



ENVIRONMENTAL HEALTH & SAFETY  
VIRGINIA TECH.

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# EXPOSURE CONTROL PLAN

A Safety Manual Regarding Potential Occupational Exposure to  
Bloodborne Pathogens

**2020**

**Environmental Health and  
Safety**

**540-231-3600**




## Revision Status

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Deborah Young	November 1997	2.0	Rewritten to reflect major programmatic changes
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Sarah P. Owen	January 2019	12.0	Annual review, update information, update/edit dept template: repair a broken link, add spill cleanup, incident/exposure reporting and clean up formatting
Sarah P. Owen	April 2020	13.0	Annual Review, move to updated template

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# Introduction

## Environmental Health and Safety (EHS) Information

EHS actively promotes a positive, responsible, integrated safety culture at all levels of the university community, advocates providing a safe and healthy living, learning, and working environment for all, and assists departments with complying with regulations and mandates.

## Purpose

To comply with the Occupational Safety and Health Administration regulation: 29 CFR 1910.1030, “Bloodborne Pathogens”. For a copy of this regulation, go [www.osha.gov](http://www.osha.gov).

1. To provide safety policies for the protection of Virginia Tech employees who have a potential for occupational exposure to bloodborne pathogens, such as Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and Hepatitis C Virus (HCV), among others.
2. To establish a program which provides Virginia Tech employees with the following services:
  - a. Pertinent information
  - b. Training on safe work practices, engineering controls, and university policies related to occupational exposure
  - c. An offer of free Hepatitis B vaccination
  - d. Post exposure prophylaxis (PEP), testing, other necessary services following an exposure incident

## Application

The Exposure Control Plan (ECP), developed by Environmental, Health & Safety (EHS), at Virginia Tech is intended for distribution university-wide. Each department having employees at risk shall develop specific policies and procedures for the department. This plan describes engineering controls, work practices, and personal protective equipment that, when used correctly, reduces on-the-job exposure to human blood and other potentially infectious material (OPIM). Also described are the university’s training, vaccination, and incident reporting programs.

## Scope

The Bloodborne Pathogens program is designed to provide service to employees with occupational exposure to other peoples' body fluids. These at risk job duties include but are not limited to:

Occupations	Job Tasks
Medical Staff (Physicians, Nurses, Athletic Trainers)	<ul style="list-style-type: none"> <li>• Patient care</li> <li>• Cleaning operations where potentially infectious materials may be present</li> <li>• Cleaning blood or other body fluid spills</li> </ul>
First Responders (Police, Rescue Squad)	<ul style="list-style-type: none"> <li>• Patient care</li> <li>• Contact with victims or perpetrators</li> <li>• Employees with designated first aid or medical assistance duties</li> <li>• Cleaning blood or other body fluid spills</li> </ul>
Housekeepers	<ul style="list-style-type: none"> <li>• Cleaning operations where potentially infectious materials may be present</li> <li>• Response to blood spills and similar events</li> </ul>
Plumbers and utility workers	Work involving sanitary sewer systems
Regulated Medical Waste Operations	Waste collection, handling and disposal
Animal Care for animals that have been exposed to human material (such as, but not limited to, human cell lines and viral vectors)	<ul style="list-style-type: none"> <li>• Patient care</li> <li>• Cleaning operations where potentially infectious materials may be present</li> <li>• Animal husbandry</li> </ul>
Research and Clinical Laboratory Operations	<ul style="list-style-type: none"> <li>• Diagnostic or other screening procedures performed on blood or other potentially infectious materials</li> <li>• Phlebotomy</li> <li>• Research involving unfixed human tissue, blood, other fluids or human cell lines</li> </ul>

# Responsibilities

## Environmental Health and Safety

Environmental Health and Safety will be responsible for coordinating the following program elements.

- Identification of “at risk” employees
- Providing introductory training classes
- Providing annual refresher classes for employees
- Maintaining records of training and vaccination for all program participants.
- Funding the Hepatitis B vaccinations of “at risk” employees
- Providing post-exposure follow-up, to include recordkeeping and infection prophylactic services
- Creating, distributing, and revising (annually or as regulations/recommendations change) the university-wide Exposure Control Plan
- Operating a Regulated Medical Waste disposal program, in compliance with state Department of Environmental Quality regulations.
- Oversight of departmental compliance.

## Departments

Each department that contains employees with risk of occupational exposure to human blood or OPIM will have the following compliance responsibilities and functions.

- Assigning accountability to implementation coordinators and/or supervisory personnel. Supervisors of employees with occupational exposure to blood and body fluids should have this responsibility listed in the Personnel Performance Plan and Evaluation forms.

