
Bloodborne Pathogens Exposure Control Plan



Environment, Health & Safety
1239 Kipke Drive
Ann Arbor, MI 48019

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SECTION 1: INTRODUCTION

The following University of Michigan (U-M) Exposure Control Plan (ECP) has been developed and implemented to meet the letter and intent of Michigan Occupational Safety and Health Administration's (MIOSHA) Bloodborne Infectious Diseases Standard, codified as R325.70001 through R325.70016. Compliance with the Bloodborne Infectious Diseases Standard will reduce occupational exposure to blood and other potentially infectious materials, including human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and other bloodborne pathogens.

The following principles **must** be applied when employees are potentially exposed to bloodborne pathogens:

- Minimize all exposures to bloodborne pathogens
- Institute as many engineering and work practice controls as possible to eliminate or minimize employee exposure to bloodborne pathogens
- Routinely employ universal precautions when exposure to blood or potentially infectious materials is anticipated

The objectives of the U-M Exposure Control Plan are to:

- Provide information on procedures and regulations regarding bloodborne pathogens
- Protect employees from health hazards associated with bloodborne pathogens
- Provide information on appropriate treatment and counseling to employees exposed to bloodborne pathogens

SECTION 2: GENERAL

About the U-M Bloodborne Pathogens Exposure Control Plan

University of Michigan is an employer with various groups of employees who have a reasonably anticipated risk of exposure to human blood and other potentially infectious materials when performing their required job duties. As such, U-M **must** have an exposure control plan in accordance with MIOASHA's Bloodborne Infectious Diseases Standard. This plan is an administrative document that outlines how this occupational exposure risk will be controlled through the use of administrative controls, engineering controls, work practice controls, and personal protective equipment.

The following document has been prepared by U-M Environment, Health & Safety (EHS) in order to outline the institutional exposure control policies & procedures that will be followed by all affected U-M departments. The scope of this plan is the Ann Arbor campus and those areas outside of Ann Arbor that are affiliated with Ann Arbor departments. U-M Hospital is covered by its own ECP.

Due to the diversity of job tasks with associated bloodborne pathogens risk, it **must** be recognized that information related to task-specific and site-specific procedures may need to be prepared and maintained at the local level along with this institutional exposure control plan in order to fully address regulatory requirements. Site-specific compliance information and records must be maintained and readily available.

Areas of Responsibility

Four areas of responsibility are central to the implementation of the U-M Exposure Control Plan:

- Biological Safety Officer
- Supervisory Personnel (including Department Chairpersons, Directors, Principal Investigators, Managers and Supervisors)
- Education/Training Coordinators and Instructors
- Employees

Biological Safety Officer

The EHS Biological Safety Officer (BSO) is responsible for management and support of the Bloodborne Pathogens Compliance Program. U-M Occupational Health Services (OHS) will assist the BSO. Activities delegated to the BSO include:

- Overseeing implementation of the U-M Exposure Control Plan
- Developing any additional bloodborne pathogens related policies and practices needed to support the effective implementation of this plan
- Revising, updating and improving the U-M Exposure Control Plan when necessary, and on an annual basis
- Collecting and maintaining a suitable reference library related to bloodborne pathogens
- Understanding current legal requirements concerning bloodborne pathogens
- Conducting periodic organizational audits to maintain an up-to-date Exposure Control Plan

Supervisory Personnel

- Department Chairs, Directors, Principal Investigators, Managers and Supervisors are responsible for compliance in their areas. They shall work with the BSO, EHS, U-M OHS and their employees. Activities delegated to the supervisory personnel include:
- Assuring that employees in their area who are at risk of exposure to bloodborne pathogens receive initial training and annual retraining (including site-specific training) in bloodborne pathogens as outlined in the “Information and Training” section of this document.
- Evaluating the bloodborne pathogen risk associated with an employee's job classification. This **must** be done when a new employee is hired, or when an employee changes jobs. This evaluation **must** include:
 - Checking the employee's job classification and the tasks and procedures that he/she will perform to determine if there is a reasonably anticipated risk of exposure to blood or other potentially infectious material (OPIM)
 - Identifying the new job classifications and/or tasks and procedures which will potentially expose the employee to blood or other potentially infectious materials
 - Informing EHS of all changes so records can be updated
- Assuring that proper exposure control procedures are followed as outlined in the “Methods of Compliance” section of this document
- Assuring that appropriate personal protective equipment is available and in good working condition for all employees at risk of exposure to bloodborne pathogens
- Assuring that any employee who experiences an occupational exposure incident to blood or other potentially infectious materials is provided with post-exposure medical services as outlined in the “Post-Exposure Evaluation and Follow-Up” section of this document

Training Instructors

EHS will provide information and training to all employees who have an anticipated risk of exposure to bloodborne pathogens. EHS will:

- Provide training records for the required initial training and annual retraining taken through MyLinc
- Develop suitable training programs
- Periodically review the training programs to include appropriate new information

Employees

The employees are responsible for following procedures and practices as outlined in the U-M Exposure Control Plan. This includes but is not limited to:

- Taking the bloodborne pathogens initial training, annual retraining, and site specific training
- Demonstrating an understanding of which tasks have a potential occupational exposure to bloodborne pathogens
- Conducting all operations in accordance with established work practice controls
- Following universal precautions
- Developing and maintaining good personal hygiene habits
- Reporting all occupational exposure incidents and following post-exposure medical services as indicated by OHS

Exposure Control Plan Availability and Review

The U-M Exposure Control Plan **must** be readily available to all employees through their supervisor. The plan can be accessed online at <https://ehs.umich.edu/> and/or a hard copy of the plan can be kept in areas where needed. Employees are to be advised of the availability of the plan.

The U-M Exposure Control Plan will be reviewed annually. It will be updated:

- When new or modified regulations to the Bloodborne Pathogen Standard occur
- To reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens

Departments will be responsible for reviewing and updating applicable appendices and content as necessary. Records must be maintained and readily available.

SECTION 3: EXPOSURE DETERMINATION

MIOSHA's Bloodborne Infectious Diseases Standard requires an employer to evaluate routine and reasonably anticipated tasks and procedures to determine whether there is actual or reasonable anticipated employee exposure to blood or other potentially infectious materials. Occupations that require procedures or other occupational-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 are classified as Category A in the exposure control plan. This determination also includes procedures and tasks conducted in non-routine situations as a condition of employment. The determination shall be made without regard to the use of personal protective clothing and equipment.

Job classifications which may have a reasonably anticipated risk of exposure to bloodborne pathogens, either by the nature of the occupation or by specific tasks which an employee is required to perform as part of their job are classified as Category A and are listed in Appendix A. This list may not cover all job classifications where an employee may have a bloodborne pathogens risk. Some employees with a job classification on this list may not be at risk. Risk assessment will be performed by the supervisor and documented. Records must be maintained and readily available.

NOTE: If an employee job classification is not included in Appendix A, the supervisor should notify EHS to update information.

SECTION 4: METHODS OF COMPLIANCE

Universal Precautions

Employees at University of Michigan will observe universal precautions. All human blood and other potentially infectious materials (OPIM) are treated as if they are known to be infectious for HBV, HIV and other bloodborne pathogens.

OPIM are defined 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
- Blood, organs or other tissues from experimental animals infected with BBP
- Introduction of human-derived materials (i.e. tumor cells) into animals

For clinical faculty/staff, Body Substance Isolation (BSI) is a method of infection control in which all body fluids and substances are considered to be infectious. Since BSI incorporates not only the fluids and materials covered by the standard, but expands coverage to include all body fluids and substances, BSI is an acceptable alternative to universal precautions provided facilities utilizing BSI adheres to all other provisions of this standard.

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.

Engineering Controls

Where engineering controls such as hand washing facilities, eye wash stations, sharps disposal containers, biological safety cabinets, ventilating laboratory hoods, autoclaves, and safer sharps devices will reduce employee exposure either by eliminating or isolating the hazard, they **must** be used.

EHS and departments will review tasks and procedures performed to determine where engineering controls can be implemented or updated. The Supervisor will ensure that employees are trained regarding the use of the engineering controls for their job classification and the tasks/procedures they perform.

The following engineering controls are to be used throughout the University:

- Safer sharps devices are to be used on human blood or other potentially infectious materials, where appropriate, in order to reduce the risk of injury from needle sticks and from other sharp devices. (Refer to section on the Sharps Injury Protection Program)

NOTE: Needles that will not become contaminated by blood or OPIM during use (such as those used to draw medication or chemicals from vials) are not required to have engineering controls.

- Hand washing facilities are readily accessible to all employees who have a potential for exposure. Waterless antiseptic hand cleansers or antiseptic towelettes **must** be available to employees at risk of exposure if running water is not readily available. If waterless cleansers or towelettes **must** be used, the employee **must** follow-up with a soap and water wash as soon as feasible.
- Emergency eye wash stations are in close proximity to workstations where employees perform tasks that produce splashes of potentially infectious materials. Eyewash stations should meet ANSI requirements. The eye wash facility **must** be flushed on at least a monthly basis and documented. The equipment **must** be annually tested and documented.
- Autoclaves are available in many departments to decontaminate solid biohazardous waste. These departments will monitor this equipment to assure that proper sterilization occurs. Proper instrumentation will be used to verify that time, temperature, and steam are adequate.
- Sharps containers are used to properly store and dispose of sharps. Approved sharps containers are designed to isolate the cut or puncture hazard associated with handling contaminated sharp items. Approved sharps containers are:
 - puncture-resistant
 - red in color or labeled with a biohazard warning label
 - leak-proof on the sides and bottom
 - closable

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

Containers for reusable sharps **must** meet the same requirements as containers for disposable sharps, with the exception that they are not required to be closable. Reusable sharps will not be stored or processed in a manner that requires reaching into containers of contaminated sharps.

Approved sharps containers are available from EHS Hazardous Materials Management (HMM) at 763-4568 or complete the online [Waste and Supply Request](#) form. Food containers such as coffee cans should not be used to dispose of contaminated sharp objects.

- Storage containers are used to reduce the possibility for an environmental release of potentially infectious materials. Primary containers should be designed to be leak-proof, puncture-resistant, and capable of being closed. Single primary containers used for potentially infectious materials should be labeled with the biohazard symbol.

Exceptions:

- 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 these labeling requirements.
- Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage are exempted from labeling requirements.

Examples of containers that **must** be labeled as biohazardous if storing blood or potentially infectious materials:

- Refrigerator
- Freezer
- Liquid nitrogen tank
- Incubator
- Transport containers
- Transport containers are secondary containers that are used to reduce the possibility for an environmental release of potentially infectious materials when transporting biological materials between campus facilities as well as over the roadways. (See Appendix B: Transporting Biological Materials)

Work Practices

Supervisors, working in conjunction with Deans, Directors, Chairs or designees will oversee the implementation of Work Practice Controls in cooperation with EHS. The Department Manager or Supervisor will ensure that employees are trained to use work practice controls for their job classification and the tasks/procedures they perform.

The following Work Practice Controls are to be implemented:

- Employees will wash their hands:
 - After removal of gloves or other personal protective equipment
 - When visible contamination with blood, body fluids, or other potentially infectious materials are present
 - When work is completed and before leaving the work area (i.e. laboratory, clinic)
 - Before eating, drinking, smoking, applying makeup, changing contact lenses, or using the bathroom
 - Before activities that entail hand contact with mucous membranes, eyes, or breaks in the skin

NOTE: Alcohol based hand rubs may be used by healthcare personnel for patient care. When health care personnel's hands are visibly soiled, they should wash with soap and water.

- Contaminated needles and other contaminated sharps **must** not be bent, recapped or removed unless:
 - It can be demonstrated that there is no feasible alternative or
 - The action is required by a specific medical procedure

When recapping or removal of needles is required because there are no alternatives, a mechanical device or a one handed method **must** be used.

