materials. Extreme caution will be used when handling needles and syringes. A needle will not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe will be promptly placed in a puncture resistant container and autoclaved or decontaminated before reuse or disposal.

- All spills will be immediately contained and cleaned up by appropriate professional staff or others trained and equipped to work with potentially infectious, concentrated materials.
• A spill or accident that results in an exposure incident will be immediately reported to the principle investigator, laboratory manager, or other responsible person.

• A biosafety manual will be prepared or adopted and reviewed and updated if necessary, at least annually, or more often if necessary. Personnel will be advised of potential hazards and required to read and follow the standard operating procedures set forth in the lab’s biosafety manual.

• Certified biological safety cabinets or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals will be used for all activities with potentially infectious materials that pose a threat of exposure to splashes, spills, or aerosols.

• Biological safety cabinets will be certified by OEH&S when installed, whenever they are moved, and at least annually.

HIV and HBV research facilities will contain the following:

• A facility for hand washing
• An eye wash facility which is readily available within the work area
• An autoclave which is readily available for decontamination of regulated waste

Additional training requirements for employees in HIV and HBV research facilities are covered in the training section of this plan.

VII. HEPATITIS B VACCINATION

The University will make the hepatitis B vaccination series available to all employees who are determined to have occupational exposure. Vaccination will be:

• Made available at no cost to the employee within ten working days of initial assignment and after the employee has received training

• Made available at a reasonable time and place

• Performed by or under the supervision of a licensed health care professional

• Provided according to the recommendations of the U.S. Public Health Service current at the time of vaccination

• Recorded and filed in the employee’s medical records
HBV vaccinations will be provided at the University Health Center Employee Health Service, 4K UHC, for employees at risk of occupational exposure. HBV antibody testing will be provided if an employee desires such testing before deciding whether or not to receive the HBV vaccination.

If the employee declines vaccination, he/she will sign a declination form (see appendices). A copy of this form will be retained by the employee, his/her department, and OEH&S, for the duration of the employee’s tenure. If the employee has declined but changes his/her mind at a later date, the vaccination will be made available at that time.

If the employee has previously received the complete HBV vaccination series and/or antibody testing has revealed that the employee is immune or the vaccine is contraindicated for medical reasons, the vaccination series will not be offered.

VIII. POST-EXPOSURE EVALUATION AND FOLLOW-UP

All occupational exposures to human blood or other potentially infectious materials will be reported promptly, evaluated by a trained healthcare professional, and treated according to Public Health Service Guidelines: Management of Health Care Worker Exposure to HIV and Recommendations for Post-Exposure Prophylaxis, MMWR No. RR-07, May 15, 1998). The follow-up treatment will be available at no cost to the employee.

In the event of an exposure, employees should:

- Carry out any immediate first aid, if necessary, washing with soap and water any exposed area.
- Report the incident to his/her immediate supervisor as soon as possible following the incident.
- Discuss the circumstances and the nature of the exposure with his/her supervisor, and determine if the incident constitutes an occupational exposure.
- Receive medical follow-up at the University Health Center Employee Health Service (4K UHC) as soon as possible. In the event of an emergency, or an after-hours exposure incident, the employee should go to the Detroit Receiving Hospital Emergency Room for medical follow-up.
- Complete a University Report of Injury Form (available from the Office of Risk Management, 577-3110 or http://idrm.wayne.edu/risk/).
- If the exposure involved a sharp, such as a needlestick or cut with another sharp, contaminated object, also complete the Needlestick and Sharp Object Injury
Report Form (see Appendix C) and submit to the Office of Environmental Health and Safety.

The medical evaluation and follow-up will include the following elements:

- Documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred.

- Identification and documentation of the source individual or material, unless it has been established that the identification is infeasible or prohibited by law.

- Testing of the source individual’s blood as soon as feasible after consent is obtained in order to determine HIV, HBV or HCV infectivity. If consent is not obtained, the department will establish that legally required consent cannot be obtained. When the source individual’s consent is not required by law, the source, if available, will be tested and the results documented.

- Results will be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of identity and infectious status of the source individual.

- Baseline collection and testing of employee’s blood after consent is obtained, if desired by the employee. If the employee does not give consent at the time for serologic testing, the sample will be preserved for at least 90 days, and testing will be done within if the employee elects to have the baseline sample tested.

- Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service.

- Counseling, and evaluation of reported illness.

Employee acceptance of any tests and/or treatments will be on a voluntary basis.

Information provided to the healthcare professional will include:

- A copy of the MIOSHA Bloodborne Infectious Diseases Standard and the WSU Exposure Control Plan.

- A description of the employee’s duties as they relate to the exposure incident, and a description of any PPE used or to be used.

- Documentation of the route(s) of exposure and circumstances under which exposure occurred.

- Results of the source individual’s blood testing, if available.
• All medical records relevant to the appropriate treatment of the employee, including vaccination status.

Healthcare Professionals Written Opinion

The employee will be provided with a copy of the evaluating healthcare professional's written opinion within 15 days of completion of the evaluation. The written opinion for post-exposure evaluation and follow-up will summarize that the employee has been informed of:

• the results of the evaluation and told about any medical conditions resulting from the exposure which require further evaluation or treatment

• whether post-exposure prophylactic treatment is indicated

• recommended limitations upon use of personal protective clothing or equipment

All other findings and diagnosis will remain confidential and will not be included in the written report.

IX. LABELS AND SIGNS

Warning labels will be affixed to containers and bags of regulated waste, refrigerators and freezers containing blood or OPIM, and other containers used to store, transport, or ship blood or OPIM.

Contaminated equipment scheduled for maintenance or repair will be labeled in accordance with the provisions in this section. The label will also state which portions of the equipment remain contaminated.

Labels will be affixed as close as feasible to the container by string, wire, adhesive, or another method that prevents their loss or unintentional removal.

The label will be fluorescent orange-red, with letters and symbols in a contrasting color, and will contain the word “biohazard” with the internationally recognized biohazard symbol.

Signs will be posted at the entrance to HIV or HBV research laboratories. They will be fluorescent orange in color, and contain the word “biohazard” with the internationally recognized biohazard symbol.
Exemptions to the labeling requirement include:

- 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.

- Individual containers of blood or OPIM that are placed in a secondary labeled container during storage, transport, shipping, or disposal.

Departments are responsible for providing their own labels, signs, bags or containers. OEH&S is available to provide technical assistance in the purchasing of these materials.

X. INFORMATION AND TRAINING

Information and training will be provided for all University employees with occupational exposure, at the time of initial assignment, and at least annually thereafter. Training will be provided at a convenient time during the employee’s regular working hours, at no cost to the employee.

The employee’s supervisor, manager, or principal investigator is responsible for ensuring that the employee is informed of and participates in the training program.

Informational material and training sessions will be appropriate in content and vocabulary to the educational level, literacy and language of the participating employees.

Training must be provided by individuals who are knowledgeable in the subject matter as it relates to the specific workplace being addressed.

OEH&S periodically provides training in the general provisions of the Exposure Control Plan. This training consists of the following elements:

- Bloodborne Pathogens Standard: access to the regulatory text
- Modes of transmission, epidemiology and symptoms of bloodborne diseases
- Exposure Control Plan: means by which an employee may obtain a copy
- Tasks and activities that may include a risk of exposure
- Methods that will prevent or reduce the risk of exposure, including engineering and work practice controls
- Personal protective equipment: types, proper use, limitations, locations, removal, decontamination and disposal
• The rationale for selecting prospective PPE

• Hepatitis B Vaccination Program: availability, efficacy, safety, administration and benefits of vaccination, including that the vaccine is offered free of charge to affected employees

• Actions to take and persons to contact in the event of an emergency

• Procedures to follow if an exposure occurs, including method of reporting and information on post-exposure medical evaluation and follow-up

• How to recognize task and other activities that may involve exposure to blood and OPIM

• Labels and signs: explanation of wording, color-coding, locations

• Questions and answers: opportunity for interactive questions with person conducting the training

The employee’s supervisor, manager, or principle investigator must provide further information on site-specific risks and specific safety policies and procedures.

