

WRIGHT STATE UNIVERSITY

Department of Environmental Health and Safety

Exposure Control Plan

Bloodborne Pathogens

Exposure Control Plan

Changing Lives -- Safely

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Department of Environmental Health and Safety

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Phone 937.775.2215 • Fax 937.775-3761

Emergency Information

Stuck or Splashed?

IMMEDIATE ACTION REQUIRED



If you experienced a needlestick or sharps injury or were exposed to the blood or other body fluid of a patient, procedure, or laboratory agent during the course of your work, immediately follow these steps: (OSHA, 2013)

- **Wash** needlesticks and cuts with soap and water.
- **Flush** splashes to the nose, mouth, or skin with water.
- **Irrigate** eyes with clean water, saline, or sterile irrigants for 15 minutes.
- **Report** the incident to your supervisor.
- **Seek** medical treatment as soon as possible.

Wright State University Main Campus Police Dispatch	937-775-2111
Wright State University Department of Environmental Health and Safety	937-775-2215 (office hours) 937-775-2111 (after hours)
Wright State University Lake Campus Mercer County Dispatch	419-586-7724
Principle Investigator Supervisor	

Be prepared to give information to the healthcare providers.

Tell them you are a Wright State student or employee.

Have information about the agent and/or animal involved in your injury.

- Agent description,
- Route of exposure,
- Dose or concentration,
- Any unusual characteristics of the agent, animal infection, and
- Principle Investigator or Supervisor contact information.

Complete Accident Report Forms within 24-hours

For more details see: Post-Exposure Evaluation and Follow-Up

If you have questions about appropriate medical treatment for occupational exposures, 24 hour assistance is available from the Clinicians' Post Exposure Prophylaxis Hotline (PEpline) at 1-888-448-4911 or <http://www.nccc.ucsf.edu/> (Centers for Disease Control and Prevention, 2011)

DOWNLOADED AND/OR HARD COPY UNCONTROLLED

Verify that this is the correct version before use.

AUTHORITY		DATE
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Marjorie Markopoulos (original signature on file)	Biosafety Officer, Process Owner	

VERSION HISTORY			
Version	Description of Change	Author	Effective Date
Basic	Revised format and editorial updates	M.Markopoulos	06-20-2014

REFERENCE DOCUMENTS	
Document	Title
EHS-P-0134	Blooborne Pathogen Policy
EHS-P-0134-1	Exposure Control Plan
EHS-W-0134-1	Packaging Infectious Waste
EHS-F-0134-1	Hepatitis B Form
	Record Retention
	Access to Employee Records
	Ohio Revised Code Chapter 4167, "Public Employee Risk Reduction Program (PERRP).

If any process in this document conflicts with any document in OSHA Bloodborne Pathogen Stand this document shall be superseded by the OSHA Bloodborne Pathogen document. Any reference document external to OSHA shall be monitored by the Process Owner for current versioning.

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1 Policy

Wright State University is committed to a safe work environment.

This Exposure Control Plan (ECP) is provided to eliminate or minimize occupational exposure to bloodborne pathogens (BBP) or other potentially infectious materials (OPIM) for our campus community. (OSHA, 2003)

This ECP demonstrates compliance with

- Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.1030¹, “Occupational Exposure to Bloodborne Pathogens” and
- Ohio Revised Code Chapter 4167, “Public Employee Risk Reduction Program (PERRP).”² (OSHA, 2003)

This ECP contains the following elements:³ (OSHA, 2003)

1. determination of employee exposure:⁴
2. methods of compliance:⁵
 - a. universal and standard precautions
 - b. engineering and work practice controls
 - c. personal protective equipment (PPE)
 - d. housekeeping
3. HIV and HPV laboratories and production facilities
4. hepatitis b vaccination and post-exposure evaluation and follow-up
5. communication of hazards to employees
6. recordkeeping
7. procedures for the evaluation of circumstances surrounding exposure incidents.⁶

¹ 1910.1030(c)(1)

² 1910.1030(c)

³ 1910.1030(c)(1)(ii)

⁴ 1910.1030(c)(1)(ii)(A)

⁵ 1910.1030(c)(1)(ii)(B)

⁶ 1910.1030(c)(1)(ii)(C)

2 Scope

The scope of this ECP applies to all employees who are reasonably anticipated to have occupational exposure to blood or other potentially infectious materials (OPIM).

Employees include:

- full-time employees
- part-time, temporary, and healthcare workers known as "per diem" employees
- employees trained in first aid and identified by Wright State as responsible for rendering medical assistance as part of his/her job duties and ^{7,8}
- students, if they are compensated⁹.

The plan does not extend to the following:

- students if they are not also considered employees¹⁰ or
- volunteers.¹¹

Each employee whose work duties involve reasonable anticipated exposure to blood or OPIM must become familiar with, and adhere to the provisions of this plan.

2.1 Work in facilities not owned by Wright State

Wright State may send personnel to contracted facilities. Wright State will provide¹²:

- general training as outlined by the Bloodborne Pathogen standard,
- ensure that employees are provided with the require vaccinations, and
- provide follow-up evaluations following an exposure incident.

The contract facilities should:¹³

- provide site-specific training,
- provide personal protective equipment, and
- provide primary responsibility regarding the control of potential exposure conditions.

⁷ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

⁸ 1910.1030(a)

⁹ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

¹⁰ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

¹¹ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

¹² https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

¹³ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

3 Process Flow Diagram

The following diagram depicts the process described in this document, and the responsibilities and actions that shall be performed by process participants. Any information supplemental to the depicted process will appear after the diagram. See Appendix A: Process Flow Diagram

4 Plan Access

A copy of the Wright State's ECP is available to all employees in accordance with 29 CFR 1910.1020(e) "Access to Records".¹⁴ An employee may request a written or an electronic copy.

Requests shall be fulfilled within 15 days.

4.1 Written Copy

A written, hard copy of Wright State's ECP may be obtained by making a request to:

Wright State University
Department of Environmental Health and Safety
047 Biological Sciences II
Dayton OH 45435
Phone 937-775-2215

4.2 On-Line Access

This ECP is accessible online at Wright State University's Environmental Health and Safety website.

The ECP is available upon request for examination and copying.¹⁵

¹⁴ 1910.1030(c)(1)(iii)

¹⁵ 1910.1030(c)(1)(vi)

5 Exposure Control Plan (ECP) Review¹⁶

The ECP shall be reviewed and updated at least annually and whenever necessary. The review is necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure.¹⁷

The review and update of the plan shall also:

- reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens;¹⁸
- document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure;¹⁹ and
- document the solicitation for input from non-managerial employees responsible for direct patient care who are potentially injured from contaminated sharps. The documentation shall include the identification, evaluation, and selection of effective engineering and work practice controls.²⁰

¹⁶ 1910.1030(c)(1)(iv)

¹⁷ 1910.1030(c)(1)(iv)

¹⁸ 1910.1030(c)(1)(iv)(A)

¹⁹ 1910.1030(c)(1)(iv)(B)

²⁰ 1910.1030(c)(1)(v)

6 Regulations and Policies

Wright Way Policy 6001	Environmental Health and Safety	July 2009
Wright Way Policy 6031	Emergency Care for Injuries and Illnesses	December 2007
Wright Way Policy 6032	Reporting Injuries and Illnesses	January 2005
Wright Way Policy 6034	NonOccupational Exposure to Bloodborne Pathogens	February 2013
29 CFR 1910.132 ²¹	Personal Protective Equipment	
29 CFR 1910.134	Respiratory Protection	
29 CFR 1910.141	Sanitation	
29 CFR 1910.145	Specifications for accident prevention signs and tags	
29 CFR 1910.1020	Access to Employee Exposure and Medical Records	
29 CFR1910.1030	Bloodborne Pathogen Standard	
29 CFR 1910.1200	Hazard Communication	
29 CFR 1910.1450	Laboratory Standard	
29 CFR 1910.1904	Recording and Reporting Occupational Injuries and Illness	
Ohio Environmental Protection Agency "Large Generators of Infectious Waste Guidance Document"		September 2012 ²²
OAC 3745	Ohio Environment Protection Agency	
OAC 3745-27	Solid Waste and Infectious Waste Regulations	
OAC 3745-27-30	Standards for generators of infectious waste	
OAC 3745-27-32	Standards for the operation of infectious waste treatment facilities	
OAC 3745-27-35	Standards for handling infectious wastes	
OAC 4167	Public Employment Risk Reduction Program	
OAC 4167-3	Adoption of Federal Standards; Ohio Specific Safety Standards	
OAC-4167-3-01	Employment risk reduction standards	
OAC 4167-3-03	Amending of existing standards	
OAC 4167-3-05	Ohio specific safety standards	
OAC-4167-6-11	Needlestick records	
ORC 3701	Department of Health	
ORC 3701.33 ²³	Ohio public health advisory board.	
ORC 3734 ²⁴	Solid and Hazardous Wastes	
ORC 3734.01 ²⁵	Solid and hazardous waste definitions.	

²¹ OSHA standard 29 CFR 1910.132

²² <http://epa.ohio.gov/portals/34/document/guidance/LG IW guidance.pdf>

²³ <http://codes.ohio.gov/orc/3701.33>

²⁴ <http://codes.ohio.gov/orc/3734>

²⁵ <http://codes.ohio.gov/orc/3734.01>

ORC 4123	Workers' Compensation	14
ORC 4123.01 ²⁶	Workers' compensation definitions	
ORC 4167	Public Employment Risk Reduction Program	
ORC 4167.01 ²⁷	Public employment risk reduction program definitions.	
ORC 4167.09 ²⁸	Application for temporary variance or for variance from standard	
ORC 4167.25 ²⁹	Exposure control plans for health care workers definitions	
ORC 4167.26 ³⁰	Repealed	
ORC 4167.27 ³¹	Adoption of rule and standard for prevention of exposure incidents	
ORC 4167.28 ³²	Duties of employers concerning exposure incidents	
	Health Insurance Portability and Accountability Act or HIPAA	
CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL)	5th edition	May 2007

²⁶ <http://codes.ohio.gov/orc/4123.01>

²⁷ <http://codes.ohio.gov/oac/4167>

²⁸ <http://codes.ohio.gov/oac/4167>

²⁹ <http://codes.ohio.gov/orc/4167>

³⁰ <http://codes.ohio.gov/orc/4167>

³¹ <http://codes.ohio.gov/orc/4167>

³² <http://codes.ohio.gov/orc/4167>

7 Definitions, Abbreviations, and List of Procedures

7.1 Definitions³³

Agent means a causative substance such as a chemical substance, organism, or natural force that causes an effect.

anti-HBs or HBsAb means Hepatitis B surface antibodies.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.³⁴

Blood means human blood, human blood components, and products made from human blood.³⁵

Biological hazard or BIOHAZARD means those infectious agents presenting a risk of death, injury or illness to humans.³⁶

Bloodborne Pathogens means pathogenic microorganisms that are present in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).^{37, 38}

Pathogenic microorganisms can also cause diseases such as hepatitis C (HCV), malaria, syphilis, babesiosis, brucellosis, leptospirosis, arboviral infections, relapsing fever, Creutzfeldt-Jakob disease, adult T-cell leukemia/lymphoma (caused by HTLV-I), HTLV-I associated myelopathy, diseases associated with HTLV-II, and viral hemorrhagic fever. (MMWR: Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease, October 16, 1998/Vol.47/No. RR-19.)

Cleaning is the physical removal of organic material or soil from objects

Clinical Laboratory is a work place where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.³⁹

Contaminated means the presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.⁴⁰

Contaminated Laundry is laundry that has been soiled with blood or other potentially infectious materials.⁴¹

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wire.⁴²

³³ [1910.1030\(b\)](#)

³⁴ [1910.1030\(b\)](#)

³⁵ [1910.1030\(b\)](#)

³⁶ 1910.145(f)(2)

³⁷ <http://codes.ohio.gov/orc/4167>

³⁸ [1910.1030\(b\)](#)

³⁹ [1910.1030\(b\)](#)

⁴⁰ [1910.1030\(b\)](#)

⁴¹ [1910.1030\(b\)](#)

Critical items are those that enter sterile tissue or the vascular system. Most of these items must be sterilized. (Rutala, 2008)

Decontamination is the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal.⁴³

Disinfection is the killing or inactivation of all microorganisms, except for some spore forms, on inanimate objects.

Engineering Controls means controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove bloodborne pathogen hazards from the work place.⁴⁴ Other examples include safer medical devices, such as sharps with engineered sharp injury protection (SESIPs) and needleless systems. These two terms were further defined in the revision to 1910.1030 mandated by the Needlestick Safety and Prevention Act. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Emergency refers to blood or OPIM exposure outside the normal scope of work.⁴⁵

Employee means every person in the service of the state, or of any county, municipal corporation, township, or school district therein, including regular members of lawfully constituted police and fire departments of municipal corporations and townships, whether paid or volunteer, and wherever serving within the state or on temporary assignment outside thereof, and executive officers of boards of education, under any appointment or contract of hire, express or implied, oral or written, including any elected official of the state, or of any county, municipal corporation, or township, or members of boards of education.⁴⁶

Employment Risk Reduction Standard means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe and healthful employment and places of employment.⁴⁷

Engineered Sharps Injury Protection means either of the following:

- a physical attribute built into a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids that effectively reduces the risk of an exposure incident by a mechanism such as barrier creation, blunting, encapsulation, withdrawal, retraction, destruction, or any other effective mechanism; or
- a physical attribute built into a type of needle device not included in division (B)(1) of this section, or built into a non-needle sharp, that effectively reduces the risk of an exposure incident.⁴⁸

⁴² [1910.1030\(b\)](#)

⁴³ [1910.1030\(b\)](#)

⁴⁴ 1910.1030(b)

⁴⁵ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII

⁴⁶ <http://codes.ohio.gov/orc/4123.01>

⁴⁷ <http://codes.ohio.gov/orc/4167>

⁴⁸ <http://codes.ohio.gov/orc/4167>

Exposure Incident means

an occurrence of occupational exposure to blood or other material potentially containing bloodborne pathogens, including exposure that occurs through a sharps injury⁴⁹ or

- a specific eye, mouth, mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee's duties.⁵⁰

Good Samaritan Acts means voluntarily aiding someone in one's place of employment.⁵¹

Handwashing Facilities means a facility providing an adequate supply of running potable water, soap, and single use towels or hot air drying machines.⁵²

HBV means hepatitis B virus.⁵³

HCV (hepatitis C virus) is a viral infection of the liver that is transmitted primarily by exposure to blood. Currently there is no vaccine effective against **HCV**.

NOTE: According to the Centers for Disease Control and Prevention (CDC), hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States. (MMWR: Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease, October 16, 1998/Vol.47/No. RR-19.)

HIV means human immunodeficiency virus.⁵⁴

HIV/HBV/HCV Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV, HBV or HCV. Research laboratories may produce high concentrations of HIV, HBV or HCV but not the volume found in production facilities.⁵⁵

Human Blood Components include plasma, platelets, and serosanguineous fluids (e.g., exudates from wounds). Also included are medications derived from blood, such as immune globulins, albumin, and factors 8 and 9. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Infectious Waste is an Ohio Environmental Protection Agency (OEPA) term for regulated waste.

Infectious Waste means any wastes or combination of wastes that include cultures and stocks of infectious agents and associated biologicals, human blood and blood products, and substances that were or are likely to have been exposed to or contaminated with or are likely to transmit an infectious agent or zoonotic agent, including all of the following:⁵⁶

⁴⁹ <http://codes.ohio.gov/orc/4167>

⁵⁰ [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

⁵¹ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

⁵² [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

⁵³ [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

⁵⁴ [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

⁵⁵ [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

⁵⁶ <http://codes.ohio.gov/orc/3734>

1. Laboratory wastes;
2. Pathological wastes, including human and animal tissues, organs, body parts, and body fluids and excreta that are contaminated with or are likely to be contaminated with infectious agents or zoonotic agents;
3. Animal blood and blood products;
4. Animal carcasses and parts;
5. Waste materials from the rooms of humans, or the enclosures of animals, that have been isolated because of diagnosed communicable disease that are likely to transmit infectious agents.

Such waste materials from the rooms of humans do not include any wastes of patients who have been placed on blood and body fluid precautions under the universal precaution system established by the Centers for Disease Control in the public health service of the United States Department of Health and Human Services, except to the extent specific wastes generated under the universal precautions system have been identified as infectious wastes due to its threat to human health when improperly managed.

6. Sharp wastes used in the treatment, diagnosis, or inoculation of human beings or animals;
7. Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the director of health, by rules adopted in accordance with Chapter 119. of the Revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents; or
8. Any other waste materials Wright State designates as infectious waste.

