



Northeastern

# Bloodborne Pathogens Exposure Control Plan

2017

**Office of Environmental Health and Safety**

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Northeastern University  
Bloodborne Pathogens  
Exposure Control Plan

**I. Introduction**

One of the major goals of the Occupational Safety and Health Administration (OSHA) is to promote safe work practices in an effort to minimize the incidence of illness and injury experienced by employees. OSHA has enacted the Bloodborne Pathogens Standard, codified as 29 CFR 1910.1030. The purpose of the Bloodborne Pathogens Standard is to "reduce occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other bloodborne pathogens" that employees may encounter in their work place. OSHA requires that employers institute an Exposure Control Plan (ECP) to follow during the course of business, which included the following objectives:

- Protecting employees from the health hazards associated with bloodborne pathogens.
- Providing appropriate treatment and counseling should an employee be exposed to bloodborne pathogens.

An official copy of the OSHA standard is available for review in the Office of Environmental Health and Safety, 320 Renaissance Park. In addition to providing access to the University's Exposure Control Plan, each clinic and laboratory should have a Site-Specific Exposure Control Plan that is updated annually or as positions and tasks change. A copy of the template site-specific plan is available on the [EHS website](#). This plan must also be updated annually.

**II. Definitions**

For the purposes of the Northeastern University Exposure Control Plan, the following definitions apply:

Blood includes human blood, human blood components and products made from human blood

Bloodborne Pathogens are pathogenic microorganisms that are present in human blood, organs, tissues, body fluids and other potentially infectious materials. These pathogens cause disease in humans and include hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV).

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

Contaminated Laundry means laundry that has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass and broken capillary tubes.

ECP is the Exposure Control Plan

EHS is Environmental Health and Safety

Engineering Controls means controls (e.g. sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident means a specific eye, mouth, or other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious material that results from the performance of an employee's duties.

HBV means hepatitis B virus. This virus poses a great risk for laboratory researchers and healthcare providers since it is transmitted easily through needlestick injuries and percutaneous exposures. It causes inflammation of the liver and leads to serious disease that can be fatal.

HCV means hepatitis C virus. This virus is transmitted through needlestick injuries and percutaneous exposures, so it poses a risk to healthcare workers and laboratory researchers. It causes liver inflammation and can also lead to serious and sometimes fatal disease. There is no vaccination available to prevent HCV.

HIV means human immunodeficiency virus. This virus causes acquired immunodeficiency syndrome (AIDS). This is a retrovirus that suppresses the infected person's immune system, leaving that person susceptible to cancer and opportunistic infections. These infections can be severe and lead to death. Currently, there is no vaccination to prevent infection, but there are drugs available as treatment options.

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

Other Potentially Infectious Material (OPIM) includes human semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood and all body fluid in situations where it is difficult or impossible to differentiate between body fluids; any unfixed cells, tissues or organs (other than intact skin) from a human; and HIV-containing cell or tissue

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cultures, organ cultures and HIV- or HBV-containing culture media or other solutions and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means piercing mucous membranes or the skin barrier through such events as needlestick injuries, human bites, cuts and abrasions.

PPE is personal protective equipment. This includes gloves, eyewear, face masks, lab coats and gowns. General work clothes (e.g. uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

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

Sharps are objects used that can be reasonably anticipated to penetrate the skin or any other part of the body and to result in an exposure incident. Examples include needle devices, scalpels, lancets, broken glass, capillary tubes and certain dental equipment.

Sharps with engineered sharps injury protections means a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

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

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

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all blood, body fluids and other potentially infectious materials are treated as if known to be infectious for HIV, HBV and other bloodborne pathogens.

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

### **III. General Program Management**

#### *Responsible Persons*

There are four major “Categories of Responsibility” that are central to the effective implementation of the ECP.

- The Office of Environmental Health and Safety (EHS)
- Department Managers, Supervisors and Principal Investigators (described herein)
- University Health and Counseling Services (UHCS)
- Certain Employees and Students

The Office of Environmental Health and Safety is responsible for the overall management and support of the University’s compliance with the Bloodborne Pathogen Standard. Such responsibilities typically include, but are not limited to:

- Overall responsibility for implementing the ECP.
- Work with administrators and other employees to develop and administer bloodborne pathogens related policies and practices needed to support the effective implementation of the ECP.
- Develop improvements to the ECP, as well as revising and updating the ECP when necessary.
- Collect and maintain a suitable reference library on the Bloodborne Pathogens Standard in addition to bloodborne pathogens safety and health information.
- Know current legal requirements concerning bloodborne pathogens.
- Act as facility liaisons during OSHA inspections.
- Facilitate periodic facility on-site inspections to maintain an up-to-date ECP.
- Plan and conduct all operations in accordance with safe work practice controls as outlined in the ECP.

#### *Availability of the Exposure Control Plan to Employees*

Copies of both the Northeastern University ECP and the Site-specific ECP must be kept in each principal investigator's laboratory, department office or clinic where employees are covered under this standard. In lieu of a hard copy, employees can reference a digital copy that is saved on a common use computer in the laboratory or clinic. All employees must be aware of these ECPs and must

have access to them.

### *Review and Update of the Plan*

To ensure that the ECP is kept current, it will be reviewed and updated under the following circumstances:

- Annually, on or before 31 August of each year.
- When new or modified tasks and procedures that affect occupational exposure of employees are implemented or issued from time to time by OSHA.
- When employees' jobs are revised such that new instances of occupational exposure may occur.
- When new functional positions are established within Northeastern University that may involve exposure to bloodborne pathogens.
- When directed by OSHA.

Annually, EHS will work with the University Bloodborne Pathogen Control Committee to revise and update these lists as tasks, procedures, and classifications change. This committee will consist of representatives from EHS, University Health and Counseling Services (UHCS), and other applicable departments.

### **IV. Exposure Determination**

One of the keys to implementing a successful ECP is to identify exposure situations employees may encounter. The list of affected job titles and respective tasks and procedures in which occupational exposure to bloodborne pathogens may occur is referred to as "The Classification of Job-Related Tasks" and is kept in Appendix A of this ECP.

The initial list was compiled on or before May 5, 1992. EHS will work with department managers and supervisors to revise and update these lists as tasks, procedures and classifications change.

### **V. Method of Compliance**

Rigorously following the requirements of OSHA's Bloodborne Pathogens Standard in the following five areas will eliminate or minimize an employee's occupational exposure to bloodborne pathogens as much as possible:

- Use of Universal Precautions
- Establish appropriate engineering controls
- Implement appropriate work practice controls
- Use necessary personal protective equipment
- Implement appropriate housekeeping procedures

- Follow the sharps injury protection program

### *Universal Precautions*

The practice of Universal Precautions to prevent contact with blood and other potentially infectious materials (OPIM) has been observed for several years. As a result, all human blood, tissues, cells and body fluids are treated as if they are known to be infectious for HBV, HCV, HIV and other bloodborne pathogens.