- Use mechanical means (i.e. tongs) when handling contaminated sharps when possible and eliminate hand-to-hand passing of sharp instruments.
- Contaminated sharps **must** be placed in appropriate containers immediately, or as soon as possible after use.
- Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to bloodborne pathogens.
- Food and drink **must** not be kept in refrigerators, freezers, on countertops, or in other storage areas where blood or other potentially infectious materials are present.
- Mouth pipetting/suctioning of blood or other infectious materials is prohibited.
- Minimize splashing, spraying or other actions generating droplets of blood or other potentially infectious materials during all procedures. At a minimum, Biosafety Level 2 precautions are required for laboratories working with specimens of blood or body fluids. Contact EHS for further information and assistance regarding these requirements.
- Specimens of blood or other materials **must** be placed in designated leak-proof containers, appropriately labeled for handling and storage. If outside contamination of a primary specimen container is likely, that container **must** be placed within a second leak-proof container, appropriately labeled, for handling and storage. If the specimen can puncture the primary container, the secondary container **must** be puncture-resistant.
- Primary containers of potentially infectious materials **must** be placed in puncture-resistant, leak-proof, closable secondary containers for transportation outside of the work area (i.e. from lab to lab where a common hallway is used, etc.).
- Properly prepare and transport biological materials in a vehicle by following the Transporting Biological Materials procedure (Appendix B).
- Perform disinfection and housekeeping procedures as outlined in “Housekeeping” section of this Exposure Control Plan.

Personal Protective Equipment (PPE)

Personal protective equipment will be provided by the employer at no cost to the employee with an occupational exposure to blood or potentially infectious material. This equipment may include: gloves, gowns, laboratory coats, face shield/masks, splash goggles, resuscitation bags, pocket masks, hoods, and shoe covers.

Personal protective equipment is considered to be appropriate only if it does not permit blood or other potentially infectious material to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time that the protective equipment will be used.

The Department Manager or Supervisor will ensure:

- That all work areas have appropriate personal protective equipment available to employees. Employees **must** be trained regarding the use of the appropriate personal protective equipment for their job classification and the tasks/procedures they perform
- That the personal protective equipment is available in appropriate sizes and accessible locations
- The employee uses appropriate personal protective equipment unless the employer shows that the employee temporarily and briefly declined to use PPE when, under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance the use of PPE would have prevented the delivery of health care or public safety services or posed an increased hazard to the safety of the worker or coworker

When the employee makes this judgment, the circumstances shall be investigated and documented to determine if changes can be made to prevent future occurrences

To ensure that personal protective equipment is not contaminated and is in the appropriate condition to protect employees from potential exposure, the following practices are to be utilized:

- All personal protective equipment **must** be inspected periodically by the department manager or supervisor and repaired or replaced as needed.
- Reusable personal protective equipment is cleaned, laundered and decontaminated as needed.
- Single-use personal protective equipment (or equipment that cannot, for whatever reason, be decontaminated) is disposed of through as Biological Waste through EHS- Hazmat.

Employees **must** adhere to the following practices when using personal protective equipment:

- Any garments, including personal clothing, penetrated by blood or other infectious materials, **must** be removed as soon as possible. Contaminated laundry will be handled as little as possible. Place in bags or containers that are appropriately labeled and if saturated, the bags or containers should prevent soak-through or leakage of fluids to the exterior.
- All personal protective equipment **must** be inspected prior to use to verify that it is in good working condition.
- All personal protective equipment **must** be removed prior to leaving the work area.
- Gloves **must** be worn when:
 - employees anticipate hand contact with potentially infectious materials
 - performing vascular access procedures
 - handling or touching contaminated items or surfaces

NOTE: *“The US Food and Drug Administration has issued a ban on all powdered gloves. Exposure to starch powder from gloves can cause undesirable reactions, which vary from well-known allergy symptoms and upper respiratory-tract disorders to surgical adhesions and infections. The presence of glove powder can also result in many other undesirable effects, such as interference in laboratory testing causing false results (i.e. PCR – Polymerase Chain Reaction, enzyme immunoassay or some HIV tests).”*

- Disposable gloves **must** be replaced as soon as possible after contamination or immediately when torn, punctured, or are otherwise rendered unable to function as an exposure barrier. Disposable gloves will not be washed or decontaminated for reuse.
- Non-latex gloves **must** be provided to employees who are allergic to the gloves normally provided.

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- Utility gloves **must** be decontaminated for reuse; if utility gloves are cracked, peeling, torn or exhibit other signs of deterioration, they **must** be disposed.
 - Masks/eye protection, or chin-length face shield **must** be worn as appropriate whenever there is a chance that a splash or spray may generate droplets of infectious materials.
 - Protective clothing **must** be worn whenever potential exposure to the body is anticipated.
 - Surgical caps/hoods and shoe covers/boots **must** be used in any instances where gross contamination is anticipated.

Sharps Injury Protection Program

Supervisors of all departments who have employees with occupational exposure to bloodborne pathogens involving the use of sharps **must**:

- Use effective engineering controls, including safer sharps devices, in order to reduce the risk of injury from needle sticks and from other sharp medical instruments

NOTE: An appropriate safer sharps device includes only devices whose use, based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated.

- Establish a program for evaluating safer sharps devices designed to eliminate or minimize occupational exposure. This program should include an identification process, an evaluation process and a selection process
- Review the sharps that are being used on an annual basis

Identification Process

Supervisors shall identify all sharp devices that have available products with safer engineering features and determine which products are to be evaluated.

Evaluation Process

Evaluation of the safer sharps devices **must** be documented on the “Safer Sharps Device Evaluation Form” (Appendix D).

Supervisors in departments with direct patient care cannot evaluate and select the safer sharps devices alone; supervisors **must** choose non-managerial employees who perform tasks with sharps exposure risks to be involved in this process. Supervisors will:

- Provide test samples of each product being evaluated to each individual evaluating the product
- Provide visual instructions and a demonstration of the proper use of each device to all evaluators
- Encourage each evaluator to provide comments.
- Keep all records of completed evaluation forms. Records must be maintained and readily available.

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

NOTE: If there is no safer option for a particular sharps device used where there is exposure to blood or OPIM, you are not required to use something other than the device that is normally used. This information **must** be documented. During your annual review of devices, you **must** inquire about new or prospective safer options.

Selection Process

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

NOTE: The selection and implementation process cannot be postponed in order to use up supplies of non-safer sharps. Additionally, when the safer sharps are in place, supplies of the non-safer sharps may not be used. Contact EHS for disposal assistance if needed. Do not put unused supplies in the trash or send to salvage. If the safety device is not available (due to supply shortages, back orders, shipping delays, etc.), this **must** be documented.

Annual Review

All sharps that are being used where there is exposure to human blood or OPIM **must** be reviewed on an annual basis. This will be accomplished by completing a "Safer Sharps Devices Annual Review Form" (Appendix D). This form should be completed annually and kept with departmental records.

The purpose of this review form is to document annual consideration and implementation of appropriate commercially available and effective safer sharps devices designed to eliminate or minimize exposure.

The review and update **must** reflect innovations in procedure and technological developments that eliminate or reduce exposure to bloodborne pathogens. This includes, but is not limited to, newly available sharps devices designed to reduce the risk of percutaneous exposure to bloodborne pathogens.

Housekeeping

Work locations that involve blood or other potentially infectious material **must** be maintained in a clean and sanitary condition. Departments and Units or other assigned employees **must** do the following:

- Clean and decontaminate all equipment and surfaces with an appropriate disinfectant:
 - After contact with blood or other potentially infectious materials. (Gross contamination **must** be removed before decontaminating to ensure the disinfectant is completely effective)
 - At the end of the work shift if the surface may have become contaminated since the last cleaning
 - Prior to servicing or shipping equipment, decontamination **must** be completed. An [Equipment Decontamination Form](#) **must** be attached. If it can be demonstrated that decontamination is not possible, then the following steps need to be taken:
 - Attach a biohazard label is to any contaminated equipment, identifying the contaminated portions
 - Inform all affected employees, the equipment manufacturer and the equipment service representative of remaining contamination prior to handling, servicing or shipping
- Immediately when blood or other potentially infectious material is spilled. The following considerations should be made when treating and removing a spill of infectious material:
 - Wear appropriate personal protective equipment when cleaning up spills
 - Spills should be covered with an absorbent material, wiped up and disposed of in a biohazard bag

NOTE: Any department that has a potential for a spill of potentially infectious materials shall have a spill kit and a spill response procedure. An example of a general response procedure and items for assembling a departmental spill kit are included in Appendix E, Biohazardous Spill Response.

NOTE: Decontamination **must** be performed with a disinfectant product that is EPA-registered for the destruction of Hepatitis B, or is a tuberculocidal. The disinfectant **must** be applied to contaminated surfaces for the amount of time prescribed by the manufacturer to assure effective decontamination.

- Remove and replace protective coverings as soon as possible when contaminated, and at the end of the work shift after use
- Routinely inspect all pails, bins, cans and other receptacles for contamination. Clean these items on a routine basis and decontaminate whenever visibly contaminated
- Pick up potentially contaminated broken glassware using mechanical means (such as dustpan and brush) and dispose of in an appropriate sharps container
- Inspect laundry to verify that it is free of sharps and other hazardous materials prior to placement in bags or containers appropriately labeled for transport to the laundry. Handle contaminated laundry as little as possible. 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. 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
- When disposing of biohazardous waste follow the SOPs according to waste type:

Solids:

- [Autoclaving Solid Biohazardous Waste that Will Not Puncture the Skin](#)
- [Autoclaving Solid Biohazardous Waste that May Puncture the Skin](#)
- [Chemically Treating Solid Biohazardous Waste that May Puncture the Skin](#)
- [Preparing Solid Biohazardous Waste that Will Not Puncture the Skin for Collection](#)

Liquids:

- [Preparing Liquid Biohazardous Waste for Collection](#)
- [Disposing Liquid Biohazardous Waste Using the Sanitary Sewer Drain](#)

Sharps:

- [Preparing Biohazardous Sharps Waste for Collection](#)

Pathological waste:

- [Preparing Pathological Waste for Collection](#)

Uncontaminated Waste

- [Disposal of Uncontaminated Waste](#)

NOTE: Biohazardous wastes are not to be held in the work area for more than 60 days. All biohazardous waste will be disposed of according to the procedures outlined on EHS website under [Hazardous Waste-Biological Waste](#).

SECTION 5: HIV AND HBV RESEARCH LABORATORIES AND PRODUCTION FACILITIES

HIV and HBV research laboratories and production facilities present increased risk for occupational exposure to bloodborne pathogens.

HIV or HBV Research Laboratories:

All laboratories engaged in the culture, production, concentration, experimentation, and manipulation of HIV or HBV will reduce employee risk by providing additional administrative controls, protective equipment, information and training beyond that required for research laboratories not involved in such work. Refer to Appendix F HIV and HBV Research Laboratories for these additional requirements.

SECTION 6: HEPATITIS B VACCINATION, POST-EXPOSURE EVALUATION AND FOLLOW-UP

A "Hepatitis B Vaccination Program" has been established through the U-M Occupational Health Services. OHS is also the location for the follow-up evaluation and treatment for any occupational exposure to bloodborne pathogens.

Hepatitis B Vaccination Program

U-M has a vaccination program through the U-M Occupational Health Services. This program is offered to all employees who have occupational exposure to bloodborne pathogens. The cost, as required by statute, is assumed by the employer, U-M.

The MIOSHA Bloodborne Infectious Diseases standard requires that Hepatitis B vaccine be made available to the employee within ten days of initial assignment and after the employee has completed bloodborne pathogens initial training.

The vaccination program consists of a series of three vaccinations over a four to six-month period. Although, follow-up serology testing is not necessary after immunization- lifetime immunity has been documented, the employee may choose to confirm immunity through an antibody titer at OHS.

