

WRIGHT STATE UNIVERSITY

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Department of Environmental Health and Safety

## **Exposure Control Plan**

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Bloodborne Pathogens

## **Exposure Control Plan**

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Department of Environmental Health and Safety

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Dayton, OH 45435

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.

Contact Information	Phone Number and Script
24-hour Help Miami Valley Access Center	<b>937-208-2340</b> Say "I need a Wright State I.D. Doctor" <i>An I.D. Doctor is an infectious disease doctor</i>

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)

## 1 Plan Authority

Table 1. Plan Authority

AUTHORITY	DATE
Marjorie Markopoulos (original signature on file)	Director, Environmental Health and Safety

## 2 Version History

Table 2. Version History

VERSION HISTORY			
Version	Description of Change	Author	Effective Date
Basic	Revised format and editorial updates	M.Markopoulos	6-20-2014
1	Updated Exposure Contact Information; updated Policy and Regulations format	M. Markopoulos	8-04-2015
2	Minor format changes; updated URLs	M. Markopoulos	1-16-2019
3	Updated infectious disease doctor contact information Updated references to Physical Plant to Facilities Management and Campus Operations Removed reference to maintaining supply of sharps containers in Lab Stores in section 9.3.2.2.1 Clarified that approved sharps containers must meet the requirements of 1910.1030(d)(4)(iii)(A)(a) as determined by EHS are available by vendors and Wright Buy. 9.3.3,3,1 Sharps Containers Updated Reference Documents 9.2.3.5 Corrected figure legend from water to waste 15.1 Added the Ohio Administrative Code 4167-3-01 "Employee Risk Reduction Standards" as a requirement. 15.1.1 Removed HS 104 as a location for medical records. Updated Appendices Added Appendices J (Qualified Instructors), K (Needlesticks Form)	M. Markopoulos	9-1-2019
4	Review 13.3.6 Vaccination Provider – update location of Student Health Services	M. Markopoulos	3-22-2020

## 3 Reference Documents

Document	Title
EHS-P0-1910.1030-1-0	OSHA Bloodborne Pathogen Standard
EHS-P1-1910.1030-1-0	Bloodborne Pathogen Policy

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EHS-P2-1910.1030-1-1	Exposure Control Plan
EHS-WI-1910.1030-1-1	Packaging Infectious Waste
EHS-F-1910.1030-1-2	Hepatitis B Form
EHS-F-1910.1030-2-0	Non-compliant Documentation for Sharps and/or Engineering Control
EHS-F-1910.1030-3-0	Checklist for Exposure Control Review
EHS-F-1910.1030-4-0	Sharps Container Performance Evaluation Form
EHS-F-1910.1030-5-0	Needlestick Prevention Device (NPD) Evaluaiton Form
EHS-F-1910.1030-6-0	Needlestick Prevention Device (NPD) Cost Calculation Worksheet
EHS-F-13300-1-0	Equipment Release 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 Plan Owner for current versioning.**

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## 4 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 1910.1030<sup>1</sup>. “Occupational Exposure to Bloodborne Pathogens” (See Appendix A) and
- Ohio Revised Code Chapter 4167, “Public Employee Risk Reduction Program (PERRP).”<sup>2</sup> (OSHA, 2003)

This ECP contains the following elements:<sup>3</sup> (OSHA, 2003)

1. determination of employee exposure:<sup>4</sup>
2. methods of compliance:<sup>5</sup>
  - a. universal and standard precautions
  - b. engineering and work practice controls
  - c. personal protective equipment (PPE)
  - d. housekeeping

<sup>1</sup> 1910.1030(c)(1)

<sup>2</sup> 1910.1030(c)

<sup>3</sup> 1910.1030(c)(1)(ii)

<sup>4</sup> 1910.1030(c)(1)(ii)(A)

<sup>5</sup> 1910.1030(c)(1)(ii)(B)

- 
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.<sup>6</sup>

## 5 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 <sup>7, 8</sup>
- students, if they are compensated<sup>9</sup>.

The plan does not extend to the following:

- students if they are not also considered employees<sup>10</sup> or
- volunteers.<sup>11</sup>

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.

### 5.1 Work in Facilities Not Owned by Wright State

Wright State may send personnel to contracted facilities. Wright State will provide<sup>12</sup>:

- 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:<sup>13</sup>

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

## 6 Process Flow Diagram

The process flow 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 B).

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<sup>6</sup> 1910.1030(c)(1)(ii)(C)

<sup>7</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>8</sup> 1910.1030(a)

<sup>9</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>10</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>11</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>12</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>13</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)



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## 7 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".<sup>14</sup> An employee may request a written or an electronic copy.

Requests shall be fulfilled within 15 days.

### 7.1 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  
ehs@wright.edu

### 7.2 On-Line Access

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

The ECP is available upon request for examination and copying.<sup>15</sup>

## 8 Exposure Control Plan (ECP) Review<sup>16</sup>

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.<sup>17</sup> The annual review will include the items identified in a checklist for review (See Appendix B).

The review and update of the plan shall also:

- reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens;<sup>18</sup>
- document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure;<sup>19</sup> 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.<sup>20</sup>

## 9 Regulations and Policies

Policy	Title
<b>Wright Way Policy 13301</b>	Environmental Health and Safety
<b>Wright Way Policy 13270</b>	Emergency Care for Injuries and Illnesses

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<sup>14</sup> 1910.1030(c)(1)(iii)

<sup>15</sup> 1910.1030(c)(1)(vi)

<sup>16</sup> 1910.1030(c)(1)(iv)

<sup>17</sup> 1910.1030(c)(1)(iv)

<sup>18</sup> 1910.1030(c)(1)(iv)(A)

<sup>19</sup> 1910.1030(c)(1)(iv)(B)

<sup>20</sup> 1910.1030(c)(1)(v)



<b>Wright Way Policy 13275</b>	Reporting Injuries and Illnesses
<b>Wright Way Policy 13350</b>	NonOccupational Exposure to Bloodborne Pathogens
<b>29 CFR 1910.132</b>	Personal Protective Equipment
<b>29 CFR 1910.134</b>	Respiratory Protection
<b>29 CFR 1910.141</b>	Sanitation
<b>29 CFR 1910.145</b>	Specifications for accident prevention signs and tags
<b>29 CFR 1910.1020</b>	Access to Employee Exposure and Medical Records
<b>29 CFR1910.1030</b>	Bloodborne Pathogen Standard
<b>29 CFR 1910.1200</b>	Hazard Communication
<b>29 CFR 1910.1450</b>	Laboratory Standard
<b>29 CFR 1910.1904</b>	Recording and Reporting Occupational Injuries and Illness
<b>OAC 3745</b>	Ohio Environment Protection Agency
<b>OAC 3745-27</b>	Solid Waste and Infectious Waste Regulations
<b>OAC 3745-27-30</b>	Standards for generators of infectious waste
<b>OAC 3745-27-32</b>	Standards for the operation of infectious waste treatment facilities
<b>OAC 3745-27-35</b>	Standards for handling infectious wastes
<b>OAC 4167</b>	Public Employment Risk Reduction Program
<b>OAC 4167-3</b>	Adoption of Federal Standards; Ohio Specific Safety Standards
<b>OAC-4167-3-01</b>	Employment risk reduction standards
<b>OAC 4167-3-03</b>	Amending of existing standards
<b>OAC 4167-3-05</b>	Ohio specific safety standards
<b>OAC-4167-6-11</b>	Needlestick records
<b>ORC 3701</b>	Department of Health
<b>ORC 3701.3321</b>	Ohio public health advisory board.
<b>ORC 373422</b>	Solid and Hazardous Wastes
<b>ORC 3734.0123</b>	Solid and hazardous waste definitions.
<b>ORC 4123</b>	Workers' Compensation
<b>ORC 4123.0124</b>	Workers' compensation definitions
<b>ORC 4167</b>	Public Employment Risk Reduction Program
<b>ORC 4167.0125</b>	Public employment risk reduction program definitions.
<b>ORC 4167.0926</b>	Application for temporary variance or for variance from standard
<b>ORC 4167.2527</b>	Exposure control plans for health care workers definitions
<b>ORC 4167.2628</b>	Repealed
<b>ORC 4167.2729</b>	Adoption of rule and standard for prevention of exposure incidents
<b>ORC 4167.2830</b>	Duties of employers concerning exposure incidents