As used in this definition, “blood products” does not include patient care waste such as bandages or disposable gowns that are lightly soiled with blood or other body fluids unless those wastes are soiled to the extent that the generator of the wastes determines that they should be managed as infectious wastes.⁵⁷

Note: nearly all categories of infectious waste depend on the presence or the possibility of the presence of infectious agents. The exceptions to this are blood, blood products, and cultures, which are always considered infectious waste.⁵⁸

Infectious Agent means a type of microorganism, pathogen, virus or proteinaceous infectious particle that can cause or significantly contribute to disease in or death of human beings.⁵⁹

Infectious Waste Handling Area means any area where infectious wastes are stored, loaded, unloaded, prepared for treatment, or treated. Infectious waste handling areas also include areas where vehicles or containers are decontaminated, areas where transportation of infectious wastes within the facility premises occurs, and areas where treated infectious wastes are unloaded, stored, and loaded.⁶⁰

Infectious Waste Spill Kit means a collection of materials prepared to contain, clean-up, and disinfect biohazardous spills. ***Infectious waste spill kits*** contain:

- materials designed to absorb spilled liquids,

⁵⁷ <http://codes.ohio.gov/orc/3734>

⁵⁸ <http://epa.ohio.gov/portals/34/document/guidance/LG%20IW%20guidance.pdf>

⁵⁹ <http://codes.ohio.gov/orc/3734>

⁶⁰ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf

- red or biohazard labeled bag(s),
- an U.S. EPA Registered hospital disinfectant that is also tuberculocidal (follow manufactures directions), or materials necessary to prepare a minimum 10% sodium hypochlorite solution with a minimum contact time of 30 minutes,
- disposable gloves and personal protective equipment (PPE),
- a first aid kit (unless emergency medical care is available on the premises), boundary tape, and other appropriate safety equipment.⁶¹

Licensed Healthcare Professional (LHP) is a person whose legally permitted scope of practice allows him/her to independently perform the activities required by paragraph 29CFR1910.1030(f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up.⁶²

Needleless systems means a device that does not use needles for:

- the collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;
- the administration of medication or fluids; or
- any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.⁶³

Needleless systems provide an alternative to needles for the specified procedures, thereby reducing the risk of percutaneous injury involving contaminated sharps. Examples of needleless systems include, but are not limited to, intravenous medication delivery systems that administer medication or fluids through a catheter port or connector site using a blunt cannula or other non-needle connection, and jet injection systems that deliver subcutaneous or intramuscular injections of liquid medication through the skin without use of a needle. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Noncritical items are those that come into contact with intact skin but not with mucous membranes; for example, blood pressure cuffs. (Rutala, 2008)

Non-Human Primate refers to those organisms capable of transmitting bloodborne pathogens to humans through infected body fluids or tissues. This includes both experimentally and naturally infected animals. For example, all members of the genus *Macacca* (macaques) should be considered potentially infected with herpes B virus (HBV); chimpanzees and several other non-human primate species are capable of being infected with both hepatitis A and hepatitis B viruses; macaques and African green monkeys are both susceptible to SIV (simian immunodeficiency virus) infection.

Non-intact Skin includes skin with dermatitis, hangnails, cuts, abrasions, chafing, acne, etc. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Nuisance means anything which is injurious to human health or offensive to the senses; interferes with the comfortable enjoyment of life or property; and affects a community, neighborhood, or any considerable number of persons (although

⁶¹ http://www.epa.ohio.gov/portals/34/document/guidance/gd_078.pdf

⁶² 1910.1030(b)

⁶³ <http://codes.ohio.gov/orc/4167>

the extent of annoyance or damage inflicted upon individual persons may be unequal).⁶⁴ 20

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.⁶⁵

NOTE: This definition does not cover "Good Samaritan" acts (i.e., voluntarily aiding someone in one's place of employment) that result in exposure to blood or other potentially infectious materials from voluntarily assisting a fellow employee, although OSHA encourages employers to offer follow-up procedures to these employees in such cases. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Occupational Physician - a person whose legally permitted scope of practice allows him/her to independently perform the activities required in providing the hepatitis B vaccination and post-exposure evaluation and follow-up.

Open Dumping means

- the depositing of solid wastes into a body or stream of water or onto the surface of the ground at a site that is not licensed as a solid waste facility under section 3734.05 of the Ohio Revised Code or if the solid wastes consist of scrap tires, as a scrap tire collection, storage, monocell, monofill, or recovery facility under section 3734.81 of the Ohio Revised Code; the depositing of solid wastes that consist of scrap tires onto the surface of the ground at a site or in a manner not specifically identified in divisions (C)(2) to (5), (7), or (10) of section 3734.85 of the Revised Code; or
- the depositing of untreated infectious wastes into a body or stream of water or onto the surface of the ground; or
- the depositing of treated infectious wastes into a body or stream of water or onto the surface of the ground at a site that is not licensed as a solid waste facility under section 3734.05 of the Revised Code.⁶⁶

Other Potentially Infectious Materials (OPIM) means

1. any of the following human body fluids:
 - semen,
 - vaginal secretions,
 - cerebrospinal fluid,
 - synovial fluid,
 - pleural fluid,
 - pericardial fluid,
 - peritoneal fluid,
 - amniotic fluid,
 - saliva in dental procedures,
 - any body fluid that is visibly contaminated with blood, or
 - all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
2. any unfixed tissue or organ (other than intact skin) from a human (living or dead)⁶⁷ including primary and established human cell lines;

⁶⁴ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf

⁶⁵ [1910.1030\(b\)](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf)

⁶⁶ <http://codes.ohio.gov/orc/3734>

⁶⁷ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21519

3. HIV-containing cell or tissue cultures, organ cultures, HIV- or HBV-containing culture medium or other solutions; and
4. blood, organs, or other tissues from experimental animals infected with HIV or HBV.⁶⁸ (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Parenteral means the piercing of mucous membranes or the skin barrier through such events as needlestick, human bites, cuts, and abrasions.⁶⁹

Parenteral exposures, such as human bites that break the skin, are most likely to occur in violent situations (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Pathogenic Microorganisms may be present in human blood or OPIM and can infect and cause disease in persons who are exposed to blood containing the pathogen.

Pathogenic microorganisms can also cause diseases such as hepatitis C, malaria, syphilis, babesiosis, brucellosis, leptospirosis, arboviral infections, relapsing fever, Creutzfeldt-Jakob disease, adult T-cell leukemia/lymphoma (caused by HTLV-I), HTLV-I associated myelopathy, diseases associated with HTLV-II, and viral hemorrhagic fever. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Personal Protective Equipment (PPE) is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts, or blouses) not intended to function as protection against a bloodborne hazard are not considered to be **personal protective equipment**.⁷⁰

Production Facility means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.⁷¹

Proficiency Be Demonstrated means that employees who are experienced laboratory workers may not need to be retrained in accordance with these paragraphs. Education such as a graduate degree in the study of viral diseases, or another closely related subject area with a period of related laboratory research experience, would also constitute **"proficiency."**⁷²

Public Employer⁷³ means any of the following:

1. the state and its instrumentalities;
2. any political subdivision and their instrumentalities, including any county hospital, municipal corporation, city, village, township, park district, school district, state institution of higher learning, public or special district, state agency, authority, commission, or board; or
3. any other brand of public employment not mentioned in (1) or (2) of this definition.

Public Health Care Worker--means a person who is employed by a public employer to provide health services or other services that carry with them the potential for exposure incidents to bloodborne pathogens, including a person

⁶⁸ [1910.1030\(b\)](#)

⁶⁹ [1910.1030\(b\)](#)

⁷⁰ [1910.1030\(b\)](#)

⁷¹ [1910.1030\(b\)](#)

⁷² http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII

⁷³ <http://codes.ohio.gov/orc/4167>

employed by a public hospital or other public health care facility, a person employed by a public employer to provide home health care, and a person employed by a public employer as a firefighter, emergency medical technician-basic, emergency medical technician-intermediate, or emergency medical technician-paramedic.⁷⁴ **Public health care worker** does not include a person who is employed by a public employer to provide dental services, treatment, or training or a dental student who is receiving training from a public employer.⁷⁵

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 materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.⁷⁶

Ohio Environmental Protection Agency (OEPA) regulations govern the disposal of **regulated waste** which is called **infectious waste** by OEPA.

Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the same volume found in production facilities.⁷⁷

Reasonably Anticipated Contact includes the potential for contact as well as actual contact with blood or OPIM. Lack of history of blood exposures among designated first aid personnel of a particular manufacturing site, for instance, does not preclude coverage. "Reasonably anticipated contact" includes, among others, contact with blood or OPIM (including regulated waste) as well as incidents of needlesticks. For example, incidents in which an employee observes a contaminated needle on a bed or contacts other regulated waste in order to substantiate "occupational exposure." (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens)

Safer Medical Devices - such as sharps with engineered sharps injury protections and needleless systems (Revision to OSHA's Bloodborne Pathogens Standard)

Semi critical items are those, which come into contact with mucous membranes or non-intact skin. (Rutala, 2008)

Sharps with Engineered Sharps Injury Protections (SESIPs) 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

⁷⁴ <http://codes.ohio.gov/oac/4167-3>

⁷⁵ <http://codes.ohio.gov/oac/4167-3>

⁷⁶ [1910.1030\(b\)](#)

⁷⁷ [1910.1030\(b\)](#)

feature or mechanism that effectively reduces the risk of an exposure incident.⁷⁸ 23 This term encompasses a broad array of devices that make injury involving a contaminated sharp less likely. They include, but are not limited to:

- syringes with guards or sliding sheaths that shield the attached needle after use;
- needles that retract into a syringe after use;
- shielded or retracting catheters used to access the bloodstream for intravenous administration of medication or fluids;
- intravenous medication delivery systems that administer medication or fluids through a catheter port or connector site using a needle that is housed in a protective covering, blunt suture needles; and
- plastic (instead of glass) capillary tubes. (CPL 02-02-069 - CPL 2-2.69 - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens) (Revision to OSHA's Bloodborne Pathogens Standard)

Sharp Objects mean any object that has the potential to puncture or lacerate, including but not limited to nails, sewing needles, straight pins, staples, metal screws, hard plastic, glass, broken ceramics, and infectious waste "sharps."⁷⁹

EPA uses the term "**sharp objects**".

Sharp means an object used in or encountered when providing health care services that can be reasonably anticipated to penetrate the skin or any other part of the body and result in an exposure incident, including objects such as needle devices, scalpels, lancets, and broken glass.⁸⁰

Sharps means any object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.⁸¹

OSHA uses the term "**sharps**".

Sharps Injury means an injury caused by a sharp, including such injuries as cuts, abrasions, and needlesticks.⁸²

Source Individual means an individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to,

- hospital and clinic patients,
- clients in institutions for the developmentally disabled,
- trauma victims,
- clients of drug and alcohol treatment facilities,
- residents of hospices and nursing homes,
- human remains, and
- individuals who donate or sell blood or blood components.⁸³ (Centers for Disease Control , 2010)

⁷⁸ [1910.1030\(b\)](#)

⁷⁹ http://www.epa.state.oh.us/portals/34/document/draftrule/iw_all_draft.pdf

⁸⁰ <http://codes.ohio.gov/orc/4167>

⁸¹ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10051

⁸² <http://codes.ohio.gov/orc/4167>

⁸³ [1910.1030\(b\)](#)

Standard Microbiological Practices refer to procedures outlined in "Biosafety24 in Microbiological and Biomedical Laboratories."⁸⁴

Standard Precautions is an approach to infection control. According to the concept of **Standard Precautions**, all blood and body fluids are treated as if known to be infectious for HIV, HBV, HCV, and other bloodborne pathogens.⁸⁵

Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.⁸⁶

Tag means a device usually made of card, paper, pasteboard, plastic or other material used to identify a hazardous condition.⁸⁷

Treat or Treatment when used in connection with infectious wastes, means any method, technique, or process that renders the wastes noninfectious so that it is no longer an infectious waste and is no longer an infectious substance as defined in applicable federal law, including, without limitation, steam sterilization and incineration, and, in the instance of wastes identified in division (R)(7) of this section, to substantially reduce or eliminate the potential for the wastes to cause lacerations or puncture wounds.⁸⁸

Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the Director of Health, by rules adopted in accordance with Chapter 119. of the Revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents.

Universal Precautions is an approach to infectious control in which all human blood and certain human body fluids are treated as if infectious for HIV, HBV, and other bloodborne pathogens. (Centers for Disease Control , 2010)

Work Area must be determined on a case-by-case basis and it is generally considered to be an area where work involving occupational exposure occurs or where the contamination of surfaces may occur.⁸⁹

Work Practice Controls describe controls that reduce the likelihood of exposure to potential pathogens by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).⁹⁰

Zoonotic Agent means a type of microorganism, pathogen, virus or prion that causes disease in vertebrate animals, is transmissible to human beings and can cause or significantly contribute to disease in or death of human beings.⁹¹

⁸⁴ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII

⁸⁵ In 1996 the Centers for Disease Control and Prevention replaced "universal precautions" with "standard precautions". See "guideline for Isolation Precautions in Hospitals, JS Gamer et al. Inf. Cont & Hosp. Epid., Vol. 17, No.1, p 53-80, Jan., 1996

⁸⁶ [1910.1030\(b\)](http://www.osha-slc.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

⁸⁷ 1910.145(f)(2)

⁸⁸ <http://codes.ohio.gov/orc/3734>

⁸⁹ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

⁹⁰ [1910.1030\(b\)](http://www.osha-slc.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

⁹¹ <http://codes.ohio.gov/orc/3734>

Abbreviation	Definition
Anti-HBs	Hepatitis B surface antibody
BBP	Bloodborne Pathogens
BMBL	Biosafety in Microbiological and Biomedical Laboratories
BSC	Biosafety Cabinet
CDC	Centers for Disease Control
ECP	Exposure Control Plan
EHS	Environmental Health and Safety
EPA	Environmental Protection Agency
HBsAb	Hepatitis B surface antibody
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIPPA	Health Insurance Portability and Accountability Act
HIV	Human Immunodeficiency Virus
IBC	Institutional Biosafety Committee
IV	Intravenous
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
LHP	Licensed Healthcare Professional
NIH	National Institute of Health
NIOSH	National Institute fo Occupational Safety and Health
NRC	Nuclear Regulatory Commission
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
ODH	Ohio Department of Health
OPIM	Other Potentially Infectious Material
ORC	Ohio Revised Code
OSHA	Occupational Safety and Health Association
PI	Principle Investigator
PIC	Person-In-Charge
PPE	Personal Protective Equipment
SESIP	Sharps with Engineered Sharps Injury Protections
USPHS	United States Public Health Service
WSU	Wright State University

8 Exposure Determination⁹²

Wright State performs exposure determinations to identify which employees may incur occupational exposure to blood or other potentially infectious materials (OPIM).⁹³

The exposure determinations are performed without regard to the use of personal protective equipment (PPE) (*i.e.*, employees are considered to be exposed even if they wear PPE).⁹⁴

8.1 Job Classification and Risk Categorization

8.1.1 All Employees at Risk

A list of job titles, classifications, or codes in which ***all employees*** within these classifications have been determined to have potential occupational exposure to blood or OPIMs is maintained by the Department of Environmental Health and Safety. These individuals shall participate in this program⁹⁵ (See Appendix B)

Note: Students may have risk of exposure to BBP or OPIM in the course of participating their academic program or other university sponsored activity. Wright State is not required to cover the cost for unpaid students to have a hepatitis B vaccine. However, the department is encouraged to adopt a policy that compels affected students to obtain a vaccine privately and show evidence of this to the department prior to incurring the risk of exposure.

8.1.2 Some Employees at Risk

A list of employee job classifications or titles in which ***some employees*** perform tasks that may generate an occupational exposure to blood or OPIMs is maintained by the Department of Environmental Health and Safety. These employees will also be covered by this ECP and must participate in the vaccination, training and all other aspects of the ECP.⁹⁶ (See Appendix C)

The specific tasks and procedures, or groups of closely related tasks and procedures, which are associated with occupational exposure, must be delineated. For example, only some of the employees in a laboratory might be assigned the task of handling infectious materials.⁹⁷

The tasks and procedures that are grouped must be related; *i.e.*, they must share a common activity such as "vascular access procedures," "handling of contaminated sharps," or "handling of deceased persons," etc.⁹⁸

⁹² 1910.1030(c)(2)

⁹³ 1910.1030(c)(2)(i)

⁹⁴ 1910.1030(c)(2)(ii)

⁹⁵ 1910.1030(c)(2)(i)(A)

⁹⁶ 1910.1030(c)(2)(i)(B)

⁹⁷ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII

⁹⁸ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII

A list of the job tasks that routinely involve a potential for mucous membrane or skin contact with potentially infectious materials is maintained by the Department of Environmental Health and Safety.⁹⁹ (See Appendix D)

⁹⁹ 1910.1030(c)(2)(i)(C)

9 Compliance Methods

The ECP includes a schedule and a method of implementation for the various requirements of the standard. Wright State employs the following compliance methods:

1. standard precautions/universal precautions,
2. engineering controls,
3. work practice controls,
4. personal protective equipment (PPE), and
5. housekeeping.¹⁰⁰

9.1 General -- Standard Precautions and Universal Precautions¹⁰¹

Standard Precautions supersedes Universal Precautions¹⁰² and shall be observed in order to prevent contact with blood or other potentially infectious materials.

Standard Precautions expands the coverage of Universal Precautions by recognizing any internal body fluid and unfixed tissue as potentially infectious material.

Standard Precautions shall be implemented when contact with any of the following are anticipated:

- blood (including human and some non-human primate);
- all human and some non-human primate body fluids (including breast milk), tissues, secretions, and excretions except sweat, regardless of whether they contain visible blood;
- non-intact skin;
- mucous membranes; or
- iv access.

9.2 Engineering Controls¹⁰³

Engineering controls shall be used to prevent or to minimize exposure to bloodborne pathogens.¹⁰⁴

Where occupational exposure remains after institution of these controls, PPE must also be used.¹⁰⁵

Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.¹⁰⁶

9.2.1 Selection of Engineering Controls

Wright State will evaluate and implement devices which have the potential to reduce exposure of individuals to biological, chemical, and physical hazards.