**HIV or HBV Research Facility Training**

The principle investigator must provide specialized additional training for employees working in HIV or HBV research facilities before work with HIV or HBV begins. This training shall include:

• Employee’s demonstration of proficiency in standard microbiological techniques and in the practices and procedures specific to the facility.

• Verification that employee has prior experience in the handling of human pathogens or tissue cultures

• Training for employees who have no prior experience in handling human pathogens. Initial work activities shall not include handling infectious agents, and the employee shall only be assigned work as techniques are learned and proficiency has been demonstrated.
XI. RECORDKEEPING

A. Training Records

Training records for basic training provided by OEH&S will be maintained by OEH&S. Employees trained by OEH&S will receive a certificate of training for their records.

Training records for site-specific training on laboratory policies and procedures must be maintained by the principle investigator or laboratory manager.

Training records will include the following information:

- Date(s) of training session
- Summary of contents of training program
- Names of persons conducting the training
- Names and job titles of all persons attending the training

Training records will be maintained for a minimum of three years from the date on which the training occurred and will be provided upon request to: the employee, employee’s representative, director of NIOSH, Assistant Secretary of Labor, and/or the MIOSHA.

B. Medical Records

The University Health Center will maintain an accurate record for each employee with occupational exposure. These records include:

- Name of employee
- Copy of employee’s hepatitis B immunization status, including dates of vaccinations and any medical records relative to the employee’s ability to receive vaccination.
- Copy of the results of examinations, medical testing, and any follow-up procedures
- Copy of the healthcare professional's written opinion concerning hepatitis B vaccination and post-exposure evaluation and follow-up
Injuries involving exposure to sharp, contaminated objects will also be documented on the *Needlestick & Sharp Object Injury Report Form* (Appendix C). The sharps injury log will be maintained by the Office of Environmental Safety.

The University will maintain employee medical records for the duration of employment plus thirty years. Medical records will be kept confidential and not disclosed or reported without the employee’s express written consent to any person within or outside the workplace, except as required by the availability provisions of the MiOSHA Standard.
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.

Signature ______________________

Name (print) ______________________

Department ______________________

Date ______________________

Note: If you are declining vaccination because you have previously received vaccinated elsewhere, complete the following information:

Facility where you were vaccinated: ______________________

Date you completed vaccination series: Month ________ Year ________

Date of titer (if applicable): ________ Result: ________

Copies of this form must be distributed to:

Employee

Employee’s department

WSU Office of Environmental Health & Safety
5425 Woodward, Suite 300
Detroit, MI 48202
APPENDIX B

Bloodborne Pathogen Site-Specific Training Checklist

In addition to the training provided by the Office of Environmental Health and Safety, employees should be instructed by their supervisor or Principle Investigator on the specific policies and procedures in their work area. Check (or write “N/A” if not applicable) next to each topic to be covered. The employee and the supervisor or Principle Investigator should sign and date the bottom of the form. Keep this form with your Exposure Control Plan (ECP) and other safety documentation.

Location of Written Policies/Plans

☐ Information on the location of written safety policies, including ECP

Specific Work Practices

☐ Discussion of the tasks that involve potentially infectious materials, and methods to reduce the risk of an exposure.

Personal Protective Equipment (PPE): gloves, eye/face protection, lab coat, etc.

☐ Explanation of the type and proper use of PPE required for specific tasks
☐ Location and availability of PPE
☐ Maintenance and disposal of PPE (cleaning, storage, inspection, etc.)

Engineering Controls

☐ Location and operation of eyewash and safety shower
☐ Explanation of equipment specific to work area (e.g.; sharps containers, mechanical pipettors)
☐ Explanation of biological safety cabinet and its proper use

Biohazardous Waste Handling and Disposal

☐ Review of specific disposal of sharps and non-sharp contaminated items (in accordance with the University’s biohazardous waste disposal policies.

Emergency Response

☐ Review of procedures to follow in event of a spill (including appropriate disinfectant available)
☐ Review of procedure to follow in event of an exposure to potentially infectious material

Verification of Training

The site-specific training items listed above have been reviewed and understood as required by Wayne State University’s Exposure Control Plan.

Supervisor / P.I. / Trainer Signature and Date

Employee Signature and Date
APPENDIX C

Needlestick & Sharp Object Injury Report
Complete all sections of this form. Within 14 days of the injury, ensure that the completed form is received by the Wayne State University Biosafety Officer, OEH&S, 5425 Woodward Suite 300. Keep a copy for your own records.

<table>
<thead>
<tr>
<th>Name of Injured Employee</th>
<th>Wayne State ID #</th>
<th>Phone/E-Mail</th>
<th>Job Classification</th>
<th>Department</th>
<th>Name of Supervisor</th>
</tr>
</thead>
</table>

1. Date of Injury  
2. Time of Injury  
3. Body Part Injured  
4. Location of Incident  
5. Procedure/Task Being Performed at time of Injury  
6. Describe how the incident occurred:  
7. If known, identify sharp involved (include type, brand name, model name or number):  
8. Did the device being used have engineered sharps injury protection?  
9. If yes, was the protective mechanism activated?  
10. If yes, did the exposure incident occur before, during, or after activating the protective mechanism?  
11. If the sharp had no injury protection device, could the injury have been prevented with such a mechanism? How?  
12. In the opinion of the injured employee, are there any other policy, engineering, or work practice controls that could have prevented the injury?  

Employee’s Signature  
Date  

OEH&S Office Use Only  

Follow-up and additional comments:
### APPENDIX D

**SHARPS Safety Device Evaluation Record and Form**

**SHARPS Safety Device Evaluation Record**

<table>
<thead>
<tr>
<th>Evaluation Performed Due To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Follow-up to an injury/exposure involving a contaminated sharp</td>
</tr>
<tr>
<td>☐ Proactive review of sharps use with human / other potentially infectious materials (e.g. human/animal pathogens)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation Date:</th>
<th>Principal Investigator:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Department:</th>
<th>Building/Room Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Contact Employee:</th>
<th>Fax Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone Number:</th>
<th>E-mail:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Procedure involving a contaminated sharp:

<table>
<thead>
<tr>
<th>Type/Brand of sharp currently in use:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Recommendation:**

- ☐ Elimination of sharp from procedure
- ☐ Substitution with a safe sharp device
- ☐ Use of engineering controls
- ☐ Implementation of safe work practices
- ☐ Personal Protective Equipment
- ☐ No recommendation, effective device(s) currently in use

Results of training and evaluation of new device:

<table>
<thead>
<tr>
<th>Type/Brand of sharp(s) evaluated:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

List employees involved in formal evaluation of safe sharps device(s):

Training date for work with new safe sharps device(s):

Device(s) formally in use following evaluation (selection/use date):

Additional Comments:
<table>
<thead>
<tr>
<th>Healthcare Worker Safety</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The device prevents needlesticks during use (i.e., before disposal).</td>
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<td></td>
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<tr>
<td>2. After use, the safety mechanism remains activated throughout disposal.</td>
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<tr>
<td>3. The device provides protection one of the following ways: either intrinsically or automatically (N/A if a specific action by the user is required to activate the safety mechanism).</td>
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<tr>
<td>4. If &quot;N/A&quot;, the mechanism activated in one of the following ways: either by one-handed technique or by a two-handed technique accomplished as part of the usual procedure.</td>
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<td></td>
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<tr>
<td>5. During the use of the device, the user’s hands remain behind the needle until activation of the safety mechanism is complete.</td>
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<tr>
<td>6. The safety mechanism is reliable when activated properly.</td>
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<tr>
<td>7. The device minimizes the risk of user exposure to blood or OPIM*.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient Safety and Comfort</th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. The device minimizes the risk of infection to the patient (e.g., through cross-contamination).</td>
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<td></td>
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<tr>
<td>2. The device can be used without causing more patient discomfort than a conventional device.</td>
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<tr>
<td>3. For IV devices: The device is attached comfortably (i.e., without causing patient discomfort at the catheter port or IV tubing).</td>
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</table>