Employees will receive information regarding the vaccination program following the completion of the bloodborne pathogens training. They will also receive the required [Hepatitis B Vaccination form](#) to be completed as indicated. The vaccination series is completely voluntary; The employee may choose to accept the vaccination series, decline, or indicate that they previously completed the series. Employees also have the opportunity to discuss this further in person at the clinic before deciding to accept or decline the series.

This [form](#) must be maintained and readily available.

Any employee that initially declines to participate in the HBV immunization program, but at a later date decides to become immunized, can obtain the series at that time.

U-M Occupational Health Services, under the supervision of a licensed physician, is responsible for the vaccination program and will maintain records for those employees that obtain the series as part of their medical record for the duration of their tenure. The series will be provided according to the recommendations of the U.S. Public Health Service current at the time of the vaccination.

Post-Exposure Evaluation and Follow-Up

If an employee is involved in an incident where exposure to bloodborne pathogens may have occurred, the employee should seek medical consultation and treatment expeditiously. In these instances, actions should include the following:

- If contact with blood or other potentially infectious material occurs on non-intact skin (i.e. cuts, rashes, acne, dermatitis), wash the area with soap and water.
- If blood or other potentially infectious material splashes in the eyes or on mucus membranes, flush the area for 15 minutes with water or normal saline.
- Follow EHS guide “[Biological Exposure Response](#)” which contains the following steps:
 1. Report the incident to a supervisor or person in charge.
 2. If the incident involved puncture of the skin or contact with non-intact skin, eyes or mucous membranes, the incident **must** be reported through the following system to ensure regulatory compliance and appropriate follow-up care for the individual.

For Michigan Medicine employees:

- a. Use Michigan Medicine paging website and page # 5356. This requires a level 2 password.
- b. A nurse will return your page.

For Campus employees:

- a. Call hospital operator at 734-936-4000 and ask operator to page #5356.
 - b. State employee exposure.
3. The employee may be instructed to visit OHS or U-M emergency room if after hours. If outside of the Ann Arbor campus area, employee should go to nearest urgent care or emergency room per instructions. Locations outside of Ann Arbor should be documenting and training staff on the appropriate location for follow-up treatment as part of site-specific training.
- All evaluations, procedures, vaccinations and post-exposure prophylaxes are provided without cost to the employee and according to current recommendations of the United State Public Health Service.
 - The physician will provide the employee with a confidential medical evaluation and follow-up of the incident to include:
 - Evaluation of the exposure risk of the incident based on the exposure source
 - Identification and documentation of the source individual (if applicable) and testing for HBV and HIV. Results of this testing will be provided to the employee
 - Recommended options for testing and preventative treatment
 - Rationale and benefits of the tests and treatment options
 - Testing will be completed as soon as feasible after the employee consents. Employee acceptance of these tests/treatments will be on a completely voluntary basis.
 - Additional testing as required
 - The medical provider will provide the employee a written opinion (physician’s determination) within 15 days of the completion of the evaluation. The report will summarize that the employee has been informed of the results of the evaluation and has been told about any medical conditions resulting from their exposure that may require further treatment and evaluation. They will also indicate if HBV vaccine was indicated and if it was received.
 - The supervisor should fill out the Work Connections [Illness or Injury Report Form](#).

Incidents relating to research **must** then also be reported to EHS. Complete the [Incident and Near Miss Report Form](#) for both Laboratories and Shops/Studios or incidents at all other locations involving: near misses, fires/explosions, property damage, injuries, or illnesses.

- OHS will evaluate all bloodborne pathogens exposure incidents and record the following information:
 - Date/time of Incident
 - Name of employee, job title, department, supervisor
 - Incident description (including route of exposure, device in use, use of engineering/work practices/PPE)
- OHS will complete and maintain a Sharps Injury Log for all bloodborne pathogens exposure incidents involving sharps.
- The information in the Work Connections injury reporting system and the Sharps Injury Log will be recorded and maintained in such a manner as to protect the confidentiality of the employee.
- All costs associated with employees treatment involving an occupational exposure or injury at OHS will be covered by the university. Employees that present to U-M Hospital should indicate that they are U-M employees seeking treatment for a work-related incident. Those outside of the Ann Arbor area will need to work with Risk Management to seek reimbursement for costs incurred from their treatment of a work-related incident.

Medical Record Keeping

U-M Occupational Health Services **must** establish and maintain employee medical records. All information is confidential. Information will not be disclosed without the employee's written consent, except as required or permitted by law.

SECTION 7: LABELS AND SIGNS

Biohazards **must** be labeled according to the following procedures. Required labels consist of a red or fluorescent orange colored background with the traditional biohazard symbol in a contrasting color. Labels can be an integral part of the container or affixed by a method that prevents the loss of labels or the unintentional removal of labels.

The following items **must** be labeled:

- Containers of regulated waste
- Refrigerators, freezers, incubators, or other equipment containing blood or other potentially infectious materials
- Sharps disposal containers
- Containers used to store, transport or ship blood and other potentially infectious materials (When a secondary container holds a number of smaller items containing the same potentially infectious substance, only the secondary container needs to be labeled)
- Laundry bags/containers holding contaminated items
- Contaminated equipment

Biohazard signs **must** be posted at entrances to any Biosafety Level 2 (or higher) laboratory. For more information on signs and labels contact EHS at 647-6585.

Biohazardous waste that has been decontaminated by steam sterilization **must** have a positive indication of safety. A printed-on sterilization indicator on the autoclave bag meets this requirement.

Information and Training

All employees who have the potential for exposure to bloodborne pathogens **must** complete a comprehensive training program provided at no cost and during working hours. This includes:

- Bloodborne pathogens initial training
- Bloodborne pathogens annual refresher training

EHS will maintain documentation for all employees who have potential exposure to bloodborne pathogens and have received training through EHS. Departments will maintain documentation of all site-specific training. Records and documentation must be maintained and readily available.

Go to the EHS website at <http://ehs.umich.edu/education/ehs-training-login/> to sign up for classes and view the training course catalog.

All new employees, as well as employees changing jobs or job functions, will be given any additional training their position requires by their new supervisor prior to beginning their new job assignments.

Training Methods

- Several training techniques may be used including:
 - Personal instruction
 - Video
 - Computer aided training
 - Training manuals/employee handouts
 - Employee review sessions
- Opportunities for employees to ask questions will be provided.
- Departments requesting training to be conducted at their site **must** provide a designated person to be available during the training session to answer site-specific questions
- The participant **must** complete site-specific training with their supervisor or a designated trainer for their area after completion of initial training, after new tasks have been assigned and annually. (See below for details)

Bloodborne Pathogen Initial Training

- Taken by all employees who have a potential risk of exposure to human blood or other potentially infectious human materials.
- Completed before the employee performs any tasks that have a bloodborne pathogens exposure risk.
- Available as an online course and in-person training as needed. View course catalog and sign up for training at <http://ehs.umich.edu/education/ehs-training-login/>

Training Topics

Bloodborne pathogens initial training for new employees who will have occupational exposure to bloodborne pathogens will include the following mandatory topics:

- MIOSHA's Bloodborne Infectious Diseases Standard
- Epidemiology, symptoms and modes of transmission of bloodborne diseases including HIV, HBV, and HCV
- Existence of other bloodborne diseases
- U-M's Exposure Control Plan including how to access it

-
- Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
 - A review of the use and limitations of methods that will prevent or reduce exposure, including:
 - Engineering controls
 - Work practice controls
 - Personal protective equipment
 - Selection and use of personal protective equipment including: types, proper use, limitations, location, removal, handling, decontamination, and disposal
 - Visual warning of biohazards including labels, signs, and color-coded containers
 - Proper procedures and materials involved in the cleanup of spills of potentially infectious materials
 - Information on the Hepatitis B Vaccine, including: availability, efficacy, safety, method of administration, benefits of vaccination, cost (no cost to employees), and U-M's vaccination program
 - Actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
 - Procedures to follow if an exposure incident occurs, including incident reporting
 - Post-exposure evaluation and follow-up including medical consultation
 - Recommendations specific to a particular department and unique threats posed by potentially infectious materials in that department

Annual Refresher Training

U-M employees who have previously completed initial bloodborne pathogens training through EHS **must** take annual refresher training that will be due one year from the last date of training. If overdue, the employee will be required to take the initial bloodborne pathogens training.

The participant **must** also complete site-specific training annually with their supervisor or a designated trainer for their area and maintain the documentation.

Site-Specific Training (for Labs Off Campus)

Site-Specific training is to be completed by labs that are located off of the U-M campus. This may include a satellite location, clinic or hospital setting or other area where there may be differences in practice for handling materials based on specifics of the location/site.

Site-specific training **must** be administered by the employee's supervisor or the supervisor's designated trainer. Either of the following documents **are available for use to meet the requirement**:

- Bloodborne Pathogens Site-Specific Training Checklist (Appendix G) (best for non-laboratory settings)
- EHS [SOP template](#) modified for specific tasks or procedures (best for laboratory settings)

Bloodborne Pathogens Site-Specific Training Checklist (Appendix G)

Completion of a site-specific training checklist is required in order to complete the training requirements of MIOSHA's "Bloodborne Infectious Diseases" standard.

- The department supervisor or designated trainer **must** review site-specific information with the employee. A suggested training checklist (Appendix G) is available for use.
- A Supervisor's Guidelines for Site-Specific Training form (Appendix H) is a tool to help assist the supervisor (or designated trainer) in completing the checklist with the employee.
- Bloodborne Pathogens Task Procedure forms or department procedures (involving tasks that may involve handling human blood or other potentially infectious materials) **must** be reviewed as part of the site-specific training checklist.

-
- When complete, the supervisor (or designated trainer) and the employee **must** sign and date the checklist.
 - Checklists **must** be completed within 30 days of initial training, after a procedural change, when new tasks are assigned, and annually. They must be readily available and may be subject to periodic checks by EHS. These records **must** be kept for three years.

NOTE: If the participant performs duties involving a bloodborne pathogen exposure risk at a location that is off-campus, such as clinical or research work at a local healthcare facility, the participant should complete the checklist with that facility's supervisor/trainer. In these situations, the site-specific information to be reviewed **must** include the off-campus facility's policies and procedures related to their exposure control plan and medical waste management plan.

Bloodborne Pathogens Standard Operating Procedures/Departmental Procedures

Written procedures are required for all tasks that have a reasonably anticipated risk of exposure to bloodborne pathogens. This can be accomplished through the use any of the following:

- Standard Operating Procedures
- Policies
- Directives

The [SOP Template](#) can be modified for specific tasks or procedures. The procedures **must** be reviewed as part of the Site-Specific Training Checklist:

- After completion of bloodborne pathogens initial training
- Whenever a procedure changes or new tasks are assigned
- Annually

Completed forms must be maintained and be readily available for review.

U-M Standard Operating Procedures for Work with Human Materials

This SOP can be modified or used as part of your site-specific task documentation:

- [Needle Recapping & Handling](#)

Record Keeping/Retention

- All bloodborne pathogens training that is conducted by EHS or by an EHS designated trainer **must** be documented and contain the following information:
 - Dates of training sessions
 - Names and job title of employees attending the training sessions
 - Contents/summary of the training sessions
 - Names of the instructors
- All EHS designated trainers **must** send a copy of the sign-in form to EHS for computerized record keeping purposes. Training records **must** be retained for three (3) years.
- Site-specific compliance information and records must be maintained and readily available for review. Documents may be stored in the EHS Document Binder, electronically, or in departmental records.

SECTION 8: GLOSSARY OF TERMS

The following is a list of common terms and their definitions as they are used in the Exposure Control Plan.