¹⁰⁰ 1910.1030(d)

¹⁰¹ 1910.1030(d)(1)

¹⁰² <http://www.cdc.gov/ncidod/hip/Blood/UNIVERSA.HTM>

¹⁰³ [1910.1030\(d\)\(2\)](#)

¹⁰⁴ [1910.1030\(d\)\(2\)\(i\)](#)

¹⁰⁵ [1910.1030\(d\)\(2\)\(i\)](#)

¹⁰⁶ [1910.1030\(d\)\(2\)\(ii\)](#)

A hierarchy of controls is used as a means of determining how to implement 29 feasible and effective control solutions. One representation of this hierarchy can be summarized as follows:

- elimination
- substitution
- engineering controls
- administrative controls
- personal protective equipment (PPE)

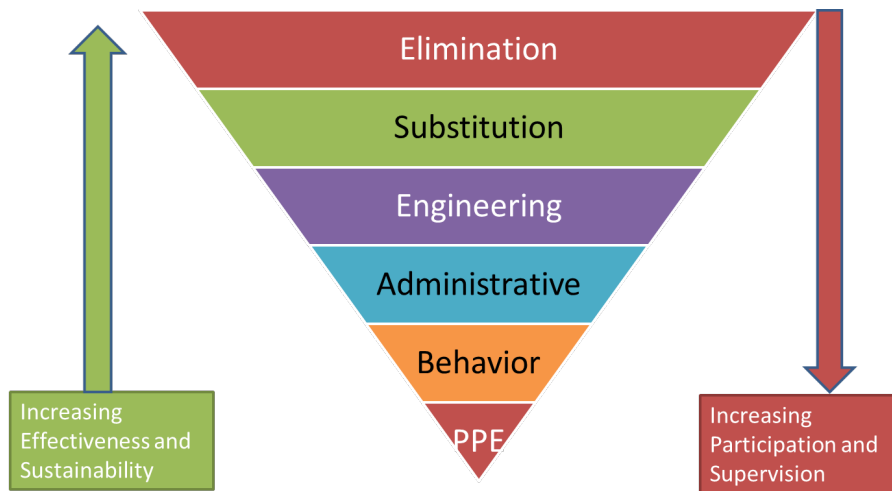


Figure 1: Hierarchy of Controls

The idea behind this hierarchy is that the control methods at the top of the list are potentially more effective and protective than those at the bottom. Following the hierarchy normally leads to the implementation of inherently safer systems, ones where the risk of illness or injury has been substantially reduced. (CDC - Engineering Controls - NIOSH Workplace Safety and Health Topic)

Elimination and substitution, while most effective at reducing hazards, also tend to be the most difficult to implement in an existing process. If the process is still at the design or development stage, elimination and substitution of hazards may be inexpensive and simple to implement. For an existing process, major changes in equipment and procedures may be required to eliminate or substitute for a hazard. (CDC - Engineering Controls - NIOSH Workplace Safety and Health Topic)

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The initial cost of engineering controls can be higher than the cost of administrative controls or personal protective equipment, but over the longer term, operating costs are frequently lower, and in some instances, can provide a cost savings in other areas of the process. (CDC - Engineering Controls - NIOSH Workplace Safety and Health Topic)

Administrative controls and **personal protective equipment** are frequently 30 used with existing processes where hazards are not particularly well controlled. Administrative controls and personal protective equipment programs may be relatively inexpensive to establish but, over the long term, can be very costly to sustain. These methods for protecting workers have also proven to be less effective than other measures, requiring significant effort by the affected workers. (CDC - Engineering Controls - NIOSH Workplace Safety and Health Topic)

9.2.1.1 Exemptions

The Director of Department of Environmental Health and Safety or designee, upon written request, may grant exemptions from use of an approved protective device.

9.2.2 Evaluation of Engineering Controls

Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.¹⁰⁷

9.2.3 Approved Engineering Controls

The following engineering controls have been approved for implementation:

1. Biosafety cabinets
2. Handwashing facilities
3. Sharps containers
4. Specimen containers
5. Safety sharps/needleless systems
6. Other protective controls
 - Protective shields, splash guards, plastic backed absorbent pads
 - Mechanical pipettes
 - Sealed rotor heads and centrifuge cups
 - Infectious (regulated) waste containers

9.2.3.1 Biosafety Cabinets

Biological safety cabinets (BSCs) are enclosed workstations intended to protect both the worker and the biological specimen from contamination.

The protective features of **BSCs** include:

- the containment of infectious aerosols,
- the isolation of the operator from the agent, and
- the protection of other personnel in the room.

¹⁰⁷ 1910.1030(d)(2)(ii)

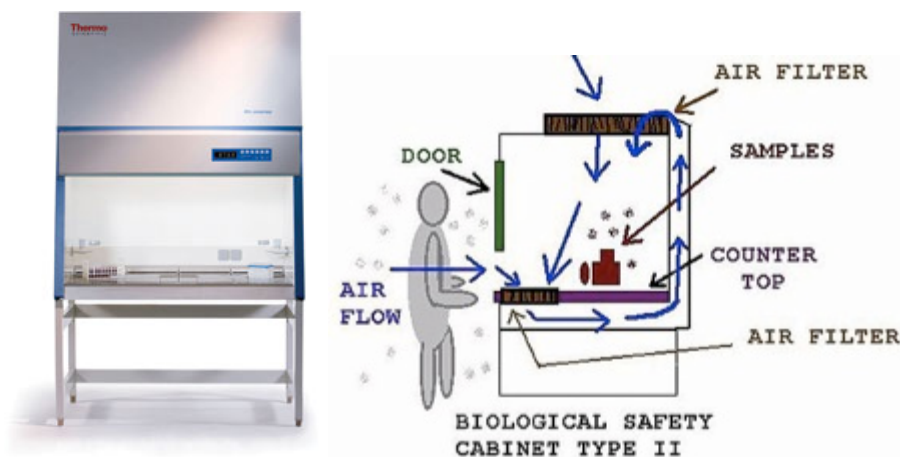


Figure 2: Example of Biosafety Cabinet

Table 1: Summary of Biosafety Cabinet Type, Protection, Face Velocity and Use

BSC CLASS /TYPE	PRODUCT PROTECTION	MINIMUM FACE VELOCITY FPM	VOLATILE TOXIC CHEMICALS & RADIONUCLIDES ALLOWED?
I	No	75	No
II / A1	Yes	75	No
II / A2	Yes	100	Yes, if ducted outside building: minute volatile toxic chemicals & trace radionuclides
II / B1	Yes	100	Yes: low levels of volatile toxic chemicals & trace radionuclides
II / B2	Yes	100	Yes: volatile toxic chemicals & radionuclides
III	Yes	N / A	Yes

9.2.3.2 Handwashing Facilities¹⁰⁸

Handwashing facilities shall be provided which are readily accessible to employees.¹⁰⁹

When provision of handwashing facilities is not feasible, Wright State shall provide

- an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or
- antiseptic towelettes.

When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible.¹¹⁰

9.2.3.3 Sharps containers

- must be used for disposal of all needles and other sharps;¹¹¹
- all sharps shall be placed in an appropriate sharps container immediately or as soon as possible after use;¹¹²
- shall be available in all locations where sharps are used;¹¹³ and
- shall be placed as near to procedure area as possible.¹¹⁴

¹⁰⁸ [1910.1030\(d\)\(2\)\(iii\)](#)

¹⁰⁹ [1910.1030\(d\)\(2\)\(iii\)](#)

¹¹⁰ [1910.1030\(d\)\(2\)\(iv\)](#)

¹¹¹ [1910.1030\(d\)\(2\)\(viii\)](#)

¹¹² [1910.1030\(d\)\(2\)\(viii\)](#)

¹¹³ [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)



Sharps containers shall be:

32

- puncture resistant;^{115, 116}
- labeled or color-coded in accordance with 29 CFR 1910.1030^{117,118}
- leak-proof on the sides and bottom;^{119, 120}
- non-breakable;
- closeable (that is, have a lid, flap, door, or other means of closing the container);¹²¹ and
- not require employees to reach by hand into the containers where the sharps have been placed.¹²²

Sharps containers for use at Wright State shall be approved by EHS.

Figure 3: Example of Sharps Container

9.2.3.4 Secondary Containers

Secondary containers are used to contain spillage or protrusion of contents during handling, storage, transport, or shipping.

Secondary containers shall be:¹²³

- closable;¹²⁴
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping;¹²⁵ and
- labeled or color-coded according to 29 CFR 1910.1030.¹²⁶

9.2.3.5 Other Regulated Waste Containment¹²⁷

Regulated waste shall be placed in containers that are:¹²⁸

- closable;¹²⁹
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;¹³⁰
- labeled or color-coded according to 29 CFR 1910.1030;¹³¹ and
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.¹³²



¹¹⁴ [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)

¹¹⁵ [1910.1030\(d\)\(2\)\(viii\)\(A\)](#)

¹¹⁶ 1910.1030(d)(4)(iii)(A)(1)(ii)

¹¹⁷ 1910.1030(d)(2)(viii)(B)

¹¹⁸ 1910.1030(d)(4)(iii)(A)(1)(iii)

¹¹⁹ 1910.1030(d)(2)(viii)(C)

¹²⁰ 1910.1030(d)(4)(iii)(A)(1)(iii)

¹²¹ 1910.1030(d)(4)(iii)(A)(1)(i)

¹²² [1910.1030\(d\)\(4\)\(ii\)\(E\)](#)

¹²³ 1910.1030(d)(4)(iii)(A)(3)(ii)

¹²⁴ 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

¹²⁵ 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

¹²⁶ 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

¹²⁷ [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

¹²⁸ 1910.1030(d)(4)(iii)(B)(1)

¹²⁹ 1910.1030(d)(4)(iii)(B)(1)(i)

¹³⁰ 1910.1030(d)(4)(iii)(B)(1)(ii)

¹³¹ 1910.1030(d)(4)(iii)(B)(1)(iii)

¹³² 1910.1030(d)(4)(iii)(B)(1)(iv)



Figure 4: Packaging Regulated Waste (Stericycle, 2012)

9.2.3.6 Secondary Containers for Regulated Waste¹³³

If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:¹³⁴

- closable;¹³⁵
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;¹³⁶
- labeled or color-coded in accordance with 29 CFR 1910.1030; and¹³⁷
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.¹³⁸

9.2.3.7 Equipment

Mechanical pipetting Devices

Mechanical pipetting devices must be used.

- Mouth pipetting is prohibited.¹³⁹

Sealed rotor heads and centrifuge cups

Sealed rotor heads and centrifuge cups are an integral part of routine centrifuge operation and are used to avoid accidental spills.

Handwashing

Handwashing facilities are available in laboratories,

¹³³ 1910.1030(d)(4)(iii)(B)(2)

¹³⁴ 1910.1030(d)(4)(iii)(B)(2)

¹³⁵ 1910.1030(d)(4)(iii)(B)(2)(i)

¹³⁶ 1910.1030(d)(4)(iii)(B)(2)(ii)

¹³⁷ 1910.1030(d)(4)(iii)(B)(2)(iii)

¹³⁸ 1910.1030(d)(4)(iii)(B)(2)(iv)

¹³⁹ 1910.1030(d)(2)(xii)

facilities custodial equipment rooms, procedure rooms, animal 34
research rooms, patient rooms, exam room, laboratories,
restrooms and other areas as necessary.

Infectious (regulated) waste containers **Infectious or regulated waste containers** shall be used to discard infectious or medical waste. They shall be labeled leak-proof containers, bags, or biohazard boxes lined with a red plastic bag liner.

Specimen Containers **Specimen containers** shall be used to store blood or other potentially infectious materials. These containers must be leak-proof and labeled with a biohazard symbol on the outside.

Protective Controls **Splashguards, protective shields, plastic backed absorbent pads, or other controls** are used in laboratories to prevent exposure to blood or other potentially infectious materials.

Safety sharps or Needleless systems **Safety sharps or needleless systems** shall be evaluated, trialed, and implemented as approved by the **supervisor or principal investigator**. EHS and/or other safety professionals may assist with the selection and approval.

Devices that are capable of reducing or eliminating the potential for needlestick and other sharp instrument injuries are available.

Examples of such technology include needle-less delivery systems, self-sheathing needles and catheters, retractable hypodermic needles, and needle guards and shields.

It is vitally important that the use of these devices becomes a standard practice in clinical and research laboratories. They should be used wherever and whenever possible.

Those employees who use these devices frequently (for example, nurses and phlebotomists) shall be consulted for input in the type of needlestick prevention equipment purchased.¹⁴⁰

9.2.4 Examination and Maintenance

The selected engineering controls will be examined and maintained on a regular schedule to ensure their effectiveness by the PIC.¹⁴¹

¹⁴⁰ [1910.1030\(c\)\(1\)\(v\)](#)

¹⁴¹ [1910.1030\(d\)\(2\)\(ii\)](#)

Work practice controls minimize or eliminate exposure to all types of hazardous materials, including bloodborne pathogens and include:

- pre-planning work,
- practicing good housekeeping, and
- maintaining personal hygiene.

Work practice controls must be used regardless of the type of hazardous material handled.

Work practice controls include:

1. Handwashing
2. Practices for Handling Sharps
3. Practices for Handling Regulated Waste
4. Practices for Sharps Containers
5. Practices for Other Regulated Waste Containers
6. Procedures for Evaluating Needle Use
7. General work practice controls
8. Procedures for specimens of blood, tissue, or OPIMs
9. Procedures for contaminated equipment Practices for clinical and/or research laboratories

9.3.1 Handwashing (Boyce, 2002)

Employees are required to wash their hands or any other exposed skin¹⁴²:

- immediately, or as soon as feasible, after removing gloves or other PPE¹⁴³;
- promptly after touching blood, body fluids, secretions, excretions, and contaminated items, whether or not gloves are worn;
- between tasks and procedures on the same patient to prevent cross-contamination of different body sites;
- between glove changes; and
- before leaving the work area.

Employees shall wash their hands with Wright State-approved antimicrobial soap and water for at least 20-seconds. (Centers for Disease Control and Prevention, 2013)

When handwash sinks are unavailable, an antiseptic cleaner must be provided in conjunction with clean cloth paper towels or antiseptic towelettes or cleaners.¹⁴⁴

Alcohol content of approved waterless hand sanitizers must contain a minimum sixty percent (60%) by volume. (CDC - Handwashing: Clean Hands Save Lives)

When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible.¹⁴⁵

¹⁴² [1910.1030\(d\)\(2\)\(v\)](#)

¹⁴³ [1910.1030\(d\)\(2\)\(v\)](#)

¹⁴⁴ [1910.1030\(d\)\(2\)\(iv\)](#)

¹⁴⁵ [1910.1030\(d\)\(2\)\(vi\)](#)

A **sharp** is any object capable of penetrating the skin. Examples include:

- needles
- scalpels
- broken glass
- broken capillary tubes, and
- any equipment that is capable of penetrating the skin.

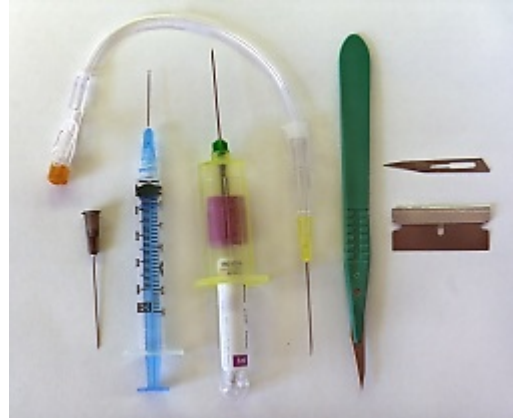


Figure 5: Examples of Sharps (Berkeley Lab Lawrence Berkeley National Laboratory, 2012)

9.3.2.1 Practices for Contaminated Sharps

The following work practice controls are required for **contaminated sharps**:

These procedures are recommended for all sharps handling, regardless of contamination status.

- **Minimize the handling** of all sharps.
- **Never** shear or break contaminated needles.¹⁴⁷
- **Never** bend, recap, or remove contaminated needles and other contaminated sharps except as below:¹⁴⁸
 - ❖ The SUPERVISOR/PRINCIPLE INVESTIGATOR can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.¹⁴⁹
 - ❖ Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.¹⁵⁰
- **Never** recap used needles or use any other technique that involves directing the point of a needle or sharp toward any part of the body. If recapping is necessary use mechanical device designed for holding the needle sheath. Contact EHS for alternative methods.¹⁵¹ **Two-handed recapping is prohibited.**
- **Never** remove used needle from syringe or blade from handle by hand.
- **Always** promptly discard needles and other sharps into approved sharps containers.^{152 153}
- **Never** jam or force needles and other sharps into sharps containers.
- **Never** fill sharps containers over the maximum fill line on the container.
- **Never** insert fingers or hand into any sharps container.

If it is necessary to open or enter a sharps container, contact your supervisor, principle investigator and/or EHS.