<table>
<thead>
<tr>
<th>Ease of Use and Training</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. The device operation is obvious. That is, it can be used properly without extensive training.</td>
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<tr>
<td>2. The device can be used by a left-handed person as easily as by a right-handed person.</td>
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<tr>
<td>3. The technique required for using the device is the same as that for using a conventional device.</td>
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<tr>
<td>4. It is easy to identify the type and size of the product from the packaging.</td>
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<tr>
<td>5. For IV catheters &amp; blood collection needle sets: The device can provide a visible blood flashback during initial insertion.</td>
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<tr>
<td>6. The device is easy to use.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Compatibility</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>1. The device is compatible with devices (e.g., blood collection tubes) from a variety of suppliers.</td>
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<tr>
<td>2. For IV devices: A. The device is compatible with intralipid solutions.</td>
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<tr>
<td>B. The device is attached securely at the catheter port</td>
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<tr>
<td>C. The device is attached securely or locked at a Y-site (e.g. for piggybacking).</td>
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<tr>
<td>3. The device is easy to dispose of in SHARPS containers of all sizes.</td>
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</tbody>
</table>

Comments (describe problems, incompatibilities, your recommendations, etc.):

*OPIM = Other Potentially Infectious Materials
APPENDIX E

Application of the Exposure Control Plan to Human Cell Cultures

The provisions of the WSU Exposure Control Plan provide protection to employees who have occupational exposure to human blood or other potentially infectious materials (OPIM). Established human cell lines1 which are characterized2 as free of contamination from human hepatitis viruses, human immunodeficiency viruses, and other recognized bloodborne pathogens, are not to be considered as OPIM and are not covered by the bloodborne pathogens standard and the Exposure Control Plan.

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

The final judgment for making the determination if human or animal cell lines in culture are free of bloodborne pathogens will be made by the Biological Safety Officer and/or the Institutional Biosafety Committee (IBC) in consultation with the Principal Investigator (PI), in accordance with the requirements of the Bloodborne Pathogen Standard. Documentation that such cell lines are not OPIM should be on file with the PI for MIOSHA review. All primary human cell explants and in vitro passages of human tissue explant cultures (human cell strains3) must be regarded as containing bloodborne pathogens and are subject to Universal Precautions and the requirements of the ECP. Non-transformed, human cell strains characterized by documented, reasonable laboratory testing, to be free of HIV, hepatitis viruses, or other bloodborne pathogens may be exempted from the ECP requirements. However, tissue explants or subsequent cultures derived from human subjects known to carry bloodborne pathogens (e.g., HIV, HBV), or deliberately infected with bloodborne pathogens, must be handled in accordance with the bloodborne pathogens standard and the WSU ECP. The same applies for animal tissues and explants or cell lines contaminated by deliberate infection with bloodborne pathogens.

Definitions

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

- immortalized cells;
- cultures transformed by spontaneous mutation;
- cultures transformed by natural or laboratory infection with an immortalizing agent (e.g., Epstein-Barr Virus (EBV)).

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

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

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

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

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

Using a Biological Safety Cabinet
(Also see: http://oehs.wayne.edu/environmental/biosafety-cabinets.php)

**General Suggestions:**

- Keep your laboratory meticulously clean. Minimize storage of boxes and supplies, particularly near the biological safety cabinet (BSC).
- Wash your hands thoroughly before and after working in the BSC. Wear a clean lab coat and gloves while working in a BSC to protect yourself and to reduce contamination of research materials.
- The effectiveness of the BSC is a function of directional airflow (inward and downward) through a high efficiency particulate air filter (HEPA). *Anything that disrupts the airflow pattern reduces the cabinet's effectiveness.*
- Rapid movement of your arms in and out of the BSC, down drafts from ventilation systems, open lab doors and improper placement of equipment and materials inside of the cabinet can all affect its function and the airflow patterns.
- Understand how the cabinet works and plan your work carefully. Protect yourself, your research and your coworkers by using the BSC properly.

**Operational Suggestions:**

- Make sure that the cabinet is on and you have airflow. If the unit has a UV light, make sure it is off and the fluorescent light is on. Wipe the work surface clean with 70% ethanol. Wipe off each item you need for your procedures and place them inside of the cabinet. *Allow the cabinet to run for at least five minutes before beginning your work.*
- Do not place objects over the front air intake grille, or block the rear exhaust grille.
- Work with the sash at the proper height. Normally this is about 8 inches, but check the manual to be sure you follow the manufacturer’s directions.
- Perform all work at least six inches back from the front air intake grille.
- Arrange materials to segregate contaminated items from clean ones. Minimize movement of contaminated items over clean items. *Remember to always work from clean to dirty.*
- Put on a clean lab coat, wash hands thoroughly and use clean, latex or non-latex, examination gloves.

**Follow good microbiological techniques:**

- Hold open tubes and bottles as horizontal as possible.
- Use mechanical pipetting devices. Never pipette by mouth!
- Use horizontal pipette discard pans containing the appropriate disinfectant inside the BSC. Do not use vertical pipette discard canisters on the floor outside of the cabinet.
- It is not necessary to flame items. This can create turbulence in airflow and will compromise sterility. Heat buildup may also damage the filters.
• If you need to remove items from the BSC or introduce new items, move arms slowly in and out of cabinet in a manner that will minimize disruption of airflow.

• If you use a piece of equipment that creates air turbulence inside the BSC (such as a centrifuge, blender or sonicator), place the equipment in the back 1/3 of the cabinet, and stop other work while the equipment is operating.

• Protect the building vacuum system from biohazards by placing a cartridge filter between the vacuum trap and the source valve in the cabinet.

**Clean and Disinfect Properly:**

• Clean up spills immediately with the appropriate disinfectant. If possible, wait 3-5 minutes before resuming work.

• Remove all materials and wipe all interior surfaces with 70% alcohol when your work is finished. Let the cabinet run for 10 minutes before turning it off. Examine the tray under the work surface, and clean and disinfect it as necessary.

• Autoclave and dispose of waste materials appropriately. Dispose of non-sharp contaminated items in biohazard bin. Place sharps into proper sharps containers. Call OEH&S at 7-1200 for containers and information on waste disposal.

• Remove lab coat and gloves, and **wash your hands** before leaving the lab.

The biological safety cabinet should be certified annually to ensure it is working effectively.

**Class II, Type A Biological Safety Cabinet**

Call the Office of Environmental Health and Safety at 577-1200 to have a cabinet certified or for more information on working safely with biological materials.

Taken from: “Biosafety in Microbiological and Biomedical Laboratories”, NIH/CDC.
DEPARTMENT OF CONSUMER & INDUSTRY SERVICES

DIRECTOR’S OFFICE

OCCUPATIONAL HEALTH STANDARDS

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These rules take effect on October 18, 2001

(By authority conferred on the director of the department of consumer and industry services by sections 14 and 24 of 1974 PA 154, MCL 408.1014 and 408.1024, and Executive Reorganization Order Nos. 1996-1 and 1996-2, MCL 330.3101 and 445.2001)

R 325.70001, R 325.70002, R 325.70004, and R 325.70015 of the Michigan Administrative code are amended as follows:

Bureau of Safety and Regulation, Standards Division Web-Site: www.michigan.gov/mioshastandards

PART 554. BLOODBORNE INFECTIOUS DISEASES

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R 325.70001 Scope.

Rule 1. These rules apply to all employers that have employees with occupational exposure to blood and other potentially infectious material.

R 325.70002 Definitions.

Rule 2. As used in these rules:

(a) “Act” means 1974 PA 154, MCL 408.1001 et seq.

(b) “Biologically hazardous conditions” means equipment, containers, rooms, materials, experimental animals, animals infected with HBV or HIV virus, or combinations thereof that contain, or are contaminated with, blood or other potentially infectious material.

(c) “Blood” means human blood, human blood components, and products made from human blood.

(d) “Bloodborne pathogens” means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

(e) “Clinical laboratory” means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious material.