- Circulating Exposure Control Plans.
- Funding and Providing Personal Protective Equipment, as needed.
- Notifying EHS and the Institutional Biosafety Committee (IBC) before establishing research with human cell lines, blood, OPIM, or significant infectious organisms
- Notifying EHS of employee turnover. Contacting EHS to enroll new hires in the program, within 2 days of the date of hire.
- Ensuring that new hires attend BBP training within 10 days of start date or do not engage in activities with potential exposure until they have had the introductory training.
- Encouraging full participation of all “at risk” employees, to include:
  - ❖ Allowing attendance at training sessions, during normal work hours
  - ❖ Requiring familiarity with the Exposure Control Plan
  - ❖ Requiring that employees follow safe work practices
  - ❖ The following departments have been identified by EHS as having “at risk” employees:
    - Adult Day Services
    - Athletics
    - Biology
    - Biochemistry
    - Chemistry
    - College of Veterinary Medicine
    - Engineering
    - Environmental, Health and Safety
    - Facilities Housekeeping and Maintenance
    - Family & Child Development
    - Human Nutrition, Foods, and Exercise
    - Lab Animal Resources



Police

Recreational Sports Staff

Rescue Squad

Student Affairs Housekeeping and Maintenance

Student Health Services

## Implementation Coordinators

- Definition: Each of the departments mentioned above should appoint an “Implementation Coordinator.” This individual will be responsible for ensuring that the Exposure Control Plan is complete and accessible. Completion of the ECP involves inserting department-specific policies and procedures where indicated. Accessibility means that all at-risk employees shall be informed of the location of the departmental ECP and shall be encouraged to read its contents.
- In the absence of an appointed Implementation Coordinator, these duties will fall to supervisors of “at risk” employees.
- Summary of responsibilities:
  - ❖ Receiving university ECP
  - ❖ Completing department-specific sections of ECP
  - ❖ Storing ECP in accessible location
  - ❖ Communicating ECP location to all “at risk” employees
  - ❖ Reviewing and updating department-specific sections annually, or earlier if work processes change.
  - ❖ Conducting annual review sessions with employees

## Supervisors

Virginia Tech employees who supervise “at risk” employees have certain responsibilities under this plan. They are to act as implementation coordinators in departments where no one has been assigned to that role. Also, they need to ensure that newly hired employees receive the introductory training and the freedom to receive the vaccinations during normal work hours. Supervisors also need to provide personal protective equipment, such as gloves, for employees. Also, supervisors need to be familiar with reporting requirements in the event of an exposure incident.

In summary, supervisors:

- Contact EHS when new employees are hired (within 2 days)
- Allow employees to get Hepatitis B vaccinations during normal work hours
- Provide gloves and other protective equipment to employees
- Report exposure incidents to EHS and assist with report paperwork such as Employer’s Accident Report (EAR) and any other incident reports forms

## “At Risk” Employees

- Definition: every employee that can reasonably anticipate exposure to blood or other potentially infectious materials has certain compliance responsibilities.
- Responsibilities under this plan:
  - ❖ Attending training sessions
  - ❖ Complying with procedures outlined in this plan
  - ❖ Adhering to Universal Precautions
  - ❖ Reporting exposure incidents to supervisors and EHS

## Contractors

Contractors must follow procedures outlined in the “Virginia Tech’s Safety Guide for Contractors and Subcontractors” document, found at:

[http://www.ehss.vt.edu/programs/contractor\\_safety.php](http://www.ehss.vt.edu/programs/contractor_safety.php)

# Methods of Exposure Control

To keep employees safe from exposure to infectious diseases found in blood, such as Hepatitis B Virus, Human Immunodeficiency Virus, and Hepatitis C Virus, there are certain procedures and tools. The topics below are explained in detail in the following pages.

1. Universal Precautions
2. Engineering Controls
3. Work Practice Controls
4. Personal Protective Equipment
5. Housekeeping
6. Laundry Practices
7. Labels and Signs
8. Supervisors, PI's or Lab managers create a work group-specific Exposure Control Plan or complete the ECP template on page 37 for your respective work groups. A fillable Word version of the ECP template is available at:  
[https://www.ehss.vt.edu/programs/blood\\_borne\\_pathogens.php](https://www.ehss.vt.edu/programs/blood_borne_pathogens.php)

## 1. Universal Precautions

A method of infection control—recommended by the CDC—in which all human blood, certain body fluids, as well as fresh tissues and cells of human origin are handled as if they are known to be infected with HIV, HBV, and/or other blood-borne pathogens.

Specific Actions:

- Assume that all human origin blood is positive for HIV, HBV, and HCV.
- Assume that all other human fluids/tissues are also infectious.
- When it's difficult to differentiate, treat ALL human origin fluids as potentially infectious.
- Assume that all individuals are carrying these disease organisms.
- Avoid skin contact with human blood & other potentially infectious materials.
- Avoid eye, nose, & mouth contact with human blood and other potentially

- infectious materials (OPIM).
- Avoid punctures/sticks with contaminated sharp objects.

## 2. Engineering Controls

The first and best strategy is to control the hazard at its source. Engineering controls do this, unlike other controls that generally focus on the employee exposed to the hazard. Engineering controls, to the extent feasible, protect the work environment and the job itself by eliminating hazards or reduce exposure to hazards. These safety controls shall be used, in conjunction with Work Practice Controls, to eliminate or minimize employee exposure.

Devices/equipment shall be inspected and maintained on a regular basis by the Implementation Coordinator, or designee. Worn parts and equipment shall be replaced as soon as indicated through the inspection process.

See below for some common engineering controls used to protect employees from bloodborne pathogens.

### **Handwashing Facilities**

Each department shall provide readily accessible handwashing facilities. This means that there must be a facility to supply adequate running water, soap, and single-use towels or hot-air drying machines.