TERM	DEFINITION
Biologically Hazardous Conditions	Equipment, containers, rooms, materials, experimental animals, and animals infected with HBV or HIV virus, or combinations thereof that contain, or are contaminated with, blood or other potentially infectious material.
Blood	Human blood, human blood components, and products made from human blood.
Bloodborne Pathogens (BBPs)	Pathogenic microorganisms that are present in human blood or OPIM and can infect and cause disease in persons who are exposed to blood containing the pathogen. These pathogens include, but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV).
Clinical Laboratory	A workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious material.
Contaminated	The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
Contaminated Laundry	Laundry that has been soiled with blood or other potential infectious materials (OPIM) or that may contain sharps.
Contaminated Sharps	Any contaminated object that can penetrate the skin (i.e. needles, scalpels, broken glass).
Decontamination	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.
Disinfect	To inactivate virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms, on inanimate objects.
Engineering Controls	Controls designed to isolate or remove the bloodborne pathogen hazard from the workplace (e.g. sharps disposal containers, biosafety cabinets, and safer medical devices such as sharps with engineered sharps injury protections, needleless systems, blunt suture needles, plastic capillary tubes and mylar-wrapped glass capillary tubes).
Exposure Incident	A specific eye, mouth, other mucous membrane, non-intact skin (includes skin with dermatitis, hangnails, cuts, abrasions, chafing, acne, etc.), or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

TERM	DEFINITION
Handwashing Facilities	Facilities that provide an adequate supply of running, potable water, soap, and single-use towels or an air drying machine.
Needleless Systems	<p>A device that does not use needles for:</p> <ul style="list-style-type: none"> • The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established • The administration of medication or fluid • Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps
Occupational Exposure	Reasonably anticipated skin, eye, mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties.
Other Potentially Infectious Materials (OPIM)	<p>Materials in addition to human blood that may be capable of transmitting bloodborne pathogens. These include:</p> <ul style="list-style-type: none"> • The following human body fluids: <ul style="list-style-type: none"> ○ Semen ○ Vaginal secretions ○ Cerebrospinal fluid ○ Synovial fluid ○ Pleural fluid ○ Pericardial fluid ○ Peritoneal fluid ○ Amniotic fluid ○ Saliva in dental settings ○ Any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids • Any unfixed tissue or organ (other than intact skin) from a human (living or dead); • HIV-containing cell or tissue cultures, organ cultures, and HIV or HBV-containing culture media or other solutions as well as human cell cultures (see note); • Blood, organs, or other tissues from experimental animals infected with HIV or HBV. <p>NOTE: Human cell lines are considered to be potentially infectious and within the scope of the BBP Standard unless the specific cell line has been characterized to be free of hepatitis viruses, HIV, Epstein-Barr virus, human papilloma viruses and other recognized bloodborne pathogens.</p>
Parenteral	Piercing mucous membrane or the skin barrier through such events as, needlesticks, human bites, cuts, and abrasions.

TERM	DEFINITION
Personal Protective Equipment (PPE)	Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g. uniforms, pants, shirts, blouses) not intended to function as protection against a hazard are not considered personal protective equipment.
Post-Exposure Follow-Up	In the case of an exposure incident, the mandatory course of action taken by the employer to provide medical services (i.e. medical assessment, vaccination, source testing, baseline testing, and counseling) to the exposed worker in order to reduce the risk of infection.
Production Facility	Facility engaged in industrial scale, large volume or high concentration production HIV or HBV.
Regulated Waste	Any of the following: 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 which 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, but not in the volume found in production facilities.
Sharps	Needles, syringes, scalpels, and intravenous tubing with needles attached, as well as any contaminated object that can penetrate the skin such as: Pasteur pipettes, razor blades, capillary tubes, etc.
Sharps with Engineered Sharps Injury Protections (Safer Sharps Devices)	A non-needle sharp or a needle device with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.
Source Individual	Any individual, living or dead, whose blood or other potentially infectious material may be a source of occupational exposure to an employee.
Sterilize	The use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.
Supervisor	Individual responsible for supervising the activities of an employee, student or volunteer.
Universal Precautions	A method of infection control that treats all human blood and other potentially infectious material as capable of transmitting HIV, HBV, HCV, and other bloodborne pathogens.
Work Practice Controls	Controls that reduce the likelihood of exposure to bloodborne pathogens by altering the manner in which a task is performed.

SECTION 9: Revision History

Date	Details of revision
6/14/21	Added revision history section. Updated Post-Exposure Evaluation and Follow-Up section. Updated SOP section, moved applicable SOPs to the biosafety manual.
6/16/21	Section 2 Exposure Control Plan Availability and Review, updated review section.
10/03/22	Updated Recordkeeping/Retention. Inserted hyperlinks.
07/06/23	Removed all instances of the Needlestick Exposure Guide and replaced it with the Biological Exposure Response guide.

SECTION 10: APPENDICES

Appendix A: Exposure Determination

Appendix B: Transporting Biological Materials

Appendix C: Safer Sharps Device Evaluation Guidance

Appendix D: Safer Sharps Device Evaluation Form

Appendix E: Biohazardous Spill Response

Appendix F: HIV and HBV Research Laboratories

Appendix G: Bloodborne Pathogens Site-Specific Training Checklist

Appendix H: Supervisor's Guidelines for Site-Specific Training form

APPENDIX A: Exposure Determination

The provisions of U-M's Exposure Control Plan apply to all employees who have a **reasonably anticipated risk** of exposure to blood or other potentially infectious material (OPIM) as the result of **required** occupational tasks. Exposure determination is made without regard to the use of personal protective clothing or equipment.

Job classifications which may have a reasonably anticipated risk of exposure to bloodborne pathogens, either by the nature of the occupation or by specific tasks which an employee is required to perform as part of their job, will be considered Category A. This list may not cover all job classifications where an employee may have a bloodborne pathogens risk. Some employees with a job classification on this list may not be at risk. A risk assessment must be performed by the supervisor.

Note: If an employee job classification is not included in this appendix, the supervisor should notify EHS to update information. This list is from U-M Human Resources Department.

Appt Dept Grp VP Area Descr	Appt Dept Grp Descr	Job Family Descr	Jobcode Descr			
Div of Pub Safety & Security	Division of Pub Safety & Sec	Environmental Safety&Security	Emergency Management Director			
			Emergency Management Spec Security Top Executive HR Assistant Senior HR Generalist Lead			
	DPSS HHC Security & Services	Administration	COAM	Guest Services Specialist		
				Security Lieutenant Security Sergeant		
				Guest Services Coordinator Guest Svcs Inter Supervisor Guest Svcs Manager Security Director Security Specialist		
				Key Office Supervisor Applications Programmer Assoc SECURITY OFFICER LOCKSMITH		
				Facilities Operations Information Technology POAM Service/Maintenance		
				DPSS Housing Sec & Safety Svcs	COAM	Security Lieutenant
						Security Sergeant

	Environmental Safety&Security	Security & Safety Div Dep Dir Security Manager SECURITY OFFICER
	POAM	
DPSS University Police Dept	COAM	Police Lieutenant
	Environmental Safety&Security	Police Sergeant Security Lieutenant Chief Of Police Evidence/Records Coordinator Public Safety Associate Dir Safety Specialist
	POAM	PARK ENFORC OFFICER POLICE OFFICER
DPSS University Security Svcs	Administration	Program Manager
	COAM	Police Lieutenant Security Lieutenant Security Sergeant
	Environmental Safety&Security	Public Safety Associate Dir Security Coordinator
	POAM	POLICE OFFICER SECURITY OFFICER

**Exec VP & Chief
Financial Off**

Arch, Eng, & Const		
	Trades	PLUMBER-PIPEFITTER
Environ, Health & Safety	Environmental Safety&Security	Environment Hlth & Safety Mgr
		Envrnmntl Hlth/Safety Spec Sr Envrnmntl Hlth/Sfty Spec Inter Envrnmntl Hlth & Safety Spec Ld Safety Senior Supervisor Safety TechnicianAssoc/ Intermediate
F&O Custodial & Grounds Svcs	Service/Maintenance	CUSTODIAN II
		MAINTENANCE MECHANIC I

F&O Logis, Transport & Parking	Facilities Operations	Maintenance Manager
	Service/Maintenance	CUSTODIAN II PARKING EQUIP REPAIRPERSON I PARKING MAINTENANCE WORKER I PARKING MAINTENANCE WORKER II
	Waste Management	Heavy Equipment Operator (Refuse Truck Driver)
F&O Maintenance Auxiliaries	Service/Maintenance	MAINTENANCE MECHANIC I MAINTENANCE MECHANIC II MAINTENANCE MECHANIC III
	Trades	PLUMBER PLUMBER-PIPEFITTER
F&O Maintenance Regions	Service/Maintenance	MAINTENANCE MECHANIC I MAINTENANCE MECHANIC II MAINTENANCE MECHANIC III
	Trades	PLUMBER PLUMBER-PIPEFITTER
University Human Resources	Instructional Services	Child Care Center Teacher Child Care Site Asst Director Child Care Site Director Teacher Assistant
		UMPNC Officer
Exec. VP for Medical Affairs	Exec VP for Medical Affairs	Nurses
		Patient Care Services
		Research
		Clinical Pharmacist Specialist Pharmacy Manager Physician Asst General Surg T2 Research Analyst Research Area Specialist Inter Research Area Specialist Lead Research Area Specialist Sr Research Senior Supervisor

Medical School	Clinical Intern/Fieldwork Std	ADVANCED POSTGRAD TRAINEE PREP INTERN
	Emeritus/a	RESEARCH INTERN RES SCIENTIST EMERITUS/A Research Assoc Prof Emeritus/a Research Professor Emeritus/a
	Engineering & Architecture	Biomedical Eng Staff Spec Hlth Electronics Engineer Inter Engineer in Research Associate Engineering Technician Industrial Engineer Expert Research Project Engineer Tool Design Engineer Inter
	Graduate Student Instructor	GRAD STU INSTR
	Graduate Student Research Asst	GRAD STU RES ASST
	Graduate Student Staff Asst	GRAD STU STAFF ASST
	Instructional Services	Laboratory/Classroom Svcs Mgr
	Nurses	CLIN NURSE CONSULTANT NP MEDICAL SUBSPECIALTY TIER 1 NP MEDICAL SUBSPECIALTY TIER 2 REGISTERED NURSE - LEVEL C
	Patient Care Services	Allied Health Intermediate Sup Allied Health Senior Supr Allied Health Technical Spec Case Manager Clinical Pharmacist Specialist Clinical Technologist Senior Cytogenetic Technologist Genetic Counselor Inter Genetic Counselor Sr Histotechnologist Laboratory Supervisor Laboratory Technician Licensed Practical Nurse Medical Assistant Associate Medical Technologist MRI Technologist

	Nuclear Medicine Technologist
	Pathologist Assistant
	Physician Asst Intrvtnl Rad T3
	Psychologist MA
	Psychologist PhD
	Radiation Physicist
	Staff Physician
	Ultrasound Technologist
Primary	ASSOC RES SCIENTIST
	ASST RES SCIENTIST
	RESEARCH ASSOCIATE PROFESSOR
	RESEARCH ASST PROFESSOR
	RESEARCH INVESTIGATOR
	RESEARCH PROFESSOR
	RESEARCH SCIENTIST
Regular Clinical Instructional	CLINICAL ASSOC PROF
	CLINICAL ASST PROF
	CLINICAL INSTRUCTOR
	CLINICAL LECTURER
	CLINICAL PROFESSOR
Regular Instructional	ASSOC PROFESSOR
	ASST PROFESSOR
	PROFESSOR
Research	Anatomical Donor Program Coord
	Anatomical Preparator
	Animal Care Manager
	Animal Care Supervisor
	Animal Technician Associate
	Animal Technician Lead
	Animal Technician Senior
	Bioinfo-Comput Biologist Assoc
	Bioinfo-Comput Biologist Inter
	Bioinfo-Comput Biologist Lead
	Bioinfo-Comput Biologist Sr
	Chemist Senior
	Chemist Staff Specialist
	Clinical Res Coordinator Hlth