(f) “Contaminated” means the presence or the reasonably anticipated presence of blood or other potentially infectious material on an item or surface.

(g) “Contaminated laundry” means laundry which has been soiled with blood or other potentially infectious materials or which may contain sharps.

(h) “Contaminated sharps” means any contaminated object that can penetrate the skin, including any of the following:

(i) Needles.
(ii) Scalpels.
(iii) Broken glass.
(iv) Broken capillary tubes.
(v) Exposed ends of dental wires.

(i) “Decontamination” means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe or handling, use, or disposal.

(j) “Department” means the department of consumer and industry services.

(k) “Director” means the director of the department or his or her designee.

(l) “Disinfect” means to inactivate virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms, on inanimate objects.

(m) “Engineering controls” means controls, for example, sharps disposal containers, self-sheathing needles, or safer medical devices, such as sharps with engineered sharps injury protections and needleless systems, that isolate or remove the bloodborne pathogen hazard from the workplace.

(n) “Exposure” means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties. “Exposure” does not include incidental exposures which may take place on thejob, which are neither reasonably nor routinely expected, and
which the worker is not required to incur in the normal course of employment.

(o) “Exposure incident” means a specific eye, mouth, other mucous membrane, nonintact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of an employee’s duties.

(p) “Handwashing facilities” means facilities that provide an adequate supply of running, potable water, soap, and single-use towels or a hot-air drying machine.

(q) “Licensed health care professional” means a person whose legally permitted scope of practice allows him or her to independently perform the activities required by R 325.70013 concerning hepatitis B vaccination and postexposure evaluation and follow-up.

(r) “Needleless systems” means a device that does not use needles for any of the following:

(i) The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established.

(ii) The administration of medication or fluids.

(iii) Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

(s) “Other potentially infectious material” means any of the following:

(i) Any of the following human body fluids:

(A) Semen.

(B) Vaginal secretions.

(C) Amniotic fluid.

(D) Cerebrospinal fluid.

(E) Peritoneal fluid.

(F) Pleural fluid.

(G) Pericardial fluid.

(H) Synovial fluid.

(I) Saliva in dental procedures.

(J) Any body fluid that is visibly contaminated with blood.

(K) All body fluids in situations where it is difficult or impossible to differentiate between body fluids.

(ii) Any unixed tissue or organ, other than intact skin, from a living or dead human.

(iii) Cell or tissue cultures that contain HIV, organ cultures, and culture medium or other solutions that contain HIV or HBV; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

(t) “Parenteral” means exposure occurring as a result of piercing mucous membrane or the skin barrier, such as exposure through subcutaneous, intramuscular, intravenous, or arterial routes resulting from needlesticks, human bites, cuts, and abrasions.

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

(v) “Production facility” means a facility that is engaged in the industrial-scale, large-volume production of HIV or HBV or in the high-concentration production of HIV or HBV.

(w) “Regulated waste” means any of the following:

(i) Liquid or semiliquid blood or other potentially infectious material.

(ii) Contaminated items that would release blood or other potentially infectious material in a liquid or semiliquid state if compressed.

(iii) Items which are caked with dried blood or other potentially infectious material and which are capable of releasing these materials during handling.

(iv) Contaminated sharps.

(v) Pathological and microbiological waste that contains blood and other potentially infectious material.

(x) “Research laboratory” means a laboratory that produces or uses research laboratory-scale amounts of HIV or HBV. A research laboratory may produce high concentrations of HIV or HBV, but not in the volume found in a production facility.

(y) “Sharps with engineered sharps injury protections” means a nonneedle sharp or a needle device which is used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, and which has a build-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

(z) “Source individual” means any living or dead individual whose blood or other potentially infectious material may be a source of occupational exposure to an employee. Examples of a source individual include all of the following:

(i) A patient of a hospital or clinic.

(ii) A client of an institution for the developmentally disabled.

(iii) A victim of trauma.

(iv) A client of a drug or alcohol treatment facility.

(v) A resident of a hospice or nursing home.

(vi) Human remains.

(vii) An individual who donates or sells his or her blood or blood components.

(aa) “Standard operating procedures (SOPs)” means any of the following that address the performance of work activities so as to reduce the risk of exposure to blood and other potentially infectious material:

(i) Written policies.

(ii) Written procedures.

(iii) Written directives.

(iv) Written standards of practice.

(v) Written protocols.

(vi) Written systems of practice.

(vii) Elements of an infection control program.

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

(cc) “Universal precautions” means a method of infection control that treats all human blood and other potentially infectious material as capable of transmitting HIV, HBV, and other bloodborne pathogens.

(dd) “Work practices” means controls that reduce the likelihood of exposure to bloodborne pathogens by altering the manner in which a task is performed.

R 325.70003 Exposure determination.

Rule 3. (1) An employer shall evaluate routine and reasonably anticipated tasks and procedures to determine whether there is actual or reasonably anticipated employee exposure to blood or other potentially infectious material. Based on this evaluation, an employer shall categorize all employees into category A or B as follows:

(a) Category A consists of occupations that require procedures or other occupation-related tasks that involve exposure or reasonably anticipated exposure to blood or other potentially infectious material or that involve a likelihood for spills or splashes of blood or other potentially infectious material. This includes procedures or tasks conducted in nonroutine situations as a condition of employment.

(b) Category B consists of occupations that do not require tasks that involve exposure to blood or other potentially infectious material on a routine or nonroutine basis as a condition of employment. Employees in occupations in this category do not perform or assist in emergency medical care or first aid and are not reasonably anticipated to be exposed in any other way.

(2) An exposure determination shall be made without regard to the use of personal protective clothing and
equipment.

(3) An employer shall determine and document a rationale for an exposure determination.

(4) An employer shall maintain a list of all job classifications which are determined to be category A.

R 325.70004 Exposure control plan.

Rule 4. (a) If an employee is determined to be in category A, then an employer shall establish a written exposure control plan to minimize or eliminate employee exposure.

(b) An exposure control plan shall contain all of the following information:

(i) The exposure determination required by R 325.70003(1).

(ii) The schedule and method of implementation for each of the applicable rules of these rules.

(iii) The contents or a summary of the training program required by R 325.70016.

(iv) The procedures for the evaluation of circumstances surrounding exposure incidents as required by R 325.70013(5).

(v) Task-specific standard operating procedures (SOPs) that address all of the following areas:

(A) Employee recognition of reasonably anticipated exposure to blood and other potentially infectious material.

(B) Appropriate selection, use, maintenance, and disposal of personal protective equipment.

(C) Contingency plans for foreseeable circumstances that prevent following the recommended SOPs.

(c) General employer policies or task-specific SOPs shall address the management of inadvertent exposures such as needlesticks or mucus membrane exposures.

(d) The exposure control plan shall be reviewed at least annually and updated as necessary. A review shall consider changes in employees' tasks and procedures and the latest information from the centers for disease control or the department. See appendix A for addresses of these agencies. The review and update of the exposure control plans shall comply with both of the following provisions:

(i) Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.

(ii) Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

(e) An employer shall ensure that only a person who has knowledge of applicable control practices is authorized to write and to review an exposure control plan.

(f) An employer shall ensure that the exposure control plan is made available to the director or a representative of the director for examination and copying upon request.

(g) An employer shall ensure that a copy of the exposure control plan is accessible to category A employees in accordance with R 325.3451 et seq.

(h) An employer, who is required to establish an exposure control plan shall 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 exposure control plan.

R 325.70005 Universal precautions.

Rule 5. Universal precautions shall be observed to prevent contact with blood and other potentially infectious materials. If differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.

R 325.70006 Engineering controls.

Rule 6. (1) Engineering controls shall be used in combination with work practice controls to minimize or eliminate employee exposure to blood and other potentially infectious material. Where exposure remains after use of engineering and work practice controls, personal protective equipment shall also be used.

(2) Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.

(3) An employer shall provide handwashing facilities which are readily accessible to employees. When provision of handwashing facilities is not feasible, an employer shall provide an appropriate antiseptic hand cleanser with clean cloth or paper towels or antiseptic towelettes.