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<sup>21</sup> <http://codes.ohio.gov/orc/3701.33>

<sup>22</sup> <http://codes.ohio.gov/orc/3734>

<sup>23</sup> <http://codes.ohio.gov/orc/3734.01>

<sup>24</sup> <http://codes.ohio.gov/orc/4123.01>

<sup>25</sup> <http://codes.ohio.gov/oac/4167>

<sup>26</sup> <http://codes.ohio.gov/oac/4167>

<sup>27</sup> <http://codes.ohio.gov/orc/4167>

<sup>28</sup> <http://codes.ohio.gov/orc/4167>

<sup>29</sup> <http://codes.ohio.gov/orc/4167>

<sup>30</sup> <http://codes.ohio.gov/orc/4167>

## 10 Definitions, Abbreviations, and List of Procedures

### 10.1 Definitions<sup>31</sup>

*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.<sup>32</sup>

*Blood* means human blood, human blood components, and products made from human blood.<sup>33</sup>

*Biological hazard or BIOHAZARD* means those infectious agents presenting a risk of death, injury or illness to humans.<sup>34</sup>

*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).<sup>35, 36</sup>

*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.<sup>37</sup>

*Contaminated* means the presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.<sup>38</sup>

*Contaminated Laundry* is laundry that has been soiled with blood or other potentially infectious materials.<sup>39</sup>

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<sup>31</sup> [1910.1030\(b\)](#)

<sup>32</sup> [1910.1030\(b\)](#)

<sup>33</sup> [1910.1030\(b\)](#)

<sup>34</sup> 1910.145(f)(2)

<sup>35</sup> <http://codes.ohio.gov/orc/4167>

<sup>36</sup> [1910.1030\(b\)](#)

<sup>37</sup> [1910.1030\(b\)](#)

<sup>38</sup> [1910.1030\(b\)](#)

<sup>39</sup> [1910.1030\(b\)](#)

*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.<sup>40</sup>

*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.<sup>41</sup>

*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.<sup>42</sup> 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.<sup>43</sup>

*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.<sup>44</sup>

*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.<sup>45</sup>

*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 the previous listed bullet point, or built into a non-needle sharp, that effectively reduces the risk of an exposure incident.<sup>46</sup>

*Exposure Incident* means

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<sup>40</sup> [1910.1030\(b\)](#)

<sup>41</sup> [1910.1030\(b\)](#)

<sup>42</sup> 1910.1030(b)

<sup>43</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

<sup>44</sup> <http://codes.ohio.gov/orc/4123.01>

<sup>45</sup> <http://codes.ohio.gov/orc/4167>

<sup>46</sup> <http://codes.ohio.gov/orc/4167>

an occurrence of occupational exposure to blood or other material potentially containing bloodborne pathogens, including exposure that occurs through a sharps injury <sup>47</sup> 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.<sup>48</sup>

*Good Samaritan Acts* means voluntarily aiding someone in one's place of employment.<sup>49</sup>

*Handwashing Facilities* means a facility providing an adequate supply of running potable water, soap, and single use towels or hot air drying machines.<sup>50</sup>

*HBV* means hepatitis B virus.<sup>51</sup>

*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.<sup>52</sup>

*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.<sup>53</sup>

*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:<sup>54</sup>

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;

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<sup>47</sup> <http://codes.ohio.gov/orc/4167>

<sup>48</sup> [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

<sup>49</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

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

<sup>51</sup> [1910.1030\(b\)](http://codes.ohio.gov/orc/1910.1030(b))

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

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

<sup>54</sup> <http://codes.ohio.gov/orc/3734>

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.<sup>55</sup>

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.<sup>56</sup>

*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.<sup>57</sup>

*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.<sup>58</sup>

*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,
- 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),

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<sup>55</sup> <http://codes.ohio.gov/orc/3734>

<sup>56</sup> <http://epa.ohio.gov/portals/34/document/guidance/LG%20IW%20guidance.pdf>

<sup>57</sup> <http://codes.ohio.gov/orc/3734>

<sup>58</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf)

- a first aid kit (unless emergency medical care is available on the premises), boundary tape, and other appropriate safety equipment.<sup>59</sup>

*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.<sup>60</sup>

*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.<sup>61</sup>

*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 the extent of annoyance or damage inflicted upon individual persons may be unequal).<sup>62</sup>

*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.<sup>63</sup>

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<sup>59</sup> [http://www.epa.ohio.gov/portals/34/document/guidance/gd\\_078.pdf](http://www.epa.ohio.gov/portals/34/document/guidance/gd_078.pdf)

<sup>60</sup> [1910.1030\(b\)](http://www.epa.ohio.gov/portals/34/document/gd_078.pdf)

<sup>61</sup> <http://codes.ohio.gov/orc/4167>

<sup>62</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf)

<sup>63</sup> [1910.1030\(b\)](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-01_current.pdf)

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, monofill, 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.<sup>64</sup>

*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 unfix tissue or organ (other than intact skin) from a human (living or dead)<sup>65</sup> including primary and established human cell lines;
3. HIV-containing cell or tissue cultures, organ cultures, HIV- or HBV-containing culture medium or other solutions; and

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<sup>64</sup> <http://codes.ohio.gov/orc/3734>

<sup>65</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=21519](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21519)



4. blood, organs, or other tissues from experimental animals infected with HIV or HBV.<sup>66</sup> (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.<sup>67</sup>

*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*.<sup>68</sup>

*Production Facility* means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.<sup>69</sup>

*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*."<sup>70</sup>

*Public Employer*<sup>71</sup> means any of the following:

- the state and its instrumentalities;
- 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
- any other branch of public employment not mentioned above in 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 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.<sup>72</sup> *Public health care worker* does not include a person who is employed by a public employer to provide dental

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<sup>66</sup> 1910.1030(b)

<sup>67</sup> 1910.1030(b)

<sup>68</sup> 1910.1030(b)

<sup>69</sup> 1910.1030(b)

<sup>70</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

<sup>71</sup> <http://codes.ohio.gov/orc/4167>

<sup>72</sup> <http://codes.ohio.gov/oac/4167-3>



services, treatment, or training or a dental student who is receiving training from a public employer.<sup>73</sup>

*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.<sup>74</sup>

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.<sup>75</sup>

*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, a "reasonably anticipated contact" may include 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 feature or mechanism that effectively reduces the risk of an exposure incident.<sup>76</sup> 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)

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<sup>73</sup> <http://codes.ohio.gov/oac/4167-3>

<sup>74</sup> [1910.1030\(b\)](#)

<sup>75</sup> [1910.1030\(b\)](#)

<sup>76</sup> [1910.1030\(b\)](#)

*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."<sup>77</sup>

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.<sup>78</sup>

*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.<sup>79</sup>

OSHA uses the term "sharps".