Body fluid known to be associated with transmission of HIV include:

- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Amniotic fluid

The Centers for Disease Control (CDC) and OSHA have published recommendations promoting the use of universal precautions for each individual's protection. EHS recommends the use of all or any combination of the following Universal Precautions when possible exposure to human material listed above exists during the performance of one's job tasks:

1. **Personnel.** Universal Precautions applies to all personnel that may have occupational exposure to human blood or bodily fluids in their job related tasks.
2. **Gloves.** Wear gloves when hands are likely to be in contact with blood or OPIM. Immediately wash hands if they become contaminated with blood or OPIM. Routinely wash hands before and after all work in these potential exposure areas. Carry a set of gloves with you at all times if your job-related tasks may exposure you to blood or OPIM.
3. **Gown.** Wear a fluid resistant gown when soiling of clothing is likely to occur.
4. **Face Shield.** Wear a face shield or other protective eyewear when it is likely that eyes or mucous membranes will be splashed with blood or OPIM.
5. **Sharps Containers.** Use extreme caution when handling contaminated sharps including needles, scalpel blades, pipettes, glass slides, etc. Discard them immediately into your sharps container. Needles should not be recapped before discarding.
6. **Infectious Waste.** Discard infectious waste, which includes material saturated or heavily contaminated with human blood or OPIM, in infectious waste containers. A detailed procedure for disposal of infectious waste is



included in Appendix C.

7. **Approved Disinfectants.** Use appropriate germicides, disinfectants or sterilants when cleaning spills or equipment that have become contaminated with human blood or OPIM. These antimicrobial products must be EPA registered. See the [Biosafety page](#) on the EHS website for a link to the EPA registered products.
8. **Reporting of Incidents.** All cuts, needlestick injuries and mucous membrane exposures involving human blood or OPIM must be reported to your supervisor. If you have an exposure, seek medical attention immediately after washing the area. Call campus police 617.373.3333 for transportation to a healthcare facility for treatment and appropriate follow-up. Supervisors must report all exposures and needlestick injuries to EHS.

### *Engineering Controls*

Equipment such as puncture resistant sharps disposal containers and ventilating laboratory hoods are utilized to minimize exposures. EHS periodically works with department managers and supervisors to review tasks and procedures performed in departments where engineering controls can be implemented or updated.

The following engineering controls are used throughout Northeastern University:

- Hand washing facilities are readily accessible to all employees who have the potential for exposure
- Containers for contaminated reusable sharps having the following characteristics:
  - Puncture resistant
  - Color coded or labeled with a biohazard warning label
  - Leakproof on the sides and bottom
- Specimen containers which are:
  - Leakproof
  - Puncture resistant (if necessary)
- Secondary containers which are:
  - Leakproof
  - Puncture resistant (if necessary)
- Safer sharps, needles and devices – see <http://www.northeastern.edu/ehs> for more information about safer alternatives.
- Mechanical Pipetting devices for pipetting.
- Biological Safety Cabinets provide protection from aerosols. These should be inspected and recertified annually and whenever the cabinet is moved.
- Splash guards include transparent shields and in the biosafety cabinet to protect the worker from splattering that is associated with some

procedures

### *Work Practice Controls*

Many of these Work Practice Controls have been in effect for some time. Northeastern University has adopted the following Work Practice Controls as part of our Bloodborne Pathogens Compliance Program:

- Handwashing: Employees wash their hands immediately, or as soon as feasible, after removal of gloves or other personal protective equipment.
  - Following any contact of body areas with blood or OPIM, employees wash their hands and any other exposed skin with soap and water as soon as possible, or flush exposed mucous membranes (e.g. eyes) with water.
  - Handwashing facilities must be available to employees who incur exposure to blood or OPIM and these facilities must be located and managed for easy access. If handwashing facilities are not feasible, an antiseptic cleanser in conjunction with clean paper towels, antiseptic towelettes or hand sanitizer must be provided and available. If one of these alternatives is used, hand should be washed with soap and running water as soon as possible.
- Sharps & Containers: The use of needles and syringes, Pasteur pipettes, scalpels, suture needles, razor blades and other sharps should be minimized.
  - Contaminated needles and other contaminated sharps are not bent, recapped or removed unless the recapping or needle removal is accomplished through the use of a recapping device or one handed technique.
  - Used sharps and contaminated glassware must be secured in a sharps container as soon as possible. **Do not put sharps down to clean up later.**
  - Containers must be leakproof, puncture resistant and closable for transport. These containers should be located in the area where work is done so sharps can be disposed of immediately after use.
  - Contaminated reusable sharps are placed in appropriate containers immediately, or as soon as possible, after use.
- Work Area Restrictions: Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses are prohibited in work areas where there is potential for exposure to bloodborne pathogens.
  - Food and drink are not kept in refrigerators, freezers, on counter tops or in other storage areas where blood or OPIM are present.
  - Areas where blood or OPIM are worked with or stored must have signs to alert those that enter.

- Mouth pipetting/suctioning of blood or OPIM is prohibited.
- Specimen Handling & Transport: Activities that cause splashing, spraying or other actions generating droplets of blood or OPIM are minimized.
  - Specimens of blood or OPIM are placed in designated appropriately labeled leakproof containers for handling and storage.
  - If outside contamination of a primary specimen container occurs, that container is placed within a second appropriately labeled leakproof container for handling and storage.
  - Specimens of blood and OPIM must be placed in a leakproof secondary container that is labeled with the universal biohazard symbol before transporting out of the lab.
  - Containers and packing for shipment must meet the requirements of the US Department of Transportation, International Air Transport Association or US Postal Service.
- Contaminated Equipment: Equipment, which becomes contaminated during normal use, is examined and decontaminated prior to servicing or shipping. If decontamination is not feasible, then an appropriate biohazard label must be attached to any contaminated equipment, identifying the contaminated portions. Information regarding the remaining contamination is conveyed to all affected employees, the equipment manufacturer and the equipment service representative prior to handling, servicing or shipping.

*Personal Protective Equipment*

This equipment includes, but is not limited to:

Gloves	Gowns or Aprons
Laboratory Coat	Face Shield
Safety Glasses	Goggles
Mouthpieces for Resuscitation	Resuscitation Bags
Surgical Mask	Shoe Covers

Hypoallergenic gloves, glove liners and similar alternatives are readily available to employees who are allergic to glove materials. These allergic dermatitis reactions may be due to the latex, chemicals and/or powder.

Department supervisors and principal investigators are responsible for ensuring that all departments and work areas have appropriate personal protective

equipment available to employees.

Employees are trained regarding the use of the appropriate personal protective equipment for their "Job Classifications and Tasks/Procedures." Additional training is provided, when necessary, if an employee takes a new position or new job functions are added to their current position.