R 325.70007 Work practices.

Rule 7. (1) After implementing appropriate engineering controls, an employer shall further reduce the likelihood of exposure to blood and other potentially infectious material by developing and implementing work practices for each task.

(2) At a minimum, work practices shall ensure all of the following:

(a) All personal protective equipment shall be removed before leaving the work area and shall be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.

(b) If a garment is penetrated by blood or other potentially infectious materials, the garment shall be removed immediately or as soon as feasible.

(c) An employee shall wash his or her hands immediately after removing gloves or other protective clothing, as soon as possible after hand contact with blood or other potentially infectious material, and upon leaving the work area. Handwashing shall be completed using the appropriate facilities, such as utility or rest room sinks. Waterless antiseptic hand cleansers shall be provided on responding units to use when hand-washing facilities are not available. When hand-washing facilities are available, hands shall be washed with warm water and soap or antiseptic cleanser. When hand-washing facilities are not available, a waterless antiseptic hand cleanser shall be used. The manufacturer's recommendations for the product shall be followed. When antiseptic cleaners or towelettes are used, employees shall wash their hands with soap and water as soon as feasible.

(d) An employer shall ensure that employees wash their hands and any other skin with soap and water following contact of such body areas with blood or other potentially infectious material, or flush mucous membranes with water, immediately or as soon as feasible after contamination.

(e) Used needles and other contaminated sharps shall not be sheared, bent, or broken and shall not be recapped or resheathed where other disposal methods are practical. Used needles and other sharps shall not be recapped, resheathed, or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical procedure. Needle recapping or removal shall be accomplished by use of a mechanical device or a 1-handed technique. The disposal of needles and sharps shall be accomplished in accordance with the provisions of R 325.70010.

(f) Eating, drinking, smoking, applying cosmetics or lip balm, or handling contact lenses is prohibited in laboratories, freezers, shelves, cabinets, or on countertops or benchtops where blood or other potentially infectious material is present or in other areas of possible contamination.

(g) Food and drink shall not be stored in refrigerators, freezers, shelves, cabinets, or on countertops or benchtops where blood or other potentially infectious material is present or in other areas of possible contamination.

(h) All procedures that involve blood or other potentially
shall provide, at no cost to the employee, and assure that an
other potentially infectious material.

(i) Mouth pipetting or suctioning is prohibited.

(ii) Where there is a high risk of skin or mucous
membrane contamination with blood, for example, when
performing procedures that involve a high risk of laceration,
but which do not require the use of PPE when, under rare and
extraordinary circumstances, it was the employee’s professional judgement,
that in the specific instance the use of PPE would have
prevented the delivery of health care or public safety services
or would have posed an increased hazard to the safety of the
worker or coworker. When the employee makes this
judgement, the circumstances shall be investigated and
documented to determine if changes can be made to prevent
future occurrences.

(c) Where splashes can be reasonably anticipated, face
shields or protective eyewear and masks shall be provided. If
the conditions of exposure include the likelihood that clothing
will become soaked with blood, protective outer garments,
such as impervious gowns, shall be worn. Appropriate
personal protective equipment shall be used in all of the following
instances:

(i) In performing invasive procedures when the health
care worker has cuts, scratches, or other breaks in his or her
skin.

(ii) Where there is a high risk of skin or mucous
membrane contamination with blood, for example, when
performing invasive procedures on an uncooperative patient.

(iii) In phlebotomy when performing finger or heel sticks in
infants and children.

(iv) When persons are receiving training in invasive
procedures.

d) An employer shall assure that appropriate protective
equipment and clothing in the appropriate sizes are readily
accessible at the worksite or issued to employees at no cost
to the employees. Hypoallergenic gloves, glove liners,
powderless gloves, or other similar alternatives shall be readily
accessible to employees who are allergic to the gloves
normally provided. See appendix A for more information.

e) An employer shall provide for the cleaning, laundering,
or disposing of protective clothing and equipment required by
this rule.

(f) An employer shall repair or replace required protective
clothing and equipment as needed to maintain their
effectiveness.

g) Gloves shall be worn by an employee if there is a
reasonable expectation of direct skin contact with blood, other
potentially infectious material, mucous membranes, or
nonintact skin of patients; when performing vascular access
procedures, except as specified in subdivision (h) of this
rule; and when handling items or surfaces that are soiled
with blood or other potentially infectious material. Gloves shall
be made of material that is appropriate for a particular task.
Disposable (single-use) gloves, such as surgical or
examination gloves, shall be replaced soon as practical if
contaminated or as soon as feasible if torn, punctured, or
ineffective as barriers. Disposable gloves shall not be washed
or decontaminated for reuse. Gloves shall be changed
between patient contacts. Utility gloves shall be discarded if
any are cracked, peeling, discolored, torn, or punctured or
exhibit other signs of deterioration, but may be decontaminated
for reuse if the integrity of the glove is maintained. Tear
and puncture-resistant gloves shall be provided for procedures
which involve a high risk of laceration, but which do not require
a high degree of dexterity. See appendix A for supplemental
information.

(h) If an employer of a volunteer blood donation center
judges that routine gloving for all phlebotomies is not
necessary, the employer shall do all of the following:

(i) Periodically reevaluate this policy.

(ii) Make appropriate gloves available to all employees
who wish to use them for phlebotomy.

(iii) Not discourage the use of gloves for phlebotomy.

(iv) Require that gloves be used for phlebotomy in the
following circumstances:

(A) When the employee has cuts, scratches, or other
breaks in the skin on his or her hands or wrists.

(B) When the employee judges that hand contamination
with blood may occur, for example when performing
phlebotomy on an uncooperative patient.

(C) When the employee is receiving training in
phlebotomy.

(i) Masks and eye protection or chin-length face shields
shall be worn as appropriate if splashes, sprays, splatters,
droplets, or aerosols of blood or other potentially infectious
material may be generated and if there is a likelihood for eye,
nose, or mouth contamination. If there is a significant risk of
eye protection breakage or unintended removal, protective
eyewear that is suitable for the work to be performed, as
required by General Industry Safety Standard Part 33., being
R 408.13301 et seq. of the Michigan Administrative Code, and
R 325.6001 et seq. of the Michigan Administrative Code,
shall be worn.

(j) Gowns, lab coats, aprons, clinic jackets, or similar
outer garments shall be worn where appropriate if there is a
reasonably anticipated exposure. Such clothing shall protect
all areas of exposed skin that have a significant likelihood for
contamination. The type of characteristics will depend upon
the task and degree of exposure anticipated.

(k) Surgical caps or hoods and shoe covers or boots shall
be worn where appropriate if there is a reasonable anticipation
of gross contamination, for example in autopsies and
orthopedic surgery.

(l) To minimize the need for direct mouth-to-mouth
resuscitation, pocket masks, resuscitation bags, or other
ventilation devices shall be provided in strategic locations and
to trained personnel where the need for resuscitation is likely.

R 325.70009 Housekeeping.

Rule 9. (1) An employer shall assure that the worksite
is maintained in a clean and sanitary condition. An employer
shall determine and implement an appropriate written
schedule for cleaning and for the method of decontamination
based on all of the following:
(a) The location within a facility.
(b) The type of surface to be cleaned.
(c) The type of soil present.
(d) The tasks or procedures being performed.
(2) All equipment and environmental and working surfaces shall be maintained in a sanitary condition as follows:
(a) Work surfaces shall be cleaned and appropriately decontaminated with an appropriate disinfectant in all of the following instances:
(i) After completion of procedures.
(ii) When surfaces are overtly contaminated.
(iii) Immediately when blood or other potentially infectious material is spilled.
(iv) At the end of the work shift if the surface may have become contaminated since the last cleaning. See appendix A for supplemental information.

(b) Protective coverings such as plastic wrap, aluminum foil, or plastic-backed, absorbent paper may be used to cover equipment and environmental surfaces. These coverings shall be removed and replaced at the end of the work shift if contaminated or as soon as feasible when they become overtly contaminated.