¹⁴⁶ [1910.1030\(d\)\(2\)\(vii\)](#)

¹⁴⁷ [1910.1030\(d\)\(2\)\(vii\)](#)

¹⁴⁸ [1910.1030\(d\)\(2\)\(vii\)](#)

¹⁴⁹ [1910.1030\(d\)\(2\)\(vii\)\(A\)](#)

¹⁵⁰ [1910.1030\(d\)\(2\)\(vii\)\(B\)](#)

¹⁵¹ [1910.1030\(d\)\(2\)\(vii\)\(B\)](#)

¹⁵² [1910.1030\(d\)\(2\)\(viii\)](#)

¹⁵³ [030\(d\)\(4\)\(iii\)\(A\)\(1\)](#)

9.3.2.2.1 General Guidelines

During use, containers for contaminated sharps shall be:¹⁵⁴

- easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found (e.g., laundries);¹⁵⁵
 - maintained upright throughout use; and¹⁵⁶
 - replaced routinely and not be allowed to overfill.¹⁵⁷
- ❖ A supply of approved sharps containers shall be kept in Wright State's Lab Stores. (See Appendix E)

9.3.2.2.2 Moving Sharps Containers¹⁵⁸

When moving containers of contaminated sharps from the area of use, the containers shall be:¹⁵⁹

- closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;¹⁶⁰
- placed in a secondary container if leakage is possible.¹⁶¹

9.3.2.3 Reusable Sharps Containers¹⁶²

Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.¹⁶³

9.3.3 Practices for Other Regulated Waste Containment¹⁶⁴

Regulated waste shall be placed in containers which are:¹⁶⁵

- closable;¹⁶⁶
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;¹⁶⁷
- labeled or color-coded in accordance with 29 CFR 1910.1030;¹⁶⁸ and
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.¹⁶⁹

9.3.3.1 Secondary Containers for Sharps Containers

During use, containers for contaminated sharps **shall** be placed in a secondary container if leakage is possible.¹⁷⁰

¹⁵⁴ 1910.1030(d)(4)(iii)(A)(2)

¹⁵⁵ [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)

¹⁵⁶ 1910.1030(d)(4)(iii)(A)(2)(ii)

¹⁵⁷ 1910.1030(d)(4)(iii)(A)(2)(iii)

¹⁵⁸ 1910.1030(d)(4)(iii)(A)(3)

¹⁵⁹ 1910.1030(d)(4)(iii)(A)(3)

¹⁶⁰ 1910.1030(d)(4)(iii)(A)(3)(i)

¹⁶¹ 1910.1030(d)(4)(iii)(A)(3)(ii)

¹⁶² [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

¹⁶³ [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

¹⁶⁴ [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

¹⁶⁵ 1910.1030(d)(4)(iii)(B)(1)

¹⁶⁶ 1910.1030(d)(4)(iii)(B)(1)(i)

¹⁶⁷ 1910.1030(d)(4)(iii)(B)(1)(ii)

¹⁶⁸ 1910.1030(d)(4)(iii)(B)(1)(iii)

¹⁶⁹ 1910.1030(d)(4)(iii)(B)(1)(iv)

The secondary container shall be:¹⁷¹

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- closable;¹⁷²
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping;¹⁷³ and
- labeled or color-coded according to 29 CFR 1910.1030.¹⁷⁴

Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.¹⁷⁵

9.3.4 Procedures for Evaluating Needle Use

Each SUPERVISOR/PRINCIPLE INVESTIGATOR must evaluate the use of needles.

Where possible, alternatives must be utilized and if unable to eliminate the use of needles entirely, new safety features for needle systems or needleless systems ***must be evaluated***. The evaluation must determine which safety features or safe needle devices can be implemented most effectively. Documentation is required to show the devices evaluated and why they did/did not work for your application, including the implementation date for each specific new device.

If employees are responsible for direct patient care and are potentially exposed to injuries from contaminated sharps, non-managerial employees must be solicited for input from in identifying, evaluating and selecting engineering and safe work practices. This solicitation must be documented.

9.3.5 General Work Practice Controls

- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.¹⁷⁶

OSHA's bloodborne pathogens standard prohibits the consumption of food and drink in areas in which work involving exposure or potential exposure to blood or other potentially infectious material takes place, or where the potential for contamination of work surfaces exists [29 CFR 1910.1030(d)(2)(ix)]. Also, under General Environmental Control: Sanitation, 29 CFR 1910.141(g)(2), employees shall not be allowed to consume food or beverages in any area exposed to a toxic material.¹⁷⁷

¹⁷⁰ 1910.1030(d)(4)(iii)(A)(2)

¹⁷¹ 1910.1030(d)(4)(iii)(A)(3)(ii)

¹⁷² 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

¹⁷³ 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

¹⁷⁴ 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

¹⁷⁵ [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

¹⁷⁶ [1910.1030\(d\)\(2\)\(ix\)](#)

¹⁷⁷ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25506



Figure 6: Example of No Food or Drink Sign (left)

Figure 7: Example of No Food or Drink Sign (right)

- Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or other potentially infectious materials are present.¹⁷⁸
- All procedures involving blood or OPIM shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets (e.g., aerosols) of these substances.¹⁷⁹
- Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.¹⁸⁰
- Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.¹⁸¹

OSHA will accept the Department of Transportation's (DOT's) "INFECTIOUS SUBSTANCE" label in lieu of the "BIOHAZARD" label on packages where the DOT requires its label on shipped containers, but will require the BIOHAZARD label where OSHA regulates a material but DOT does not. If the DOT-required label is the only label used on the outside of the transport container, the OSHA-mandated label must be applied to any internal containers containing blood or OPIM. The BIOHAZARD label is fluorescent orange with lettering and symbols in a contrasting color.¹⁸²



Figure 8: Example of DOT Infectious Substance Label. This label may be used in lieu of the "BIOHAZARD" label for shipped containers.

¹⁷⁸ 1910.1030(d)(2)(x)

¹⁷⁹ [1910.1030\(d\)\(2\)\(xi\)](#)

¹⁸⁰ 1910.1030(d)(2)(xii)

¹⁸¹ [1910.1030\(d\)\(2\)\(xiii\)](#)

¹⁸² http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24253

An intact human body, whether alive or dead, is not a "specimen" of blood or other potentially infectious materials to which the containerization and labeling requirements of 29 CFR 1910.1030(d)(2)(xiii) would apply. Although the standard does not require labeling of a container holding a human body as a biohazard, the need to utilize a means of containment under certain circumstances, such as decay or trauma, to contain blood or other potentially infectious materials and prevent exposure may be required.¹⁸³

- The container for storage, transport, or shipping shall be labeled or color-coded according to 29 CFR 1910.1030 and closed prior to being stored, transported, or shipped.
- Wright State utilizes Universal Precautions in the handling of all specimens. Although the labeling/color-coding of specimens is not necessary provided containers are recognizable as containing specimens provided they remain within a facility, Wright State requires labeling or color-coding for all specimens and containers. Exemptions to this requirement require the approval from the Director of EHS and/or the Institutional Biosafety Committee. Labeling or color-coding in accordance with paragraph 29 CFR 1910.1030 (g)(1)(i) is always required when such specimens/containers leave the facility.¹⁸⁴

9.3.6 Procedures for Specimens of Blood, Tissue, or OPIM

9.3.6.1 Primary Containers

Specimens of blood, tissue or OPIMs shall be placed in leak-proof primary containers during collection, transport, handling and storage.

9.3.6.2 Secondary Containers for Transport

Specimens of blood, tissue or OPIMs transported outside of the immediate area for diagnostic purposes shall be placed inside a secondary container (e.g., specimen bags) with the requisition slip or labels outside of the secondary container. The container used for this purpose will be labeled or color-coded (red) in accordance with the requirements of the 29 CFR 1910.1030 and will be closed prior to handling.

Tupperware®, Rubbermaid®, Glad-Ware®, Ziploc®-type plastic bags, plastic tote-like tubs, or lidded plastic buckets may be used as secondary containers to move specimens from one area of the facility to another. Baggies must be "zipped" and containment receptacles must be sealed with a lid when transferring blood or other potentially infectious materials outside the confines of each assigned work/research area(s) and labeled or color-coded (red) in accordance requirements of the 29 CFR § 1910.1030 .

¹⁸³ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20693

¹⁸⁴ 1910.1030(d)(2)(xiii)(A)



Figure 9: Example of Primary Container with Labeled Secondary Container (Princeton University, 2009)

Biohazard Label (Wright State University EHS, 2010)

All shippers of infectious material must attend additional training to fulfill regulatory DOT and/or IATA requirements. For details, contact EHS.

9.3.6.3 Contaminated Containers

If contamination outside of the primary container occurs, the primary container shall be placed within a secondary container which prevents leakage during the handling, processing, storage, transport, or shipping of the infectious agent.¹⁸⁵

The SUPERVISOR/PRINCIPLE INVESTIGATOR is responsible to provide the adequate containment receptacles and labeling tape for all areas of use.

9.3.7 Procedures for Contaminated Equipment

The user shall decontaminate potentially contaminated equipment before it is repaired, serviced, or shipped with an approved disinfectant.

Patient-care and other equipment that has been soiled with blood, body fluids, secretions, and/or excretions must be handled in a manner that prevents skin and mucous membrane exposure, contamination of clothing, and transfer of microorganisms to other patients and environments.

Equipment that cannot be fully decontaminated shall be labeled with a biohazard warning prior to service, repair, transport, or shipment. The person responsible for repairing the equipment or a representative from the repair company shall be notified of the possible contamination. Do not relocate this equipment to other laboratories, patient rooms, or clean utility areas until it has been properly cleaned.

The SUPERVISOR/PRINCIPLE INVESTIGATOR must contact the shipper or service provider to obtain their labeling requirements prior to shipping or servicing of contaminated equipment.

¹⁸⁵ 1910.1030(d)(2)(xiii)(B)

Wright State University's clinical and/or research laboratories biosafety level are determined by the Institutional Biosafety Committee (IBC). These laboratories will operate in accordance with CDC/NIOSH Biosafety in Microbiological and Biomedical Laboratories and Wright State's institutional policies and may include the following practices, barriers, safety equipment and facility requirements: (United States Department of Labor)

9.3.8.1 Standard Microbiological Practices (Centers for Disease Control and Prevention, 2011)

1. The laboratory supervisor must enforce the institutional policies that control access to the laboratory.
2. Persons must wash their hands after working with potentially hazardous materials and before leaving the laboratory.
3. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption must not be permitted in laboratory areas. Food must be stored outside the laboratory area in cabinets or refrigerators designated and used for this purpose.
4. Mouth pipetting is prohibited; mechanical pipetting devices must be used.
5. Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be developed and implemented. Whenever practical, laboratory supervisors should adopt improved engineering and work practice controls that reduce risk of sharps injuries. Precautions, including those listed below, must always be taken with sharp items. These include:
 - a. Careful management of needles and other sharps are of primary importance. Needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.
 - b. Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal.
 - c. Non-disposable sharps must be placed in a hard walled container for transport to a processing area for decontamination, preferably by autoclaving.
 - d. Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plasticware should be substituted for glassware whenever possible.
6. Perform all procedures to minimize the creation of splashes and/or aerosols.
7. Decontaminate work surfaces after completion of work and after any spill or splash of potentially infectious material with appropriate disinfectant.
8. Decontaminate all cultures, stocks, and other potentially infectious materials before disposal using an effective method. Depending on where the decontamination will be performed, the following methods should be used prior to transport.
 - a. Materials to be decontaminated outside of the immediate laboratory must be placed in a durable, leak proof container and secured for transport.
 - b. Materials to be removed from the facility for decontamination must be packed in accordance with applicable local, state, and federal regulations.
9. A sign incorporating the universal biohazard symbol must be posted at the entrance to the laboratory when infectious agents are present. The sign may include the name of the agent(s) in use, and the name and phone number of the laboratory supervisor or other responsible personnel. Biological agent information should be posted in accordance with the institutional policy.
10. An effective integrated pest management program is required.
11. The laboratory supervisor must ensure that laboratory personnel receive appropriate training regarding their duties, the necessary precautions to prevent exposures, and exposure evaluation procedures. Personnel must receive annual updates or additional training when procedural or policy changes occur. Personal health status may impact an individual's susceptibility to infection, ability to receive immunizations or prophylactic interventions.

Therefore, all laboratory personnel and particularly women of childbearing age should be provided with information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions should be encouraged to self-identify to the institution's healthcare provider for appropriate counseling and guidance. 43

9.3.8.2 Special Practices

1. All persons entering the laboratory must be advised of the potential hazards and meet specific entry/exit requirements.
2. Laboratory personnel must be provided medical surveillance, as appropriate, and offered available immunizations for agents handled or potentially present in the laboratory.
3. The collection and storage of serum samples may be considered from at-risk personnel.
4. A laboratory-specific biosafety manual must be prepared and adopted as policy. The biosafety manual must be available and accessible.
5. The laboratory supervisor must ensure that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with BSL-2 agents.
6. Potential infectious materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.
7. Laboratory equipment should be routinely decontaminated, as well as, after spills, splashes, or other potential contamination.
 - a. Spills involving infectious material must be contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.
 - b. Equipment must be decontaminated before repair, maintenance, or removal from the laboratory.
8. Incidents that may result in exposure to infectious materials must be immediately evaluated and treated according to procedures described in the laboratory biosafety manual. All such incidents must be reported to the laboratory supervisor. Medical evaluation, surveillance, and treatment should be provided and appropriate records maintained.
9. Animal and plants not associated with the work being performed must not be permitted in the laboratory.
10. All procedures involving the manipulations of infectious materials that may generate an aerosol should be conducted within a BSC or other physical containment device.

9.3.8.3 Primary barriers and safety equipment

1. Properly maintained BSCs, other appropriate PPE, or other physical containment devices must be used whenever:
 - procedures with a potential for creating infectious aerosols or splashes are conducted. these may include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.
 - high concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory using sealed rotor heads or centrifuge safety cups.
2. Protective laboratory coats, gowns, smocks, or uniforms designated for laboratory use must be worn while working with hazardous materials. Remove protective clothing before leaving for non-laboratory areas, e.g., cafeteria, library, and administrative offices). Dispose of protective clothing appropriately, or deposit it for laundering by the institution. It is recommended that laboratory clothing not be taken home.
3. Eye and face protection (goggles, mask, face shield or other splatter guard) is used for anticipated splashes or sprays of infectious or other hazardous materials when the microorganisms must be handled outside the BSC or containment device. Eye and face protection must be disposed of with other contaminated laboratory waste or decontaminated before reuse. Persons who wear contact lenses in laboratories should also wear eye protection.
4. Gloves must be worn to protect hands from exposure to hazardous materials. Glove selection should be based on an appropriate risk assessment. Alternatives to latex gloves should be

available. Gloves must not be worn outside the laboratory. In addition, BSL-2 laboratory workers should: 44

- Change gloves when contaminated, glove integrity is compromised, or when otherwise necessary.
 - Remove gloves and wash hands when work with hazardous materials has been completed and before leaving the laboratory.
 - Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste. Hand washing protocols must be rigorously followed.
5. Eye, face and respiratory protection should be used in rooms containing infected animals as determined by the risk assessment.

9.3.8.4 Laboratory facilities (secondary barriers)

1. Laboratories doors should be self-closing and have locks for access control.
2. Laboratories must have a sink for hand washing.
3. The laboratory should be designed so that it can be easily cleaned. Carpet and rugs in laboratories are not appropriate.
4. Laboratory furniture must be capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment should be accessible for cleaning.
 - a. Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.
 - b. Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.
5. BSCs must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.
6. Vacuum lines should be protected with liquid disinfectant traps.
7. An eyewash station must be readily available.
8. There are no specific requirements for ventilation systems. However, planning of new facilities should consider mechanical ventilation systems that provide an inward flow of air without recirculation to spaces outside of the laboratory.
9. HEPA filtered exhaust air from a Class II BSC can be safely recirculated back into the laboratory environment if the cabinet is tested and certified at least annually and operated according to manufacturer's recommendations. BSCs can also be connected to the laboratory exhaust system by either a thimble (canopy) connection or directly exhausted to the outside through a hard connection. Provisions to assure proper safety cabinet performance and air system operation must be verified.
10. A method for decontaminating all laboratory wastes should be available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).
11. Autoclave available.

9.3.8.5 Biosafety Level 3 and 4 Laboratories

Biosafety level 3 and 4 laboratories must have a laboratory-specific biosafety manual for specific procedure and facility requirements.

9.4 Personal Protective Equipment (PPE)¹⁸⁶

9.4.1 Provision¹⁸⁷

Appropriate PPE must be provided for employee use where there is occupational exposure. PPE will be considered "appropriate" only if it does not permit blood or OPIMs to pass through to or reach the employee's work clothes, street clothes,

¹⁸⁶ 1910.1030(d)(3)

¹⁸⁷ [1910.1030\(d\)\(3\)\(i\)](#)

undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time, which the protective equipment will be used.¹⁸⁸

Examples of PPE include the following:

- gloves;
- masks, eye protection, and face shields;
- gowns, aprons, and other protective body clothing; and
- surgical caps or hoods and/or shoe covers or boots¹⁸⁹

9.4.2 **Use**¹⁹⁰

SUPERVISOR/PRINCIPLE INVESTIGATORs shall ensure that the employee uses appropriate PPE unless Wright State shows that the employee temporarily and briefly declined to use PPE when, under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of health care or public safety services or would have posed an increased hazard to the safety of the worker or co-worker. When the employee makes this judgement, the circumstances shall be investigated and documented in order to determine whether changes can be instituted to prevent such occurrences in the future.¹⁹¹

Employees are trained regarding the use of the appropriate PPE for their job classification and task/procedures they perform. Additional training is provided, when necessary, if an employee takes a new position or new job functions are added to their current job. Any needed training is provided by their SUPERVISOR/PRINCIPLE INVESTIGATOR.

9.4.3 **Accessibility**¹⁹²

Wright State shall ensure that appropriate PPE in the appropriate sizes is readily accessible at the worksite or is issued to employees.

Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives shall be readily accessible to those employees who are allergic to the gloves normally provided.¹⁹³

9.4.4 **Cleaning, Laundering, and Disposal**¹⁹⁴

All PPE shall be cleaned, laundered, and disposed by Wright State at no cost to the employee.¹⁹⁵

Home laundering of PPE is prohibited.

¹⁸⁸ [1910.1030\(d\)\(3\)\(i\)](#)

¹⁸⁹ [1910.1030\(d\)\(3\)\(i\)](#)

¹⁹⁰ [1910.1030\(d\)\(3\)\(ii\)](#)

¹⁹¹ [1910.1030\(d\)\(3\)\(ii\)](#)

¹⁹² [1910.1030\(d\)\(3\)\(iii\)](#)

¹⁹³ [1910.1030\(d\)\(3\)\(iii\)](#)

¹⁹⁴ [1910.1030\(d\)\(3\)\(iv\)](#)

¹⁹⁵ [1910.1030\(d\)\(3\)\(iv\)](#)

SUPERVISOR/PRINCIPLE INVESTIGATORS shall repair or replace PPE as needed to maintain its effectiveness, at no cost to the employee.¹⁹⁷

9.4.6 **Removal**¹⁹⁸

If a garment(s) is penetrated by blood or OPIM, the garment(s) shall be removed immediately or as soon as feasible.¹⁹⁹

All PPE shall be removed prior to leaving the work area.²⁰⁰

When PPE is removed it shall be placed in an appropriately designated area or container for storage, washing, decontamination or disposal.²⁰¹

Example 1: Contaminated gloves, masks, and disposable gowns shall be discarded into a red-bag lined receptacle after each use and/or between patients.