To ensure that personal protective equipment is used as effectively as possible, not contaminated and is in the appropriate condition to protect employees from potential exposure, department supervisors and principal investigators must adhere to the following practices:

- All personal protective equipment is inspected periodically and repaired or replaced as needed to maintain its effectiveness.
- Reusable personal protective equipment is cleaned, laundered and decontaminated as needed. This equipment cannot be taken home to be cleaned or laundered.
- Single use personal protective equipment (or equipment that cannot be decontaminated) is disposed of according to procedures outlined in the Northeastern University Procedure for the Disposal of Infectious Waste included in Appendix C.
- Any garments penetrated by blood or OPIM are removed immediately or as soon as feasible.
- All personal protective equipment is removed prior to leaving a work area.
- Gloves are worn in the following circumstances:
  - Any time an employee anticipates hand contact with potentially infectious materials.
  - When performing vascular access procedures.
  - When handling or touching contaminated items or surfaces.
- Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured or otherwise lose their ability to function as a barrier to exposure.
- Utility gloves are decontaminated for reuse unless they are cracked, peeling, torn or exhibit any other signs of deterioration, at which time they are disposed of.
- Masks and eye protection, such as goggles, face shield, etc., are used whenever splashes or sprays may generate droplets of infectious materials. These items are decontaminated after each use.
- Protective clothing, such as gowns and aprons, are worn whenever potential exposure to the body is anticipated.
- Surgical caps, hoods and/or shoe covers are used in instances when gross contamination is expected.

### *Housekeeping*

Maintaining the work area in a clean and sanitary condition is an important part of

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the Bloodborne Pathogens Compliance Program. To facilitate this, a written schedule for cleaning and decontamination should be initiated and include the following information:

- Location(s) to be cleaned and decontaminated.
- Day and time of scheduled work.
- Cleaners and disinfectants to be used.
- Any special instructions that are appropriate.

Elements of a good housekeeping program should take note of and assure that:

- All equipment and surfaces are cleaned and decontaminated after contact with blood or OPIM:
  - After the completion of medical procedures.
  - Immediately, or as soon as feasible, when surfaces are overtly contaminated.
  - After any spill of blood or infectious materials.
  - At the end of the work shift if the surface may have been contaminated during the shift.
- Protective coverings, such as plastic wrap, aluminum foil or absorbent paper, are removed and replaced:
  - As soon as it is feasible when overtly contaminated.
  - At the end of the work shift if they may have been contaminated during the shift.
- All pails, bins, cans and other receptacles intended for use are routinely inspected, cleaned and decontaminated as soon as possible if visibly contaminated.
- Potentially contaminated broken glassware is picked up using mechanical means (such as dustpan and brush, tongs, forceps, cardboard, etc.).
- Contaminated reusable sharps are stored in containers that do not require hand processing.

### Regulated Waste

Procedures for the handling and disposal of infectious waste are detailed in the Northeastern University Procedure for the Disposal of Biohazardous Waste (regulated waste) included in Appendix C. The following procedures are used:

- Infectious waste is discarded or bagged in containers that are:
  - Closable
  - Puncture resistant
  - Leakproof if the potential for fluid spill or leakage exists
  - Red in color or labeled with the appropriate biohazard warning label
- Waste containers are maintained upright, routinely replaced and not allowed to overfill.

- Contaminated laundry is handled as little as possible and is not sorted or rinsed where it is used and cannot be taken home to be cleaned. There are professional laundering companies that can provide services for contaminated laundry. Be sure that the service is aware of what the laundry is contaminated with.
- Whenever employees move containers of regulated waste from one area to another, the containers are immediately closed and placed inside an appropriate secondary container if leakage is possible from the first container.

### Spills

Spills must be cleaned up immediately while wearing the appropriate personal protective equipment. The liquid material should be absorbed with paper towels or absorbent materials to prevent the spill from spreading. If there are sharps to pick up, only use mechanical means such as tongs or forceps. Disinfect the area with 10% bleach (or other appropriate disinfectant) and allow it to stand for at least 20 minutes (or more depending on the contact time for the disinfectant used). For advice or assistance, call EHS at 617.373.2769.

### *Obtaining Blood and Blood Products*

Blood and blood products obtained or purchased from outside the university for use on campus should be screened for HIV, HBV and HCV whenever possible.

## **VI. Hepatitis B Vaccination Program**

To protect employees as much as possible from the possibility of Hepatitis B infection, a vaccination program is provided. This program is available, at no cost, to all employees who have potential occupational exposure to bloodborne pathogens, including personnel who could have exposure as part of their collateral duty. The vaccination program consists of a series of three inoculations over a six-month period. As part of their bloodborne pathogens training, employees have received information regarding hepatitis vaccination, including its safety and effectiveness.

Vaccinations are performed under the supervision of a licensed physician or other health care professional. For more information about this program, please contact the Office of Environmental Health and Safety at 617.373.2769. All employees must complete and sign the Hepatitis B Vaccine Declaration form prior to working with or around blood or other bodily fluids. Employees who decline the vaccine must complete the declaration form which will function as documentation of declination. A copy of this form is available on the EHS website: <https://www.northeastern.edu/ehs/ehs-programs/biosafety>

## **VII. Exposure Incident and Follow-up**

### *Exposure Incident*

If an employee is exposed to bloodborne pathogens through a needlestick injury, laceration with a contaminated sharp, contamination or exposure to non-intact skin or from a direct splash to the mouth, eyes and nose:

1. Wash the affected area with soap and running water for 15 minutes and force bleed the injured area if possible. If it is a splash to the eyes, rinse the eyes using an eye wash station for at least 15 minutes
2. Have a co-worker call campus police at 617.373.3333 for assistance.
3. Public safety will assess your situation and send you to the appropriate healthcare facility.
4. Report the incident to your supervisor, principal investigator and EHS.

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

If an employee is involved in an incident where exposure to bloodborne pathogens may have occurred, two things are immediately necessary for the exposed employee's supervisor to do:

- Investigation of the circumstances surrounding the exposure incident.
- Assurance that the employee receives full medical consultation and treatment (if required) as expeditiously as possible.

If an exposure incident occurs, a confidential medical evaluation and follow-up should be available immediately and will be conducted by appropriate healthcare facility. Following the initial first aid as described above, the following must be performed:

- Document the route of exposure and how the exposure occurred.
- Identify and document the source individual (unless it is not feasible or is prohibited by state or local law).
- Obtain consent and make arrangements to have the source individual tested as soon as possible to determine HIV, HCV and HBV infectivity and document that these test results were conveyed to the employee's healthcare provider.
- If the source individual is known to be positive for any of the above tests, new testing is not required.
- Ensure that the exposed employee is provided with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source

individual.

- After obtaining consent, collect exposed employee's blood as soon as possible after exposure incident and test for HBV and HIV serological status.
- If the employee does not provide consent for HIV serological testing during the collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days and if the exposed employee elects to have the baseline sample tested during this waiting period, complete the testing as soon as feasible.

The supervisor or principal investigator ensures that the healthcare professional(s) responsible for the employee's hepatitis B vaccination and post-exposure evaluation and follow-up are provided with a copy of OSHA's bloodborne pathogens standard.

The Office of Environmental Health and Safety investigates every exposure incident that occurs at Northeastern University. This investigation is initiated immediately after the incident occurs and involves gathering the following information on an accident report form:

- When the incident occurred including the date and time
- Where the incident occurred
- What potentially infectious materials were involved in the incident
- Type of material (blood, amniotic fluid, etc.).
- Source of the material.
- The circumstances under which the incident occurred.
- Type of work being performed.
- How the incident was caused - i.e. an accident, unusual circumstance (such as equipment malfunction, power outage, etc.).
- Personal protective equipment being used at the time of the incident.
- Actions taken as a result of the incident – was the employee decontaminated, how was the material cleaned up and were notifications made?