(c) Equipment that may become contaminated with blood or other potentially infectious material shall be examined before servicing or shipping and shall be decontaminated as necessary unless the employer can demonstrate that decontamination is not feasible. If decontamination is not feasible, the employer shall ensure that a readily observable label which states the portions of the equipment that remain contaminated and which is in compliance with the provisions of R 325.70014(2)(h) is attached to the equipment. The employer shall ensure that all affected employees, the servicing representative, or the manufacturer, as appropriate, is notified that equipment decontamination is not feasible and is notified of the portions of the equipment that remain contaminated before handling, servicing, or shipping so that appropriate precautions will be taken.

(d) All bins, pails, cans, and similar receptacles which are intended for reuse and which have a reasonable likelihood for becoming contaminated with blood and other potentially infectious material shall be inspected and decontaminated on a regularly scheduled basis and shall be cleaned and decontaminated immediately, or as soon as possible, upon visible contamination.

(e) Broken glassware that may be contaminated shall not be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dust pan, tongs, cotton swabs, or forceps.

(f) Specimens of blood or other potentially infectious material shall be placed in a closable leakproof container during collection, handling, processing, storing, transporting, or shipping. If contamination of the outside of a primary container is likely, a second leakproof container shall be placed over the outside of the first and closed to prevent leakage during handling, processing, storing, transporting, or shipping. If puncture of the primary container is likely, it shall be placed within a leakproof, puncture-resistant secondary container. All containers shall be labeled or color-coded in accordance with the provisions of R 325.70014.

(g) Reusable items, including reusable sharps, that have been contaminated with blood or other potentially infectious material shall be washed and decontaminated before reprocessing. The order in which washing and decontamination shall be performed shall be chosen so as to minimize exposure to blood or other potentially infectious material. Reusable sharps shall not be stored or processed in a manner that requires reaching by hand into containers where sharps have been placed.

R 325.70010 Regulated waste disposal.
Rule 10. (1) All regulated waste that is being disposed of shall be placed in closable, leakproof containers or bags that are color-coded or labeled as required by the provisions of R 325.70014. If outside contamination of the container or bag is likely to occur, then a second leakproof container or bag that is closable and labeled or color-coded shall be placed over the outside of the first and closed to prevent leakage during handling, storage, and transport.

(2) Immediately after use, contaminated sharps shall be disposed of in closable, leakproof, puncture-resistant, disposable containers that are labeled or color-coded according to the provisions of R 325.70014. These containers shall be easily accessible to personnel; shall be located in the immediate area of use or where sharps are likely to be found, unless needles are mechanically recapped and transported through nonpublic corridors to the container; and shall be replaced routinely and not allowed to overfill.

(3) The disposal of all medical waste shall be in compliance with the provisions of sections 13801 to 13831 of Act No. 368 of the Public Acts of 1978, as amended, being §§333.13801 to 333.13831 of the Michigan Compiled Laws, and known as the medical waste regulatory act.

R 325.70011 Laundry.
Rule 11. (1) Laundry that is or may be soiled with blood or other potentially infectious material or that may contain contaminated sharps shall be treated as if it were contaminated and shall be handled as little as possible with a minimum of agitation.

(2) Contaminated laundry shall be bagged at the location where it was used and shall not be sorted or rinsed in areas where patients are cared for.

(3) Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with the provisions of R 325.70014. If laundry is wet and presents the likelihood for soaking through or leaking from the bag, it shall be placed and transported in leakproof bags.

(4) An employer shall ensure that laundry workers wear protective gloves and other appropriate personal protective work clothing while handling contaminated laundry.

(5) An employer shall ensure that all contaminated laundry is cleaned and laundered in such a way that any bloodborne pathogens present are inactivated or destroyed.

(6) When an employer follows universal precautions in the handling of all soiled laundry, alternative labeling or color coding is sufficient if it permits all employees to recognize the containers that are required to be in compliance with universal precautions.

(7) When an employer ships contaminated laundry off-site to a facility that does not use universal precautions in the handling of all laundry, the shipping employer shall use bags or containers that are labeled or color-coded in accordance with the provisions of R 325.70014.

R 325.70012 HIV and HBV research laboratories and production facilities.
Rule 12. (1) This rule applies to research laboratories and production facilities that are engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV. This rule applies to such laboratories and facilities in addition to the other requirements of these rules. This rule does not apply to clinical or diagnostic laboratories that are engaged solely in the analysis of blood, tissues, or organs.

(2) Research laboratories and production facilities shall be in compliance with all of the following requirements:

(a) All infectious liquid or solid waste shall be incinerated or decontaminated by a method known to effectively destroy bloodborne pathogens before being disposed of.
(a) Each laboratory shall contain a sink for washing hands and an eye wash station that are readily available in the work area.

(b) Laboratory doors shall be kept closed when work involving HIV or HBV is in progress.

(c) Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leakproof, labeled or color-coded container that is closed before being removed from the work area.

(d) Access to the work area shall be limited to authorized persons only. Written policies and procedures shall be established whereby only persons who have been advised of the biohazard, who meet any specific entry requirements, and who comply with all entry and exit procedures shall be allowed to enter the work areas and animal rooms.

(e) When other potentially infectious material or infected animals are present in the work area or containment module, a hazard warning sign that incorporates the universal biohazard symbol shall be posted on all access doors. The hazard warning sign shall be in compliance with the provisions of R 325.70014(1).

(f) All activities that involve other potentially infectious material shall be conducted in biological safety cabinets or other physical containment devices within the containment module. Work with such material shall not be conducted on the open bench.

(g) Laboratory coats, gowns, smocks, uniforms, or other appropriate protective clothing shall be used in the work area and animal rooms. Protective clothing shall not be worn outside of the work area and shall be decontaminated before being laundered.

(h) Special care shall be taken to avoid skin contamination with other potentially infectious materials. Gloves shall be worn when handling infected animals and when making contact with other potentially infectious materials is unavoidable.

(i) All waste from work areas, including animal rooms, shall be incinerated or decontaminated by a method known to effectively destroy bloodborne pathogens before disposal.

(j) Vacuum lines shall be protected with high-efficiency particulate air (HEPA) filters, or equivalent filters, and liquid disinfectant traps. Filters and traps shall be checked routinely and maintained or replaced as necessary.

(k) Hypodermic needles, syringes, and other sharp instruments shall be used only when a safer alternate technique is not feasible. Only needle-locking syringes or disposable syringe with needle units that have a needle as an integral part of the syringe shall be used for the injection or aspiration of other potentially infectious material. Extreme caution shall be used when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal. A needle shall not be bent, sheared, replaced in the sheath or guard, or removed from the syringe after being used. The needle and syringe shall be promptly placed in a puncture-resistant container and decontaminated, preferably by autoclaving, before being discarded or reused.

(l) Any spill or accident that results in an exposure incident shall be immediately reported to the laboratory director or another responsible person. Spills shall immediately be contained and cleaned up by appropriate professional staff who are trained and equipped to work with potentially concentrated infectious material.

(m) A biosafety manual shall be prepared or adopted and reviewed and updated at least annually. Personnel shall be advised of potential hazards and shall be required to read and follow instructions on practices and procedures.

(n) Both of the following containment equipment requirements shall be complied with:

(i) Class I, II, or III certified biological safety cabinets or other appropriate combinations of personal protection or physical containment devices, such as any of the following, shall be used for all activities with other potentially infectious material that poses a threat of exposure to droplets, splashes, spills, or aerosols:

   (A) Special protective clothing.
   (B) Respirators.
   (C) Centrifuge safety cups.
   (D) Sealed centrifuge rotors.
   (E) Containment caging for animals.

   (ii) Biological safety cabinets shall be certified when installed, at least annually, and when they are relocated.

(3) HIV and HBV research laboratories shall be in compliance with both of the following requirements:

(a) Each laboratory shall contain a sink for washing hands and an eye wash station that are readily available in the work area.

(b) An autoclave for the decontamination of regulated wastes shall be available.