Example 2: Contaminated goggles, glasses and face shields will be cleaned and disinfected with the cleaning and disinfecting agents provided before leaving the work area.

9.4.6.1 **Conditions for use**

Protective gloves (non-sterile examination gloves, sterile gloves, or utility gloves) are worn in the following situations:

- when it can be reasonably anticipated that the employee may have hand contact with blood, OPIMs, mucous membranes, and non-intact skin;
- when performing vascular access procedures; or
- when handling or touching contaminated items or surfaces to protect the hands.²⁰²

Example 1: Clean gloves must be put on before touching mucous membranes and non-intact skin.²⁰³

Example 2: Gloves must be changed between tasks and procedures on the same patient, and after contact with material that may contain a high concentration of microorganisms.

Disposable (single use) gloves such as surgical or examination gloves will be replaced as soon as practical when contaminated or when their ability to function as a barrier has been compromised.²⁰⁴

Never wash or decontaminate disposable (single-use) gloves for reuse.²⁰⁵

¹⁹⁶ 1910.1030(d)(3)(v)

¹⁹⁷ 1910.1030(d)(3)(v)

¹⁹⁸ 1910.1030(d)(3)(vi)

¹⁹⁹ 1910.1030(d)(3)(vi)

²⁰⁰ 1910.1030(d)(3)(vii)

²⁰¹ 1910.1030(d)(3)(viii)

²⁰² 1910.1030(d)(3)(ix)

²⁰³ 1910.1030(d)(3)(ix)

²⁰⁴ 1910.1030(d)(3)(ix)(A)

²⁰⁵ 1910.1030(d)(3)(ix)(B)

Gloves must be removed promptly after use, before touching items and surfaces⁴⁷ that are not contaminated, and before going to another patient.²⁰⁶

Gloves must be removed prior to leaving the work area.²⁰⁷

If an employee exhibits allergic symptoms to the disposable gloves provided, the employee shall report the condition to his/her supervisor and seek medical evaluation. (See accident/injury reporting) Gloves made of an alternative material will be provided.²⁰⁸ The use of nitrile, powder-free latex or latex-free products is recommended to help prevent latex allergies. (Centers for Disease Control, 2009)

Utility gloves that are non-disposable may be decontaminated for re-use if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, punctured, or exhibit other signs of deterioration or when their ability to function as a barrier is compromised.²⁰⁹

9.4.6.2 **Glove Use for Phlebotomy**²¹⁰

Personnel must wear gloves whenever any vascular access procedure is performed, including phlebotomy.

9.4.6.2.1 **Volunteer Blood Donation Centers**

Wright State requires the use of gloves in all phlebotomy procedures. However, phlebotomy in volunteer blood donation centers is the only instance where some flexibility is permitted provided certain requirements are fulfilled. If Wright State allows its volunteer blood donation centers or facilities to judge that routine gloving for all phlebotomies is not necessary then Wright State shall:

- periodically reevaluate this policy;²¹¹
- make gloves available to all employees who wish to use them for phlebotomy;²¹²
- not discourage the use of gloves for phlebotomy²¹³; and
- require that gloves be used for phlebotomy in the following circumstances:²¹⁴
 - when the employee has cuts, scratches, or other breaks in his or her skin;²¹⁵
 - when the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual;²¹⁶ and
 - when the employee is receiving training in phlebotomy.²¹⁷

²⁰⁶ 1910.1030(d)(3)(vii)

²⁰⁷ 1910.1030(d)(3)(vii)

²⁰⁸ 1910.1030(d)(3)(iii)

²⁰⁹ 1910.1030(d)(3)(ix)(C)

²¹⁰ 1910.1030(d)(3)(ix)(D)

²¹¹ 1910.1030(d)(3)(ix)(D)(1)

²¹² 1910.1030(d)(3)(ix)(D)(2)

²¹³ 1910.1030(d)(3)(ix)(D)(3)

²¹⁴ 1910.1030(d)(3)(ix)(D)(4)

²¹⁵ 1910.1030(d)(3)(ix)(D)(4)(i)

²¹⁶ 1910.1030(d)(3)(ix)(D)(4)(ii)

²¹⁷ 1910.1030(d)(3)(ix)(D)(4)(iii)

A number of factors, including employee training, expertise/proficiency level of technologists, adherence to standard operating procedures, and use of good work practices, may play a role in determining whether a technologist would be likely to contact biological organisms when handling incubated plates. Since it is likely for the exterior surface of a culture plate (or other culture-media container) to become contaminated prior to incubation, it is advisable that contact precautions are practiced even after the plates have been incubated and the organisms have grown out. The use of gloves is therefore encouraged to augment good work practices while reading and subculturing plates.

This is consistent with various laboratory guidance documents, which offer best-practice recommendations on the appropriate use of gloves in laboratory settings. One such document, the Clinical and Laboratory Standards Institute's publication, *Protection of Laboratory Workers From Occupationally Acquired Infections; Approved Guideline - Third Edition*, states, "[l]aboratory workers are advised to wear gloves when handling material or working in areas that may be contaminated with blood or potentially infectious material. In some cases contamination is not always visible." In the U.S. Department of Health and Human Services' publication, *Biosafety in Microbiological and Biomedical Laboratories*, 5th Edition, 2009, it is stated, "[g]loves must be worn to protect hands from exposure to hazardous materials. Glove selection should be based on an appropriate risk assessment."

9.4.7 **Masks, Eye Protection, and Face Shields**²¹⁹

Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, shall be worn whenever splashes, spray, spatter, or droplets of blood or OPIMs may be generated and eye, nose, or mouth contamination can be reasonably anticipated.²²⁰

9.4.8 **Gowns, Aprons, and Other Protective Body Clothing**²²¹

Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated.²²²

Gowns, aprons, and other protective body coverings shall be removed prior to leaving the work area.²²³

²¹⁸ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=28667

²¹⁹ 1910.1030(d)(3)(x)

²²⁰ 1910.1030(d)(3)(x)

²²¹ 1910.1030(d)(3)(xi)

²²² 1910.1030(d)(3)(xi)

²²³ 1910.1030(d)(3)(vii)

Surgical caps or hoods and/or shoe covers or boots shall be worn in instances when gross contamination can reasonably be anticipated (e.g., autopsies, orthopaedic surgery).²²⁵

In circumstances where it is reasonable to anticipate that blood will contact the feet, employers must provide employees with protective gear to cover shoes which will be worn outside. (The bloodborne pathogens standard does not consider shoes worn outside the facility as personal protective equipment, regardless of whether the shoes cover the toes or not.)²²⁶ Socks are not considered a protective barrier for preventing soak-through of blood or OPIM.²²⁷

Surgical caps or hoods and/or shoe covers or boots shall be removed prior to leaving the work area.²²⁸

9.4.10 Filtering Facepiece Respirators

NIOSH-approved N95 filtering facepiece respirators are used to protect wears from airborne particles, including pathogens.

The proper use of engineering controls and appropriate work practices should eliminate the use of respirators. If required, respirator use must be preceded by medical clearance, and formal training, and fit testing..

9.5 Housekeeping²²⁹

The worksite shall be maintained in a clean and sanitary condition. Wright State shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.²³⁰ Physical Plant's Custodial Services Office maintains a written schedule for cleaning and decontamination of various areas of the facility. The following information is provided:

- The area to be cleaned/decontaminated.
- Day and time of the scheduled work.
- Cleaners and disinfectants to be used.
- Any special instructions that is appropriate.

All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or OPIM.²³¹

Examples of equipment include:

- biosafety cabinets,

²²⁴ 1910.1030(d)(3)(xii)

²²⁵ 1910.1030(d)(3)(xii)

²²⁶ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25497

²²⁷ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25497

²²⁸ 1910.1030(d)(3)(vii)

²²⁹ 1910.1030(d)(4)

²³⁰ 1910.1030(d)(4)(i)

²³¹ 1910.1030(d)(4)(ii)

- mechanical pipetting devices, and
- splash guards.

All floors, laboratory benches and other surfaces shall be chemically decontaminated as often as deemed necessary by the SUPERVISOR/PRINCIPLE INVESTIGATOR.

The chemical decontaminant used must either be (Selected EPA-registered Disinfectants | Pesticides | US EPA):

- an EPA-registered tuberculocidals (see Appendix F: List B), (US Environmental Protection Agency Office of Pesticide Programs, 2014)
- sterilants (see Appendix G: List A) (US Environmental Protection Agency Office of Pesticide Programs, 2014), or
- products registered against HIV/HBV (See Appendix G: List D) (US Environmental Protection Agency Office of Pesticide Programs, 2009)

Appropriate disinfectants include:

- a diluted bleach solution and EPA-registered tuberculocides (Appendix F: List B) (US Environmental Protection Agency Office of Pesticide Programs, 2014),
- sterilants registered by EPA (Appendix H: List A) (US Environmental Protection Agency Office of Pesticide Programs, 2014),
- products registered against HIV/HBV (Appendix G: List D) or Sterilants/ High Level Disinfectants cleared by the FDA.

Any of the above products are considered effective when used according to the manufacturer's instructions, provided the surfaces have not become contaminated with agents or volumes of concentrations of agents for which higher level disinfection is recommended.²³²

Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of procedures; immediately or soon as feasible when surfaces are overtly contaminated with blood or OPIM; and at the end of the work shift if the surface has become contaminated since the last cleaning.²³³

Protective coverings, such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper used to cover equipment and environmental surfaces, shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the workshift if they may have become contaminated during the shift.²³⁴

All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.²³⁵

²³² https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2570

²³³ 1910.1030(d)(4)(ii)(A)

²³⁴ 1910.1030(d)(4)(ii)(B)

²³⁵ 1910.1030(d)(4)(ii)(C)

Broken glassware which may be contaminated shall not be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dustpan, tongs, or forceps.²³⁶

Reusable sharps that are contaminated with blood or other potentially infectious materials shall not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.²³⁷

9.5.1 Cleaning

9.5.1.1 Definition

Cleaning is the physical removal of organic material or soil from objects.

Cleaning must be accomplished with water, mechanical action, and detergents. One must visually inspect an object after the process to assure that cleaning has been completed.

9.5.1.2 Schedule

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall

- determine the cleaning schedule
- ensure the work area or laboratory is maintained in a clean and sanitary fashion.

9.5.2 Decontamination and Disinfection

9.5.2.1 Definition

Disinfection is the killing or inactivation of all microorganisms, except for some spore forms, on inanimate objects.

The efficacy of disinfecting is determined by a number of factors, including

- the type and level of microbial contamination,
- the activity of the disinfectant and
- the disinfectant contact time.

Organic material and soil can block disinfectant contact and may inhibit disinfectant activity. Therefore, cleaning must precede all disinfecting processes.

9.5.2.2 Procedures

Establishing decontamination procedures is the responsibility of the SUPERVISOR/PRINCIPLE INVESTIGATOR.

Example 1: A 1:10 of household bleach prepared daily is recommended for use in most circumstances.

➤ For assistance in selecting an appropriate disinfectant, contact EHS.

9.5.2.3 Spills

Only those persons properly trained may clean up spills.

²³⁶ 1910.1030(d)(4)(ii)(D)

²³⁷ 1910.1030(d)(4)(ii)(E)

If an untrained person encounters blood, they should limit access and find someone to help who is trained. 52

9.5.2.3.1 Spill clean-up procedure (World Health Organization) (World Health Organization)

The appropriate response in the event of exposure to any infectious substance is to wash or disinfect the affected area as soon as possible, regardless of the agent. Even if an infectious substance comes into contact with non-intact skin, washing of the affected area with soap and water or with an antiseptic solution can reduce the risk of infection. Medical advice should be obtained any time there is a suspected exposure to infectious substances resulting from a damaged package. The following procedure for clean-up can be used for spills of all infectious substances including blood.

1. Wear gloves and protecting clothing, including face and eye protection if indicated.
2. Cover the spill with a cloth or paper towels to contain it.
3. Pour an appropriate disinfectant over the cloth or paper towels and the immediately surrounding area (5% bleach solutions are generally appropriate)
4. Apply the disinfectant concentrically beginning at the outer margin of the spill area, working towards the center.
5. After about 30 min, clear away the materials. If there is broken glass or other sharps are involved, use a dustpan or a piece of stiff cardboard to collect the materials and deposit them into a puncture-resistant container for disposal.
6. Clean and disinfect the area of the spillage (if necessary, repeat steps 2–5).
7. Dispose of contaminated materials into a leak-proof, puncture-resistant waste disposal container.
8. After successful disinfection, report the incident to the SUPERVISOR/PRINCIPLE INVESTIGATOR and EHS and inform them that the site has been decontaminated (see Incident reporting).

Detailed information on disinfectants and their recommended use can be found in Laboratory Biosafety Manual, 3rd ed., Geneva, World Health Organization, 2004.

9.5.3 Categories of Disinfectants (Rutala, 2008)

Disinfectants can be divided into hierarchical categories of antimicrobial activity.

1. **Low-level disinfectants** kill most bacteria and some fungi, and inactivate some viruses. They do not reliably kill *Mycobacterium tuberculosis* or bacterial spores.
2. **Intermediate-level disinfectants** kill most bacteria including *Mycobacterium tuberculosis*, and most fungi. They inactivate most viruses and kill some bacterial spores.
3. **High-level disinfectants** destroy or inactivate all microorganisms, including most bacterial spores.

9.5.4 Categories of Patient Care Item Disinfecting Requirements

1. **Noncritical items** are those that come into contact with intact skin but not with mucous membranes; for example, blood pressure cuffs. Low-level disinfectants may be used for these items.
2. **Semi critical items** are those, which come into contact with mucous membranes or non-intact skin. Most of these items require high-level disinfecting; for example, respiratory therapy equipment and endoscopes. Some semicritical items may require only intermediate-level disinfecting; for example, hydrotherapy tanks and thermometers.
3. **Critical items** are those that enter sterile tissue or the vascular system. Most of these items must be sterilized. Examples are surgical instruments and cardiac catheters. A few

types of critical items, such as arthroscopes and laparoscopes, may be disinfected with high-level disinfectants.

9.5.5 Disinfecting of Environmental and Medical Equipment Surfaces (Non-Critical Item)

1. Environmental surfaces, such as floors, walls, and tables, are usually not involved in the infectious transmission. A detergent, with or without low-level disinfectant activity, is sufficient for the usual, general cleaning of these surfaces.
2. When such a surface is significantly contaminated by large quantities of blood, an absorbent drape or paper towel should be placed over the contaminated material and an intermediate level disinfectant should be sprayed or poured over the paper towel. After 10 minutes of exposure, the drape/paper towel should be discarded. An intermediate-level disinfectant should then be applied to the surface.
3. Medical equipment surfaces, such as those on the switches and knobs of patient monitoring equipment, may potentially play a role in the transmission of infectious diseases. Although these surfaces do not come into direct contact with patients, they may become contaminated with patient material via the hands of health care personnel; personnel who subsequently touch the contaminated surfaces may transmit microorganisms by touching other patients. Medical equipment surfaces should be disinfected with a low-level or intermediate-level disinfectant.

9.5.6 Approved Products for Cleaning and Disinfecting

- **Bleach (sodium hypochlorite)** – The solution must be 10-15% by volume (v/v) household bleach in water (for example 1 cup of household bleach mixed with 9 cups of water for a 10% solution). The solution must be dated when made and used within 24 hours. Bleach solutions are only recommended for laboratory use. More concentrated bleach solutions are not necessary, as they do not increase the disinfectant properties of the solution.
- **Chemical agents that have an EPA registration number** – These chemicals must be used according to the manufacturer's instructions. These products are recommended for all applications outside of a laboratory.
- **Other chemical solutions** – To use another agent that is not registered by the EPA, you must contact EHS for approval. Procedures on proper use, exposure limits, or specific information related to disinfecting agents applicable to the potentially infectious material in use will be reviewed.

9.6 Regulated (Infectious) Waste²³⁸

Regulated waste refers to the following categories of waste which require special handling:²³⁹

1. Liquid or semi-liquid blood or OPIM;
2. Items contaminated with blood or OPIM and which would release these substances in a liquid or semi-liquid state if compressed;
3. Items that are caked with dried blood or OPIM and are capable of releasing substances in a liquid or semi-liquid state if compressed;
4. Items that are caked with dried blood or OPIM and are capable of releasing substances during handling;
5. Contaminated sharps; and
6. Pathological and microbiological wastes containing blood or OPIM.

²³⁸ 1910.1030(d)(4)(iii)

²³⁹ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

Regulated waste is determined by the potential to release blood or OPIM (e.g., when compacted in a waste container). Observations of pools of blood on the bottom of containers or the release of flaked blood during handling would identify sources of regulated wastes.²⁴⁰

Feminine hygiene products used to absorb menstrual flow are not generally considered infectious waste. The absorbant material, when compressed, under most conditions prevent the release of liquid or semi-liquid blood or the flaking off of dried blood.²⁴¹

Feminine hygiene products should be discarded into waste container which are properly lined with plastic or wax paper bags. These liners should protect employees from physical contact with the contents.²⁴²

9.6.2 Disposal of Regulated Waste

Disposal of all regulated (infectious) waste shall be in accordance with applicable regulations of the United States, States and Territories, and political subdivisions of States and Territories.²⁴³ As such, Wright State must meet the requirements of the Ohio Administrative Code (OAC) 3745-27-30. (LAWriter Ohio Laws and Rules, 2007)

Wright State University is a large generator of infectious waste since over 50 pounds of infectious waste is generated in any calendar month. (LAWriter Ohio Laws and Rules, 2013) As a large generator of infectious waste, Wright State must comply with Ohio's infectious waste regulations including:

- waste segregation,
- management,
- storage, and
- treatment of infectious wastes.