After this information is gathered, it is evaluated, a written summary of the incident and its causes is prepared and recommendations are made for avoiding similar incidents in the future. Information involved in the post exposure process is maintained in confidential files by Risk Services EHS will also complete the sharps injury log for all bloodborne pathogens exposure incidents involving sharps (see Appendix B).

### *Medical Record Keeping*

Medical records are maintained for each employee with occupational exposure in



accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records." Case management and records will be handled by Risk Service and includes documentation of:

- Name of the employee.
- Social security number of the employee
- A copy of the employee's Hepatitis B Vaccination status including the dates of any vaccinations and medical records relative to the employee's ability to receive vaccination.
- Copies of the results of the examinations, medical testing and follow-up procedures which took place as a result of an employee's exposure to bloodborne pathogens.
- A copy of the information provided to the consulting healthcare professional as a result of any exposure to bloodborne pathogens.

The information in these medical records is maintained in a confidential manner. Information is not disclosed or reported to anyone without the employee's written consent. The records are provided upon request within 15 working days and such requests should be sent to Risk Services. Records are maintained by Risk Services for 30 years beyond the employee's last date of employment.

## **VIII. Labels and Signs**

The most obvious warning of possible exposure to bloodborne pathogens is a biohazard labels. A comprehensive biohazard warning labeling program includes using labels, or when appropriate, red "color coded" containers.

This ECP requires that the following items in any facility be labeled:

- Containers of regulated waste.
- Refrigerators/freezers containing blood or OPIM.
- Sharps disposal containers.
- Other containers used to store, transport or ship blood and OPIM.
- Contaminated equipment – indicate which portions of the equipment are contaminated on the label that is affixed to the contaminated equipment.

## **IX. Information and Training**

Having well informed and educated employees is important when attempting to eliminate or minimize exposure to bloodborne pathogens. All employees who have the potential for exposure to bloodborne pathogens must receive an initial orientation and annual retraining. (See Appendix A)

OSHA requires that employees be re-trained at least annually to keep their

knowledge current. Additionally, all new employees, as well as employees changing jobs or job functions, will be given additional training in their new positions by their immediate supervisor or designee.

EHS is responsible for facilitating the training process and the development of educational curriculum on the Bloodborne Pathogen Compliance program. Information about classroom or on-line training can be found by going to the following URL: [www.northeastern.edu/ehs/training](http://www.northeastern.edu/ehs/training).

### *Training Topics*

The topics covered in the training program must include the following:

- The OSHA Bloodborne Pathogens Standard.
- The epidemiology and symptoms of bloodborne diseases.
- The modes of transmission of bloodborne pathogens.
- The Exposure Control Plan and where employees can obtain a copy.
- Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and OPIM.
- A review of the use and limitations of methods that prevent or reduce exposure, including engineering controls, work practice controls and personal protective equipment.
- Selection and use of personal protective equipment including the types available, proper use, location, removal, handling, decontamination and disposal.
- Visual warning of biohazards including labels, signs and color-coded containers.
- Information on the Hepatitis B vaccine and its efficacy, safety, method of administration, benefits of vaccination, the University's vaccination program and declination procedure.
- The procedures to follow if an exposure incident occurs in an emergency or otherwise, including incident reporting.
- Information on the post exposure evaluation and follow-up, including medical consultation, which the University will provide.
- Information on the Needlestick Safety and Prevention Act

### *Training Methods*

Training presentations use several training techniques including, but not limited to:

- Didactic lecture presentations by an EHS staff member, infection control practitioner or qualified supervisor.
- Video programs.
- Training manuals and employee handouts.
- Self-assessment tests.

- On site work inspection.
- Online training.

### *Record Keeping*

To document the training process, EHS maintains training records containing the following information:

- Dates of all training sessions.
- Contents and summary of the training sessions.
- Names of the instructors.
- Names, job titles and signatures (for initial training) of the employees attending the training sessions.
- Departments or groups that have been trained.

OSHA requires that all of the training records be available to its office.

## **X. New Employee**

When a new employee is hired, or an employee changes jobs within Northeastern University, the following process takes place to ensure that they are trained in the appropriate work practice controls:

- The employee's job classification and the tasks and procedures that will be performed are reviewed by their supervisor against the "Job Classifications and Task Lists" which are identified in the ECP as those in which the potential of occupational exposure exists.
- If the employee is transferring from one job to another, the "Job Classification and Task/Procedures" pertaining to their previous position are checked by their new supervisor against Appendix A.
- Based on this crosschecking of the new "Job Classification and/or Tasks and Procedures" which will bring the employee into occupational exposure situations are identified.
- The employee is then referred to EHS by the supervisor for training regarding any work practice controls that the employee is not experienced with.

## **XI. Sharps Injury Protection Program**

Principal investigators (PI) and supervisors of departments covered under this standard must consider and use effective engineering controls where appropriate. These may include safer sharps devices and are implemented to reduce the risk of injury from a needlestick and from other sharp medical instruments.

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. A program for evaluating safer sharps devices designed to eliminate or minimize occupational exposure must be established. This program should include an identification process, an evaluation process and a selection process. A review of sharps that are being used must be done on an annual basis. See Annual Review section below.

#### *Identification Process*

PIs and 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” that is available in Appendix B or on the [EHS website](#). PIs and supervisors must select non-managerial employees who perform tasks with sharps exposure risks to be involved in the evaluation process. At least four or more test samples of each product being evaluated must be provided to each individual evaluating the product. PIs and supervisors will ensure that visual instructions and a demonstration of the proper use of each device are provided to all evaluators, and will review the rating system on the evaluation form with each evaluator. All evaluators should be encouraged to provide written comments on the forms. This will provide a useful decision making tool. Records of completed evaluation forms must be maintained in the PI or supervisor’s department.

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

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, PIs and supervisors must implement use of the safer sharp devices as soon as possible.

The selection and implementation process cannot be postponed in order to use up supplies of the 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 the Transportation Department

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 "Safety Needle/Sharps Annual Review Form" (Appendix E). This form should be completed at the end of each calendar year and kept with the Site-specific ECP. 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.