(4) HIV and HBV production facilities shall be in compliance with all of the following requirements:

(a) The work areas shall be separated from areas that are open to an unrestricted traffic flow within the building. Passage through 2 sets of doors shall be the basic requirement for entry into the work area from access corridors or other contiguous areas. Physical separation of the high-containment work area from access corridors or other areas or activities may also be provided by a double-doored room for changing clothes, an airlock, or other access facility that requires passing through 2 sets of doors before entering the work area. Showers may be included as part of the changing room.

(b) The interior surfaces of walls, floors, and ceilings 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 of the work area.

(c) Each work area shall contain a sink for washing hands. The sink shall be foot-operated, elbow operated, or automatically operated and shall be located near the exit door of the work area.

(d) Access doors to the work area or containment module shall be self-closing.

(e) An autoclave for the decontamination of infectious wastes shall be available within, or as near as possible to, the work area.

(f) 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 into the work area shall be verified.

(5) Additional training requirements for employees in HIV and HBV research laboratories and HIV and HBV production facilities are specified in R 325.70016(6).

R 325.70013 Vaccinations and postexposure follow-up. Rule 13. (1) An employer shall assure that all medical evaluations are procedures are performed by or under the supervision of a licensed physician or other licensed health care professional and that all laboratory tests are conducted by an accredited laboratory.

(2) An employer shall assure that all evaluations, procedures, vaccinations, and postexposure prophylaxes are provided without cost to the employee, at a reasonable time and place, and according to current recommendations of the United States public health service, unless in conflict with provisions of this rule.

(3) An employer shall assure that all employees will receive appropriate counseling with regard to medical risks and benefits before undergoing any evaluations, procedures, vaccinations, or postexposure prophylaxes.

(4) Within 10 working days of the time of initial assignment and after the employee has received training required by the
provisions of R 325.70016(5)(i), an employer shall make all of the following available to each category A employee:

(a) A hepatitis B vaccination. If an employee initially declines vaccination, but at a later date, while still covered under these rules, decides to accept the HBV vaccine, the employer shall provide the vaccine at that time. If a booster dose or doses are recommended by the United States public health service at a future date, the booster dose or doses shall be made available.

(b) HBV antibody testing for employees who desire such testing before deciding whether or not to receive HBV vaccination. If an employee has previously received the complete HBV vaccination series, is found to be immune to HBV by virtue of adequate antibody titer, or the vaccine is contraindicated for medical reasons, then the employer is not required to offer the HBV vaccine to that employee.

(c) An employer shall not make participation in a prescreening program a prerequisite for receiving hepatitis B vaccination.

(d) An employer shall assure that an employee who declines to accept hepatitis B vaccination signs a waiver statement with all of the following provisions:

(i) Understanding of risk.

(ii) Acknowledgment of opportunity of vaccination at no cost.

(iii) Declining vaccination.

(iv) Future availability of vaccination at not cost if desired, if still in at risk status.

See appendix B for a sample of an acceptable waiver statement.

(5) An employer shall provide each exposed employee with an opportunity to have a confidential medical evaluation and follow-up subsequent to a reported occupational exposure incident to blood or other potentially infectious material. The evaluation and follow-up shall include, at a minimum, all of the following elements:

(a) Documentation of the route or routes of exposure and the circumstances under which the exposure incident occurred.

(b) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law, shall include all of the following:

(i) The source individual’s blood shall be tested as soon as feasible and after consent is obtained to determine HBV and HIV infectivity. If consent is not obtained, the employer shall establish that legally required consent cannot be obtained. If the source individual’s consent is not required by law, his or her blood, if available, shall be tested and the results documented.

(ii) If the source individual is already known to be infected with HBV or HIV, testing need not be repeated.

(iii) Results of the source individual’s testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

(c) Collection and testing of blood or HBV and HIV serological status shall include both of the following:

(i) The exposed employee’s blood shall be collected as soon as feasible and tested after consent is obtained.

(ii) If the exposed employee consents to baseline blood collection, but not to HIV testing a that time, the sample shall be preserved for not less than 90 days. If within the 90 days the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.

(d) Postexposure prophylaxis, when medically indicated, as recommended by the United States public health service.

(e) Counseling on risk reduction and the risks and benefits of HIV testing in accordance with state law.

(f) Evaluation of reported illnesses.

(6) An employer shall ensure that the health care professional who is responsible for the hepatitis B Vaccination is provided with a copy of these rules and appendices. An employer shall ensure that the health care professional who evaluates an employee after an exposure incident is provided with all of the following information:

(a) A description of the affected employee’s duties as they relate to the employee’s exposure incident.

(b) Documentation of the route or routes of exposure and the circumstances under which exposure occurred.

(c) Results of the source individual’s blood testing, if available.

(d) All medical records which are relevant to the appropriate treatment of the employee, including vaccination status, and which are the employer’s responsibility to maintain.

(e) A description of any personal protective equipment used or to be used.

(7) For each evaluation pursuant to the provisions of this rule, an employer shall obtain, and provide an employee with a copy of, the evaluating health care professional’s written opinion within 15 working days of the completion of the evaluation. The written opinion shall be limited to the following information:

(a) The health care professional’s recommended limitations upon the employee’s use of personal protective clothing or equipment.

(b) Whether hepatitis B vaccination is indicated for an employee and if the employee has received such vaccination.

(c) A statement that the employee has been informed of the results of the medical evaluation and that the employee has been told about any medical conditions which have resulted from exposure to blood or other potentially infectious material and which require further evaluation or treatment. The written opinion obtained by the employer shall not reveal specific findings or diagnoses that are unrelated to the employee’s ability to wear protective clothing and equipment or receive vaccinations. Such findings and diagnoses shall remain confidential.

(8) Medical records that are required by these rules shall be maintained in accordance with the provisions of R 325.70015.

R 325.70014 Communication of hazards to employees.

Rule 14. (1) An employer shall post signs at the entrance to work areas specified in R 325.70012. The signs shall bear the following legend:

[Image: Biohazard symbol]

[Name of infectious agent]
[Special requirements for entering the area]
[Name and telephone number of the laboratory director or other responsible person]

These signs shall be fluorescent orange-red with lettering and symbols in a contrasting color.

(2) Labels shall be in compliance with all of the following requirements:

(a) Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers that contain blood or other potentially infectious material, and other containers
that are used to store or transport blood or other potentially infectious material, except as provided in subdivision (e) or (f) of this subrule.

(b) Labels that are required pursuant to the provisions of this rule shall include the follow legend:

![BIOHAZARD](image)

(c) Labels shall be fluorescent orange or orange-red or predominately orange or orange-red, with lettering or symbols in a contrasting color.

(d) Labels shall either be an integral part of the container or shall be affixed as close as safely possible to the container by string, wire, or adhesive or by another method that prevents the loss of labels or the unintentional removal of labels.

(e) Red bags or red containers may be substituted for labels.

(f) Containers of blood, blood components, or blood products which are labeled as to their contents and which have been released for transfusion or other clinical use are exempted from the labeling requirements of this rule.

(g) Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment, or disposal are exempted from labeling requirements.

(h) Labels required for contaminated equipment shall be in accordance with the provisions of this subrule and shall also describe which portions of the equipment remain contaminated.

(i) Regulated waste that has been decontaminated need not be labeled or color-coded.

(j) All biologically hazardous conditions shall be identified in an identical manner.

R 325.70015 Recordkeeping.

Rule 15. (1) An employer shall establish and maintain medical records for each category A employee in accordance with R 325.3451 et seq.

(2) An employer shall ensure that medical records contain, at a minimum, all of the following information:

(a) The name and social security number of the employee.

(b) A copy of the employee’s hepatitis B vaccination status, including the dates administered and medical records relating to the employee’s ability to receive a vaccination as required by R 325.70013.

(c) A copy of the medical history and all results of physical examinations, medical testing, and follow-up procedures as they relate to either of the following:

(i) The employee’s ability to wear protective clothing and equipment and receive vaccination.

(ii) Postexposure evaluation after an occupational exposure incident.

(d) The employee’s copy of the physician’s written opinion.

(e) A copy of the information provided to the physician as required by R 325.70013(6).