9.6.3 Segregation

All waste must be separated at the point of generation. At a minimum, infectious wastes shall be placed in separate containers, from other wastes until rendered non-infectious. (LAWriter Ohio Laws and Rules, 2007)

Infectious Sharps: All infectious sharps must be placed in a sharps container. (LAWriter Ohio Laws and Rules, 2007)²⁴⁴

Untreated liquid or semi-liquid infectious waste: Infectious wastes consisting of blood, blood products, body fluids, and excreta may be disposed of into a sanitary sewer if the disposal is allowed for the wastewater treatment system. (LAWriter Ohio Laws and Rules, 2007)²⁴⁵

²⁴⁰ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

²⁴¹ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

²⁴² https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051

²⁴³ [1910.1030\(d\)\(4\)\(iii\)\(C\)](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

²⁴⁴ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf

²⁴⁵ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf

Other infectious wastes: All other categories of infectious waste must be segregated at the point of generation from the rest of the waste stream. At a minimum, infectious wastes shall be placed in separate containers, from other wastes until rendered non-infectious. (LAWriter Ohio Laws and Rules, 2007)²⁴⁶ 55

Hazardous waste: Any infectious waste or infectious waste mixture that meets the definition of hazardous waste shall be managed as a hazardous waste. (LAWriter Ohio Laws and Rules, 2007)²⁴⁷

Radioactive waste: Any infectious waste that is also radioactive shall:²⁴⁸

1. Be managed in accordance with applicable Ohio Department of Health (ODH) and U.S. Nuclear Regulatory Commission (NRC) regulations; and
2. Use a monitoring instrument, calibrated at least annually, to verify that infectious waste that is also radioactive is no longer required to be managed in accordance with ODH and U.S. NRC; and
3. Not transport, or cause to be transported, any infectious waste that is also radioactive to an infectious waste treatment facility licensed under section 3734.05 of the Revised Code unless the monitoring instrument that the levels of radioactivity do not exceed ODH and U.S. NRC regulations for managing as a non-regulated material or waste.
4. Infectious waste that is also radioactive but no longer required to be managed in accordance with ODH or U.S. NRC regulations shall be handled in accordance with rule 3745-27-35 of the Administrative Code.

9.6.4 Handling Infectious Wastes²⁴⁹

Wright State shall adhere to the following requirements for all in-use and stored containers of infectious waste: (LAWriter Ohio Law and Rules, 2013)²⁵⁰

1. Handle infectious waste containers in a manner and location that maintains the integrity of the container;
2. Lock outside storage areas containing infectious wastes containers to prevent unauthorized access; and
3. Designate infectious waste storage areas. Those storage areas that are not locked shall be visibly labeled with a sign stating "Warning: infectious waste" or displaying the international biohazard symbol at all points of access.

Wright State shall adhere to the following regulations for the management of infectious wastes within containers: (LAWriter Ohio Law and Rules, 2013)²⁵¹

1. Maintain infectious wastes in a nonputrescent state, using refrigeration or freezing when necessary;
2. If infectious waste becomes putrescent, then the waste must be immediately refrigerated or frozen and shall be treated and disposed of as soon as possible regardless of any storage time frame; and
3. Maintain infectious wastes in a manner that affords protection from animals and does not provide a breeding place or a food source for insects or rodents.

²⁴⁶ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf

²⁴⁷ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf

²⁴⁸ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf

²⁴⁹ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf

²⁵⁰ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf

²⁵¹ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf

9.6.5.1 Chemical Treatment with sodium hypochlorite for cultures (LAWriter Ohio Laws and Rules, 2013)²⁵³

The use of chemical treatment with sodium hypochlorite for cultures is intended for those cultures either with surface colonies or in suspension, as the chemical must come in direct contact with the cultures to effectively treat the microorganisms.

The methods, techniques, and practices for the treatment of cultures include the following:

1. The approved chemical treatment solution shall contain, volume per volume, fifteen percent sodium hypochlorite (household bleach);
The specific solution stated in OAC 3745-27-32 are percent solutions of household bleach, not percent solutions of the active ingredient, sodium hypochlorite. The hypochlorite concentration of household bleaches ranges from 3.00 to 5.25 percent. The resulting hypochlorite concentration of the treatment solution ranges from 0.45 to 0.79 percent (or 4500 to 7875 ppm). To make one gallon of treatment solution, mix 2.4 cups of household bleach and 3.4 quarts (13.6 cups) of water. (LAWriter Ohio Laws and Rules, 2013)
2. All cultures shall be submerged for a minimum of twenty minutes, in the chemical treatment solution;
3. Cultures of infectious agents that are recommended by the CDC to be handled in accordance with biosafety level 3 or 4 practices shall not be treated by a non-mechanical chemical treatment method;
4. Mix the treatment solution immediately prior to use and discard after use; and
5. Decant or absorb excess treatment solution from the cultures before disposal.

9.6.5.2 Other infectious treatment methods are not permitted

Wright State **does not allow** any other infectious waste treatment method including:

1. Incineration
2. Autoclaving
3. Applied heat encapsulation for sharps
4. Chemical treatment utilizing peracetic acid and grinding or
5. Any other alternative treatment technologies.

9.6.6 Contaminated Sharps Discarding and Containment²⁵⁴

All needles, syringes (needles are not to be removed from syringes), razors, glass tubes or glass pipettes contaminated with blood or OPIM, contaminated broken plastic and any other contaminated sharp object must be discarded within a rigid, leakproof, puncture resistant container that is labeled with the universal biohazard symbol.

Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:²⁵⁵

²⁵² http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32_current.pdf

²⁵³ http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32_current.pdf

²⁵⁴ 1910.1030(d)(4)(iii)(A)

²⁵⁵ 1910.1030(d)(4)(iii)(A)(1)

- closable²⁵⁶
- puncture resistant²⁵⁷
- leakproof on side and bottom²⁵⁸
- labeled or color-coded in accordance with 29 CFR 910.1030²⁵⁹

During use, containers for contaminated sharps shall be:²⁶⁰

- easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found (e.g., laundries);²⁶¹
- maintained upright throughout use; and²⁶²
- replaced routinely and not be allowed to overfill.²⁶³

When moving containers of contaminated sharps from the area of use, the containers shall be:²⁶⁴

- closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;²⁶⁵
- placed in a secondary container if leakage is possible. The second container shall be:²⁶⁶
 - closable;²⁶⁷
 - constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and²⁶⁸
 - labeled or color-coded according to 29 CFR 1910.1030.²⁶⁹

Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.²⁷⁰

9.6.7 Other Regulated Waste Containment²⁷¹

Regulated waste shall be placed in containers which are:²⁷²

- closable;²⁷³
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and²⁷⁴
- labeled or color-coded according to the 29 CFR 1910.1030.²⁷⁵
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.²⁷⁶

²⁵⁶ 1910.1030(d)(4)(iii)(A)(1)

²⁵⁷ 1910.1030(d)(4)(iii)(A)(1)(ii)

²⁵⁸ 1910.1030(d)(4)(iii)(A)(1)(iii)

²⁵⁹ 1910.1030(d)(4)(iii)(A)(1)(iv)

²⁶⁰ 1910.1030(d)(4)(iii)(A)(2)

²⁶¹ 1910.1030(d)(4)(iii)(A)(2)(i)

²⁶² 1910.1030(d)(4)(iii)(A)(2)(ii)

²⁶³ 1910.1030(d)(4)(iii)(A)(2)(iii)

²⁶⁴ 1910.1030(d)(4)(iii)(A)(3)

²⁶⁵ 1910.1030(d)(4)(iii)(A)(3)(i)

²⁶⁶ 1910.1030(d)(4)(iii)(A)(3)(ii)

²⁶⁷ 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

²⁶⁸ 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

²⁶⁹ 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

²⁷⁰ 1910.1030(d)(4)(iii)(A)(4)

²⁷¹ [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

²⁷² 1910.1030(d)(4)(iii)(B)(1)

²⁷³ 1910.1030(d)(4)(iii)(B)(1)(i)

²⁷⁴ 1910.1030(d)(4)(iii)(B)(1)(ii)

²⁷⁵ 1910.1030(d)(4)(iii)(B)(1)(iii)

If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:²⁷⁷ 58

- closable;²⁷⁸
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;²⁷⁹
- labeled or color-coded in accordance with the 29 CFR 1910.1030; and²⁸⁰
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.²⁸¹

9.6.8 Mixed Waste Sharps²⁸²

Carcinogens or Mutagens. Mixed waste sharps contaminated with carcinogens or mutagens must be separated from other sharps. These sharps must be discarded in an approved sharps container, labeled “Carcinogen Contaminated Sharps / Do Not Autoclave” and removed with other infectious waste.

Radionuclides. Sharps contaminated with radionuclides must be separated from other sharps.

9.7 Laundry²⁸³

9.7.1 Contaminated Laundry

The determination of whether an item is soiled is not based on actual volume of blood or OPIM, but rather on the potential to release blood or OPIM. The question is whether, when compacted, the item would release blood or OPIM or whether it is possible for dried blood or OPIM to flake off during handling. It is the supervisor’s responsibility to determine whether these criteria are met.²⁸⁴

It is unacceptable for contaminated PPE to be laundered at home by employees. However employees' uniforms or scrubs which are usually worn in a manner similar to street clothes are generally not intended to be PPE and are, therefore, not expected to be contaminated with blood or OPIM. These would not need to be handled in the same manner as contaminated laundry or contaminated PPE unless the uniforms or scrubs have not been properly protected and become contaminated.²⁸⁵

While many employees have traditionally provided and laundered their own uniforms or laboratory coats or the like, if the item's intended function is to act as PPE, then it is the supervisor’s responsibility to provide, clean, repair, replace, and/or dispose of it.²⁸⁶

²⁷⁶ 1910.1030(d)(4)(iii)(B)(1)(iv)

²⁷⁷ 1910.1030(d)(4)(iii)(B)(2)

²⁷⁸ 1910.1030(d)(4)(iii)(B)(2)(i)

²⁷⁹ 1910.1030(d)(4)(iii)(B)(2)(ii)

²⁸⁰ 1910.1030(d)(4)(iii)(B)(2)(iii)

²⁸¹ 1910.1030(d)(4)(iii)(B)(2)(iv)

²⁸² [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

²⁸³ [1910.1030\(d\)\(4\)\(iv\)](#)

²⁸⁴ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24989

²⁸⁵ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=27008

²⁸⁶ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

Home laundering by employees is not permitted since the standard requires that⁵⁹ the laundering be performed by the supervisor at no cost to the employee. Home laundering is unacceptable because the supervisor cannot ensure that proper handling or laundering procedures are being followed and because contamination could migrate to the homes of employees.²⁸⁷

If the employee wishes to choose, wear, and maintain his/her own uniform or laboratory coat, then he/she would need to don additional employer-handled and employer-controlled PPE when performing tasks where it is reasonable to anticipate exposure to blood or OPIM.²⁸⁸

Contaminated laundry will be handled as little as possible with a minimum of agitation.²⁸⁹ Contaminated clothing will be removed in a manner to avoid skin contact.

Contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use.²⁹⁰

Never place soiled items on the floor or any clean surfaces.

Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with the 29 CFR 1910.1030.²⁹¹ When Universal Precautions are used in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with Universal Precautions.

Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through of or leakage from the bag or container, the laundry shall be placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior.²⁹²

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.²⁹³

9.7.2 Laundry Facility Locations

Table 2: Laundry Facilities Locations

Campus	Location
Main Campus	102 Health Sciences (LAR Loading Dock)
Lake Campus	Trenary Hall

The employee's department shall provide detergent.

- Washing and drying the garments should be done according to the clothing manufacturer's instructions.²⁹⁴

²⁸⁷ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

²⁸⁸ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570

²⁸⁹ 1910.1030(d)(4)(iv)(A)

²⁹⁰ 1910.1030(d)(4)(iv)(A)(1)

²⁹¹ 1910.1030(d)(4)(iv)(A)(2)

²⁹² 1910.1030(d)(4)(iv)(A)(3)

²⁹³ 1910.1030(d)(4)(iv)(B)

9.8.1 Labels and Signs²⁹⁶9.8.1.1 Materials to Label²⁹⁷

Warning labels shall be affixed to the following:²⁹⁸

- containers of regulated (infectious) waste
- refrigerators and freezers containing blood or other potentially infectious materials
- lab equipment in which biohazards are stored or used (e.g. incubators, centrifuges, etc.)
- other containers used to transport or ship blood or OPIMs.

9.8.1.2 Label Requirements²⁹⁹

Must include the universal biohazard symbol.

Must be fluorescent orange or orange-red or predominantly so with lettering or symbols in a contrasting color.³⁰⁰

Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.³⁰¹

Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.³⁰²

Labels required for contaminated equipment shall be in accordance with this paragraph and shall also state which portions of the equipment remain contaminated.³⁰³

Regulated waste that has been decontaminated need not be labeled or color-coded.³⁰⁴

9.8.2 Signs³⁰⁵

Biohazard warning signs shall be posted at entrances to HIV/HBV research laboratories.

The signs shall meet the requirements of 29 CFR 1910.145(e)(4)



Figure 10: Universal Biohazard Symbol

²⁹⁴ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21010

²⁹⁵ 1910.1030(g)

²⁹⁶ 1910.1030(g)(1)

²⁹⁷ 1910.1030(g)(1)(i)

²⁹⁸ 1910.1030(g)(1)(i)(A)

²⁹⁹ 1910.1030(g)(1)(i)(B)

³⁰⁰ 1910.1030(g)(1)(i)(C)

³⁰¹ 1910.1030(g)(1)(i)(D)

³⁰² 1910.1030(g)(1)(i)(G)

³⁰³ 1910.1030(g)(1)(i)(H)

³⁰⁴ 1910.1030(g)(1)(i)(I)

³⁰⁵ 1910.1030(g)(1)(ii)

The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term "biological hazard," or "biohazard," shall include only those infectious agents presenting a risk or potential risk to the well-being of humans.³⁰⁷

The sign shall bear the following legend:³⁰⁸

- Name of the Infectious Agent
- Special Requirements for entering the area
- Name, telephone number of the laboratory director or other responsible person

These signs shall be fluorescent orange-red or predominantly so, with lettering and symbols in a contrasting color.³⁰⁹

9.8.3 **Biological hazard tags**

9.8.3.1 **Use**³¹⁰

- Tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent.
- Tags shall be used until such time as the identified hazard is eliminated or the hazardous operation is completed.
- Tags need not be used where signs, guarding or other positive means of protection are being used.³¹¹

9.8.3.2 **General tag criteria**

Tags shall contain a signal word and a major message.³¹²

- The signal word shall be either "Danger," "Caution," or "Biological Hazard," "BIOHAZARD," or the biological hazard symbol.³¹³
- The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee.³¹⁴
- The signal word shall be readable at a minimum distance of five feet (1.52 m) or such greater distance as warranted by the hazard.³¹⁵
- The tag's major message shall be presented in either pictographs, written text or both.³¹⁶
- The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard.³¹⁷

³⁰⁶ 1910.145(e)(4)

³⁰⁷ 1910.145(e)(4)

³⁰⁸ 1910.1030(g)(1)(ii)(A)

³⁰⁹ 1910.1030(g)(1)(ii)(B)

³¹⁰ 1910.145(f)(3)

³¹¹ 1910.145(f)(3)

³¹² 1910.145(f)(4)(i)

³¹³ 1910.145(f)(4)(i)(A)

³¹⁴ 1910.145(f)(4)(i)(B)

³¹⁵ 1910.145(f)(4)(ii)

³¹⁶ 1910.145(f)(4)(iii)

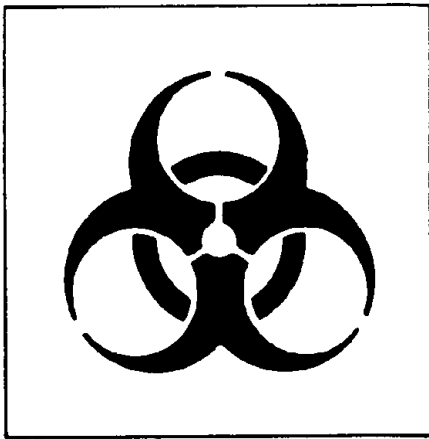
³¹⁷ 1910.145(f)(4)(iv)

- All employees shall be informed as to the meaning of the various tags used throughout the 62 workplace and what special precautions are necessary.³¹⁸
- Tags shall be affixed as close as safely possible to their respective hazards by a positive means such as string, wire, or adhesive that prevents their loss or unintentional removal.³¹⁹

Biological hazard tags shall be used to identify the actual or potential presence of a biological hazard and to identify equipment, containers, rooms, experimental animals, or combinations thereof, that contain or are contaminated with hazardous biological agents.³²⁰

The symbol design for biological hazard tags shall conform to the design shown below:³²¹

BIOLOGICAL HAZARD SYMBOL CONFIGURATION



Biological Hazard Symbol Configuration.