### *Resources*

The International Sharps Injury Prevention Society (ISIPS) provides a comprehensive list of safety equipment that is engineered to reduce the number of needlestick and sharps injuries. The link below connects you to a list of safety devices organized into categories:

[http://www.isips.org/page/safety\\_product\\_categories](http://www.isips.org/page/safety_product_categories)

For information on Designing, Implementing, and Evaluating a Sharps Injury Prevention Program, go to the web site for the Centers for Disease Control and Prevention: <http://www.cdc.gov/sharpssafety/>

There are links on the Northeastern University Office of Environmental Health and Safety website to newer safety sharps products:

[www.northeastern.edu/ehs/ehs-programs/biosafety/fact-sheets-and-procedures](http://www.northeastern.edu/ehs/ehs-programs/biosafety/fact-sheets-and-procedures)

## XII. Revision History

<b>Date</b>	<b>Amendments</b>	<b>Initials</b>
2/8/1995	Revisions and update; date added, phone number updated, section 5 revised, section V-A revised, section V-C revised, Appendix A jobs reclassified, Appendix B – New forms, Appendix C – fact sheets revised	SRB
9/2/1997	Revisions and update; Job classifications redone	SRB
1/7/2004	Revisions and update; Section II-B, III, IV-B, VII, VII-A, VII-B, Appendix B, Appendix E and Appendix F revised	SRB

4/2/2009	Revisions and update; emergency numbers, section VIII-E, Appendix B and Appendix C revised	SRB
10/18/2013	Revisions and update; site-specific ECP added and major revisions to document	EJC
5/7/2015	Updated appendices to incorporate changes to the fact sheets	EJC
7/10/17	Reviewed ECP and minor revisions	EJC

## Appendix A

The classification of the job-related tasks in which all employees could have occupational exposure to bloodborne pathogens:

Task	Job Title
Requires handling of injuries or therapy that could create potential exposures	Athletic Trainer
Contact with children under five years	Day Care Teacher

of age is made as part of the job	
Involves interaction with the public that could involve exposure to human blood or bodily fluids	Police Officer Patrol Officer
Contact with patients could result in potential exposure to human blood or bodily fluids	Nurse Phlebotomist Medical Assistant Physician Physician Assistant Nurse Practitioner Medical Technologist Laboratory Supervisor
Other Job related tasks involve potential exposure to human blood or bodily fluids	Other Employees

The classification of job-related tasks in which some employees could have occupational exposure to bloodborne pathogens:

<b>Task</b>	<b>Job Title</b>
Research and other related tasks involving human materials – including, but not limited to, cells, tissues, bodily	Professor Laboratory Supervisor Technician Graduate Student



fluids and blood	Postdoctoral Fellow Staff Scientist Visiting Scientist/Scholar
Requires removal of refuse from laboratories that use human materials– including, but not limited to, cells, tissues, bodily fluids and blood  Requires maintenance or cleanup in bathrooms, common areas, etc. that may have human blood or other bodily fluids present	Custodian Building Superintendent
Involves maintenance or work in areas that may have human blood or bodily fluids present	Carpenter Plumber
Requires handling of injuries or therapy that could create potential exposures	Athletic Coach
Associated with collateral duties could result in exposure to human blood or other bodily fluids	Scientific Diver
Involve potential exposure to human blood, materials or bodily fluid	Other Employees

## Appendix B

Download the “Sharps Injury Log” document from the EHS website and complete for all sharps injuries. A copy of this form must be maintained with the Site-specific ECP and a copy must be submitted to the Biosafety Program Manager in the Office of Environmental Health and Safety:

### Sharps Injury Log

Type of employee injured / exposed: \_\_\_\_\_  
Principal Investigator / Supervisor: \_\_\_\_\_  
Department: \_\_\_\_\_ Phone #: \_\_\_\_\_  
Job Classification: \_\_\_\_\_  
Date of Injury: \_\_\_\_\_ Approx. time: \_\_\_\_\_  
Location of Incident: \_\_\_\_\_  
Type and brand of device involved in incident: \_\_\_\_\_  
\_\_\_\_\_

Description of the exposure incident:

\*Please complete a sharps injury log for each employee exposure incident

Each year, each site must review the sharp devices that are used and an inquiry must be done about new safer options. Download the “Safety Needle/ Sharps Annual Review Form” and complete it each year. This document must be saved as part of the Site-specific ECP.

## Safety Needle / Sharps Annual Review Form

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

Principal Investigator / Supervisor \_\_\_\_\_  
 Date \_\_\_\_\_ Department \_\_\_\_\_  
 Extension \_\_\_\_\_ Address \_\_\_\_\_

Please fill out the table below with the appropriate information for documentation of:

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

### **Sharps Currently in Use**

Name of Sharp	Manufacturer	Size(s) in Use	Is it a Safety Sharp?	Are there evaluation forms (or exclusion memos) on file?	Justification for selection of device (enter N/A if no device is currently available)

Principal Investigator / Supervisor Signature \_\_\_\_\_

Date \_\_\_\_\_

As part of the annual evaluation of safer devices, workers that evaluate new options should complete the evaluation form for each new device. This form should be downloaded from the EHS website, filled out and saved as part of the Site-specific ECP.

## Sharps Safety Device Evaluation Form

Principal Investigator / Supervisor: \_\_\_\_\_ Evaluation Date: \_\_\_\_\_  
 Evaluator's Name: \_\_\_\_\_ Job Title: \_\_\_\_\_  
 Department: \_\_\_\_\_ Extension: \_\_\_\_\_  
 Name of Device: \_\_\_\_\_  
 Name of Manufacturer: \_\_\_\_\_  
 Applications of Device: \_\_\_\_\_  
 Number of times used: \_\_\_\_\_

Please circle the most appropriate answer for each question. Not Applicable (N/A) maybe used if the question does not apply to this product. Please explain all problems with the device in the comments section.

- |   | Agree....Disagree |
|---|-------------------|
| 1. The safety feature can be activated using a one-handed technique.  | 1 2 3 4 5 N/A     |
| 2. The safety feature does not interfere with the normal use of this product.                               | 1 2 3 4 5 N/A     |
| 3. Use of this product requires you to use the safety feature.  | 1 2 3 4 5 N/A     |
| 4. The user's hands remain behind the needle/sharp until activation of the safety mechanism is complete.    | 1 2 3 4 5 N/A     |
| 5. A clear and unmistakable change (either audible or visible) occurs when the safety feature is activated. | 1 2 3 4 5 N/A     |
| 6. This product does not require more time to use than a non-safety device.                                 | 1 2 3 4 5 N/A     |
| 7. The device is easy to handle while wearing gloves.   | 1 2 3 4 5 N/A     |
| 8. The device is easy to handle when wet.   | 1 2 3 4 5 N/A     |
| 9. The safety feature works well with a wide variety of hand sizes.   | 1 2 3 4 5 N/A     |
| 10. The safety feature operates reliably.   | 1 2 3 4 5 N/A     |
| 11. The exposed sharp is permanently blunted or covered after use and prior to disposal.                    | 1 2 3 4 5 N/A     |
| 12. This device will work with all required syringe and needle sizes.                                       | 1 2 3 4 5 N/A     |
| 13. Use of this product does not increase the number of sticks to the patient.                              | 1 2 3 4 5 N/A     |

## Sharps Safety Device Evaluation Form

- |  | Agree...Disagree |
|--|------------------|
| 14. The user does not need extensive training for correct operation.   | 1 2 3 4 5 N/A    |
| 15. The device can be used without causing more patient discomfort than a conventional device.   | 1 2 3 4 5 N/A    |
| 16. This device offers a good view of any aspirated fluid.   | 1 2 3 4 5 N/A    |
| 17. The product stops the flow of blood after the needle is removed from the catheter (or after the butterfly is inserted) and just prior to the line connections or the hep-lock capping. | 1 2 3 4 5 N/A    |
| 18. It is not easy to skip a crucial step in proper use of the device.   | 1 2 3 4 5 N/A    |

Additional Questions for I.V. Connectors:

- |   |               |
|---|---------------|
| 19. Use of this connector eliminates the need to exposed needles in connections.                                  | 1 2 3 4 5 N/A |
| 20. The safety feature allows you to collect blood directly into a vacuum tube, eliminating the need for needles. | 1 2 3 4 5 N/A |
| 21. The connector can be secured (locked) to Y-sites, hep-locks, and central lines.                               | 1 2 3 4 5 N/A |

Additional Questions for Vacuum Tube Blood Collection Systems:

- |   |               |
|---|---------------|
| 22. The safety feature works with a butterfly.  | 1 2 3 4 5 N/A |
| 23. The inner vacuum tube needle (rubber sleeved needle) does not present a danger of exposure. | 1 2 3 4 5 N/A |

Would you recommend using this device? Yes    No

Comments (describe problems, list incompatibilities): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix C

### *Northeastern University Procedure for Disposal of Medical or Biological Waste*

**Definition:** The State of Massachusetts under the amended State Sanitary Code (105 CMR 480.000) defines infectious waste (biohazardous) in the following manner: Waste that because of its characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or pose a substantial present potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. The following six types of waste are identified and defined as medical or biological waste:

- Blood and Blood Products. Discarded bulk human blood and blood products in free draining, liquid state; body fluids contaminated with visible blood; and materials saturated/dripping with blood. Blood products shall not include feminine hygiene products.
- Pathological Waste. Human anatomical parts, organs, tissues and body fluids removed and discarded during surgery, autopsy, or other medical or diagnostic procedures; specimens of body fluids and their containers; and discarded material saturated with body fluids other than urine. Pathological waste shall not include: teeth and contiguous structures of bone without visible tissue, nasal secretions, sweat, sputum, vomit, urine, or fecal materials that do not contain visible blood or involve confirmed diagnosis of infectious disease.
- Culture and Stocks of Infectious Agents and Associated Biologicals. All discarded cultures and stocks of infectious agents and associated biologicals, including culture dishes and devices used to transfer, inoculate, and mix cultures, as well as discarded live and attenuated vaccines intended for human use, that are generated in: (a) Laboratories involved in basic and applied research (b) Laboratories intended for educational instruction or (c) Clinical laboratories.
- Contaminated Animal Waste. Contaminated carcasses, body parts, body fluids, blood or bedding from animals known to be:
  - (a) Infected with agents of the following specific zoonotic diseases that are reportable to the Massachusetts Department of Agricultural Resources, Bureau of Animal Health pursuant to 105 CMR 300.140:
    - African Swine Fever
    - Anthrax
    - Avian Influenza – H5 and H7 strains and any highly pathogenic strain
    - Bovine Spongiform Encephalopathy (BSE)

- Brucellosis
- Chronic Wasting Disease of Cervids
- Eastern Equine Encephalitis Virus
- Foot and Mouth Disease
- Glanders,
- Exotic Newcastle Disease
- Plague (*Yersinia pestis*)
- Q fever (*Coxiella burnetti*)
- Scrapie
- Tuberculosis
- Tularemia (*Francisella tularensis*)
- West Nile Virus

(b) Infected with diseases designated by the State Epidemiologist and the State Public Health Veterinarian as presenting a risk to human health

(c) Inoculated with infectious agents for purposes including, but not limited to, the production of biologicals or pharmaceutical testing.

- Sharps. Discarded medical articles that may cause puncture or cuts, including, but not limited to, all needles, syringes, lancets, pen needles, Pasteur pipettes, broken medical glassware/plasticware, scalpel blades, suture needles, dental wires, and disposable razors used in connection with a medical procedure.
- Biotechnology By-product Effluents. Any discarded preparations, liquids, cultures, contaminated solutions made from microorganisms and their products including genetically altered living microorganisms and their products.

**Storage:**

(A) Waste generators are responsible for containing and storing medical or biological waste (except sharps) in a primary containers which are red, fluorescent orange or orange-red and are impervious to moisture and have sufficient strength to resist ripping, tearing, or bursting under normal conditions of use and handling. Each primary container shall:

1. Be marked prominently with the universal biohazard warning symbol and the word "Biohazard" in a contrasting color; and
2. Be secured so as to prevent leakage and to preclude loss of contents during handling, storage, and/or transport.

(B) All areas for on-site storage of containers of medical or biological waste shall be in an uncarpeted room or area with impervious, cleanable, non-absorbent flooring and used exclusively for waste storage.

(C) All on-site storage areas shall:

- Have prominent signage indicating the space is used for the storage of regulated medical or biological waste.
- Be designed or equipped to prevent unauthorized access.
- Be designed or located to protect the waste from the elements and prevent access by vermin.
- Provide sufficient space to allow for clear separation of regulated medical or biological waste from any other waste, when applicable.
- Be adequate to accommodate the volume of regulated medical or biological waste generated prior to removal of waste for either waste transport off-site or on-site treatment.
- Be maintained such that there is no putrescence or off-site odors, using refrigeration when necessary.

(D) Sharps shall be segregated from other wastes and aggregated immediately after use in red, fluorescent orange or orange-red leakproof, rigid, puncture-resistant, shatterproof containers that resist breaking under normal conditions of use and handling, and that are marked prominently with the universal biohazard warning symbol and the word “Biohazard” in a contrasting color. These containers are available from the Office of Environmental Health and Safety (EHS) or can be purchased by the individual(s) producing the waste. Containers used for collection cannot exceed 20 inches in height and 16 inches in width. This restriction is necessary because sharp containers are transferred intact into another box prior to disposal. Other types of waste must be contained and stored in containers provided by the generators. Only authorized persons working in the lab shall have access or contact with such waste.

(E) Free draining blood and blood products and biotechnology by-product effluents shall be stored at all times in leakproof containers that are securely sealed.

(F) Compactors or grinders shall not be used to process medical or biological waste until it has been rendered noninfectious and safe for disposal.

(G) All medical or biological waste, except from home sharps users, must be treated on-site or transported off-site for treatment at a minimum once per calendar year.

**Disposal.** The following methods of treatment and disposal are currently acceptable for the handling of infectious waste at Northeastern University:

- Steam sterilization
- Chemical disinfection
- Incineration at an approved incineration facility
- Any other method approved in writing by the Massachusetts Department of



## Public Health

EHS will provide labels with the University's name, address and phone number, for all infectious waste that is treated on campus. These labels will be used to identify the material as noninfectious and will meet all the labeling requirements in the regulation. The black bags are not autoclavable. Generators will still be required to provide their own autoclave bags when handling and treating the waste on site. These bags must be clear, three mil thick and must not have a biohazard symbol or the word "biohazard" written on them. All wastes not treated on campus and to be sent out for treatment and disposal will be placed in shipping containers provided by EHS. Generators authorized to ship out containers on their own must receive special training from EHS. The Regulated Medical Waste Shipping Training is provided as an online course available from our website [www.northeastern.edu/ehs/training](http://www.northeastern.edu/ehs/training).