### **Alternate Handwashing Devices**

When running water handwashing facilities are not feasible, the department shall provide either an appropriate waterless hand cleanser with clean cloth/paper towels OR skin cleansing wipes. Alternate handwashing must be followed up with a soap and water wash as soon as possible.

### **Biosafety Cabinets (BSC)**

Individuals working with human cell lines or other human origin material should conduct their work in a BSC as often as possible. This engineering control prevents employee exposure by creating an air stream to pull aerosolized infectious particles into a High Efficiency Particulate Air (HEPA) filter. In addition, the sash of the BSC is a barrier that prevents employee exposure to aerosolized infectious particles from the biological material.

### **Needle and Scalpel Safety Devices**

Departments using medical sharps must make all reasonable attempts to implement the use of these safety devices, instead of traditional sharps. There are many products on the market that are designed to prevent needle and scalpel stick injuries.

Desirable features of Needle/Scalpel Safety Devices:

- The safety feature is an integral part of the device.
- The device works passively (requires no activation by the user).

- The user can easily tell whether the safety feature is activated.
- The safety feature cannot be deactivated and remains protective throughout disposal.
- The device is easy to use and practical.
- The device is needless.

Some examples:

- Needle-less connectors for IV delivery systems (e.g., blunt cannula for use with pre-pierced ports and valved connectors that accept tapered or luer ends of IV tubing)
- Protected needle IV connectors (e.g., the IV connector needle is permanently recessed in a rigid plastic housing that fits over IV ports)
- Needles that retract into a syringe or vacuum tube holder
- Hinged or sliding shields attached to scalpels, phlebotomy needles, winged-steel needles, and blood gas needles
- Protective encasements to receive an IV stylet as it is withdrawn from the catheter
- Sliding needle shields attached to disposable syringes and vacuum tube holders
- Self-blunting phlebotomy and winged-steel needles (a blunt cannula seated outside of the phlebotomy needle is advanced beyond the needle tip before the needle is withdrawn from the vein)
- Retractable finger/heel-stick lancets

Some models:

NOW  
YOU SEE IT.



NOW  
YOU DON'T.



## PROTECT YOURSELF AND OTHERS- USE SHARPS WITH SAFETY FEATURES

**BE PREPARED.** Anticipate injury risks and prepare the patient and work area with prevention in mind. Use a sharps device with safety features whenever it is available.

**BE AWARE.** Learn how to use the safety features on sharps devices.

**DISPOSE WITH CARE.** Engage safety features immediately after use and dispose in sharps safety containers.



Sharp is a registered trademark used here as a general illustration provided by Fisher Scientific, Franklin, Pa. © 2008 Becton Dickinson and Company. All rights reserved. Sharps Safety is a registered trademark of Becton Dickinson and Company. All rights reserved. © 2008

### Sharps Containers:

Proper containers for storage of contaminated sharps shall be provided by the departments. They shall meet the following description:

1. Puncture resistant
2. Closeable
3. Leakproof
4. Labeled (Biohazard) or color-coded (orange/red)



### Splash Guards:

For tasks that will be done outside of a BSC while using laboratory equipment that can potentially vaporize or splash blood should be equipped with a splashguard or similar protective device.



### Resuscitation Masks:

Shall be available to all First Responders. These devices are applied to patients to prevent fluid exchange during the administration of Cardiopulmonary Resuscitation.



### 3. Work Practice Controls

Work practice controls are procedures that employees need to follow in order to keep themselves safe. These required procedures are to be followed by all “at risk” employees and shall be enforced by all departments.

#### Hand/Skin Washing

It is extremely important that all at-risk employees follow strict hand/skin washing procedures at the following times:

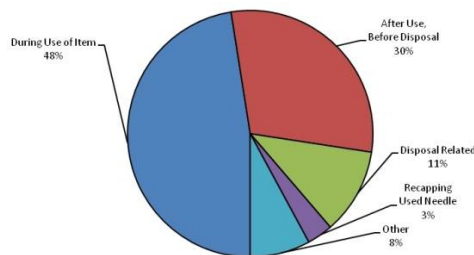
1. After removing gloves or other Personal Protective Equipment
2. Following contact with blood or OPIM

Hands and other skin areas shall be washed with soap and water OR an appropriate option noted on p. 13. Mucous membranes shall be flushed with copious amounts of water (at least 15 minutes of flushing).

When an alternate method is used, washing with water and soap must follow as soon as possible.

#### Sharps Handling

- Avoid Risky Work Practices:  
Injuries are also closely associated with certain work practices that can pose an increased risk of bloodborne pathogen exposure. These work practices include:
  - ❖ Disposal-related activities (11%)
  - ❖ Activities after use and prior to disposal, such as item disassembly (30%)
  - ❖ Recapping a used needle (3%)



Activities associated with percutaneous injuries in EPINet hospitals, by % total percutaneous injuries (n= 951), 2007 (Source: [EPINet \[2009\]](#)).

Exposure can occur if sharps are not properly disposed of in puncture-resistant sharps containers.

If recapping cannot be avoided, it must be accomplished through the use of a mechanical device, such as forceps. The one-hand scoop method is allowed, if done safely.