Figure 11: Biohazard Symbol Configuration (Occupational Safety and Health Administration, 2013)

³¹⁸ 1910.145(f)(4)(v)

³¹⁹ 1910.145(f)(4)(vi)

³²⁰ 1910.145(f)(8)(i)

³²¹ 1910.145(f)(8)(ii)

10 Hepatitis B Vaccination

10.1 Confidentiality of Medical Records

In accordance with the Health Insurance Portability and Accountability Act or HIPAA³²², effective April 14, 2003, all patient-related medical information shall be kept confidential. (U.S. Department of Health & Human Services)

10.2 Hepatitis B Virus (HBV) Vaccine and Vaccination Series

10.2.1 General³²³

The hepatitis B vaccine and vaccination series shall be made available to the following:

- all employees who have occupational exposure; and
- post-exposure evaluation and follow-up to all employees who have had an exposure incident.³²⁴

All medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are:³²⁵

- made available at no cost to the employee;³²⁶
- made available to the employee at a reasonable time and place;³²⁷
- performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional;³²⁸ and
- provided according to recommendations of the U.S. Public Health Service (USPHS) current at the time these evaluations and procedures take place, except as specified by 29 CFR 1910.1030.³²⁹

All laboratory tests shall be conducted by an accredited laboratory at no cost to the employee.³³⁰

10.3 Hepatitis B Vaccination³³¹

10.3.1 Provisions

Hepatitis B vaccination shall be made available:

- after the employee has received the required training; and
- within 10 working days of initial assignment to all employees.³³²

Vaccination is encouraged unless:

³²² <http://www.hhs.gov/ocr/hipaa/>

³²³ [1910.1030\(f\)\(1\)](#)

³²⁴ [1910.1030\(f\)\(1\)\(i\)](#)

³²⁵ [1910.1030\(f\)\(1\)\(ii\)](#)

³²⁶ [1910.1030\(f\)\(1\)\(ii\)\(A\)](#)

³²⁷ [1910.1030\(f\)\(1\)\(ii\)\(B\)](#)

³²⁸ [1910.1030\(f\)\(1\)\(ii\)\(C\)](#)

³²⁹ [1910.1030\(f\)\(1\)\(ii\)\(D\)](#)

³³⁰ [1910.1030\(f\)\(1\)\(iii\)](#)

³³¹ [1910.1030\(f\)\(2\)](#)

³³² [1910.1030\(f\)\(2\)\(i\)](#)

- Documentation exists that the employee has previously received the complete hepatitis B vaccination series; 64
- Antibody testing reveals that the employee is immune; or
- Medical evaluation shows that vaccination is contraindicated.³³³

Participation in a prescreening program is not a prerequisite for receiving hepatitis B vaccination.³³⁴

10.3.2 Acceptance at a Later Date

If the employee initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, Wright State shall make available hepatitis B vaccination at that time and at no cost.³³⁵

10.3.3 Documentation of Refusal

Documentation of refusal of the vaccination is maintained at:

Wright State University
Department of Environmental Health and Safety

Wright State shall assure that employees who decline to accept hepatitis B vaccination offered by Wright State sign the Hepatitis B Vaccination Form. (See Appendix I).³³⁶

10.3.4 Routine Boosters

If a routine booster dose(s) of hepatitis B vaccine is recommended by the USPHS at a future date, such booster dose(s) shall be made available.³³⁷

10.3.5 Incomplete Vaccination Series and Missed Doses³³⁸

If it can be documented that a new employee has already received part of the vaccination series, the healthcare professional responsible for the employee's hepatitis B vaccination must use this information as part of the evaluation.

It is usually not necessary to restart the vaccination series if an employee misses the scheduled date for a shot. Even though the usual frequency of the shots in the vaccination series is at 0, 1, and 6 months, the USPHS provides for some flexibility in scheduling. If the series is interrupted after the first dose, the second dose must be administered as soon as possible, and the second and third doses must be separated by an interval of at least 8 weeks. If only the third dose has been delayed, it must be administered as soon as possible. This permits a certain flexibility, and there should be little or no added financial burden on a reasonably diligent employer if an employee misses a date for a shot. Wright State would simply reschedule the missed shot as soon as possible.

³³³ [1910.1030\(f\)\(2\)\(i\)](#)

³³⁴ [1910.1030\(f\)\(2\)\(ii\)](#)

³³⁵ 1910.1030(f)(2)(iii)

³³⁶ 1910.1030(f)(2)(iv)

³³⁷ [1910.1030\(f\)\(2\)\(v\)](#)

³³⁸ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25899

You must also have your employee tested for antibody to Hepatitis B surface antigen, one to two months after the completion of the three-dose vaccination series. Post-vaccination testing must be completed 1-2 months after the third vaccine dose for results to be meaningful. A protective antibody response is an anti-HBs concentration of 10 or more millilInternational Units per milliliter ($\geq 10 \text{ mIU/mL}$). Employees who do not respond to the primary vaccination series must be revaccinated with a second three-dose vaccine series and retested, unless they are HbsAg-positive (Hepatitis surface antibody-positive). 65

The CDC recommends that testing for the anti-HBs is done approximately one to two months after the completion of the vaccination series for a proper indication of vaccine efficacy, as anti-HBs levels are most accurately detectable for the first 30-60 days. Antibody testing is not clinically recommended after a six-month period, as the reliability of the antigen as a true marker of a recent HBV infection or vaccination is not as accurately portrayed.³³⁹

OSHA recommends that antibody testing be done for all occupationally exposed employees within a period of one to two months following the vaccination, as this would indicate the effectiveness of the vaccination series and the subsequent risk of contracting HBV if a needlestick or exposure incident were to occur. Ultimately, the medical opinion of the employee health practitioner should indicate if antibody testing for employees is necessary and/or feasible.³⁴⁰

10.3.6 Vaccination Providers

Vaccination will be provided by:

Wright State University
Student Health Services
051 Student Union
Dayton, OH 45435
937-775-2552

The vaccination may also be provided by another licensed physician or under supervision of another licensed health care professional.

10.3.7 Written Opinion

Following the medical evaluation, a copy of the health care professional's written opinion will be obtained and provided to the employee within 15 days of the completion of the evaluation. It will be limited to whether the employee requires the hepatitis vaccine and whether the vaccine was administered.

10.3.8 Vaccine Declination

Employees who decline the hepatitis B vaccine will be asked to sign a Declination waiver that uses the following wording:

³³⁹ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23780

³⁴⁰ https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23780

I understand that due to my occupational exposure to blood or other potentially infectious⁶⁶ materials I may be at risk of acquiring hepatitis B virus (HBV) infection.

I have been given the opportunity to be vaccinated with the hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time.

I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease.

If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Signed: _____

Date: _____

11 Post Exposure Evaluation and Follow-Up

11.1 Medical Evaluation and Follow-Up

Following a report of an exposure incident, Wright State shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following elements:³⁴¹

- Exposure details³⁴²
- Source individual information³⁴³
- Collection and testing of blood for HBV and HIV serological status³⁴⁴
- Post-exposure prophylaxis, when medically indicated, as recommended by the USPHS³⁴⁵
- Counseling³⁴⁶
- Evaluation of reported illnesses³⁴⁷

11.1.1 Exposure Details

Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred³⁴⁸

11.1.2 Source Individual

The source individual shall be identified and documented of, unless Wright State can establish that identification is infeasible or prohibited by state or local law,³⁴⁹

The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV, HCV, and HIV infectivity. The communication of the source individual's test results to the employee's health care provider will be conveyed and documented. If consent is not obtained, Wright State shall establish that legally required consent cannot be obtained. When law does not require the source individual's consent, the source individual's blood, if available, shall be tested and the results documented.³⁵⁰

When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.³⁵¹

Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.³⁵²

³⁴¹ [1910.1030\(f\)\(3\)](#)

³⁴² 1910.1030(f)(3)(i)

³⁴³ 1910.1030(f)(3)(ii)

³⁴⁴ 1910.1030(f)(3)(iii)

³⁴⁵ 1910.1030(f)(3)(iv)

³⁴⁶ 1910.1030(f)(3)(v)

³⁴⁷ 1910.1030(f)(3)(vi)

³⁴⁸ 1910.1030(f)(3)(i)

³⁴⁹ 1910.1030(f)(3)(ii)

³⁵⁰ [1910.1030\(f\)\(3\)\(ii\)\(A\)](#)

³⁵¹ 1910.1030(f)(3)(ii)(B)

³⁵² 1910.1030(f)(3)(ii)(C)

After obtaining consent, the employee's blood will be collected as soon as feasible after the exposure incident, and tested for HBV and HIV serological status.³⁵³

The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.³⁵⁴

If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.³⁵⁵

When an employee incurs an exposure, he/she should report to:

Table 3: Emergency Treatment Facilities

Location	Location
Main Campus	Any nearby urgent care or emergency room
Off Campus (All other WSU locations)	Nearest urgent care or emergency room facility

³⁵³ 1910.1030(f)(3)(iii)

³⁵⁴ 1910.1030(f)(3)(iii)(A)

³⁵⁵ [1910.1030\(f\)\(3\)\(iii\)\(B\)](#)

12 Information Provided to the Healthcare Professional³⁵⁶

Wright State is responsible for providing information to the Healthcare Professional that provides the hepatitis B vaccinations and/or post-exposure care.

12.1 Providers for Hepatitis B Vaccine

The healthcare professional responsible for the employee's hepatitis B vaccination is provided a copy of the OSHA Bloodborne Standard (29 CFR 1910.1030).³⁵⁷

12.2 Providers for Post-Exposure Incidents

The healthcare professional evaluating an employee after an exposure incident is provided the following information:³⁵⁸

- A copy of the OSHA Bloodborne Pathogen Standard (29 CFR 1910.1030);³⁵⁹
- A description of the exposed employee's duties as they relate to the exposure incident;³⁶⁰
- Documentation of the route(s) of exposure and circumstances under which exposure occurred;³⁶¹
- Results of the source individual's blood testing, if available;³⁶² and
- All medical records relevant to the appropriate treatment of the employee including vaccination status which are Wright State's responsibility to maintain.³⁶³

³⁵⁶ 1910.1030(f)(4)

³⁵⁷ 1910.1030(f)(4)(i)

³⁵⁸ 1910.1030(f)(4)(ii)

³⁵⁹ 1910.1030(f)(4)(ii)(A)

³⁶⁰ 1910.1030(f)(4)(ii)(B)

³⁶¹ 1910.1030(f)(4)(ii)(C)

³⁶² 1910.1030(f)(4)(ii)(D)

³⁶³ 1910.1030(f)(4)(ii)(E)

13 Health Care Professional's Written Opinion³⁶⁴

13.1 Written Opinion

Wright State shall obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation.³⁶⁵

The Bloodborne Standard specifies the information to be included in the written opinion:

- hepatitis B vaccinations
- post-exposure evaluations

All other findings or diagnoses shall remain confidential and shall not be included in the written report.

13.1.1 Hepatitis B Vaccination

The healthcare professional's written opinion for hepatitis B vaccination shall be limited to the following:

- whether hepatitis B vaccination is indicated for an employee; and
- if the employee has received such vaccination.³⁶⁶

13.1.2 Post-Exposure Evaluation

The healthcare professional's written opinion for post-exposure evaluation and follow-up shall be limited to the following information:³⁶⁷

- that the employee has been informed of the results of the evaluation; and³⁶⁸
- that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.³⁶⁹

13.1.3 Other Findings or Diagnoses

All other findings or diagnoses shall remain confidential and shall not be included in the written report.³⁷⁰

13.2 Medical Recordkeeping for Written Opinions

Medical records required by this standard shall be maintained.³⁷¹

The health care provider shall provide EHS a written opinion within 15 days after the exposed employee has been evaluated. Written opinions will be obtained in the following instances:

- when the employee is sent to obtain the hepatitis B vaccine.

³⁶⁴ [1910.1030\(f\)\(5\)](#)

³⁶⁵ [1910.1030\(f\)\(5\)](#)

³⁶⁶ 1910.1030(f)(5)(i)

³⁶⁷ 1910.1030(f)(5)(ii)

³⁶⁸ 1910.1030(f)(5)(ii)(A)

³⁶⁹ 1910.1030(f)(5)(ii)(B)

³⁷⁰ 1910.1030(f)(5)(iii)

³⁷¹ 1910.1030(f)(6)

- when the employee is sent to a health care professional following an exposure incident. 71
- health care professionals shall be instructed to limit their opinions to:
- if the hepatitis B vaccine is indicated and if the employee has received the vaccine,
- that the employee has been informed of the results of the evaluation, and
- that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials.

The written opinion to Wright State must not reference any personal medical information.

14 Information and Training³⁷²

14.1 Training

14.1.1 Training Provisions

All employees with occupational exposure shall receive training, at no cost to the employee and during their working hours.³⁷³

The training shall be provided.³⁷⁴

- at the time of initial assignment to tasks where occupational exposure may take place;³⁷⁵
- at least annually thereafter;³⁷⁶
- annual training for all employees shall be provided within one year of their previous training;³⁷⁷
- additional training shall be provided when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.³⁷⁸
- material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.³⁷⁹

14.1.2 Training Elements

The Bloodborne Pathogen Training shall include at a minimum the following elements.³⁸⁰

- an accessible copy of the regulatory text of this standard and an explanation of its contents;³⁸¹
- a general explanation of the epidemiology and symptoms of bloodborne diseases;³⁸²
- an explanation of the modes of transmission of bloodborne pathogens;³⁸³
- an explanation of Wright State's exposure control plan and the means by which the employee can obtain a copy of the written plan;³⁸⁴
- an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;³⁸⁵
- an explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;³⁸⁶
- information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;³⁸⁷

³⁷² [1910.1030\(g\)\(2\)](#)

³⁷³ 1910.1030(g)(2)(i)

³⁷⁴ [1910.1030\(g\)\(2\)\(ii\)](#)

³⁷⁵ 1910.1030(g)(2)(ii)(A)

³⁷⁶ 1910.1030(g)(2)(ii)(B)

³⁷⁷ 1910.1030(g)(2)(iv)

³⁷⁸ [1910.1030\(g\)\(2\)\(v\)](#)

³⁷⁹ 1910.1030(g)(2)(vi)

³⁸⁰ [1910.1030\(g\)\(2\)\(vii\)](#)

³⁸¹ 1910.1030(g)(2)(vii)(A)

³⁸² 1910.1030(g)(2)(vii)(B)

³⁸³ 1910.1030(g)(2)(vii)(C)

³⁸⁴ 1910.1030(g)(2)(vii)(D)

³⁸⁵ [1910.1030\(g\)\(2\)\(vii\)\(E\)](#)

³⁸⁶ [1910.1030\(g\)\(2\)\(vii\)\(F\)](#)

³⁸⁷ 1910.1030(g)(2)(vii)(G)

- an explanation of the basis for selection of personal protective equipment,³⁸⁸
- information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;³⁸⁹
- information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;³⁹⁰
- an explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;³⁹¹
- information on the post-exposure evaluation and follow-up that Wright State is required to provide for the employee following an exposure incident;³⁹²
- an explanation of the signs and labels and/or color coding required the 29 CFR 1910.1030;³⁹³ and
- an opportunity for interactive questions and answers with the person conducting the training session.³⁹⁴

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14.1.3 Instructor Requirements³⁹⁵

The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.³⁹⁶

Trainers must demonstrate evidence of specialized training in the area of bloodborne pathogens.³⁹⁷

See Appendix I for a list of qualified instructors.

14.2 HIV and HBV Laboratory Facility Training Requirements³⁹⁸

14.2.1 HIV and HBV Laboratory and Production Facility

14.2.1.1 Additional Training for Employees

Employees in HIV or HBV research laboratories and HIV or HBV production facilities require additional training following initial training.³⁹⁹

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall assure that employees

- demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV.⁴⁰⁰
- have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.⁴⁰¹

³⁸⁸ 1910.1030(g)(2)(vii)(H)

³⁸⁹ 1910.1030(g)(2)(vii)(I)

³⁹⁰ 1910.1030(g)(2)(vii)(J)

³⁹¹ 1910.1030(g)(2)(vii)(K)

³⁹² 1910.1030(g)(2)(vii)(L)

³⁹³ 1910.1030(g)(2)(vii)(M)

³⁹⁴ 1910.1030(g)(2)(vii)(N)

³⁹⁵ 1910.1030(g)(2)(viii)

³⁹⁶ 1910.1030(g)(2)(viii)

³⁹⁷ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21010

³⁹⁸ 1910.1030(g)(2)(ix)

³⁹⁹ 1910.1030(g)(2)(ix)

⁴⁰⁰ 1910.1030(g)(2)(ix)(A)

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The SUPERVISOR/PRINCIPLE INVESTIGATOR shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.⁴⁰²

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⁴⁰¹ 1910.1030(g)(2)(ix)(B)

⁴⁰² 1910.1030(g)(2)(ix)(C)

15 Records

15.1 Medical Records⁴⁰³

Wright State shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020 , “Access to Employee Exposure and Medical Records.”⁴⁰⁴

15.1.1 Medical Record Contents

This medical record shall include:⁴⁰⁵

- the name and social security number of the employee;⁴⁰⁶
- hepatitis B Vaccination Status Records;
- a copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.⁴⁰⁷

Wright State shall make every effort to obtain a reliable record of employee's vaccination status.

These efforts may include contacting the previous employer or facility where the vaccination was administered to obtain these records. As it is a requirement that all employers maintain these records for the duration of employment plus 30 years, a previous employer who administered hepatitis B vaccinations would have copies of those records [29 CFR 1910.1030(h)(1)(iv)]. If a copy of the vaccination record cannot be obtained, then Wright State shall document the attempt to obtain the record.⁴⁰⁸ When these records cannot be obtained from the previous employer, the current employer must obtain from the employee a written statement about vaccination status, including the dates or, where this is not possible, the approximate dates of the vaccinations.²

The CDC considers a reliable vaccination history to be a written, dated record of each dose of a complete series.