A procedure for shipping these containers is outlined in section six. In addition, the following wastes identified below must be handled in the following manner:

### Blood and Blood Products

Since Northeastern University is connected to a municipal sewerage system, free draining blood and blood products except blood-saturated materials may be disposed of into this system. This method is not presently restricted by the Massachusetts Water Resources Authority (MWRA). If the above method is not practical or it should become prohibited by the MWRA, blood and blood products, except blood saturated materials, shall be placed in a 3 mil red/orange biohazard bag and transferred into an infectious/biohazard box provided by EHS. Once properly packaged and manifested they will be scheduled by EHS to be sent to an approved treatment facility. They may also be rendered noninfectious by chemical or steam disinfection/autoclaving and placed in a disposal bag, labeled with an autoclave waste label provided by EHS and discarded as regular rubbish. This method is preferred, as it will limit disposal costs for the University.

### Sharps

Containers of sharps will be disposed of at an approved treatment and disposal facility. The sharps disposal site coordinator will handle scheduling or requests for disposal. Properly containerized sharps may be dropped-off at the designated sharps drop-off location. A list of designated sharps container disposal locations can be found on our website:

<https://www.northeastern.edu/ehs/wp-content/uploads/2016/05/Sharps-Disposal-Locations-May-2016.pdf>. Detailed information for disposing of sharps can be obtained on the EHS website [Sharps Disposal Fact Sheet](#). For answers to your questions, contact [ehs@northeastern.edu](mailto:ehs@northeastern.edu).

### Blood Saturated Materials, and Cultures and Stocks of Infectious Agents and Associated Biologicals

These wastes shall either be rendered noninfectious on site by steam sterilization, incineration, or in the case of liquids, chemical disinfection. Once this waste has been treated as above they must be put into an additional labeled, four mil black disposal bags provided by EHS. If on-site treatment is not available, wastes should be placed in a second three-mil red/orange biohazard bag and transferred into a biohazard box provided by EHS or the medical/biological waste vendor. Once properly packaged, labeled and the site coordinator is notified, arrangements will be made to transport the material to an approved treatment and disposal facility.

### Biotechnology By-product Effluents

The Northeastern University Institutional Biosafety Committee has oversight over all recombinant DNA use on campus. These wastes shall not be removed from Northeastern University unless the viable organisms containing recombinant DNA molecules have been rendered noninfectious by a validated method. The following methods have been approved for this material:

- Steam sterilization
- Chemical disinfection

Autoclave users will evaluate the methods that rely on heat mechanically and biologically by using a recording thermometer and indicator microorganisms with defined heat susceptibility pattern. [Autoclave Procedures](#) are available for information on conducting autoclave testing, and can be obtained on the EHS website. If these wastes are rendered noninfectious by chemical disinfection, the chemical used shall be of demonstrated efficacy against the target or indicator organism and must be an EPA registered disinfectant. Once rendered noninfectious, biotechnology by-product effluents may be disposed of directly into the waste generator's connection to the municipal sewerage system unless such disposal is otherwise restricted at a later date. EHS should be contacted to determine whether treatment has rendered the material appropriate for this manner of disposal. If the generator of the waste becomes prohibited from disposing of biotechnology by-product effluent through the municipal sewerage system, then the waste will be rendered noninfectious and disposed of in a manner designated by EHS.

### PATHOLOGICAL WASTE AND CONTAMINATED ANIMAL CARCASSES

These wastes must be doubled bagged in red, labeled biohazard bags and

placed in a box provided by our approved vendor for incineration at an approved treatment and disposal facility. EHS will assist with scheduling of disposal activities and assure generators fill out manifests correctly.

## **Labeling**

Every container or bag of waste, which has not been rendered noninfectious, shall be distinctly marked with the international biohazard symbol and colored red to indicate that it contains potentially biohazardous waste. Sharps waste must be distinctly labeled to indicate that it contains sharp waste capable of inflicting punctures or cuts. Every container or bag of waste which has not been rendered noninfectious and which will be transported off the premises of the waste generator shall in addition to the requirements of this section be placed in boxes, which are:

- a) rigid
- b) leak resistant
- c) impervious to moisture
- d) of sufficient strength to prevent tearing or bursting under normal conditions of use and handling
- e) sealed to prevent leakage during transport

Each box shall bear a label that states the name, address and telephone number of the generator. The label shall be affixed in a manner, which ensures that it cannot be easily removed. Boxes meeting these requirements will be available through EHS. In addition to the labeling on the box, the outer bag inside the box is required to have a label with the same information. A hazardous waste disposal label used in our chemical waste program will be appropriate to meet this requirement. Prior to transport for off-site disposal, waste, which has been rendered noninfectious by a method other than incineration, shall be placed in a black four-mil disposal bag so as to clearly identify it as non-biohazardous and to identify the waste generator responsible for the treatment. Once clearly signed, bagged and sealed, such waste may be disposed of in the same manner as regular rubbish handled by the Building Services Department. The generator will be required to clearly sign the disposal bag in the appropriate area.

## **Record Keeping**

The generator shall maintain records of temperature and dwell times used in each instance where waste has been rendered noninfectious by gas or steam sterilization. There will be a log sheet at each autoclave for the generator to fill out to record this information. Each department utilizing an autoclave to render waste noninfectious in order to verify efficiency of the autoclave will routinely do biological spore tests. The Northeastern University fact sheet for autoclave testing outlines this procedure in detail. The above records must be stored and

retained for at least three years. The generator shall also maintain records of volume and type of waste rendered noninfectious on-site which shall be available for EHS review. EHS will provide a standard form for all generators to use. Again such records shall be retained for at least three years. EHS will accept such records for storage.

### **Shipping Infectious Waste**

Only personnel trained and approved by EHS are allowed to ship out biohazardous waste from Northeastern University. Shipping boxes are limited to eighty pounds maximum capacity. All boxes must be lined with bags provided by our approved vendor. Sharps placed into these shipping containers must be contained in sharps containers. These bags must be tied off before closure and the outer bag must be labeled with the generators name, address and telephone number. The vendor will refuse unlabeled, bulging, crushed, or leaking boxes. Manifests must be filled out for all shipments and a copy must be sent to EHS.

### **Manifests**

EHS will assist generators in preparing manifests when necessary. The generator shall appoint a designee to prepare and sign the manifest. Original copies must be sent to EHS so that they are available for various record keeping needs. Manifests provided by EHS will include the following information:

- a) Description of waste to be shipped;
- b) Total quantity of waste; and
- c) Type of container in which waste is transported

The Massachusetts Department of Public Health off-site treatment record-keeping log will be maintained at EHS.

### **Waste Minimization**

The U.S. Congress has made waste minimization a national policy and goal of each waste generator. The generator of biohazardous waste has the responsibility to minimize the amount of waste generated. Waste minimization has benefits such as decreasing exposure to biohazardous materials, protection of the environment, and the overall reduction in the cost of disposal, which continues to rise every year.

If you have any questions or would like assistance with ideas for waste minimization, please contact the Office Environmental Health and Safety at 617.373.2769.

*Northeastern University Procedure for the Disposal of Sharps*

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## **General**

The State of Massachusetts regulates "Sharps" as medical or biological waste and defines them as follows: Discarded medical articles that may cause punctures or cuts, including but not limited to, all needles, syringes, lancets, pen needles, Pasteur pipettes, broken medical glassware/plasticware, scalpel blades, suture needles, dental wires, and disposable razors used in connection with a medical procedure.