Clinical Res Project Mgr Hlth
Clinical Subjects Associate
Clinical Subjects Coordinator
Laboratory Manager
Laboratory Tech General Assoc
Laboratory/Classroom Svcs Coor
Microbiologist Staff Spec
Research Analyst
Research Area Specialist Assoc
Research Area Specialist Inter
Research Area Specialist Lead
Research Area Specialist Sr
Research Associate
Research Intermediate Supr
Research Lab Specialist Assoc
Research Lab Specialist Inter
Research Lab Specialist Lead
Research Lab Specialist Senior
Research Lab Tech Intermediate
Research Lab Technician Lead
Research Laboratory Tech Assoc
Research Laboratory Tech Sr
Research Process Coordinator
Research Process Manager
Research Process Sr Manager
Research Program Manager
Research Senior Supervisor
Research Tech Intermediate
Research Technician Associate
Research Technician Lead
Research Technician Senior
Veterinary Technician
Veterinary Technician Lead
RESEARCH FELLOW
SR RESEARCH FELLOW
ANIMAL AIDE
ANIMAL ATTENDANT

Research Fellows

Service/Maintenance

		Supplemental Instructional	AUTOPSY ATTENDANT MEDICAL INVESTIGATOR I MEDICAL INVESTIGATOR II MEDICAL INVESTIGATOR III ADJUNCT ASSOC PROFESSOR ADJUNCT CLIN ASST PROFESSOR ADJUNCT CLINICAL INSTRUCTOR ADJUNCT CLINICAL LECTURER ADJUNCT PROFESSOR VISITING PROFESSOR
		Supplemental Primary	ADJUNCT RES ASST PROF ADJUNCT RES INVESTIGATOR ADJUNCT RES PROF VISITING RES INVEST I
		Trades	BIOMED ENG TECH ORTHOPAEDIC SG
	North Campus Research Complex	Administration	Admin Asst Assoc Healthcare Admin Asst Sr Healthcare Admin Specialist Assoc Health
Office of the President	Alumni Association	Seasonal Staff	Camp Associates
	Intercollegiate Athletics	Academic & Student Services	Nurse Head Athletic Trainer
		Patient Care Services Service/Maintenance	Athletic Trainer ATHLETIC FACIL WKR II ATHLETIC FACILITY WORKER III SPORTS TURF SPECIALIST III
Provost & Exec VP Academic Aff	College of Engineering	Emeritus/a	Research Professor Emeritus/a
		Engineering & Architecture	Elect/Electrn Dsgnr/Dftr Sr Electrical Engineer Inter Electrical Engineer Senior Electronic Tech Supervisor Electronics Engineer Lead Electronics Tech Associate

	Electronics Tech Intermediate
	Electronics Technician Senior
	Engineer in Research Associate
	Engineer in Research Inter
	Engineer in Research Lead
	Engineer in Research Senior
	Engineering Technician
	Healthcare Safety Expert Unit
	Instrument Maker
	Instrument Maker Supr
	Mechanical Engineer Lead
	Mechanical Engineering Sr Supr
	Mechanical Tech Associate
	Mechanical Tech Intermediate
	Mechanical Technician Senior
	Product Tech Working Leader
	Research Project Engineer
Graduate Student Instructor	GRAD STU INSTR
Graduate Student Research Asst	GRAD STU RES ASST
Graduate Student Staff Asst	GRAD STU STAFF ASST
Instructional Services	Instructional Learning Inter
	Instructional Learning Lead
	Instructional Learning Senior
	Laboratory/Classroom Svcs Mgr
	Laboratory/Classroom Svcs Supr
	Laboratory/Classroom Svcs Tech
Primary	ASSOC RES SCIENTIST
	ASST RES SCIENTIST
	RESEARCH ASSOCIATE PROFESSOR
	RESEARCH INVESTIGATOR
	RESEARCH PROFESSOR
	RESEARCH SCIENTIST
Regular Clinical Instructional	CLINICAL PROFESSOR
Regular Instructional	ASSOC PROFESSOR
	ASST PROFESSOR
	PROFESSOR
Research	Laboratory Director

		Laboratory/Classroom Svcs Coor
		Research Analyst
		Research Area Specialist Assoc
		Research Area Specialist Inter
		Research Area Specialist Lead
		Research Area Specialist Sr
		Research Associate
		Research Lab Specialist Assoc
		Research Lab Specialist Inter
		Research Lab Specialist Senior
		Research Lab Tech Intermediate
		Research Laboratory Tech Assoc
		Research Process Coordinator
		Research Process Manager
		Research Process Sr Manager
		Research Program Manager
		Research Senior Supervisor
		Research Technician Lead
		Research Technician Senior
		Sponsored Res & Programs Dir
	Research Fellows	ASST PROF/POST DOC/PRESIDE FEL
		ASST PROF/POSTDOC SCH-MSF
		RESEARCH FELLOW
		SR RESEARCH FELLOW
	Supplemental Instructional	ADJUNCT CLINICAL PROFESSOR
		VISITING ASSOC PROF
		VISITING ASST PROFESSOR
		VISITING CLIN PROFESSOR
	Supplemental Primary	ADJUNCT ASST RES SCI
		ADJUNCT RES SCIENTIST
		VISITING ASSOC RES SCI I
		VISITING ASST RES SCI I
		VISITING RES INVEST I
		VISITING RES PROF
College of Lit, Science & Arts	Engineering & Architecture	Research & Development Eng
		Research Project Engineer

Environmental Safety&Security	Envrnmntl Hlth/Sfty Spec Assoc Envrnmntl Hlth/Sfty Spec Inter
Graduate Student Instructor	GRAD STU INSTR
Graduate Student Research Asst	GRAD STU RES ASST
Graduate Student Staff Asst	GRAD STU STAFF ASST
Instructional Services	Instructional Learning Asst Instructional Learning Inter Instructional Learning Lead Instructional Learning Senior Instructional Sup Svcs Sr Mgr Laboratory/Classroom Svcs Mgr Laboratory/Classroom Svcs Supr Laboratory/Classroom Svcs Tech
Primary	ASSOC RES SCIENTIST ASST RES SCIENTIST RESEARCH ASSOCIATE PROFESSOR RESEARCH PROFESSOR RESEARCH SCIENTIST
Regular Instructional	ASSOC PROFESSOR ASST PROFESSOR PROFESSOR
Research	Bioinfo-Comput Biologist Assoc Laboratory Manager Laboratory/Classroom Svcs Coor Research Area Specialist Assoc Research Area Specialist Inter Research Area Specialist Lead Research Area Specialist Sr Research Associate Research Lab Specialist Assoc Research Lab Specialist Inter Research Lab Specialist Lead Research Lab Specialist Senior Research Lab Tech Intermediate Research Lab Technician Lead Research Laboratory Tech Assoc Research Laboratory Tech Sr

		Research Process Coordinator
		Research Process Manager
		Research Process Sr Manager
		Research Tech Intermediate
		Research Technician Associate
		Research Technician Senior
		Test Developer
	Research Fellows	ASST PROF/POST DOC/PRESIDE FEL
		ASST PROF/POSTDOC SCH-MSF
		RESEARCH FELLOW
	Supplemental Instructional	ADJUNCT ASST PROFESSOR
		VISITING ASSOC PROF
		VISITING ASST PROFESSOR
		VISITING PROFESSOR
	Supplemental Primary	VISITING RES INVEST I
		VISITING RES SCIENTIST I
College of Pharmacy	Environmental Safety&Security	Envrnmntl Hlth/Safety Spec Sr
	Graduate Student Instructor	GRAD STU INSTR
	Graduate Student Research Asst	GRAD STU RES ASST
	Graduate Student Staff Asst	GRAD STU STAFF ASST
	Primary	ASSOC RES SCIENTIST
		ASST RES SCIENTIST
		RESEARCH ASSOCIATE PROFESSOR
		RESEARCH ASST PROFESSOR
		RESEARCH PROFESSOR
		RESEARCH SCIENTIST
	Regular Clinical Instructional	CLINICAL ASSOC PROF
		CLINICAL ASST PROF
		CLINICAL PROFESSOR
	Regular Instructional	ASSOC PROFESSOR
		ASST PROFESSOR
		PROFESSOR
	Research	Chemist Associate
	Research	Chemist Lead
		Chemist Senior
		Chemist Staff Specialist
		Clinical Res Project Mgr Hlth

		Clinical Subjects Associate
		Clinical Subjects Coordinator
		Laboratory Tech General Assoc
		Research Analyst
		Research Lab Specialist Assoc
		Research Lab Specialist Inter
		Research Lab Specialist Lead
		Research Lab Specialist Senior
		Research Lab Tech Intermediate
		Research Laboratory Tech Assoc
		Research Process Coordinator
		Research Process Sr Manager
		Research Technician Lead
	Research Fellows	RESEARCH FELLOW
		SR RESEARCH FELLOW
	Supplemental Instructional	VISITING ASST PROFESSOR
	Supplemental Primary	VISITING ASSOC RES SCI I
	Supplemental Primary	VISITING ASST RES SCI I
		VISITING RES INVEST I
		VISITING RES SCIENTIST I
Institute for Social Research	Academic/Administrative Ungr	Director
	Administration	Acad &/Or Res Prgm Ofcr Sr
		Admin Coord/Project Coord
		Administrative Assistant Assoc
		Administrative Assistant Inter
		Administrative Assistant Sr
		Administrative Director
		Administrative Specialist
		Operations Director
		Program Manager
	Facilities Operations	Facilities Coordinator/Manager
	Libraries & Museums	Electronic Imaging Technician
		Info Resources Technical Spec
		Information Resources Manager
	Primary	ASSOC RES SCIENTIST
		ASST RES SCIENTIST

		FACULTY ASSOCIATE
		RESEARCH ASSOCIATE PROFESSOR
		RESEARCH ASST PROFESSOR
		RESEARCH INVESTIGATOR
		RESEARCH PROFESSOR
		RESEARCH SCIENTIST
	Research	Contract & Grant Specialist
		Grants & Contracts Admin Inter
		Research Area Specialist Assoc
		Research Area Specialist Inter
		Research Area Specialist Lead
		Research Area Specialist Sr
		Research Computer Specialist
		Research Process Coordinator
		Research Process Manager
		Research Process Sr Manager
		Research Senior Supervisor
		Research Tech Intermediate
		Research Technician Associate
		Research Technician Lead
		Research Technician Senior
		Survey Director
		Survey Specialist Associate
		Survey Specialist Intermediate
		Survey Specialist Senior
	Research Fellows	RESEARCH FELLOW

Life Sciences
Institute

Graduate Student Research Asst

GRAD STU RES ASST

Primary

ASSOC RES SCIENTIST
ASST RES SCIENTIST
RESEARCH ASSOCIATE PROFESSOR
RESEARCH ASST PROFESSOR
RESEARCH INVESTIGATOR
RESEARCH PROFESSOR

Research

Laboratory Tech General Assoc
Research Area Specialist Assoc
Research Area Specialist Sr