(3) An employer shall assure that employee medical records that are required by this rule are kept confidential and are not disclosed or reported without the employee’s express written consent to any person within or outside the workplace, except as required by this rule or as may be required or permitted by law.

(4) An employer shall maintain employee medical records for not less than the duration of employment plus 30 years in accordance with R 325.3451 et seq.

(5) An employer shall develop and maintain training records for each category A employee. Training records shall be maintained for 3 years beyond the date that the training occurred.

(6) Training records shall include all of the following information:

(a) The dates of the training sessions.

(b) The contents or a summary of the training sessions.

(c) The names and qualifications of persons who conduct the training.

(d) The names and job titles of all persons who attend the training sessions.

(7) An employer shall assure that all records that are required to be maintained by these rules shall be made available, upon request, to representatives of the department or the director for examination and copying.

(8) An employer shall ensure that employee training records are provided, upon request, for examination and copying to employees, employee representatives, and the director in accordance with R 325.3451 et seq.

(9) An employer shall assure that employee medical records are provided, upon request, for examination and copying to the subject employee, to anyone who has the written consent of the subject employee, and to the director in accordance with R 325.3451 et seq.

(10) An employer shall comply with the requirements that involve the transfer of records set forth in R 325.3451 et seq.

(11) If an employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, then the employer shall notify the director, not less than 3 months before disposing of the records, and shall transmit the records to the director if required by the director to do so within the 3-month period.

(12) All of the following provisions apply to a sharps injury log:

(a) An employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in a manner that protects the confidentiality of the injured employee. At a minimum, a sharps injury log shall contain all of the following information:

(i) The type and brand of device involved in the incident.

(ii) The work unit or work area where the exposure incident occurred.

(iii) An explanation of how the incident occurred.

(b) The requirement to establish and maintain a sharps injury log applies to any employer who is required to maintain a log of occupational injuries and illnesses under R 408.22101 et seq., being Part 11. Recording and Reporting of Occupational Injuries and Illnesses.

(c) A sharps injury log shall be maintained for the period required by R 408.22101 et seq., Part 11. Recording and Reporting of Occupational Injuries and Illnesses.

R 325.70016 Information and training.

Rule 16. (1) An employer shall ensure that all category A employees participate in a training program provided at no cost to the employees and during working hours.

(2) Training shall be provided at the time of initial assignment to category A work or within 90 days after the effective date of these rules, whichever is later, and at least annually thereafter. If an employee has received training on bloodborne pathogens in the year preceding the effective date of these rules, only training with respect to requirements of this rule that were not included in the previous training need to be provided.

(3) An employer shall provide additional training when
changes, such as the modification of tasks or procedures or the institution of new tasks or procedures, affect an employee's occupational exposure. The additional training may be limited to addressing the new exposures created.

(4) Material appropriate in content and vocabulary to the educational level, literacy, and language background of employees shall be used.

(5) The training program shall contain all of the following elements:

(a) Accessibility of the copy of these rules and an explanation of the contents of these rules, including appendices.

(b) A general explanation of the epidemiology and symptoms of bloodborne diseases.

(c) An explanation of the modes of transmission of bloodborne pathogens.

(d) An explanation of the employer's exposure control plan, including the standard operating procedures, and how an employee can access the written plan.

(e) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious material.

(f) An explanation of the use and limitations of practices that will prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment.

(g) Information on all of the following with respect to personal protective clothing and equipment:

(i) Types.

(ii) Proper use.

(iii) Limitations.

(iv) Location.

(v) Removal.

(vi) Handling.

(vii) Decontamination.

(viii) Disposal.

(h) An explanation of the basis for selecting protective clothing and equipment.

(i) Information on the hepatitis B vaccine and postexposure prophylaxis, including all of the following information:

(i) Availability.

(ii) Efficacy.

(iii) Safety.

(iv) The benefits of being vaccinated.

(v) Method of administration.

(vi) That vaccination is free of charge.

(j) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious material.

(k) An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident, and the medical follow-up and counseling that will be made available.

(l) An explanation of the signs and labels or color coding required by the provisions of R 325.70014.

(6) Employees in HIV or HBV research laboratories and HIV/HBV production facilities shall receive the following initial training in addition to the training requirements specified in subrule (5) of this rule:

(a) Employees shall be trained in, and 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 and HBV.

(b) Employees shall be experienced in the handling of human pathogens or tissue cultures before working with HIV and HBV.

(c) A training program shall be provided to employees who have not had 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. An employee shall participate in work activities that involve infectious agents only after proficiency has been demonstrated.

(7) Training shall be conducted in the following manner:

(a) All employees in category A positions shall receive initial training and annual retraining.

(b) Training sessions shall afford employees ample opportunity for discussion and the answering of questions by a knowledgeable trainer.

(c) The training shall include opportunities for supervised practice with personal protective equipment and other equipment which is designed to reduce the likelihood for exposure and which will be used in the employee's work.

(d) The person or persons who conduct training shall be knowledgeable in all of the following areas:

(i) The information presented in the training session.

(ii) The employer's exposure control plan.

(iii) Conditions of the work environment that affect the implementation of the exposure control plan.

(e) An employer shall maintain written documentation of attendance at training.

(f) An employer may reduce the training specified in subrule (5) of this rule to allow for the previous training of an employee who has received the training from other employment or another academic source. In such cases, the previous training shall be evaluated and documented. At a minimum, an employer shall provide an employee with workplace-specific training that covers the exposure control plan and SOPs.

R 325.70017 Appendices; effect.

Rule 17. Appendices A and B to these rules are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations. Appendices A and B may be obtained from the Michigan Department of Consumer and Industry Services, Occupational Health Division, P.O. Box 30649, Lansing, Michigan 48909.

R 325.70018 Availability of rules; permission to reproduce.

Rule 18. (1) Copies of these rules are available to affected employers and employees from the Michigan Department of Consumer and Industry Services, Occupational Health Division, P.O. Box 30649, Lansing, Michigan 48909.

(2) Permission to reproduce any of these documents in full is granted by the director.
APPENDICES TO MIOSHA STANDARD FOR
BLOODBORNE INFECTIOUS DISEASES
(R 325.70001 - R 325.70018)

APPENDIX A--INFORMATION SHEET

Occupations with Potential for Exposure

The hazard of exposure to infectious materials affects employees in many types of employment and is not restricted to the healthcare industry. In the list below are a number of job classifications that may be associated with tasks that have occupational exposure to blood and other potentially infectious materials. The scope of the standard is not limited to employees in these jobs. At the same time, employees in the following jobs are not automatically covered unless they have reasonably anticipated occupational exposure:

- Barbers
- Beauticians
- Chiropractors
- Correctional officers
- Day care center workers
- Dental care workers
- Dentists
- Dialysis personnel
- Emergency medical technicians
- Fire fighters
- Foster home workers
- Health care facility support staff
- Housekeepers
- Institutional home workers
- Janitors
- Laboratory workers
- Laundry workers
- Law enforcement employees assigned to provide emergency first aid
- Maintenance workers
- Medical assistants
- Medical health residential workers
- Morticians
- Nursing personnel (professional and nonprofessional)
- Optometrists
- Paramedics
- Phlebotomists
- Physician assistants
- Physicians
- Plumbers
- Podiatrists
- Police officers
- Tattooists

Addresses – Centers for Disease Control CDC and Michigan Department of Consumer and Industry Services (MDCIS)

For current guidelines, contact:
National Prevention Information Network
P.O. Box 6003
Rockville, Maryland 20850
Phone: 1-800-458-5231
Internet Address: www.cdcnpin.org
E-mail Address: info@cdcnpin.org

Michigan Department of Consumer and Industry Services, Occupational Health Division
P.O. Box 30649
Lansing, Michigan 48909
(517) 322-1608

APPENDIX B--SAMPLE WAIVER STATEMENT WHEN AN EMPLOYEE DECLINES THE HEPATITIS B VACCINATION

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.

Employee Name (print): _____________________________
Employee Signature: _______________________________
Date: ___________________________________________