*Sharps Injury* means an injury caused by a sharp, including such injuries as cuts, abrasions, and needlesticks.<sup>80</sup>

*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.<sup>81</sup> (Centers for Disease Control , 2010)

*Standard Microbiological Practices* refer to procedures outlined in "Biosafety in Microbiological and Biomedical Laboratories."<sup>82</sup>

*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.<sup>83</sup>

*Sterilize* means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.<sup>84</sup>

*Tag* means a device usually made of card, paper, pasteboard, plastic or other material used to identify a hazardous condition.<sup>85</sup>

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<sup>77</sup> [http://www.epa.state.oh.us/portals/34/document/draftrule/iw\\_all\\_draft.pdf](http://www.epa.state.oh.us/portals/34/document/draftrule/iw_all_draft.pdf)

<sup>78</sup> <http://codes.ohio.gov/orc/4167>

<sup>79</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=standards&p\\_id=10051](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10051)

<sup>80</sup> <http://codes.ohio.gov/orc/4167>

<sup>81</sup> [1910.1030\(b\)](http://codes.ohio.gov/orc/4167)

<sup>82</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

<sup>83</sup> 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

<sup>84</sup> [1910.1030\(b\)](http://codes.ohio.gov/orc/4167)

<sup>85</sup> 1910.145(f)(2)

*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 generated in the diagnosis, treatment, or immunization of human beings or animals (including research studied), or in the production or testing of biologicals that are determined to present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents, to substantially reduce or eliminate the potential for the wastes to cause lacerations or puncture wounds.<sup>86</sup>

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.<sup>87</sup>

*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).<sup>88</sup>

*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.<sup>89</sup>

## 10.2 Abbreviations

Abbreviation	Definition
<b>Anti-HBs</b>	Hepatitis B surface antibody
<b>BBP</b>	Bloodborne Pathogens
<b>BMBL</b>	Biosafety in Microbiological and Biomedical Laboratories
<b>BSC</b>	Biosafety Cabinet
<b>CDC</b>	Centers for Disease Control
<b>ECP</b>	Exposure Control Plan
<b>EHS</b>	Environmental Health and Safety
<b>EPA</b>	Environmental Protection Agency
<b>HBsAb</b>	Hepatitis B surface antibody
<b>HBV</b>	Hepatitis B Virus
<b>HCV</b>	Hepatitis C Virus
<b>HIPPA</b>	Health Insurance Portability and Accountability Act

<sup>86</sup> <http://codes.ohio.gov/orc/3734>

<sup>87</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>88</sup> [1910.1030\(b\)](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>89</sup> <http://codes.ohio.gov/orc/3734>

<b>HIV</b>	Human Immunodeficiency Virus
<b>IBC</b>	Institutional Biosafety Committee
<b>IV</b>	Intravenous
<b>JCAHO</b>	Joint Commission on Accreditation of Healthcare Organizations
<b>LHP</b>	Licensed Healthcare Professional
<b>NIH</b>	National Institute of Health
<b>NIOSH</b>	National Institute fo Occupational Safety and Health
<b>NRC</b>	Nuclear Regulatory Commission
<b>OAC</b>	Ohio Administrative Code
<b>OEPA</b>	Ohio Environmental Protection Agency
<b>ODH</b>	Ohio Department of Health
<b>OPIM</b>	Other Potentially Infectious Material
<b>ORC</b>	Ohio Revised Code
<b>OSHA</b>	Occupational Safety and Health Association
<b>PI</b>	Principle Investigator
<b>PIC</b>	Person-In-Charge
<b>PPE</b>	Personal Protective Equipment
<b>SESIP</b>	Sharps with Engineered Sharps Injury Protections
<b>USPHS</b>	United States Public Health Service
<b>WSU</b>	Wright State University

## 11 Exposure Determination<sup>90</sup>

Wright State performs exposure determinations to identify which employees may incur occupational exposure to blood or other potentially infectious materials (OPIM).<sup>91</sup>

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).<sup>92</sup>

### 11.1 Job Classification and Risk Categorization

#### 11.1.1 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 program (See Appendix C)<sup>93</sup>. The list is not all inclusive and ultimately, it is the responsibility of the department or center to identify employees under their supervision that may have occupation exposure to bloodborne pathogens or other potentially infectious materials.

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.

<sup>90</sup> 1910.1030(c)(2)

<sup>91</sup> 1910.1030(c)(2)(i)

<sup>92</sup> 1910.1030(c)(2)(ii)

<sup>93</sup> 1910.1030(c)(2)(i)(A)

### 11.1.2 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 (See Appendix D).<sup>94</sup>

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.<sup>95</sup>

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.<sup>96</sup>

### 11.1.3 Tasks and Procedures

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 (See Appendix E).<sup>97</sup>

## 12 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:

- standard precautions/universal precautions,
- engineering controls,
- work practice controls,
- personal protective equipment (PPE), and
- housekeeping.<sup>98</sup>

### 12.1 Standard Precautions and Universal Precautions<sup>99</sup>

Standard Precautions supersedes Universal Precautions<sup>100</sup> 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

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<sup>94</sup> 1910.1030(c)(2)(i)(B)

<sup>95</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

<sup>96</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

<sup>97</sup> 1910.1030(c)(2)(i)(C)

<sup>98</sup> 1910.1030(d)

<sup>99</sup> 1910.1030(d)(1)

<sup>100</sup> <http://www.cdc.gov/ncidod/hip/Blood/UNIVERSA.HTM>

- iv access.

## 12.2 Engineering Controls<sup>101</sup>

Engineering controls shall be used to prevent or to minimize exposure to bloodborne pathogens.<sup>102</sup>

Where occupational exposure remains after institution of these controls, PPE must also be used.<sup>103</sup>

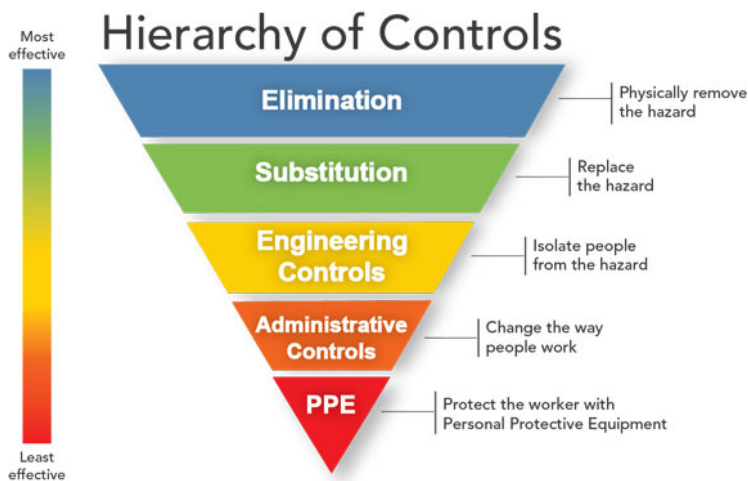
Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.<sup>104</sup>

### 12.2.1 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.

A hierarchy of controls is used as a means of determining how to implement 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 (CDC - hierarchy of controls - NIOSH workplace safety and health topic.)**

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)

<sup>101</sup> [1910.1030\(d\)\(2\)](#)

<sup>102</sup> [1910.1030\(d\)\(2\)\(i\)](#)

<sup>103</sup> [1910.1030\(d\)\(2\)\(i\)](#)

<sup>104</sup> [1910.1030\(d\)\(2\)\(ii\)](#)

*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 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)

#### **12.2.1.1 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.

#### **12.2.2 Evaluation of Engineering Controls**

Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.<sup>105</sup>

#### **12.2.3 Approved Engineering Controls**

The following engineering controls have been approved for implementation:

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

##### **12.2.3.1 Biosafety Cabinets**

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

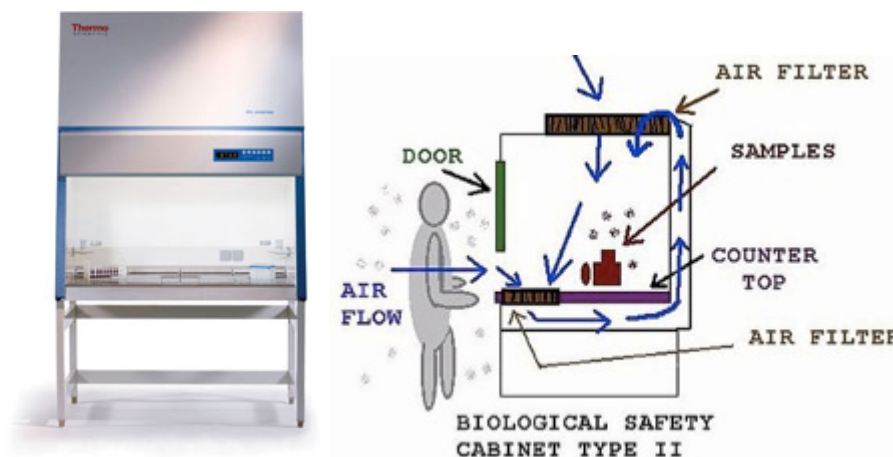
The protective features of *BSCs* include:

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<sup>105</sup> 1910.1030(d)(2)(ii)



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



**Figure 2: Example of Biosafety Cabinet**

**Table 3: 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

### 12.2.3.2 Handwashing Facilities<sup>106</sup>

*Handwashing facilities* shall be provided which are readily accessible to employees.<sup>107</sup>

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.<sup>108</sup>

### 12.2.3.3 Sharps containers

- must be used for disposal of all needles and other sharps;<sup>109</sup>

<sup>106</sup> [1910.1030\(d\)\(2\)\(iii\)](#)

<sup>107</sup> [1910.1030\(d\)\(2\)\(iii\)](#)

<sup>108</sup> [1910.1030\(d\)\(2\)\(iv\)](#)

<sup>109</sup> [1910.1030\(d\)\(2\)\(viii\)](#)



- all sharps shall be placed in an appropriate sharps container immediately or as soon as possible after use;<sup>110</sup>
- shall be available in all locations where sharps are used;<sup>111</sup> and
- shall be placed as near to procedure area as possible.<sup>112</sup>

*Sharps containers shall be:*

- puncture resistant;<sup>113, 114</sup>
- labeled or color-coded in accordance with 29 CFR 1910.1030<sup>115,116</sup>
- leak-proof on the sides and bottom;<sup>117, 118</sup>
- non-breakable
- closeable (that is, have a lid, flap, door, or other means of closing the container);<sup>119</sup> and
- not require employees to reach by hand into the containers where the sharps have been placed.<sup>120</sup>

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



**Figure 3. Example of Sharps Container**

#### 12.2.3.4 Secondary Containers

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

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<sup>110</sup> [1910.1030\(d\)\(2\)\(viii\)](#)

<sup>111</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)

<sup>112</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)

<sup>113</sup> [1910.1030\(d\)\(2\)\(viii\)\(A\)](#)

<sup>114</sup> 1910.1030(d)(4)(iii)(A)(1)(ii)

<sup>115</sup> 1910.1030(d)(2)(viii)(B)

<sup>116</sup> 1910.1030(d)(4)(iii)(A)(1)(iii)

<sup>117</sup> 1910.1030(d)(2)(viii)(C)

<sup>118</sup> 1910.1030(d)(4)(iii)(A)(1)(iii)

<sup>119</sup> 1910.1030(d)(4)(iii)(A)(1)(i)

<sup>120</sup> [1910.1030\(d\)\(4\)\(ii\)\(E\)](#)

Secondary containers shall be:<sup>121</sup>

- closable;<sup>122</sup>
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping;<sup>123</sup> and
- labeled or color-coded according to 29 CFR 1910.1030.<sup>124</sup>

#### 12.2.3.5 Other Regulated Waste Containment<sup>125</sup>

Regulated waste shall be placed in containers that are:<sup>126</sup>

- closable;<sup>127</sup>
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;<sup>128</sup>
- labeled or color-coded according to 29 CFR 1910.1030;<sup>129</sup> and
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.<sup>130</sup>



**Figure 4. Example of regulated waste container.**

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<sup>121</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)

<sup>122</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

<sup>123</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

<sup>124</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

<sup>125</sup> [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

<sup>126</sup> 1910.1030(d)(4)(iii)(B)(1)

<sup>127</sup> 1910.1030(d)(4)(iii)(B)(1)(i)

<sup>128</sup> 1910.1030(d)(4)(iii)(B)(1)(ii)

<sup>129</sup> 1910.1030(d)(4)(iii)(B)(1)(iii)

<sup>130</sup> 1910.1030(d)(4)(iii)(B)(1)(iv)



**Figure 5: Packaging Regulated Waste (Stericycle, 2012)**

#### **12.2.3.6 Secondary Containers for Regulated Waste<sup>131</sup>**

If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:<sup>132</sup>

- closable;<sup>133</sup>
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;<sup>134</sup>
- labeled or color-coded in accordance with 29 CFR 1910.1030; and<sup>135</sup>
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.<sup>136</sup>

#### **12.2.3.7 Equipment**

**Table 4. Engineering Controls**

Equipment	Engineering Control Objective
<b>Mechanical pipetting Devices</b>	Mechanical pipetting devices must be used.

<sup>131</sup> 1910.1030(d)(4)(iii)(B)(2)

<sup>132</sup> 1910.1030(d)(4)(iii)(B)(2)

<sup>133</sup> 1910.1030(d)(4)(iii)(B)(2)(i)

<sup>134</sup> 1910.1030(d)(4)(iii)(B)(2)(ii)

<sup>135</sup> 1910.1030(d)(4)(iii)(B)(2)(iii)

<sup>136</sup> 1910.1030(d)(4)(iii)(B)(2)(iv)

	Mouth pipetting is prohibited. <sup>137</sup>
<b>Sealed rotor heads and centrifuge cups</b>	Sealed rotor heads and centrifuge cups are an integral part of routine centrifuge operation and are used to avoid accidental spills.
<b>Handwashing facilities</b>	Handwashing facilities are available in laboratories, custodial equipment rooms, procedure rooms, animal research rooms, patient rooms, exam room, laboratories, restrooms and other areas as necessary.
<b>Infectious (regulated) waste containers</b>	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.
<b>Specimen Containers</b>	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.
<b>Protective Controls</b>	Splashguards, protective shields, plastic backed absorbent pads, or other controls are used in laboratories to prevent exposure to blood or other potentially infectious materials.
<b>Safety sharps or Needleless systems</b>	<p>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.</p> <p>Devices that are capable of reducing or eliminating the potential for needlestick and other sharp instrument injuries are available.</p> <p>Examples of such technology include needle-less delivery systems, self-sheathing needles and catheters, retractable hypodermic needles, and needle guards and shields.</p> <p>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.</p> <p>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.<sup>138</sup></p>

#### 12.2.4 Examination and Maintenance

The selected engineering controls will be examined and maintained on a regular schedule to ensure their effectiveness by the SUPERVISOR/PRINCIPLE INVESTIGATOR.<sup>139</sup>

#### 12.3 Work Practice Controls

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

- pre-planning work,

<sup>137</sup> 1910.1030(d)(2)(xii)

<sup>138</sup> [1910.1030\(c\)\(1\)\(v\)](#)

<sup>139</sup> 1910.1030(d)(2)(ii)

- 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:

- Handwashing
- Practices for Handling Sharps
- Practices for Handling Regulated Waste
- Practices for Sharps Containers
- Practices for Other Regulated Waste Containers
- Procedures for Evaluating Needle Use
- General work practice controls
- Procedures for specimens of blood, tissue, or OPIMs
- Procedures for contaminated equipment
- Practices for clinical and/or research laboratories

### **12.3.1 Handwashing (Boyce, 2002)**

Employees are required to wash their hands or any other exposed skin<sup>140</sup>:

- immediately, or as soon as feasible, after removing gloves or other PPE<sup>141</sup>;
- 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.<sup>142</sup>

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.<sup>143</sup>

### **12.3.2 Practices for Sharps<sup>144</sup>**

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

- needles
- scalpels
- broken glass
- broken capillary tubes, and

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<sup>140</sup> [1910.1030\(d\)\(2\)\(v\)](#)

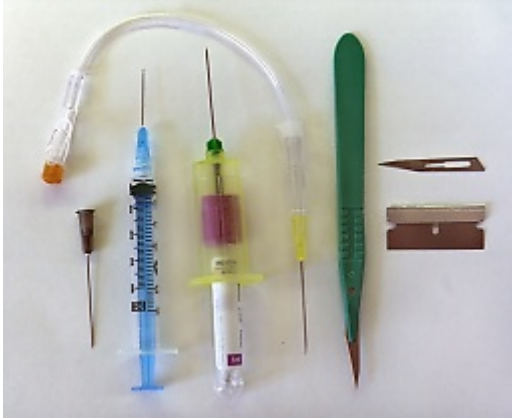
<sup>141</sup> [1910.1030\(d\)\(2\)\(v\)](#)

<sup>142</sup> [1910.1030\(d\)\(2\)\(iv\)](#)

<sup>143</sup> [1910.1030\(d\)\(2\)\(vi\)](#)

<sup>144</sup> [1910.1030\(d\)\(2\)\(vii\)](#)

- any equipment that is capable of penetrating the skin.