		Research Lab Specialist Assoc
		Research Lab Specialist Inter
		Research Lab Specialist Lead
		Research Lab Specialist Senior
		Research Lab Tech Intermediate
		Research Laboratory Tech Assoc
		Research Laboratory Tech Sr
		Research Process Manager
	Research Fellows	RESEARCH FELLOW
	Supplemental Primary	VISITING RES INVEST I
School of Dentistry	Clinical Intern/Fieldwork Std	RESEARCH INTERN
	Emeritus/a	ASST PROF EMER/A IN SERVICE
	Graduate Student Research Asst	GRAD STU RES ASST
	Patient Care Services	Allied Health Intermediate Sup
		Allied Health Senior Supr
		Case Manager
		Dental Assistant Associate
		Dental Assistant Intermediate
		Dental Assistant Senior
		Dental Dispensing Assistant
		Dental Equipment Technician
		Dental Hygienist
		Dentist
		Histology Technician
		Laboratory Supervisor
		Prosthetist
		Radiology Technologist Senior
	Primary	ASSOC RES SCIENTIST
		ASST RES SCIENTIST
		RESEARCH INVESTIGATOR
	Regular Clinical Instructional	CLINICAL ASSOC PROF
		CLINICAL ASST PROF
		CLINICAL LECTURER
		CLINICAL PROFESSOR
	Regular Instructional	ASSOC PROFESSOR
		ASST PROFESSOR
		PROFESSOR

Research

Clinical Res Coordinator Hlth
Clinical Res Project Mgr Hlth
Clinical Subjects Coordinator
Laboratory Manager
Research Area Specialist Inter
Research Area Specialist Lead
Research Lab Specialist Assoc
Research Lab Specialist Inter
Research Lab Specialist Lead
Research Lab Specialist Senior
Research Lab Tech Intermediate
Research Lab Technician Lead
Research Laboratory Tech Assoc
Research Laboratory Tech Sr
Research Process Coordinator
Research Process Manager
Research Process Sr Manager
RESEARCH FELLOW
INSTRUMENT/STER PROCESSOR
ADJUNCT CLIN ASSOC PROF
ADJUNCT CLIN ASST PROFESSOR
ADJUNCT CLINICAL LECTURER
ADJUNCT CLINICAL PROFESSOR

Research Fellows
Service/Maintenance
Supplemental Instructional

School of
Kinesiology

Graduate Student Instructor

GRAD STU INSTR

Graduate Student Research Asst
Graduate Student Staff Asst
Regular Clinical Instructional
Regular Instructional

GRAD STU RES ASST
GRAD STU STAFF ASST
CLINICAL ASST PROF
ASSOC PROFESSOR
ASST PROFESSOR
PROFESSOR

Research

Clinical Res Coordinator Hlth
Clinical Res Project Mgr Hlth
Clinical Subjects Coordinator
Laboratory Associate Supr
Research Area Specialist Assoc
Research Area Specialist Sr

		Research Associate
		Research Lab Specialist Assoc
		Research Laboratory Tech Sr
		Research Process Manager
		Research Tech Intermediate
		Research Technician Associate
		Research Technician Lead
	Research Fellows	RESEARCH FELLOW
School of Nursing	Graduate Student Instructor	GRAD STU INSTR
	Graduate Student Research Asst	GRAD STU RES ASST
	Healthcare Admin & Support	Administrative Dir Healthcare
	Instructional Services	Instructional Learning Senior
		Laboratory/Classroom Svcs Tech
	Primary	ASSOC RES SCIENTIST
		ASST RES SCIENTIST
		RESEARCH ASST PROFESSOR
		RESEARCH PROFESSOR
	Regular Clinical Instructional	CLINICAL ASSOC PROF
		CLINICAL ASST PROF
		CLINICAL INSTRUCTOR
	Regular Instructional	ASSOC PROFESSOR
		ASST PROFESSOR
		PROFESSOR
	Research	Clinical Res Coordinator Hlth
		Clinical Res Project Mgr Hlth
		Clinical Subjects Coordinator
		Research Area Specialist Assoc
		Research Area Specialist Inter
		Research Area Specialist Lead
		Research Area Specialist Sr
		Research Associate
		Research Program Manager
	Research Fellows	RESEARCH FELLOW
School of Public Health	Engineering & Architecture	Engineer in Research Lead
	Graduate Student Instructor	GRAD STU INSTR
	Graduate Student Research Asst	GRAD STU RES ASST

Instructional Services	Instructional Learning Inter Instructional Learning Senior
Primary	ASSOC RES SCIENTIST ASST RES SCIENTIST RESEARCH ASSOCIATE PROFESSOR RESEARCH ASST PROFESSOR RESEARCH INVESTIGATOR RESEARCH PROFESSOR
Regular Clinical Instructional	CLINICAL ASST PROF CLINICAL INSTRUCTOR CLINICAL PROFESSOR
Research	Clinical Res Coordinator Hlth Clinical Res Project Mgr Hlth Clinical Subjects Coordinator Laboratory Manager Research Analyst Research Area Specialist Assoc Research Area Specialist Inter Research Area Specialist Lead Research Area Specialist Sr Research Associate Research Lab Specialist Assoc Research Lab Specialist Inter Research Lab Specialist Senior Research Lab Technician Lead Research Laboratory Tech Assoc Research Laboratory Tech Sr Research Process Coordinator Research Process Manager Research Senior Supervisor Research Tech Intermediate Research Technician Associate Research Technician Lead
Research Fellows	RESEARCH FELLOW
Supplemental Instructional	ADJUNCT CLIN ASSOC PROF ADJUNCT CLINICAL INSTRUCTOR

DSA Health Service	Administration	Admin Coord/Project Coord
	Finance	Cashiering Intermediate Supr
	Healthcare Admin & Support	Clinic Associate Manager Clinical Nursing Director-Unit Health Educator Health Information Analyst Medical Director MD Mental Health Case Manager Patient Services Assistant Patient Services Associate
	Nurses	NP GENERAL MEDICAL TIER 1 NP GENERAL MEDICAL TIER 2 NP SURG SUBSPECIALTY TIER 2 REGISTERED NURSE - LEVEL C REGISTERED NURSE - LEVEL D REGISTERED NURSE - LEVEL E
	Patient Care Services	Allied Health Senior Supr Clinical Pharmacist Clinical Technologist Senior Licensed Practical Nurse Medical Assistant Medical Assistant Associate Medical Assistant Senior Medical Technologist Ophthalmic Technician Inter Optician Optometrist Patient Care Tech Associate Pharmacy Manager Pharmacy Technician Assoc Physical Ther Clin Spec Physical Therapist Physical Therapist Assistant Physical Therapy Supervisor Physician Asst General Med T1 Physician Asst Med SubSpec T2 Radiologic Technologist

DSA Housing Services	Facilities Operations	Registered Dietitian Nutrition Staff Physician Ultrasonographer/Radiographer Building/Facilities Sr Supr
	Hospitality	Dining Hall Intermediate Mgr Food Service Associate Supr Food Service Intermediate Supr Food Service Manager
	Service/Maintenance	CUSTODIAN II FOOD SVC WORKER I KITCHEN CLEANER MAINTENANCE MECHANIC I MAINTENANCE MECHANIC II MAINTENANCE MECHANIC III PLUMBER CUSTODIAN II
DSA University Unions	Service/Maintenance	KITCHEN CLEANER CUSTODIAN II
Housing Managed Operations	Facilities Operations	Building/Facilities Sr Supr
	Service/Maintenance	CUSTODIAN II KITCHEN CLEANER MAINTENANCE MECHANIC I MAINTENANCE MECHANIC II MAINTENANCE MECHANIC III



Appendix B: Transporting Biological Materials (Local)

Revision Date: 10/03/2022

U-M recommends using the following transportation services to transport biological material on campus:

- The [Bio Research Shuttle](#).
- Commercial or private carriers (i.e., commercial transport companies). **NOTE:** Commercial transport companies are subject to the Hazardous Materials Regulations. These include companies such as UPS, FedEx, as well as medical couriers Metro Delivery, Unity Lab Services, etc.
- Personal vehicle – **WARNING:** U-M does not recommend transporting biological substances in personal vehicles. If this option is used, the driver **must** be notified that biological substances are in the container and **must** be informed of the requirements in this section.

Accidents during movement or transportation of any of these materials can potentially result in serious harm to persons and property. Release and spills of these materials may involve police and EHS Hazardous Materials Management responders including clean-up and cost of recovery.

Biological substances can be transported (hand-carried or by vehicle) between labs, building floors, and building on the U-M campus. Biological substance include any materials taken from humans or animals, living or dead, fresh or preserved (cells, tissues, organs, blood and body fluids), cultures, suspensions or lyophilized prokaryotic or eukaryotic microorganisms, viruses, sub-viral particles, recombinant products, or parasites used for teaching or research purposes.

All biological materials must be appropriately packaged, labeled and transported in order to minimize the potential for environmental release. Biological substances must be placed in three different packages when being transported, by hand-carry or vehicle, to a new location. The following table describes each type of packaging:

PACKAGING	EXAMPLES	DESCRIPTION
A leak proof primary receptacle	<ul style="list-style-type: none"> • Cryovial • Test tube • Eppendorf tube • Petri plate 	<p>Primary receptacles must be able to be secured with a lid or sealed with a screw top lid or with tape or parafilm.</p> <p>NOTE: Liquid samples must be surrounded by absorbent material (absorbent towels) to contain the total volume of the liquids and absorb any shock during transport.</p>
Leak proof secondary packaging	<ul style="list-style-type: none"> • Sealed plastic ziplock bag with the bag taped shut • Sealed plastic containers • Conical tubes 	<p>The secondary package must be sealed so that it will not open and spill the contents during transport.</p>

Outer Container	<ul style="list-style-type: none">• Cooler• Plastic box	The outer container must be adequate in strength and have a secure lid.
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- Only use primary containers designed to contain the material to be stored. Do not use food containers or other containers not originally designed for laboratory storage purposes.
- Label all secondary containers with a brief description of the contents (if human derived materials, include a small biohazard sticker as a precaution) and an emergency contact name and phone number.
- When moving samples within a building, use a cart to move the biological substances, if possible.
- Take care when moving materials through public spaces or high traffic walkways
- Do not wear laboratory gloves in public access areas
- Carry a spill kit of gloves, lab coat, eye wear, disinfectant, and absorbent material during transport to clean up any spills that may occur. NOTE: Contact EHS at (734) 647-1143 if assistance is needed to clean up a spill.

For non-infectious (or not known to be infectious) materials, it is acceptable to use a personal vehicle as U-M is excepted for diagnostic specimens and other biological materials. Warning: personal insurance carriers should be contacted prior to the use to determine if coverage would exist. It is not well defined if spills will be covered by U-M or personal insurance. Please contact both your department and personal insurance to discuss coverage accidents, spills, etc.



Appendix C: Sharps In Use

Revision Date: 10/03/2022

Department/Clinic:

Date:

Address:

Supervisor or PI: PI Phone

All sharps that are being used where there is exposure to human blood or OPIM must be reviewed on an annual basis. Use appendix D to conduct the **annual** review of devices for new or prospective safer options.

The purpose of this form is to document sharps currently in use with human materials and ensure sharps precautions and training are employed to encourage safer sharps device use

Please complete the form by filling out the appropriate information for all sharps used in your department/clinic/lab, both safety and non-safety. (I.e. scalpels, syringes with needles, IV's with needles attached, capillary tubes, lancets)

List brand and type of each sharp used at the facility.

The following work practice controls are being used to reduce exposure:

- Sharps container close to work area
- Sink for hand washing
- Lab specific sharps training for sharps in use
- Double gloves to prevent exposure to inoculum
- Other/Additional information:



Appendix D: Safer Sharps Device Annual Evaluation Form

Revision Date: 10/03/2022

Department/Clinic:

Date:

Address:

Supervisor or PI:

All sharps that are being used where there is exposure to human derived materials must be reviewed on an annual basis. During your annual review of devices, you must inquire about new or prospective safer options.

Examples may include but are not limited to:

- Retractable, self-sheathing needles
- Syringes with guards
- Intravenous medication delivery systems that administer medication/ fluids through a catheter port or connector site using a needle that is housed in a protective covering
- Blunt suture needles
- Substituting plastic instead of glass

The purpose of this form is to document:

1. Annual consideration of new safer sharps devices;
2. To determine which sharps devices are currently in use;
3. To document the criteria used in the selection of the safer sharps device in use.