The following records must be maintained for the duration of employment plus 30 years:

- a copy of all results of examinations, medical testing, and follow-up procedures⁴⁰⁹
- Wright State's copy of the healthcare professional's written opinion;⁴¹⁰ and
- a copy of the information provided to the healthcare professional.⁴¹¹

⁴⁰³ 1910.1030(h)(1)

⁴⁰⁴ 1910.1030(h)(1)(i)

⁴⁰⁵ 1910.1030(h)(1)(ii)

⁴⁰⁶ [1910.1030\(h\)\(1\)\(ii\)\(A\)](#)

⁴⁰⁷ [1910.1030\(h\)\(1\)\(ii\)\(B\)](#)

⁴⁰⁸ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25648

⁴⁰⁹ 1910.1030(h)(1)(ii)(C)

⁴¹⁰ 1910.1030(h)(1)(ii)(D)

⁴¹¹ 1910.1030(h)(1)(ii)(E)

Wright State will maintain for each employee medical records that include hepatitis B vaccination status and evaluation and follow-up of exposure incidents. The records may not be kept at Wright State, but they shall be maintained in a manner that makes them accessible to OSHA. Wright State contracts with the healthcare professional(s) that perform the vaccination or post-exposure evaluation and follow-up to maintain the records. Since Wright State does not retain possession of the records, the records are available to OSHA. They are accessible by identifying where the records are kept and how they may be accessed by OSHA. One way in which this can be accomplished is by maintaining a statement in each employee's record identifying the location where that employee's records are kept and how OSHA may access the records.⁴¹²

EHS is responsible for maintenance of required medical records. These confidential records are kept in the following locations:

- licensed healthcare provider,
- 047 Biological Sciences II, and
- 104 Health Sciences

for at least the duration of employment plus 30 years.

15.1.2 Confidentiality⁴¹³

Wright State shall ensure that employee medical records are:⁴¹⁴

- kept confidential,⁴¹⁵ and
- not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by this section or as may be required by law.⁴¹⁶

Wright State shall maintain the records required for at least the duration of employment plus 30 years in accordance with Access to Employee Exposure and Medical Records 29 CFR 1910.1020.⁴¹⁷

15.2 Training Records⁴¹⁸

15.2.1.1 Content

Training records shall include the following information:⁴¹⁹

- the dates of the training sessions,⁴²⁰
- the contents or a summary of the training sessions,⁴²¹
- the names and qualifications of persons conducting the training,⁴²² and
- the names and job titles of all persons attending the training sessions.⁴²³

⁴¹² http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20693

⁴¹³ 1910.1030(h)(1)(iii)

⁴¹⁴ 1910.1030(h)(1)(iii)

⁴¹⁵ 1910.1030(h)(1)(iii)(A)

⁴¹⁶ 1910.1030(h)(1)(iii)(B)

⁴¹⁷ [1910.1030\(h\)\(1\)\(iv\)](#)

⁴¹⁸ [1910.1030\(h\)\(2\)](#)

⁴¹⁹ 1910.1030(h)(2)(i)

⁴²⁰ 1910.1030(h)(2)(i)(A)

⁴²¹ 1910.1030(h)(2)(i)(B)

⁴²² 1910.1030(h)(2)(i)(C)

Training records shall be maintained for 3 years from the date on which the training occurred.⁴²⁵

15.2.1.3 **Availability**⁴²⁶

Wright State shall ensure that all records required to be maintained by this section shall be made available upon request to the Assistant Secretary and the Director for examination and copying.⁴²⁷

Employee training records required by this paragraph shall be provided upon request for examination and copying to employees, to employee representatives, to the Director, and to the Assistant Secretary.⁴²⁸

Employee medical records required by this paragraph shall be provided upon request for examination and copying to the subject employee, to anyone having written consent of the subject employee, to the Director, and to the Assistant Secretary in accordance with Access to Employee Exposure and Medical Records 29 CFR 1910.1020.⁴²⁹

Employee medical and training records are provided upon request of the employee or to anyone having written consent of the employee within 15 working days. Such requests should be sent to:

Wright State University
Department of Environmental Health and Safety
047 Biological Sciences II
Dayton, OH 45435

Attn: Director, Environmental Health and Safety

15.3 **Transfer of Records**⁴³⁰

Wright State shall comply with the requirements involving transfer of records set forth in Access to Employee Exposure and Medical Records 29 CFR 1910.1020(h).⁴³¹

15.4 **Sharps Injury Log**⁴³²

Wright State established and maintains a Sharps Injury Log to record injuries from sharps as required under Recording and Reporting Occupational Illnesses and Injuries 29 CFR part 1904, Amending of Existing Standards OAC 4167.3, and Needlestick Records OAC 4167.11.^{433, 434, 435}

⁴²³ 1910.1030(h)(2)(i)(D)
⁴²⁴ [1910.1030\(h\)\(1\)\(iv\)](#)⁴²⁵ 1910.1030(h)(2)(ii)⁴²⁶ 1910.1030(h)(3)⁴²⁷ 1910.1030(h)(3)(i)⁴²⁸ [1910.1030\(h\)\(3\)\(ii\)](#)⁴²⁹ [1910.1030\(h\)\(3\)\(iii\)](#)⁴³⁰ [1910.1030\(h\)\(4\)](#)⁴³¹ [1910.1030\(h\)\(4\)](#)⁴³² [1910.1030\(h\)\(5\)](#)⁴³³ http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9639

Wright State shall maintain and submit records of public health care worker exposure incidents of needlesticks or sharps to the public employment risk reduction program (PERRP). These records shall be submitted in a manner prescribed by the PERRP administrator.⁴³⁶ 78

⁴³⁴ 1910.1030(h)(5)(ii)

⁴³⁵ <http://codes.ohio.gov/oac/4167-3>

⁴³⁶ <http://codes.ohio.gov/oac/4167-3>

16 Contents

The Sharps Injury Log shall contain, at a minimum:^{437, 438}

- the date and time of the incident;⁴³⁹
- the type and brand of device involved in the incident,^{440, 441}
- the job classification of each worker involved;⁴⁴²
- the department or work area where the exposure incident occurred^{443, 444}
- the procedure the worker was performing at the time of the incident;⁴⁴⁵
- an explanation of how the incident occurred.^{446, 447}
- the body part involved.⁴⁴⁸
- if the sharp involved in the incident was manufactured with engineered sharps injury protection, a specification of whether the incident occurred before, during, or after activation of the protective mechanism;⁴⁴⁹
- if the sharp involved in the incident was not manufactured with engineered sharps injury protection, an assessment of whether and how the incident could have been prevented by a sharps with protection, and the basis for the assessment;⁴⁵⁰ and
- any other relevant description of the exposure incident.⁴⁵¹

16.1 PERRP Sharps Injury Form (and) Needlestick Report (SH-12)⁴⁵²

Wright State, as a public employer, must complete and submit

1. a PERRP Sharps Injury Form and
2. Needlestick Report (SH-12) ([pdf](#), [on-line form](#)) for **every** needlestick or sharps injury that occurs at the university workplace. The SH-12 is designed to gather information about the effectiveness of engineered sharps protection.

The SH-12 Form may be completed [on-line](#) or by completing a [printed form](#). The printed forms must be submitted to:

Wright State University
Department of Environmental Health and Safety
047 Biological Sciences II
Dayton, OH 45435

A form must be submitted within 24 hours of the incident.

⁴³⁷ 1910.1030(h)(5)(i)

⁴³⁸ <http://codes.ohio.gov/oac/4167-3>

⁴³⁹ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴⁰ [1910.1030\(h\)\(5\)\(i\)\(A\)](#)

⁴⁴¹ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴² <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴³ 1910.1030(h)(5)(i)(B)

⁴⁴⁴ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴⁵ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴⁶ [1910.1030\(h\)\(5\)\(i\)\(C\)](#)

⁴⁴⁷ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴⁸ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁴⁹ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁵⁰ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁵¹ <http://codes.ohio.gov/oac/4167-3-06>

⁴⁵² <http://www.ohiobwc.com/employer/programs/safety/sandhperrp.asp>

Wright State shall record all work-related needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or OPIM. The case shall be entered on the OSHA 300 Log as an injury. To protect the employee's privacy, the employee's name shall not be entered on the OSHA 300 Log (see the requirements for privacy cases in paragraphs 29 CFR part 1904.29(b)(6) through Recording and Reporting Occupational Injuries and Illness 29 CFR part 1904.29(b)(9)).⁴⁵³

Only work-related cuts, lacerations, punctures, and scratches that involve contamination with another person's blood or OPIM are recorded in the OSHA 300 Log. If the cut, laceration, or scratch involves a clean object, or a contaminate other than blood or OPIM, the case is only recored if it meets one or more of the recording criterion in Recording and Reporting Occupational Injuries and Illness 29 CFR part 1904.7.⁴⁵⁴

If an injury is recorded and the employee is later diagnosed with an infectious bloodborne disease, the classification of the class is updated on the OSHA 300 Log.

The sharps injury log shall be maintained for the period required by Recording and Reporting Occupational Injuries and Illness 29 CFR 1904.33, "Recording and Reporting Occupational Injuries and Illness".^{455, 456}

16.3 OSHA Recordkeeping

Exposure incidents are evaluated to determine if the case meets OSHA's Recordkeeping Requirements (29 CFR 1904).

This determination and the recordkeeping activities are done by:

Wright State University
Department of Environmental Health and Safety.

⁴⁵³ 1904.8(a)

⁴⁵⁴ 1904.8(b)(2)

⁴⁵⁵ 1910.1030(h)(5)(iii)

⁴⁵⁶ 1904.33(a)

17 Financial Responsibility

Medical consultations and treatments, as required by the OSHA Bloodborne Pathogen Standard, will be submitted for review to:

Wright State University
047 Biological Sciences II
Department of Environmental Health and Safety
Attn: Director, Environmental Health and Safety

18 HIV, HBV and HCV Research Laboratories and Production Facilities

This section applies to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV. It does not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissues, or organs. These requirements apply in addition to the other requirements of the 29 CFR 1910.1030.⁴⁵⁷

Research laboratories and production facilities shall meet the following criteria.⁴⁵⁸

18.1.1 Standard Microbiological Practices

All regulated waste shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.⁴⁵⁹

18.1.2 Special Practices

- Laboratory doors shall be kept closed when work involving HIV or HBV is in progress.⁴⁶⁰
- Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leakproof, labeled or color-coded container that is closed before being removed from the work area.⁴⁶¹
- Access to the work area shall be limited to authorized persons. Written policies and procedures shall be established whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements, and who comply with all entry and exit procedures shall be allowed to enter the work areas and animal rooms.⁴⁶²
- When other potentially infectious materials or infected animals are present in the work area or containment module, a hazard warning sign incorporating the universal biohazard symbol shall be posted on all access doors. The hazard warning sign shall comply with paragraph 29 CFR 1910.1030(g)(1)(ii) of the 29 CFR 1910.1030⁴⁶³
- All activities involving other potentially infectious materials shall be conducted in biological safety cabinets or other physical-containment devices within the containment module. No work with these other potentially infectious materials shall be conducted on the open bench.⁴⁶⁴
- Laboratory coats, gowns, smocks, uniforms, or other appropriate protective clothing shall be used in the work area and animal rooms. Protective clothing shall not be worn outside of the work area and shall be decontaminated before being laundered.⁴⁶⁵
- Special care shall be taken to avoid skin contact with other potentially infectious materials. Gloves shall be worn when handling infected animals and when making hand contact with other potentially infectious materials is unavoidable.⁴⁶⁶
- Before disposal all waste from work areas and from animal rooms shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.⁴⁶⁷

⁴⁵⁷ 1910.1030(e)(1)

⁴⁵⁸ 1910.1030(e)(2)

⁴⁵⁹ 1910.1030(e)(2)(i)

⁴⁶⁰ 1910.1030(e)(2)(ii)(A)

⁴⁶¹ 1910.1030(e)(2)(ii)(B)

⁴⁶² 1910.1030(e)(2)(ii)(C)

⁴⁶³ 1910.1030(e)(2)(ii)(D)

⁴⁶⁴ 1910.1030(e)(2)(ii)(E)

⁴⁶⁵ 1910.1030(e)(2)(ii)(F)

⁴⁶⁶ 1910.1030(e)(2)(ii)(G)

⁴⁶⁷ 1910.1030(e)(2)(ii)(H)

- Vacuum lines shall be protected with liquid disinfectant traps and high-efficiency particulate⁸³ air (HEPA) filters or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary.⁴⁶⁸
- Hypodermic needles and syringes shall be used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe-needle units (i.e., the needle is integral to the syringe) shall be used for the injection or aspiration of other potentially infectious materials. Extreme caution shall be used when handling needles and syringes. A needle shall not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe shall be promptly placed in a puncture-resistant container and autoclaved or decontaminated before reuse or disposal.⁴⁶⁹
- All spills shall be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials.⁴⁷⁰
- A biosafety manual shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.⁴⁷¹

18.1.3 Containment Equipment⁴⁷²

Certified biological safety cabinets (Class I, II, or III) or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals, shall be used for all activities with other potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols.⁴⁷³

Biological safety cabinets shall be certified when installed, whenever they are moved and at least annually.⁴⁷⁴

18.2 HIV and HBV research laboratories⁴⁷⁵

Additional requirements for HIV and HBV laboratories include the following:

- Each laboratory shall contain a facility for handwashing and an eye wash facility which is readily available within the work area.⁴⁷⁶
- An autoclave for decontamination of regulated waste shall be available.⁴⁷⁷

18.3 HIV and HBV production facilities⁴⁷⁸

Production facilities for HIV and HBV production additionally require the following:

- The work areas shall be separated from areas that are open to unrestricted traffic flow within the building. Passage through two sets of doors shall be the basic requirement for entry into

⁴⁶⁸ 1910.1030(e)(2)(ii)(I)

⁴⁶⁹ 1910.1030(e)(2)(ii)(J)

⁴⁷⁰ 1910.1030(e)(2)(ii)(K)

⁴⁷¹ 1910.1030(e)(2)(ii)(M)

⁴⁷² 1910.1030(e)(2)(iii)

⁴⁷³ 1910.1030(e)(2)(iii)(A)

⁴⁷⁴ 1910.1030(e)(2)(iii)(B)

⁴⁷⁵ 1910.1030(e)(3)

⁴⁷⁶ 1910.1030(e)(3)(i)

⁴⁷⁷ 1910.1030(e)(3)(ii)

⁴⁷⁸ 1910.1030(e)(4)

the work area from access corridors or other contiguous areas. Physical separation of the high-containment work area from access corridors or other areas or activities may also be provided by a double-doored clothes-change room (showers may be included), airlock, or other access facility that requires passing through two sets of doors before entering the work area.⁴⁷⁹

- The surfaces of doors, walls, floors and ceilings in the work area shall be water resistant so that they can be easily cleaned. Penetrations in these surfaces shall be sealed or capable of being sealed to facilitate decontamination.⁴⁸⁰
- Each work area shall contain a sink for washing hands and a readily available eye wash facility. The sink shall be foot, elbow, or automatically operated and shall be located near the exit door of the work area.⁴⁸¹
- Access doors to the work area or containment module shall be self-closing.⁴⁸²
- An autoclave for decontamination of regulated waste shall be available within or as near as possible to the work area.⁴⁸³
- A ducted exhaust-air ventilation system shall be provided. This system shall create directional airflow that draws air into the work area through the entry area. The exhaust air shall not be recirculated to any other area of the building, shall be discharged to the outside, and shall be dispersed away from occupied areas and air intakes. The proper direction of the airflow shall be verified (i.e., into the work area).⁴⁸⁴

18.4 Training Requirements⁴⁸⁵

Additional training is needed for the following employees in:

- HIV and HBV research laboratories and
- HIV and HBV production facilities.

Wright State shall assure the additional training will include the following elements:⁴⁸⁶

- employees shall demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV.⁴⁸⁷
- employees shall have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.⁴⁸⁸
- a training program shall be provided to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. Wright State shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.⁴⁸⁹

⁴⁷⁹ 1910.1030(e)(4)(i)

⁴⁸⁰ 1910.1030(e)(4)(ii)

⁴⁸¹ 1910.1030(e)(4)(iii)

⁴⁸² 1910.1030(e)(4)(iv)

⁴⁸³ 1910.1030(e)(4)(v)

⁴⁸⁴ 1910.1030(e)(4)(vi)

⁴⁸⁵ 1910.1030(e)(5)

⁴⁸⁶ 1910.1030(g)(2)(ix)

⁴⁸⁷ 1910.1030(g)(2)(ix)(A)

⁴⁸⁸ 1910.1030(g)(2)(ix)(B)

⁴⁸⁹ 1910.1030(g)(2)(ix)(C)

19 Dates⁴⁹⁰**19.1 Effective Dates⁴⁹¹**

All provisions required by the Occupational Exposure to Bloodborne Pathogens Standard, rev. 2001, were implemented by July 18, 2001.

The Exposure Control Plan required by the OSHA Bloodborne Standard was completed on or before May 5, 1992.⁴⁹²

The Information and Training and Recordkeeping of this section were in effect on or before June 4, 1992.⁴⁹³

Engineering and Work Practice Controls, Personal Protective Equipment, Housekeeping, HIV and HBV Research Laboratories and Production Facilities, Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, and Labels and Signs of this section, were in effect on or before July 6, 1992.⁴⁹⁴

⁴⁹⁰ 1910.1030(i)

⁴⁹¹ 1910.1030(i)(1)

⁴⁹² 1910.1030(i)(3)

⁴⁹³ 1910.1030(i)(4)

⁴⁹⁴ 1910.1030(i)(4)

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21 **Metrics**

Any metrics associated with this Exposure Control Plan are established and tracked within the Wright State EHS Metrics Program.