**Figure 6: Examples of Sharps (Berkeley Lab Lawrence Berkeley National Laboratory, 2012)**

### 12.3.2.1 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.<sup>145</sup>
- *Never* bend, recap, or remove contaminated needles and other contaminated sharps except as below:<sup>146</sup>
  - ❖ The SUPERVISOR/PRINCIPLE INVESTIGATOR can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.<sup>147</sup>
  - ❖ Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.<sup>148</sup>
- *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.<sup>149</sup> *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.<sup>150 151</sup>
- *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.

<sup>145</sup> [1910.1030\(d\)\(2\)\(vii\)](#)

<sup>146</sup> [1910.1030\(d\)\(2\)\(vii\)](#)

<sup>147</sup> [1910.1030\(d\)\(2\)\(vii\)\(A\)](#)

<sup>148</sup> [1910.1030\(d\)\(2\)\(vii\)\(B\)](#)

<sup>149</sup> [1910.1030\(d\)\(2\)\(vii\)\(B\)](#)

<sup>150</sup> [1910.1030\(d\)\(2\)\(viii\)](#)

<sup>151</sup> [030\(d\)\(4\)\(iii\)\(A\)\(1\)](#)

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

### **12.3.2.2 Practices for Contaminated Sharps Containers**

#### **12.3.2.2.1 General Guidelines**

During use, containers for contaminated sharps shall be:<sup>152</sup>

- 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);<sup>153</sup>
- maintained upright throughout use; and<sup>154</sup>
- replaced routinely and not be allowed to overflow.<sup>155</sup>

Approved sharps containers meeting the requirements of 1910.1030(d)(4)(iii)(A)(a) as determined by EHS are available by vendors and Wright Buy (See Appendix F).

#### **12.3.2.2.2 Moving Sharps Containers<sup>156</sup>**

When moving containers of contaminated sharps from the area of use, the containers shall be:<sup>157</sup>

- closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;<sup>158</sup>
- placed in a secondary container if leakage is possible.<sup>159</sup>

#### **12.3.2.3 Reusable Sharps Containers<sup>160</sup>**

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.<sup>161</sup>

### **12.3.3 Practices for Other Regulated Waste Containment<sup>162</sup>**

Regulated waste shall be placed in containers which are:<sup>163</sup>

- closable;<sup>164</sup>
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;<sup>165</sup>
- labeled or color-coded in accordance with 29 CFR 1910.1030;<sup>166</sup> and

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<sup>152</sup> 1910.1030(d)(4)(iii)(A)(2)

<sup>153</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(2\)\(i\)](#)

<sup>154</sup> 1910.1030(d)(4)(iii)(A)(2)(ii)

<sup>155</sup> 1910.1030(d)(4)(iii)(A)(2)(iii)

<sup>156</sup> 1910.1030(d)(4)(iii)(A)(3)

<sup>157</sup> 1910.1030(d)(4)(iii)(A)(3)

<sup>158</sup> 1910.1030(d)(4)(iii)(A)(3)(i)

<sup>159</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)

<sup>160</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

<sup>161</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

<sup>162</sup> [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

<sup>163</sup> 1910.1030(d)(4)(iii)(B)(1)

<sup>164</sup> 1910.1030(d)(4)(iii)(B)(1)(i)

<sup>165</sup> 1910.1030(d)(4)(iii)(B)(1)(ii)

<sup>166</sup> 1910.1030(d)(4)(iii)(B)(1)(iii)

- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.<sup>167</sup>

#### 12.3.3.1 Secondary Containers for Sharps Containers

During use, containers for contaminated sharps *shall* be placed in a secondary container if leakage is possible.<sup>168</sup>

The secondary container shall be:<sup>169</sup>

- closable;<sup>170</sup>
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping;<sup>171</sup> and
- labeled or color-coded according to 29 CFR 1910.1030.<sup>172</sup>

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.<sup>173</sup>

#### 12.3.4 Procedures for Evaluating Needle Use

Each SUPERVISOR/PRINCIPLE INVESTIGATOR must evaluate the use of needles. Supervisors shall identify all sharp devices that have available products with safer engineering features and determine which products are to be evaluated.

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.

#### 12.3.5 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.<sup>174</sup>

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

<sup>167</sup> 1910.1030(d)(4)(iii)(B)(1)(iv)

<sup>168</sup> 1910.1030(d)(4)(iii)(A)(2)

<sup>169</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)

<sup>170</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

<sup>171</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

<sup>172</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

<sup>173</sup> [1910.1030\(d\)\(4\)\(iii\)\(A\)\(4\)](#)

<sup>174</sup> [1910.1030\(d\)\(2\)\(ix\)](#)



1910.141(g)(2), employees shall not be allowed to consume food or beverages in any area exposed to a toxic material.<sup>175</sup>



Figure 7: Example of no food or drink sign.



Figure 8: Example of no food or drink sign.

- 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.<sup>176</sup>
- 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.<sup>177</sup>
- Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.<sup>178</sup>
- 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.<sup>179</sup>

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

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<sup>175</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=25506](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25506)

<sup>176</sup> 1910.1030(d)(2)(x)

<sup>177</sup> [1910.1030\(d\)\(2\)\(xi\)](#)

<sup>178</sup> 1910.1030(d)(2)(xii)

<sup>179</sup> [1910.1030\(d\)\(2\)\(xiii\)](#)

blood or OPIM. The BIOHAZARD label is fluorescent orange with lettering and symbols in a contrasting color.<sup>180</sup>



**Figure 9: Example of DOT Infectious Substance Label. This label may be used in lieu of the “BIOHAZARD” label for shipped containers.**

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.<sup>181</sup>

- 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 necessarily provided containers are recognizable as containing specimens provided that 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.<sup>182</sup>

### **12.3.6 Procedures for Specimens of Blood, Tissue, or OPIM**

#### **12.3.6.1 Primary Containers**

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

#### **12.3.6.2 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

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<sup>180</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=24253](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24253)

<sup>181</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=20693](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20693)

<sup>182</sup> 1910.1030(d)(2)(xiii)(A)

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 .



**Figure 10: Example of Primary Container with Labeled Secondary Container (Princeton University, 2009)**



**Figure 11. Example of biohazard label on secondary containment. (Wright State University EHS, 2010)**

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

### 12.3.6.3 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.<sup>183</sup>

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

### 12.3.7 Procedures for Contaminated Equipment

The user shall decontaminate potentially contaminated equipment before it is repaired, serviced, or shipped with an approved disinfectant. An Equipment Release Form must be attached. If it can be demonstrated that decontamination is not possible, then the following steps need to be taken:

- Attach a biohazard label to any contaminated equipment to identify the contaminated portions;
- Inform all affected employees, the equipment manufacturer and the equipment service representative of remaining contamination prior to handling, servicing or shipping.