Please complete the table below filling out the appropriate information for all sharp devices in your department/clinic/lab, both safety and non-safety. (I.e. scalpels, syringes with needles, IV's with needles attached, capillary tubes, lancets)

Appendix D Continued: EVALUATION OF SHARPS CURRENTLY IN USE

Type of Sharp	Manufacturer	¹ Direct Patient Contact?	Is this a Safer Sharp?	Date of completed evaluation form	If Safer Sharp not selected
		Yes or No	Yes or No		State the reason

¹ For areas that involve direct patient contact, non-managerial personnel who work directly with the device must evaluate the device.

In accordance with MIOHSA Bloodborne Infectious Diseases Standard, I certify that I have reviewed the new commercially available safer sharps and considered evaluation and use. I will evaluate new devices per U-M's Bloodborne Pathogens Exposure Control Plan and keep all evaluation forms readily available.

Evaluator Signature: _____

Date: _____

Appendix E: Biohazard Spill Response

A biohazardous spill occurs anytime there is an unplanned release of potentially infectious material into the work environment. Proper response to these incidents can ensure personnel and community safety while eliminating environmental contamination. In order for a biohazardous spill response to be effective and safe for the campus community, affected work groups must:

- Implement a spill response procedure for their work environment;
- Assure that spill cleanup materials are available for use;
- Assure that all personnel are trained in the provisions of the spill response procedure.

Biohazardous Spill Clean-up

Each work group that has a potential for a biohazardous spill should have sufficient and appropriate spill cleanup materials available to respond to the largest anticipated spill for that area. The basic items that should be available are:

- Disposable Gloves: Change annually
- Splash goggles: Check straps annually
- Absorbent materials: (i.e. Paper towels, SSS Clean-up Powder, Green-Z)
- Disinfectant: EPA registered product effective for destruction of HBV (i.e. bleach, Oxivir Tb, Hepacide Quat) – Change as required
- Mechanical tools (i.e. dustpan/broom, tongs)
- Biohazard bags
- Spill response procedure

Additional items might include protection for street clothing.

In some situations, it may not be appropriate for personnel to clean up a biohazardous spill. This may be the case if:

- An employee has not received training in biohazardous spill cleanup;
- Appropriate spill materials are not available;
- The spill is a combined hazard spill (i.e. radiation and biohazard);
- The spill is too large to be handled by your staff.

In these situations, personnel should take the following primary response steps:

1. Notify others in the work area of the spill;
2. Close off the area where the spill is located;
3. Call EHS HazMat (763-4568) during business hours or DPSS (763-1131) after hours
4. Keep others out of the spill area until responders arrive and spill hazard is removed.

For more information regarding biohazardous spill response procedures, or for assistance with developing a departmental procedure, please contact EHS at (734) 647-1143.

Appendix E: Biohazard Spill Response

Sample Biohazardous Spill Procedure

This procedure is applicable to spills on a nonporous surface such as a tile floor or concrete floor.

1. Notify others working in the area of the hazard present.
2. Gather biohazard spill materials and review spill procedure before proceeding with cleanup.
3. Retrieve a sharps container for disposal of sharps if necessary.
4. Put on Personal Protective Equipment (follow site-specific procedures)
5. If applicable, using mechanical means (i.e. dustpan/broom, tongs), pick up any contaminated sharp items (needles, broken glass, etc.) and place them in an approved sharps container for disposal.
6. If using a powder/solidifier (i.e. SSS Clean-up Powder, Green-Z), use a mechanical tool (i.e. dustpan and broom, plastic scrapers) to remove. Dispose of all absorbent materials and tools into a biohazard bag or container. If not applicable, go to step 7.
7. Cover the spill with an absorbent material (i.e. paper towels)
8. Circle and saturate the spill area with disinfectant and allow the appropriate contact time as recommended by the disinfectant manufacturer's instructions
9. Remove residual disinfectant with paper towels. (If using disinfectant wipes, allow to air dry) Dispose of the towels in the biohazard bag or container.
10. Repeat steps 8 and 9 for sufficient disinfection of contaminated surfaces.
11. Remove PPE according to site-specific procedures and place them in the biohazard bag or container for disposal. If applicable, disinfect non-disposable items (i.e. eye protection, dust pan).
12. Close the bag or container and dispose of as biohazardous waste.
13. Wash your hands with soap and water as soon as possible.
14. Return unused spill materials to designated location. Ensure that the spill supplies are restocked for next use.

Appendix F: HIV and HBV Research Laboratories

HIV and HBV research laboratories present increased risk for occupational exposure to bloodborne pathogens. Employees working in HIV and HBV Research Laboratories and Production Facilities will adhere to standard microbiological safety practices as described in the [CDC/NIH Guidelines for Biosafety in Microbiological and Biomedical Research Laboratories](#) - Section IV, Biosafety Level 2, part A. These standard practices offer limited control of hazards associated with microbiological research.

A research laboratory 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.

These laboratories engaged in the culture, production, concentration, experimentation, and manipulation of HIV or HBV will reduce employee risk by providing additional administrative controls, protective equipment, information and training beyond that required for research laboratories not involved in such work. These requirements are in addition to the other requirements as outline in this Exposure Control Plan.

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

Security:

1. Keep laboratory doors closed when work involving HIV or HBV is in progress.
2. A hazard warning sign incorporating the universal biohazard symbol shall be posted on all access doors when potentially infectious material or infected animals are present in the work area or containment module.
3. Access to work area shall be limited to authorize persons only.
4. Establish written procedures 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 area and animal rooms.

Sharps:

1. Hypodermic needles, syringes, and other sharp instruments shall be used only when a safer alternate technique is not feasible.
2. Safety needles/syringes shall be used for the injection or aspiration of other potentially infectious material.
3. Use extreme caution when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal.
4. Do not bend, shear, or replace needles in the sheath or guard, or remove from the syringe after being used.
5. Promptly place the needle and syringe in a puncture-resistant container, and decontaminate, preferably by autoclaving, before being discarded or reused.

Work Practice Controls:

1. Certified biological safety cabinets or other appropriate combinations of personal protective equipment 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:

Appendix F: HIV and HBV Research Laboratories

- a. Special protective clothing
 - b. Respirators
 - c. Centrifuge safety cups
 - d. Sealed centrifuge rotors
 - e. Containment caging for animals
2. Biological safety cabinets will be certified by EHS when installed, whenever they are moved, and at least annually.
 3. Report all spills or accidents resulting in an exposure incident immediately to the principle investigator or other responsible person and Refer to "[Responding to a Needle stick or Biological Exposure SOP](#)".
 4. Spills must be contained and cleaned up immediately by employees that are trained and equipped to work with potentially concentrated infectious material.

Engineering controls:

1. Use biosafety cabinets or other physical containment devices within the containment module to conduct all activities that involve other potentially infectious material. Do not conduct this work on the open bench.
Note: Biological safety cabinets shall be certified when installed, at least annually, and when they are relocated.
2. Each laboratory shall contain a sink for washing hands and an emergency eye wash station that are readily available in the work area.
3. HEPA (high-efficiency particulate air) filters, or equivalent filters, and disinfectant traps must be used to protect vacuum lines. Check filters and traps routinely, and maintain or replace as necessary.
4. When transporting contaminated material, use containers that are durable, leakproof, labeled or color-coded, and closed before leaving the work area.
5. An autoclave for the decontamination of regulated wastes shall be available. All infectious liquid, solid waste, and all waste from work areas including animal rooms, shall be decontaminated before disposal by autoclaving or incineration.

Personal Protective Equipment:

1. Laboratory coats, gowns, smocks, uniforms, or other appropriate protective clothing shall be used in the work area and animal rooms.
2. Do not wear protective clothing outside of work area.
3. Protective clothing must be decontaminated before laundering.
4. Gloves shall be worn when handling infected animals and when making contact with other potentially infectious materials is unavoidable.

Administrative:

1. Personnel must be advised of potential hazards and are required to read and follow instructions on practices and procedures. This will be documented with a bloodborne pathogens site-specific checklist.
2. Personnel must read the U-M Biosafety Manual. This will be documented on the bloodborne pathogens site-specific checklist.

Design:

1. Doors into the work area should be self-closing.

Appendix F: HIV and HBV Research Laboratories

2. The laboratory should be designed so that it can be easily cleaned and decontaminated. Carpets and rugs in laboratories are not permitted.
3. Laboratory furniture must be capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment should be accessible for cleaning.
 - a. Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.
 - b. Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.
4. Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, they must be fitted with screens.
5. BSCs must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.
6. There are no specific requirements for ventilation systems. However, planning of new facilities should consider mechanical ventilation systems that provide an inward flow of air without recirculation to spaces outside of the laboratory.
7. HEPA filtered exhaust air from a Class II BSC can be safely recirculation back into the laboratory environment if the cabinet is tested and certified at least annually and operated according to manufacturer's recommendations. BSCs can also be connected to the laboratory exhaust system by either a thimble (canopy) connection or directly exhausted to the outside through a hard connection. Provisions to assure proper safety cabinet performance and air system operation must be verified.

Appendix G: Bloodborne Pathogens Site-Specific Training Checklist

This checklist is to be completed by labs that are located off of the U-M campus. This may include a satellite location, clinic or hospital setting or other area where there may be differences in practice for handling materials based on specifics of the location/site.

In addition to completing initial or annual refresher Bloodborne Pathogen Training, to be in compliance with training requirements of MIOSHA's "Bloodborne Infectious Diseases" standard, please review the site-specific training items listed below with the employee. Please check each item as it is reviewed or write N/A if it is not applicable to your work area. Once completed, please sign and date the checklist. Retain this form in so that it is readily available. ***This BBP site-specific checklist must be completed after initial training, anytime there is a procedure change relevant to the exposure risk, and on an annual basis.***

<i>Please check each item as it is reviewed or write N/A if it is not applicable to your work area.</i>	
Specific Work Practices	
	Discussion of tasks that may involve handling potentially infectious materials and how to perform the tasks in a manner that reduces risk of exposure. (Review Task Procedure forms or department procedures)
Personal Protective Equipment (PPE) (gloves, eye protection, ventilation devices, etc.)	
	Explanation of types of PPE required for specific tasks;
	How to use the PPE;
	Location and availability of PPE;
	Maintenance of reusable PPE (cleaning, storage and inspection).
Engineering Controls	
	Location, operation, and use for eyewash facilities;
	Explanation of engineering controls that are specific to the work environment (examples: sharps containers, biological safety cabinets, mechanical pipettors, safer sharps devices, etc.).
Biohazardous Waste Handling	
	Discussion and clarification of which wastes generated in the work area are biohazardous and how those items are to be segregated, stored, transported, treated and disposed of;
	Review of procedures for on-site treatment methods (i.e. proper use of autoclave for waste decontamination purposes);
	Review of hazardous waste labeling and Pick-Up procedures as they apply to the work area (refer to the U-M EHS website for HazWaste collection and supply information) For employees working at off campus facilities, review that facility's waste management plan requirements.
Disinfection & Spill Response	
	Review of work area's procedure for handling spills of potentially infectious materials (including location and availability of biohazard spill kits);
Exposure Incident Response/Exposure Control Plan	
	Review of exposure incident response procedure;
	Review how to access the U-M Exposure Control Plan
Additional Requirements for HIV and HBV Research Laboratories	
	Read the U-M Biosafety Manual

Verification of Training: I certify that the site-specific training items were reviewed and understood as required by the U-M Exposure Control Plan. (Complete a form for each facility you are working at)

Supervisor Signature – Date

Employee Signature - Date

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Appendix H: Supervisor's Guide for BBP Site-Specific Training

About This Document:

In accordance with the requirements of Michigan OSHA's Bloodborne Infectious Diseases standard as well as the U-M Bloodborne Pathogens Exposure Control Plan, supervisors must assure that all personnel with reasonably anticipated risk of exposure to human blood or other potentially infectious materials (OPIM) receive training that is relevant for their specific worksite in order to most effectively reduce their occupational exposure risk. This training is to be performed initially, on an annual basis and anytime there is a procedure change relevant to the exposure risk. The Bloodborne Pathogens Site-Specific Training Checklist was developed to serve as a means of documenting that this training has occurred as required by the regulations.