## *Scooping Method*



1. Place cap on hard flat surface.

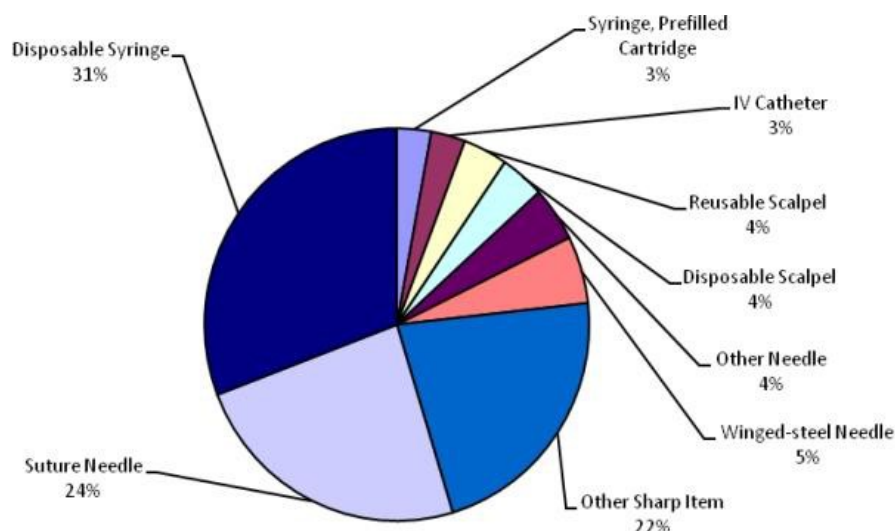


2. Scoop cap with end of needle so that the cap is sitting on the needle.



3. Press the cap and needle on the hard flat surface until the cap snaps into place.

- Avoid Risky Devices:  
Injuries are also closely associated with certain devices that can pose an increased risk of bloodborne pathogen exposure. These devices include:
  - ❖ Disposable Syringe (31%)
  - ❖ Suture Needle (24%)
  - ❖ Winged Steel Needle (5%)



Devices associated with percutaneous injuries in EPINet hospitals, by % total percutaneous injuries (n= 951), 2007 (Source: [EPINet \[2009\]](#)).

- Minimize Splashing:  
All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets.
- Avoid Ingestion:
  - ❖ Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are strictly prohibited in work areas where there is a reasonable likelihood of occupational exposure. Use of hand cream is acceptable if it does not interfere with work tasks.
  - ❖ Food and drink shall not be kept where blood or other potentially infectious materials are present
  - ❖ Mouth pipetting/suctioning of blood or OPIM is prohibited.

- Avoid Hand to Face Contact:  
*Never touch your face with gloved hands.* Hand to face contact is a reflex action that adults perform up to 20 times per hour. This contact can create a significant risk for self-infection from infectious organisms on skin or gloved hands.  
<https://www.ncbi.nlm.nih.gov/pubmed/25637115>
  
- Avoid Contaminating Personal Items or Surfaces that will be handled bare handed.
  - ❖ When gloved, never handle personal items such as cell phone or keys
  - ❖ When gloved, never reach into the pockets of personal clothing
  - ❖ When gloved, avoid reaching into lab coat or coverall pockets unless you will never do this with bare hands
  - ❖ When gloved, avoid touching surfaces that others will normally handle bare handed (such as door knobs, items in drawers or storage rooms, pens/pencils, chairs, tables)
  
- Dealing with Contaminated Equipment:  
The following procedures shall be followed when having potentially contaminated equipment serviced:
  1. Look for evidence of contamination.
  2. Decontaminate if necessary and feasible.
  3. If decontamination is NOT feasible, label equipment with BIOHAZARD label.
  4. Include on the label which parts are contaminated.
  5. Convey information to affected employees and servicing representative prior to shipping, so that precautions can be taken.

## 4. Personal Protective Equipment

Where occupational exposure remains after the implementation of Engineering and Work Practice Controls, Personal Protective Equipment (PPE) shall also be used.

Departments shall provide, at no cost to the employee, appropriate Personal Protective Equipment including, but not limited to:

GLOVES

GOWNS  
 LAB COATS  
 COVERALLS  
 FACE SHIELDS  
 MASKS  
 EYE PROTECTION  
 MOUTHPIECES  
 RESUSCITATION BAGS  
 POCKET RESUSCITATION MASKS  
 MECHANICAL RESPIRATORY DEVICES

PPE is considered appropriate if it is needed for, and is capable of, preventing blood or other fluids from passing through to the employee's clothing, skin or mucous membranes.

Departments shall ensure proper use, accessibility, cleaning, disposal, repair and replacement of PPE.

Employees must remove PPE before leaving the work area or whenever the PPE has become visibly soiled with blood or other potentially infectious materials. Used PPE shall be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.

**GLOVES:**

Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with human blood or other fluids or when performing phlebotomy or when handling contaminated items.

**Guidelines for Glove Use:**

<b>GLOVE TYPE:</b>	<b>WASHABLE?</b>	<b>DECONTAMINATE?</b>	<b>WHEN TO DISCARD:</b>
Disposable	NO	NO	torn, punctured, contaminated
Utility	YES	YES	cracked, peeling, torn, punctured, deteriorating

## FACE AND EYE PROTECTION:

Masks, goggles, glasses, and face shields are to be worn whenever splashes, spray, spatter, or droplets of blood or OPIM may be generated and eye, nose or mouth contamination can be reasonably anticipated.