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

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.

### 12.3.8 Practices for Clinical and/or Research Laboratories

Wright State University's clinical and/or research laboratories biosafety level are determined by EHS or 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)

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

5. The laboratory supervisor must enforce the institutional policies that control access to the laboratory.

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183 1910.1030(d)(2)(xiii)(B)

- Persons must wash their hands after working with potentially hazardous materials and before leaving the laboratory.
- 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.
- Mouth pipetting is prohibited; mechanical pipetting devices must be used.
- 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:
  - 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.
  - Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal.
  - Non-disposable sharps must be placed in a hard walled container for transport to a processing area for decontamination, preferably by autoclaving.
  - 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.
  - Perform all procedures to minimize the creation of splashes and/or aerosols.
  - Decontaminate work surfaces after completion of work and after any spill or splash of potentially infectious material with appropriate disinfectant.
  - 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.
  - Materials to be decontaminated outside of the immediate laboratory must be placed in a durable, leak proof container and secured for transport.
  - Materials to be removed from the facility for decontamination must be packed in accordance with applicable local, state, and federal regulations.
  - 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.
  - An effective integrated pest management program is required.
  - 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.

#### **12.3.8.2 Special Practices**

- All persons entering the laboratory must be advised of the potential hazards and meet specific entry/exit requirements.
- Laboratory personnel must be provided medical surveillance, as appropriate, and offered available immunizations for agents handled or potentially present in the laboratory.
- The collection and storage of serum samples may be considered from at-risk personnel.

- A laboratory-specific biosafety manual must be prepared and adopted as policy. The biosafety manual must be available and accessible.
- The laboratory supervisor must ensure that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with BSL-2 agents.
- Potential infectious materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.
- Laboratory equipment should be routinely decontaminated, as well as, after spills, splashes, or other potential contamination.
- Spills involving infectious material must be contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.
- Equipment must be decontaminated before repair, maintenance, or removal from the laboratory.
- 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.
- Animal and plants not associated with the work being performed must not be permitted in the laboratory.
- All procedures involving the manipulations of infectious materials that may generate an aerosol should be conducted within a BSC or other physical containment device.

#### **12.3.8.3 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:
  - 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.

#### **12.3.8.4 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.
5. Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.
6. Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.
7. 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.
8. Vacuum lines should be protected with liquid disinfectant traps.
9. An eyewash station must be readily available.
10. 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.
11. 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.
12. A method for decontaminating all laboratory wastes should be available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).
13. Autoclave available.

#### **12.3.8.5 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.

### **12.4 Personal Protective Equipment (PPE)<sup>184</sup>**

#### **12.4.1 Provision<sup>185</sup>**

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, undergarments, skin, eyes, mouth, or other

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<sup>184</sup> 1910.1030(d)(3)

<sup>185</sup> [1910.1030\(d\)\(3\)\(i\)](#)

mucous membranes under normal conditions of use and for the duration of time, which the protective equipment will be used.<sup>186</sup>

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 boots<sup>187</sup>

#### **12.4.2 Use<sup>188</sup>**

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.<sup>189</sup>

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.

#### **12.4.3 Accessibility<sup>190</sup>**

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.<sup>191</sup>

#### **12.4.4 Cleaning, Laundering, and Disposal<sup>192</sup>**

All PPE shall be cleaned, laundered, and disposed by Wright State at no cost to the employee.<sup>193</sup> Wright State maintains a washer and dryer for laboratory personnel (See Appendix G).

Note: Home laundering of PPE is prohibited.
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#### **12.4.5 Repair and Replacement<sup>194</sup>**

SUPERVISOR/PRINCIPLE INVESTIGATORs shall repair or replace PPE as needed to maintain its effectiveness, at no cost to the employee.<sup>195</sup>

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<sup>186</sup> [1910.1030\(d\)\(3\)\(i\)](#)

<sup>187</sup> [1910.1030\(d\)\(3\)\(i\)](#)

<sup>188</sup> [1910.1030\(d\)\(3\)\(ii\)](#)

<sup>189</sup> [1910.1030\(d\)\(3\)\(ii\)](#)

<sup>190</sup> [1910.1030\(d\)\(3\)\(iii\)](#)

<sup>191</sup> [1910.1030\(d\)\(3\)\(iii\)](#)

<sup>192</sup> [1910.1030\(d\)\(3\)\(iv\)](#)

<sup>193</sup> [1910.1030\(d\)\(3\)\(iv\)](#)

<sup>194</sup> [1910.1030\(d\)\(3\)\(v\)](#)

<sup>195</sup> [1910.1030\(d\)\(3\)\(v\)](#)



#### 12.4.6 Removal<sup>196</sup>

If a garment(s) is penetrated by blood or OPIM, the garment(s) shall be removed immediately or as soon as feasible.<sup>197</sup>

All PPE shall be removed prior to leaving the work area.<sup>198</sup>

When PPE is removed it shall be placed in an appropriately designated area or container for storage, washing, decontamination or disposal.<sup>199</sup>

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.

##### 12.4.6.1 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.<sup>200</sup>

Example 1: Clean gloves must be put on before touching mucous membranes and non-intact skin.<sup>201</sup>

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.<sup>202</sup>

Never wash or decontaminate disposable (single-use) gloves for reuse.<sup>203</sup>

Gloves must be removed promptly after use, before touching items and surfaces that are not contaminated, and before going to another patient.<sup>204</sup>

Gloves must be removed prior to leaving the work area.<sup>205</sup>

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.<sup>206</sup> The use of nitrile, powder-

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<sup>196</sup> 1910.1030(d)(3)(vi)

<sup>197</sup> 1910.1030(d)(3)(vi)

<sup>198</sup> 1910.1030(d)(3)(vii)

<sup>199</sup> 1910.1030(d)(3)(viii)

<sup>200</sup> 1910.1030(d)(3)(ix)

<sup>201</sup> 1910.1030(d)(3)(ix)

<sup>202</sup> 1910.1030(d)(3)(ix)(A)

<sup>203</sup> 1910.1030(d)(3)(ix)(B)

<sup>204</sup> 1910.1030(d)(3)(vii)

<sup>205</sup> 1910.1030(d)(3)(vii)

<sup>206</sup> 1910.1030(d)(3)(iii)

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.<sup>207</sup>

#### **12.4.6.2 Glove Use for Phlebotomy<sup>208</sup>**

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

##### **12.4.6.2.1 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;<sup>209</sup>
- make gloves available to all employees who wish to use them for phlebotomy;<sup>210</sup>
- not discourage the use of gloves for phlebotomy<sup>211</sup>; and
- require that gloves be used for phlebotomy in the following circumstances:<sup>212</sup>
  - when the employee has cuts, scratches, or other breaks in his or her skin;<sup>213</sup>
  - when the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual;<sup>214</sup> and
  - when the employee is receiving training in phlebotomy.<sup>215</sup>

#### **12.4.6.3 Glove Use in Handling Bacterial Culture Plates<sup>216</sup>**

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 practice 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

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<sup>207</sup> 1910.1030(d)(3)(ix)(C)

<sup>208</sup> 1910.1030(d)(3)(ix)(D)

<sup>209</sup> 1910.1030(d)(3)(ix)(D)(1)

<sup>210</sup> 1910.1030(d)(3)(ix)(D)(2)

<sup>211</sup> 1910.1030(d)(3)(ix)(D)(3)

<sup>212</sup> 1910.1030(d)(3)(ix)(D)(4)

<sup>213</sup> 1910.1030(d)(3)(ix)(D)(4)(i)

<sup>214</sup> 1910.1030(d)(3)(ix)(D)(4)(ii)

<sup>215</sup> 1910.1030(d)(3)(ix)(D)(4)(iii)

<sup>216</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=28667](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=28667)

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."