While documentation of the training is essential, it is important to assure that the site-specific information reviewed with employees is consistent and inclusive of all exposure risk-related topics. Therefore, EHS has developed this guidance document to assist supervisors and departmental trainers in assuring appropriate coverage of this information.

Using This Document:

This document is meant to be a companion for the Bloodborne Pathogens Site-Specific Training Checklist. The training topics found on that form are listed in the table below. Each topic is followed by a guideline section that provides recommendations for the nature of the information to be covered. Additionally, fill-in sections are included to assist you in preparing your training.

Site-Specific Training Topic	Specific Work Practices
GUIDELINES Job tasks with a potential risk for BBP exposure need to be identified as well as the equipment and practices to be used to reduce the exposure risk. This information for each task should be documented on a BBP Task Procedure form and kept on file in each department/lab/clinic. The information captured on those forms will serve as the basis for a large portion of the information to be covered for initial and annual site-specific training. The job tasks that put employees at risk for exposure to blood/OPIM are: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ Note: Examples of job tasks with potential for exposure to blood/OPIM include administering first aid, phlebotomy (blood draws), blood/OPIM spill response, handling or treating waste contaminated with blood/OPIM, etc.	<ul style="list-style-type: none">• Discussion of tasks that may involve handling potentially infectious materials and how to perform such tasks in a manner that reduces risk of exposure.

Appendix H: Supervisor's Guide for BBP Site-Specific Training

Site-Specific Training Topic	Personal Protective Equipment (PPE) (gloves, eye protection, face shields, etc.) <ul style="list-style-type: none">• Explanation of what kinds of PPE are required for specific tasks;• How to use the PPE;• Location and availability of PPE;• Maintenance of reusable PPE (cleaning, storage and inspection).
<p>GUIDELINES</p> <p>Information regarding what PPE to use for specific tasks should be outlined on the BBP Task Procedure form (or department policy/SOP). To effectively cover this information, you should have a physical hands-on review of the PPE to be used. This demonstration and discussion will allow you to cover several essential elements for proper PPE use. By the end of this review, your employees should be able to answer the following:</p> <ul style="list-style-type: none">• What PPE do I need to wear for what tasks?• What are the limitations of the device?• Where can I find this device?• What is the right size for me?• How do I inspect it to assure that it is in good working order?• Can I reuse the device or must I dispose of it after one use?• If I can reuse the device, what steps must I take for properly cleaning and storing the device? <p>For further information on PPE selection, please consult EHS. However, here are some general selection tips for PPE commonly used for protection against exposure to blood/OPIM.</p> <p>Disposable gloves (i.e. nitrile, latex): These provide skin protection against brief exposure to bodily fluids (blood/OPIM). They are not generally recommended for immersion and they are not puncture-resistant or thermal resistant. Double-gloving may be recommended if likelihood of contamination is strong. Some individuals may be sensitive to latex so a latex-free option is advised.</p> <p>Splash goggles: These are the only eye protection rated for splash. If a true splash hazard exists, it is recommended that a shield be used whenever possible.</p> <p>Face shields: These are rated for face protection and should not be used alone as a form of eye protection. Minimally, safety glasses should be worn under the face shield. Face shields are appropriate if there is a likelihood of generating aerosols and the face must be close to the hazard based on the nature of the task. As with splash goggles, whenever possible, procedures should be done behind a shield to minimize the exposure risk and the PPE requirements. <i>Please note that surgical masks are often fluid-resistant but are not generally considered to be a means of skin protection.</i></p> <p>Lab coats: Unless a lab coat is made of fluid-resistant material (i.e. Tyvek), it should not be assumed to be an effective fluid barrier. If a lab coat becomes contaminated with blood/OPIM, it should be removed as soon as possible. Clothing and skin should be examined for possible contamination. If contamination has reached the skin, the affected area should be immediately washed and assessed for potential of BBP exposure. Contaminated lab coats should be placed in a biohazard bag and sent to a designated laundry service. If used as PPE, lab coats must not be taken home for washing by employees.</p> <p>Further comments on PPE:</p> <hr/> <hr/> <hr/>	

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Site-Specific Training Topic	Engineering Controls <ul style="list-style-type: none">• Location and operation of eyewash facilities;• Explanation of engineering controls that are specific to the work environment (examples: sharps containers, biological safety cabinets, mechanical pipettors, safer sharps devices, etc.).
<p>GUIDELINES</p> <p>Information regarding the use of engineering controls for specific tasks should be outlined on the BBP Task Procedure form (or department policy/SOP). Engineering controls are items that isolate or eliminate the hazard. In many instances, engineering controls are pieces of equipment and they are only effective as barriers if used properly. Therefore, as with the PPE information, hands-on review is important in assuring that personnel understand how these devices work. By the end of this review, your employees should be able to answer the following:</p> <ul style="list-style-type: none">• What engineering controls do I need to use for what tasks?• How does the engineering control isolate the hazard?• How do I properly use the engineering control?• How do I inspect it to assure that it is in good working order?• What maintenance is required of the device? <p>There are a variety of items that may be used as engineering controls for minimizing exposure risk to blood/OPIM. Here are some general tips regarding engineering control use and maintenance for some of the more common devices. For additional assistance regarding engineering controls, please contact the EHS Biosafety Staff at (734) 647-1143.</p> <p>Sharps Containers: These are puncture-proof collection containers with a restricted closable opening to reduce the risk of personnel or patients being punctured with a sharp device. Therefore, tops must be installed before use. Lids should be closed when the container is not in use. The proper size of container should be selected for the sharps in use. For example, containers with horizontal drops are best suited for longer devices (5" to 8"). Containers should be stored in an upright position when in use because they are not necessarily leak-proof at the top.</p> <p>Eyewashes: These devices are used for emergency flushing in the event of an exposure. Therefore, they must be clean and unobstructed at all times. A log must be kept to document monthly flushing and annual testing.</p> <p>Safer Sharp Devices: Needles, scalpels and other sharp medical devices used in environments where a BBP hazard is present must have a design feature that allows shielding of the sharp end after use but before disposal. Because the operation of these devices varies somewhat from the "traditional" sharps, it is essential that all personnel receive training and practice on devices before they are implemented in lab or clinical use. Additionally, please refer to the "Sharps Injury Protection Program" section of the U-M Bloodborne Pathogens Exposure Control Plan for information on product evaluation and annual product review requirements.</p> <p>Biosafety Cabinets (BSC): Biosafety cabinets are equipped with HEPA filters that will capture potentially infectious aerosols. They can provide both product and personnel protection and are commonly used for manipulation of human cells. Open flames should not be used in a BSC. If the BSC is equipped with a UV light, personnel must assure that they do not work with this light on or work in the room while the light is on. BSC use is covered in the biosafety training course offered by the EHS. Please note that human cell users are required to complete biosafety training as well as bloodborne pathogens training.</p> <p>Further Information for Engineering Controls:</p> <hr/> <hr/>	

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Site-Specific Training Topic	Biohazardous Waste Handling <ul style="list-style-type: none">• Discussion and clarification of which wastes generated in the work area are biohazardous and how those items are to be segregated, stored, transported, treated and disposed of;• Review of procedures for on-site treatment methods (i.e. proper use of autoclave for waste decontamination purposes);• Review of hazardous waste labeling and Pick-Up procedures as they apply to the work area (refer to the U-M Waste Disposal Guide and Biohazardous Waste Management Plan). For employees working at Non-U-M facilities, review the facility's medical waste management plan requirements.
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This information is most effectively captured with a fill-in section outlining what waste items are generated, how they are segregated, and how waste is handled for treatment and disposal.

Solid Biohazardous Waste: In the healthcare setting, these are disposable items other than sharps that are contaminated with blood/OPIM to the degree that this material can drip off or flake off the item. In the lab setting, these are disposable items that are contaminated with biological material, regardless of the level of contamination. These items must be placed in leakproof receptacles lined with a biohazard bag. These receptacles must be labeled with the biohazard symbol and be covered with a lid when not in use.

Solid biohazardous waste generated by your department includes the following items:

Solid biohazardous waste is treated for disposal by the following means:

Note: If using an autoclave for waste treatment, please review autoclave operation procedure as well as waste treatment procedure posted by all campus autoclaves that are approved for biohazardous waste treatment.

Sharps Waste: These are items that are sharp enough to puncture the skin and are biologically contaminated. Additionally, all needles, syringes, and IV tubing with needles attached must be disposed of as sharps regardless of their contamination status. These items must be placed in an appropriately sized sharps container for disposal. Containers must be permanently closed and disposed of within 90 days of first use or when they are $\frac{3}{4}$ full, whichever comes first. Containers should have a waste tag or sharps label attached if disposal through EHS.

Sharps waste generated by your department includes the following items:

Sharps containers are disposed of by the following means:

Other wastes: Refer to the U-M Bloodborne Pathogens Exposure Control Plan or the U-M EHS website for HazWaste collection and supply information if you are generating pathological or liquid wastes.

Further procedural points for review related to waste treatment and disposal contact U-M Hazardous

Materials Management <http://ehs.umich.edu/haz-waste/>

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Site-Specific Training Topic	Disinfection & Spill Response/Exposure Incident Response/Exposure Control Plan <ul style="list-style-type: none">• Review of work area's procedure for handling spills of potentially infectious materials (including location and availability of biohazard spillkits);• Review of exposure incident response procedure;• Location of the Exposure Control Plan.
<p>GUIDELINES</p> <p>Disinfection should be performed as prescribed in the U-M Bloodborne Pathogens Exposure Control Plan (i.e. whenever there is visible contamination, following a spill, at the conclusion of work with blood/OPIM, etc.). Personnel should be trained on the proper and effective preparation and use of the disinfectant in your work area. This training should include chemical hazard information as outlined on the material safety data sheet (MSDS) for the product. Note: The product must be an EPA-registered for the destruction of Hepatitis B virus and HIV. Disinfectants in use include:</p> <hr/> <p>Spill response procedures will vary depending on the work environment. If personnel are not designated spill responders, they must be informed of the procedure to follow in the event of a blood/OPIM spill. This will generally include isolation of the affected area and calling the designated responders.</p> <p>If personnel are expected to perform spill cleanup, it is essential that they know where the spill kit is located, how to use it, and how to dispose of the waste following such a cleanup. It is strongly advised that personnel are given a hands-on training related to this task.</p> <p>The spill response procedure for the work area is/the location of the spill kit is:</p> <hr/> <hr/> <p>The procedure for spill waste disposal is:</p> <hr/> <hr/> <p>The procedure for restocking the kit is:</p> <hr/> <p>Exposure Response</p> <p>Actions to take in the event of an exposure should be reviewed. A Report of Claimed Occupational Injury or Illness form must be completed. If there is an identifiable source, the department's source protocol must be followed. Assure that personnel know what these forms are and where they may be accessed. For on-campus exposure incidents, personnel should report to Occupational Health Services (OHS). For off campus exposure incidents, personnel should report to an Urgent Care or the closest emergency room. Upon arrival, the employee should identify themselves as a U-M employee who has had a BBP exposure in order to receive expeditious assessment. If your department is off-campus, identify your emergency care facility:</p> <hr/> <p>Location of the Exposure Control Plan</p> <p>The U-M Bloodborne Pathogens Exposure Control Plan is available on the EHS website http://ehs.umich.edu/wp-content/uploads/2016/02/ECP.pdf</p>	