## BODY PROTECTION:

Gowns, aprons, lab coats, clinic jackets, coveralls, and other protective body clothing are to be worn in occupational exposure situations when appropriate. The type and characteristics of the PPE will depend upon the task and degree of exposure anticipated.

## 5. Housekeeping

All worksites are to be maintained in clean and sanitary conditions at all times. To meet the OSHA regulation requirements, each work area must establish a written cleaning schedule. All such schedules should be placed in an accessible location for employees to refer to as needed.

- **Methods:**  
Following is a table of Cleaning/Reprocessing methods recommended by the Centers for Disease Control (CDC) (see p. 24). Decontamination methods can be selected according to that information.
  
- **Frequency:**  
Decontamination/Cleaning of surfaces and equipment shall be performed at the following times:
  1. At the frequency determined in the written schedule
  2. Following a contamination incident
  3. Following routine procedures that may cause contamination
  4. At the end of work shifts, if contamination may have occurred since last cleaning
  
- **What to clean:**  
The following are surfaces that are likely to need decontamination:
  - ❖ Frequently touched surfaces (door handles, stair rails); frequency may be increased during flu season
  - ❖ Lab equipment
  - ❖ Bench/counter tops
  - ❖ Receptacles intended for reuse, that may store bloody material
  - ❖ Large areas (such as Biosafety Cabinets, ambulance interiors, entire lab room)

- Other Notes on Housekeeping:

1. Protective coverings shall be removed and replaced as soon as feasible when they become obviously contaminated or at the end of the workshift if they may have become contaminated during that shift. Coverings include:

- Plastic wrap

- Aluminum

- Foil

- Imperviously-backed absorbent paper

2. Broken glass must not be picked up directly with the hands. It must be cleaned up mechanically. Use a brush and dust pan, tongs, or forceps.
3. Employees must never put their hands into containers of contaminated sharps.

## CLEANING/DECONTAMINATION METHODS

(Source: Morbidity & Mortality Weekly Report, 6/23/89; CDC)

Sterilization	Destroys:	All forms of microbial life, including high numbers of bacterial spores
	Methods:	Steam under pressure (autoclave) Gas (ethylene oxide) Immersion in EPA-approved chemical for prolonged period (e.g.6-10 hours) or according to manufacturer instructions
	Use:	Instruments used to penetrate skin or to contact sterile body parts
High-level Disinfection	Destroys:	All forms of microbial life EXCEPT high numbers of bacterial spores
	Methods:	Hot water pasteurization (80-100° C, 30 min) Exposure to EPA-approved chemical "sterilant" for 10-45 min or as direct.
	Use:	Reusable instruments or devices that come in contact with mucous membranes
Intermediate-Level Disinfection	Destroys:	Mycobacterium tuberculosis Vegetative bacteria Most viruses Most fungi DOES NOT kill bacterial spores
	Methods:	EPA-registered "hospital disinfectant" chemical germicides that label a claim for tuberculoid activity Commercially available chemicals that contain at least 500ppm free available chlorine (a 1:100 dilution of bleach) (¼ cup bleach per gallon tap water)
	Use:	Surfaces that contact skin AND have been contaminated with blood or fluids. (surfaces must be wiped off prior to using above germicides)
Low-level Disinfection	Destroys:	Most bacteria Some viruses Some fungi NOT Mycobacterium tuberculosis or spores
	Methods:	EPA-registered "hospital disinfectant" without label claim of tuberculoid activity.
	Use:	These agents are excellent cleaners and can be used for routine housekeeping in "at risk" work areas.



## 6. Laundry—Proper Practices

### Handling:

1. Contaminated laundry shall be handled as little as possible.
2. Employees that have contact with contaminated laundry must wear protective gloves and other appropriate personal protective equipment.
3. Employees should not to take contaminated clothing or PPE home for laundering. The department should arrange to have contaminated clothing or re-useable PPE cleaned.

### Storage:

1. Contaminated laundry shall be bagged or contained at the location where it was used and shall not be sorted or rinsed in the location of use.
2. Proper containers are as follows:
  - a) labeled with the Biohazard symbol, or color-coded fluorescent orange or orange-red
  - b) capable of preventing soak-through, if laundry is wet and presents reasonable likelihood of leakage to the exterior of the container

### Transportation:

1. Contaminated laundry shall be transported in proper containers, as described above.
2. Laundry personnel must use Universal Precautions when handling ALL laundry.

## 7. Labels and Signs

### LABELS:

A proper label is a sticker or placard that contains:

1. The word BIOHAZARD
2. The biohazard symbol

Or anything color-coded:

1. Fluorescent orange
2. Orange-red

The items below must be labeled:

- Containers of Regulated Waste
- Refrigerators/Freezers Containing Blood or OPIM
- Containers used to store or transport above mentioned fluids
- Equipment that cannot be decontaminated (location of contamination must be written on label)

### SIGNS:

Departments must post signs at the entrance to any HIV/HBV research laboratories. These signs must be color-coded and contain the following minimum information:

"BIOHAZARD" with symbol (see below), name of infectious agent, special requirements for entering the area, name and phone # of responsible person.



# Training Program

## Environmental Health & Safety (EHS)

This university office shall administer an agency-wide training and information program as described below. All trainers are familiar with the OSHA Standard and its application to the university work environment.