## **Segregation and Collection**

Sharps that are handled as medical or biological waste shall be segregated from other wastes and aggregated immediately after use in red, fluorescent orange or orange-red leakproof, rigid, puncture-resistant, shatterproof containers that resist breaking under normal conditions of use and handling, and that are marked prominently with the universal biohazard warning symbol and the word "Biohazard" in a contrasting color. These containers are available from the Office of Environmental Health and Safety (EHS) or can be purchased by the individual(s) producing the waste. Containers used for collection cannot exceed 20" in height and 16" in width. This restriction is necessary because sharp containers are transferred intact into another box prior to disposal.

## **Disposal**

Containers of sharps will be disposed of at an approved treatment and disposal facility designated by EHS. [Designated drop-off locations](#) have been established in many of the autoclave facilities on campus. These locations will also function as a sharps distribution site for users in that building or adjacent buildings. Each location has a designated site coordinator who is responsible for packaging the waste for shipment, managing the site and scheduling waste pickups.

## **Non-biohazardous Glassware**

Broken and unbroken non-medical glassware that is not biohazardous, does not have to be handled as biohazardous waste. It does, however, represent a physical hazard to those handling or disposing of the material. This type of glassware should be placed in standard glass disposal boxes, which are available through many scientific and safety supply catalogs, or any box lined with a bag and marked prominently on four sides with "CAUTION, BROKEN/UNBROKEN GLASS" may be used.

## **Radioactive Contamination**

Sharps containing radioactive material should be decayed until no longer radioactive (10 half-lives) and disposed of as per above, or placed in sharps containers and disposed of through the radioactive waste stream. Sharps handled in this manner should not have any of the other characteristics of

medical or biological waste as defined in the [Northeastern University Procedure for Disposal of Medical or Biological Waste](#). If the biological waste characteristics exist, the material should be treated (e.g. chemical, autoclave) before the above waste management practices are implemented. All treatment methods must be approved by EHS, as some could result in volatilization of vapors containing radioactivity. The Biosafety Officer and Radiation Safety Officer at EHS (x2769) should be contacted for specifics on this waste stream.

### **Hazardous “Chemical” Contamination**

Sharps contaminated with only trace amounts of hazardous "chemical" materials and not meeting the definition of hazardous waste as defined in 310 CMR 30.00, may be disposed of through the medical or biological waste stream. Sharps containing significant amounts of hazardous "chemical" materials and meeting the definition of hazardous waste will have to be disposed of as a hazardous "chemical" waste. Sharps handled in this manner should not have any of the other characteristics of medical or biological waste as defined in the [Northeastern University Procedure for Disposal of Medical or Biological Waste](#). If medical or biological waste characteristics exist, then certain waste management practices may be necessary before disposal can be arranged. The Biological Safety Officer and Hazardous Waste Manager at EHS (x2769) should be contacted for specifics on this waste stream.

### **Questions**

If it is not clear in what particular hazard category your waste stream falls into, then the Biological Safety Officer at EHS (x2769) should be contacted for assistance in classifying the waste for disposal.

## Appendix D

Below is a link to the U.S. Department of Labor – Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard 29 CFR 1910.1030:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051)

## Appendix E

### *Chemical Disinfectants*

<b>Disinfectant</b>	<b>Working Solution</b>	<b>General Use</b>
Bleach	10%	Disinfect work areas, floors, walls and glassware. Disinfect liquid culture for disposal
Quaternary Ammonia	10 – 100 ppm	Disinfect floors, work surfaces and glassware
Phenolics	2.8 – 3.0 %	Disinfect instruments and work surfaces
Glutaraldehyde	2 – 3 %	Disinfects instruments including endoscopic tubes.
Isopropyl Alcohol	70 – 85 %	Disinfect work surfaces and equipment; antiseptic and non-corrosive.
Ethyl Alcohol	70 – 85 %	Disinfect work surfaces and equipment; antiseptic, low toxicity and non-corrosive
Iodophor	75 – 150 ppm	Disinfect instruments and surfaces; non-corrosive



## Appendix F

### *Student Procedure*

Students who are not employees are not covered by the exposure control plan (ECP). Faculty are required to communicate the pertinent aspects of this standard and other relevant standards before allowing a student to engage in a hazardous activity and this communication must be documented by the faculty member.

Department administrators must identify those courses and laboratory work that involve any reasonably anticipated exposure of students to blood or other potentially infectious material (OPIM). Students who will be using blood or OPIM in their academic coursework or laboratory work must be informed of the epidemiology and transmission modes of HIV, Hepatitis B Virus and Hepatitis C Virus. Additionally, students must be trained in the safe work practices, including use of personal protective equipment (PPE), which will reduce their likelihood of becoming exposed. This training must take place prior to any procedures where blood or OPIM is used. Faculty and/or staff supervising these laboratories are responsible for the training.

Students must be trained and required to use appropriate PPE for any course or laboratory activity involving blood or OPIM. Faculty and/or staff supervising students must ensure that safe work practices are followed.

Students who have reasonably anticipated exposure to blood or OPIM must be provided with information about the Hepatitis B vaccination before they are permitted to participate in courses or laboratories where exposure may occur. Northeastern University will not cover the cost of student immunization. Students in programs where occupational exposure to blood is likely should obtain the Hepatitis B vaccination series as a condition for enrolling in the program.

Students must be made aware of post-exposure follow-up procedures as part of their training on bloodborne pathogens. Post-exposure follow-up should be initiated by the faculty and/or staff supervisor and will typically be provided by Northeastern University's Health and Counseling Services (UHCS). For curricula that involve an off-site internship or clinical experience with an affiliate healthcare institution, the procedure and responsibility for post-exposure follow-up should be clearly described in the affiliation agreement. Testing, counseling and follow up care for students exposed to bloodborne pathogens during clinical placements are provided at no cost to the student.

## Appendix G

### Biosafety References

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6. The Foundations of Laboratory Safety, A Guide for the Biomedical Laboratory. S.R. Rayburn, Springer-Verlag, 1990.
7. NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, March 5, 2013, 77 FR 54584.
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12. Safety Standards for Research Involving Oncogenic Viruses, NCI, 1974.
13. Universal precautions for the prevention of transmission of human immunodeficiency virus, hepatitis B virus and other bloodborne pathogens in health-care settings. MMWR 1988; 377-82, 387-88.
14. 2007 guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings. CDC  
<http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html>
15. Laboratory management of Agents Associated with Hantavirus Pulmonary Syndrome: Interim Biosafety Guidelines. MMWR May 13, 1994/Vol. 43/RR-7.

16. Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities, 2005. MMWR December 30, 2005/Vol. 54/RR-17

17. Bloodborne infectious diseases: HIV/AIDS, hepatitis B, hepatitis C. CDC  
<http://www.cdc.gov/niosh/topics/bbp/>

## Appendix H: Annual Review

The Northeastern University Bloodborne Pathogens Control Committee reviews the ECP annually. As a result of this review the ECP is updated and revisions are noted. The committee consists of representatives from EHS, UHCS and other applicable departments as evidenced by the signature page of this document. The annual review of this plan was completed by:

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Director of Environmental Health and Safety:

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name: \_\_\_\_\_