#### **12.4.7 Masks, Eye Protection, and Face Shields<sup>217</sup>**

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.<sup>218</sup>

#### **12.4.8 Gowns, Aprons, and Other Protective Body Clothing<sup>219</sup>**

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.<sup>220</sup>

Gowns, aprons, and other protective body coverings shall be removed prior to leaving the work area.<sup>221</sup>

#### **12.4.9 Surgical Caps or Hoods and/or Shoe Covers or Boots<sup>222</sup>**

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).<sup>223</sup>

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.)<sup>224</sup> Socks are not considered a protective barrier for preventing soak-through of blood or OPIM.<sup>225</sup>

Surgical caps or hoods and/or shoe covers or boots shall be removed prior to leaving the work area.<sup>226</sup>

#### **12.4.10 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.

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<sup>217</sup> [1910.1030\(d\)\(3\)\(x\)](#)

<sup>218</sup> [1910.1030\(d\)\(3\)\(x\)](#)

<sup>219</sup> [1910.1030\(d\)\(3\)\(xi\)](#)

<sup>220</sup> [1910.1030\(d\)\(3\)\(xi\)](#)

<sup>221</sup> [1910.1030\(d\)\(3\)\(vii\)](#)

<sup>222</sup> [1910.1030\(d\)\(3\)\(xii\)](#)

<sup>223</sup> [1910.1030\(d\)\(3\)\(xii\)](#)

<sup>224</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=25497](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25497)

<sup>225</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=25497](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25497)

<sup>226</sup> [1910.1030\(d\)\(3\)\(vii\)](#)

## 12.5 Housekeeping<sup>227</sup>

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.<sup>228</sup> Facilities Management and Campus Operations 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.<sup>229</sup>

Examples of equipment include:

- biosafety cabinets,
- 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 H), (US Environmental Protection Agency Office of Pesticide Programs, 2014)
- sterilants (see Appendix I) (US Environmental Protection Agency Office of Pesticide Programs, 2014), or
- products registered against HIV/HBV (See Appendix J) (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 G: List A) (US Environmental Protection Agency Office of Pesticide Programs, 2014),
- products registered against HIV/HBV (Appendix H: 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.<sup>230</sup>

*Contaminated work surfaces* shall be decontaminated with an appropriate disinfectant after completion of procedures; immediately or soon as feasible when surfaces are overtly

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<sup>227</sup> 1910.1030(d)(4)

<sup>228</sup> 1910.1030(d)(4)(i)

<sup>229</sup> 1910.1030(d)(4)(ii)

<sup>230</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=2570](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2570)

contaminated with blood or OPIM; and at the end of the work shift if the surface has become contaminated since the last cleaning.<sup>231</sup>

*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.<sup>232</sup>

*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.<sup>233</sup>

*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.<sup>234</sup>

*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.<sup>235</sup>

### **12.5.1 Cleaning**

#### **12.5.1.1 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.

#### **12.5.1.2 Schedule**

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall

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

### **12.5.2 Decontamination and Disinfection**

#### **12.5.2.1 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.

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<sup>231</sup> 1910.1030(d)(4)(ii)(A)

<sup>232</sup> 1910.1030(d)(4)(ii)(B)

<sup>233</sup> 1910.1030(d)(4)(ii)(C)

<sup>234</sup> 1910.1030(d)(4)(ii)(D)

<sup>235</sup> 1910.1030(d)(4)(ii)(E)

### 12.5.2.2 Procedures

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

Example: A 1:10 of household bleach prepared daily with a 10 minute contact time is recommended for use in most circumstances.

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

### 12.5.2.3 Spills

Only those persons properly trained may clean up spills.

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

#### 12.5.2.3.1 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 (10% 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.

### 12.5.3 Categories of Disinfectants (Rutala, 2008)

Disinfectants can be divided into hierarchical categories of antimicrobial activity.

- *Low-level disinfectants* kill most bacteria and some fungi, and inactivate some viruses. They do not reliably kill *Mycobacterium tuberculosis* or bacterial spores.
- *Intermediate-level disinfectants* kill most bacteria including *Mycobacterium tuberculosis*, and most fungi. They inactivate most viruses and kill some bacterial spores.

- *High-level disinfectants* destroy or inactivate all microorganisms, including most bacterial spores.

#### 12.5.4 Categories of Patient Care Item Disinfecting Requirements

- *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.

*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.

*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.

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

- 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.

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.

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.

#### 12.5.6 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.



## 12.6 Regulated (Infectious) Waste <sup>236</sup>

Regulated waste refers to the following categories of waste which require special handling:<sup>237</sup>

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

### 12.6.1 Determination of Regulated (Infectious) Waste

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.<sup>238</sup>

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.<sup>239</sup>

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.<sup>240</sup>

### 12.6.2 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.<sup>241</sup> 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.

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<sup>236</sup> [1910.1030\(d\)\(4\)\(iii\)](#)

<sup>237</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>238</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>239</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>240</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=document&p\\_id=10051](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=document&p_id=10051)

<sup>241</sup> [1910.1030\(d\)\(4\)\(iii\)\(C\)](#)



### 12.6.3 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)<sup>242</sup>

*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)<sup>243</sup>

*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)<sup>244</sup>

*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)<sup>245</sup>

*Radioactive waste:* Any infectious waste that is also radioactive shall:<sup>246</sup>

- Be managed in accordance with applicable Ohio Department of Health (ODH) and U.S. Nuclear Regulatory Commission (NRC) regulations; and
- 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
- 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.
- 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.

### 12.6.4 Handling Infectious Wastes<sup>247</sup>

Wright State shall adhere to the following requirements for all in-use and stored containers of infectious waste: (LAWriter Ohio Law and Rules, 2013)<sup>248</sup>

- Handle infectious waste containers in a manner and location that maintains the integrity of the container;
- Lock outside storage areas containing infectious wastes containers to prevent unauthorized access; and

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<sup>242</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf)

<sup>243</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf)

<sup>244</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf)

<sup>245</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf)

<sup>246</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-30_current.pdf)

<sup>247</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf)

<sup>248</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf)

- 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) <sup>249</sup>

- Maintain infectious wastes in a nonputrescent state, using refrigeration or freezing when necessary;
- 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
- 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.

### 12.6.5 Infectious Waste Treatment <sup>250</sup>

#### 12.6.5.1 Chemical Treatment with Sodium Hypochlorite for Cultures (LAWriter Ohio Laws and Rules, 2013) <sup>251</sup>

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.

#### 12.6.5.2 Other Infectious Treatment Methods are not Permitted

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

- Incineration

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<sup>249</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-35_current.pdf)

<sup>250</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32_current.pdf)

<sup>251</sup> [http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32\\_current.pdf](http://www.epa.state.oh.us/portals/34/document/currentrule/3745-27-32_current.pdf)

- Autoclaving
- Applied heat encapsulation for sharps
- Chemical treatment utilizing peracetic acid and grinding or
- Any other alternative treatment technologies.