EHS has the following training responsibilities:

- Development of written Exposure Control Plan for distribution to all affected university departments. For a copy go to:  
[https://www.ehss.vt.edu/detail\\_pages/document\\_details.php?document\\_id=590](https://www.ehss.vt.edu/detail_pages/document_details.php?document_id=590)
- Provide introductory training sessions that cover:
  - ❖ The OSHA Standard, Pathogen Transmission
  - ❖ Epidemiology, Exposure Control Plan Requirements
  - ❖ Employer Policies, the Hepatitis B Vaccination Program

## Departments

Departments must appoint an Implementation Coordinator to ensure that department-specific training is performed annually or as needed, on the following subjects:

- New tasks that present occupational exposure
- Department-specific sections of the ECP
- Available Engineering Controls
- Required Work Practice Controls
- Location and use of Personal Protective Equipment

All training must be conducted during normal working hours, at times convenient to employees.

# Hepatitis B Vaccination Program

## **PURPOSE:**

1. To provide an offer of Hepatitis B Vaccination to all Virginia Tech employees who have potential occupational exposure to human material
2. To provide testing, evaluation, and counseling to employees who have exposure incidents.
3. To document employee vaccinations and declinations.

## **GENERAL:**

- All medical services will be provided at NO COST to the employee
- The University will provide, through Environmental Health and Safety (EHS), all approved services.
- All medical services will be available at a reasonable time and place.

## **RECEIVING THE VACCINATION SERIES:**

1. Employees must attend a BBP class prior to receiving the vaccinations.
2. Instructions for arranging an appointment for Hepatitis B vaccination will be given at the end of each BBP class.
3. The Hepatitis B vaccine series may be a two or three shot series depending on the product available at the clinic providing injections.
4. Employees may choose to decline the vaccinations, and must sign a copy of the Declination Form. Declinations might be made for medical or personal reasons, or because the employee has already been vaccinated. If an employee declines the vaccination, but at a later date decides to accept, the university, through EHS, shall make the series available at that time (assuming the employee is still assigned to duties that are covered under the OSHA BBP Standard).
5. The U.S. Public Health Service currently does not recommend a routine booster for Hepatitis B. If the recommendation status should change, the university, through EHS, shall provide that service to all employees in the BBP Program.

# Exposure Reporting Program

Following an exposure incident, Environmental Health & Safety Services will immediately arrange a confidential medical evaluation and follow up. EHS follows Standard Operating Procedures (SOPs) for responding to these incidents. The SOPs incorporate all CDC recommendations for follow-up after occupational exposure to Hepatitis B, Hepatitis C, and HIV. Post-exposure services include:

- Documenting the route(s) of exposure, and the circumstances under which the exposure incident occurred
- Identifying and documenting of the source individual, unless it is not feasible or prohibited by law to do so
- Testing the source individual's blood to determine HBV and HIV infectivity, if unknown. Consent of the source individual must be obtained prior to testing.
- Collecting and testing of the exposed employee's blood to determine serological status for HBV, HCV, and HIV. This collection should be accomplished as soon as possible after exposure.
- Administering of post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service.
- Counseling
- Evaluating reported illnesses
- Conducting follow-up testing of exposed employee's blood.

## Steps To Take Following An Exposure Incident

1. Immediately inform the person designated in the Department's ECP.
2. Wash the injured area thoroughly.
3. Complete the Employers Accident Report:  
<https://frois.sedgwick.com/account?ReturnUrl=%2f>
4. Contact Environmental Health & Safety Services (EHS), 540-231-3600.
5. Complete Exposure Incident Report Form and return it to EHS.  
Respond quickly to follow up questions from EHS personnel.
7. Receive instructions from EHS regarding Occupational Health Physician's recommended testing and treatment.

## Reporting Requirements For Anyone Working With rDNA, Select Agents Or Other Significant Biological Material

### INCIDENT / ACCIDENT REPORTING

1. As soon as any initial response is complete and the incident is stable: Incident/Accident Response Procedures, **immediately notify** the Lab Director and/or Lab Manager, the Animal Facility or Greenhouse Manager (if applicable), and the University Biosafety Officer (UBO).
2. The UBO will acknowledge receipt of notification via email (to document notification) to the reporting person, the Lab Director, Lab Manager, and the Animal Facility or Greenhouse Manager (as needed).
  - **NOTE: If UBO does not acknowledge receipt of notification within two (2) hours, notify the Assistant Biosafety Officer (ABO).**
  - If email is not available, the UBO/ABO will acknowledge receipt via phone call to reporting person, the Lab Director and/or Lab Manager, and the Animal Facility Manager or Greenhouse Manager (as needed).
3. The UBO/ABO must immediately report to the NIH and/or CDC via phone or email, as required. In the case of a potential exposure, the Virginia Department of Health may also be notified.
4. Reporting person and Lab Director/Lab Manager/Animal Facility Manager/Greenhouse Manager complete [VT Lab Incident Report](#) and submit it to the UBO/ABO via email **within 24 hours of the incident.**
  - NOTE: For incidents involving an injury or potential exposure to a pathogen or other hazardous material, Worker’s Compensation requires that an **Employer’s Accident Report** be submitted within 24 hours.
5. UBO/ABO acknowledges receipt of incident report via email or phone.
6. UBO/ABO completes appropriate state and/or federal reporting forms and submits to the NIH (within 30 days) and/or CDC (within seven calendar days) of the incident.

Contact	Primary Method (cell phone)	Secondary Method (email)
UBO – Charlotte Waggoner	540-320-5864	ren@vt.edu
ABO – Chris Wakley	540-320-2089	cwakley@vt.edu
ABO – Anna Kroner	540-525-8574	acastigl@vt.edu

- **Virginia Tech Lab Incident Report:**  
[https://www.ehss.vt.edu/detail\\_pages/document\\_details.php?document\\_id=320](https://www.ehss.vt.edu/detail_pages/document_details.php?document_id=320)  
[https://www.ehss.vt.edu/detail\\_pages/document\\_details.php?document\\_id=320](https://www.ehss.vt.edu/detail_pages/document_details.php?document_id=320)
- **Employer’s Accident Report (EAR):** form: <https://froi.sedgwick.com/account?ReturnUrl=%2f> online reporting and instructions: <https://www.hr.vt.edu/benefits/health/workers-compensation.html>

# Recordkeeping

Environmental Health & Safety shall maintain Hepatitis B vaccination records on each Virginia Tech employee with occupational exposure to human material. Records will be maintained for the duration of the individual's employment at Virginia Tech, plus 30 years.

Employee written consent shall be necessary prior to release of any information therein. However, records will be made available to representatives of OSHA, the U.S. Department of Labor and Industry upon inspection request.

Information maintained by EHS includes:

1. Name of employee
2. VA Tech Identification Number of employee
3. A copy of the employee's Hepatitis records, including:
  - Vaccination Records
  - Titer Results (if available)
  - Declination Forms
  - Attachments to Declination Forms
4. Exposure Incident Report and Physician's Written Opinion forms, if applicable
5. Copies of evaluation and testing results associated with an exposure incident
6. Training records

# Definitions

AIDS =

Acquired Immune Deficiency Syndrome, the disease that results when the HIV virus attacks the human immune system.

Blood =

Human blood, human blood components, and products made from human blood.

Bloodborne Pathogens =

Pathogenic microorganisms that are present in human blood and can cause disease in humans. The list below is provided by CDC and should not be interpreted as a list representing risky organisms at Virginia Tech. BBP training will address site-specific concerns for employees. These pathogens include, but are not limited to:

Hepatitis B virus (HBV)

Human immunodeficiency virus (HIV)

Hepatitis C virus (HCV)

Human T-lymphotrophic virus Type 1

Malaria

Syphilis

Babesiosis

Brucellosis

Leptospirosis

Arboviral infections

Relapsing fever

Creutzfeldt-Jakob disease

Viral hemorrhagic fever

Clinical Laboratory =

A workplace where diagnostic or other screening procedures are performed on blood or OPIM.



Contaminated Sharps =

Any blood contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, and exposed ends of dental wires.

Decontamination =

See chart in Housekeeping section (p. 24) for detailed definitions.

Engineering Controls =

Equipment or devices that isolate or remove the bloodborne pathogens hazard from the workplace. Examples include: sharps disposal containers, self-sheathing needles, equipment splash guards, biosafety cabinets, etc.

Exposure Incident =

A specific incident in which blood or OPIM contacts the employee in one of the following ways: Exposure to eye or mouth, other mucous membrane, or non-intact skin surface, or a puncture/stick/cut with a sharp that is contaminated.

HBV =

Hepatitis B Virus, a bloodborne pathogen that may cause inflammation of the liver.

HIV =

Human Immunodeficiency Virus, the bloodborne pathogen that attacks the immune system and ultimately causes AIDS.

Occupational Exposure =

Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's duties.

Other Potentially Infectious Materials (OPIM) =

The following human body fluids:

semen

vaginal secretions

cerebrospinal, synovial, pericardial, pleural and peritoneal fluids

amniotic fluid

saliva

any fluid mixed with blood

any unknown body fluid

The following human tissues:

Any unfixed tissue

Any unfixed organ (other than intact skin)

The following research media:

HIV-containing cell culture

HIV-containing tissue/organ culture

HIV- & HBV- containing culture media

Human cell lines

Infected research animal tissue

Regulated Medical Waste=

A waste stream which is regulated by the Department of Environmental Quality and must be disposed of through EHS, even if it has been autoclaved or treated with another form of decontamination. Examples:

- **Cultures and stock of microorganisms and biologicals.** Discarded cultures, stocks, specimens, vaccines and associated items *likely* to contain organisms *likely* to be pathogenic to healthy humans.
- **Blood and blood products.** Wastes consisting of human blood, human blood products and items contaminated by human blood.
- **Human tissues and other anatomical wastes.** All human anatomical wastes and all wastes that are human tissues, organs, body parts, or body fluids.
- **Sharps.** It is university protocol to include all sharps in the regulated medical waste stream. That is, ALL hollow-bore needles, pipettes, and glassware from biological labs

or medical settings.

- **Some animal carcasses, body parts, bedding, and related wastes.** Animal carcasses, body parts, bedding, and related wastes *if* the animal has been intentionally infected with pathogenic organisms and are *likely* to be contaminated.

Regulated Medical Waste *EXEMPTIONS* =

The following waste streams are **not** subject to the requirements of regulated medical waste regulations when dispersed among other solid wastes and not accumulated separately:

- **Used products for personal hygiene**, such as diapers, facial tissues and sanitary napkins.
- **Material**, not including sharps, **containing small amounts of blood** or body fluids, but containing no free flowing or unabsorbed liquid (Band- Aids).
- **Personal use small bore needles** for insulin or other medications. Individuals that need to self-inject prescribed medications while on campus should bring their own sharps container for any needles and syringes.

Universal Precautions =

A method of infection control—recommended by the CDC—in which all human blood, certain body fluids, as well as fresh tissues and cells of human origin are handled as if they are known to be infected with HIV, HBV, and/or other blood- borne pathogens

Work Practice Controls =

Procedures that reduce the likelihood of exposure through the manner in which tasks are performed.

# References

## Published Sources

29 CFR Part 1910.1030, Occupational Exposure to Bloodborne Pathogens; Final Rule, Federal Register/Vol.56, No.235/ December 6, 1991.

OSHA Instruction CPL 2-2.44D, Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens, November 05, 1999.

NIOSH, "Preventing Needlestick Injuries in Health Care Settings", DHHS (NIOSH) Publication No. 2000-108.

Safer Needle Devices: Protecting Health Care Workers, Directorate of Technical Support, Office of Occupational Health Nursing, October 1997.

## People to Contact

University Biosafety Officer, Charlotte Waggoner at 540- 231-5864 or [ren@vt.edu](mailto:ren@vt.edu)

Industrial Hygienist, Sarah P. Owen at 540-231-4034 or [sowen@vt.edu](mailto:sowen@vt.edu)

Occupational Health Nurse, Juliet Dadras at 540-231-8733 or [midadras@vt.edu](mailto:midadras@vt.edu)

## On-line Information

Visit EHS on the web:

[http://www.ehss.vt.edu/programs/blood\\_borne\\_pathogens.php](http://www.ehss.vt.edu/programs/blood_borne_pathogens.php)

## Regulations

29 CFR 1910.1030: [www.osha.gov](http://www.osha.gov).

This template is provided here for reference; to access a fillable form of the template document, go to:

[https://www.ehss.vt.edu/programs/blood\\_borne\\_pathogens.php](https://www.ehss.vt.edu/programs/blood_borne_pathogens.php)

## Department or Laboratory-Specific ECP Template

**Department or PI Name:** Click or tap here to enter text.

**Location (include all buildings and room numbers where work with human material will be conducted):** Click or tap here to enter text.

**Implementation Coordinator/lab Manager:** Click or tap here to enter text.

Place a checkmark by those engineering controls that your department uses to protect employees. In the blanks that follow, write a brief description and the location where employees can find the control device.

**Handwashing (water or alternate) Facilities**

Description: Click or tap here to enter text.

**Sharps Handling (refers to any object that could puncture skin, includes needles, scalpels, pipette tips)**

Safety Devices and Proper Work Practices (indicate all that will be used)

- Retractable needles
- Sliding sheath/sleeve, hinged cap, other needle guards
- Scalpels will use disposable, shielded or retractable
- Immediate disposal into a sharps container when the sharp is no longer needed
- ONLY use singled handed technique if a needle must be re-capped
- Other: Click or tap here to enter text.
- Sharps Container locations: Click or tap here to enter text.

**Avoiding exposure to aerosols that cannot be prevented**

- Splash Guards

Description: Click or tap here to enter text.

- PPE (gloves, lab coat/coveralls, safety shoes, face shield, respiratory protection, goggles/safety glasses, hearing protection)

Description: Click or tap here to enter text.

- Biosafety Cabinets

Description: Click or tap here to enter text.

**First Aid Kit**

Description: Click or tap here to enter text.

Location: Click or tap here to enter text.

**Incident/Exposure reporting (such as to the PI, Lab manager, or Supervisor)**

Name of designated person: Click or tap here to enter text.

**Surface and Equipment cleaning and spill cleanup (include frequency, disinfection method and materials used).**

Description: Click or tap here to enter text.

**Waste disposal**

Description: Click or tap here to enter text.

**Other**

Description: Click or tap here to enter text.

**Training (attach a signed roster or training page from SMS\*)**

Bloodborne Pathogens (EHS training) – required annually for personnel who work with human material. To register for this class, go to: <http://www.ehss.vt.edu/train.php>  
Research personnel must register for Biosafety under either Biosafety or BBP, this course includes the BBP module. Non-research personnel must register for a BBP class under the BBP section.

ECP Review -- Lab personnel must read ECP, and record having read it on ECP signature sheet.

Lab Specific Biosafety awareness training – PI or designee must provide training to lab staff on specific hazards.

Safe Autoclave Use training (EHS training) – required training if lab personnel use autoclaves in their work; to register for this online class, go to:  
<http://www.ehss.vt.edu/train.php>

Intro to Biological Safety Cabinets training (EHS training) – required training if lab personnel use biosafety cabinets in their work; to register for this online class, go to:  
<http://www.ehss.vt.edu/train.php>

Other: Click or tap here to enter text.

\*Safety Management System (SMS). Go to this link for more information and to register your lab & personnel:  
[http://www.ehss.vt.edu/programs/chem\\_reg.php](http://www.ehss.vt.edu/programs/chem_reg.php)



ENVIRONMENTAL HEALTH & SAFETY  
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