#### 12.6.6 Contaminated Sharps Discarding and Containment<sup>252</sup>

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:<sup>253</sup>

- closable<sup>254</sup>
- puncture resistant<sup>255</sup>
- leakproof on side and bottom<sup>256</sup>
- labeled or color-coded in accordance with 29 CFR 910.1030<sup>257</sup>

During use, containers for contaminated sharps shall be:<sup>258</sup>

- 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);<sup>259</sup>
- maintained upright throughout use; and<sup>260</sup>
- replaced routinely and not be allowed to overfill.<sup>261</sup>

When moving containers of contaminated sharps from the area of use, the containers shall be:<sup>262</sup>

- closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;<sup>263</sup>
- placed in a secondary container if leakage is possible. The second container shall be:<sup>264</sup>
  - closable;<sup>265</sup>
  - constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and<sup>266</sup>
  - labeled or color-coded according to 29 CFR 910.1030.<sup>267</sup>

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.<sup>268</sup>

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<sup>252</sup> 1910.1030(d)(4)(iii)(A)

<sup>253</sup> 1910.1030(d)(4)(iii)(A)(1)

<sup>254</sup> 1910.1030(d)(4)(iii)(A)(1)

<sup>255</sup> 1910.1030(d)(4)(iii)(A)(1)(ii)

<sup>256</sup> 1910.1030(d)(4)(iii)(A)(1)(iii)

<sup>257</sup> 1910.1030(d)(4)(iii)(A)(1)(iv)

<sup>258</sup> 1910.1030(d)(4)(iii)(A)(2)

<sup>259</sup> 1910.1030(d)(4)(iii)(A)(2)(i)

<sup>260</sup> 1910.1030(d)(4)(iii)(A)(2)(ii)

<sup>261</sup> 1910.1030(d)(4)(iii)(A)(2)(iii)

<sup>262</sup> 1910.1030(d)(4)(iii)(A)(3)

<sup>263</sup> 1910.1030(d)(4)(iii)(A)(3)(i)

<sup>264</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)

<sup>265</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(A)

<sup>266</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(B)

<sup>267</sup> 1910.1030(d)(4)(iii)(A)(3)(ii)(C)

<sup>268</sup> 1910.1030(d)(4)(iii)(A)(4)

### 12.6.7 Other Regulated Waste Containment<sup>269</sup>

Regulated waste shall be placed in containers which are:<sup>270</sup>

- closable;<sup>271</sup>
- constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and<sup>272</sup>
- labeled or color-coded according to the 29 CFR 1910.1030.<sup>273</sup>
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.<sup>274</sup>

If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:<sup>275</sup>

- closable;<sup>276</sup>
- constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;<sup>277</sup>
- labeled or color-coded in accordance with the 29 CFR 1910.1030; and<sup>278</sup>
- closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.<sup>279</sup>

### 12.6.8 Mixed Waste Sharps<sup>280</sup>

*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.

## 12.7 Laundry<sup>281</sup>

### 12.7.1 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.<sup>282</sup>

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

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<sup>269</sup> [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

<sup>270</sup> 1910.1030(d)(4)(iii)(B)(1)

<sup>271</sup> 1910.1030(d)(4)(iii)(B)(1)(i)

<sup>272</sup> 1910.1030(d)(4)(iii)(B)(1)(ii)

<sup>273</sup> 1910.1030(d)(4)(iii)(B)(1)(iii)

<sup>274</sup> 1910.1030(d)(4)(iii)(B)(1)(iv)

<sup>275</sup> 1910.1030(d)(4)(iii)(B)(2)

<sup>276</sup> 1910.1030(d)(4)(iii)(B)(2)(i)

<sup>277</sup> 1910.1030(d)(4)(iii)(B)(2)(ii)

<sup>278</sup> 1910.1030(d)(4)(iii)(B)(2)(iii)

<sup>279</sup> 1910.1030(d)(4)(iii)(B)(2)(iv)

<sup>280</sup> [1910.1030\(d\)\(4\)\(iii\)\(B\)](#)

<sup>281</sup> [1910.1030\(d\)\(4\)\(iv\)](#)

<sup>282</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=24989](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24989)

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.<sup>283</sup>

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.<sup>284</sup>

Home laundering by employees is not permitted since the standard requires that 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.<sup>285</sup>

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.<sup>286</sup>

Contaminated laundry will be handled as little as possible with a minimum of agitation.<sup>287</sup>  
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.<sup>288</sup>

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.<sup>289</sup> 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 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.<sup>290</sup>

The SUPERVISOR/PRINCIPLE INVESTIGATOR shall ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.<sup>291</sup>

### **12.7.2 Laundry Facility Locations**

Laundry facilities are available for use at Dayton's Main Campus and Celina's Lake Campus (See Appendix K).

The employee's department shall provide detergent.

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<sup>283</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=27008](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=27008)

<sup>284</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>285</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>286</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570)

<sup>287</sup> 1910.1030(d)(4)(iv)(A)

<sup>288</sup> 1910.1030(d)(4)(iv)(A)(1)

<sup>289</sup> 1910.1030(d)(4)(iv)(A)(2)

<sup>290</sup> 1910.1030(d)(4)(iv)(A)(3)

<sup>291</sup> 1910.1030(d)(4)(iv)(B)

Note: Washing and drying the garments should be done according to the clothing manufacturer's instructions.<sup>292</sup>

## **12.8 Communication of Hazards<sup>293</sup>**

### **12.8.1 Labels and Signs<sup>294</sup>**

#### **12.8.1.1 Materials to Label<sup>295</sup>**

Warning labels shall be affixed to the following:<sup>296</sup>

- 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.

#### **12.8.1.2 Label Requirements<sup>297</sup>**

Must include the universal biohazard symbol.

Must be fluorescent orange or orange-red or predominantly so with lettering or symbols in a contrasting color.<sup>298</sup>

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.<sup>299</sup>

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.<sup>300</sup>

Labels required for contaminated equipment shall be in accordance with this paragraph and shall also state which portions of the equipment remain contaminated.<sup>301</sup>

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<sup>292</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=21010](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21010)

<sup>293</sup> [1910.1030\(g\)](#)

<sup>294</sup> [1910.1030\(g\)\(1\)](#)

<sup>295</sup> [1910.1030\(g\)\(1\)\(i\)](#)

<sup>296</sup> 1910.1030(g)(1)(i)(A)

<sup>297</sup> 1910.1030(g)(1)(i)(B)

<sup>298</sup> 1910.1030(g)(1)(i)(C)

<sup>299</sup> 1910.1030(g)(1)(i)(D)

<sup>300</sup> 1910.1030(g)(1)(i)(G)

<sup>301</sup> [1910.1030\(g\)\(1\)\(i\)\(H\)](#)

Regulated waste that has been decontaminated need not be labeled or color-coded.<sup>302</sup>



**Figure 12: Universal Biohazard Symbol**

### **12.8.2 Signs<sup>303</sup>**

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).

#### **12.8.2.1 Biological Hazard Signs<sup>304</sup>**

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.<sup>305</sup>

The sign shall bear the following legend:<sup>306</sup>

- 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.<sup>307</sup>

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<sup>302</sup> 1910.1030(g)(1)(i)(I)

<sup>303</sup> 1910.1030(g)(1)(ii)

<sup>304</sup> 1910.145(e)(4)

<sup>305</sup> 1910.145(e)(4)

<sup>306</sup> 1910.1030(g)(1)(ii)(A)

<sup>307</sup> 1910.1030(g)(1)(ii)(B)

### 12.8.3 Biological Hazard Tags

#### 12.8.3.1 Use<sup>308</sup>

- 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.<sup>309</sup>

#### 12.8.3.2 General Tag Criteria

Tags shall contain a signal word and a major message.<sup>310</sup>

- The signal word shall be either "Danger," "Caution," or "Biological Hazard," "BIOHAZARD," or the biological hazard symbol.<sup>311</sup>
- The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee.<sup>312</sup>
- 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.<sup>313</sup>
- The tag's major message shall be presented in either pictographs, written text or both.<sup>314</sup>
- The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard.<sup>315</sup>
- All employees shall be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary.<sup>316</sup>
- 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.<sup>317</sup>

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.<sup>318</sup>

The symbol design for biological hazard tags shall conform to the design shown below:<sup>319</sup>

#### BIOLOGICAL HAZARD SYMBOL CONFIGURATION

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<sup>308</sup> 1910.145(f)(3)

<sup>309</sup> 1910.145(f)(3)

<sup>310</sup> 1910.145(f)(4)(i)

<sup>311</sup> 1910.145(f)(4)(i)(A)

<sup>312</sup> 1910.145(f)(4)(i)(B)

<sup>313</sup> 1910.145(f)(4)(ii)

<sup>314</sup> 1910.145(f)(4)(iii)

<sup>315</sup> 1910.145(f)(4)(iv)

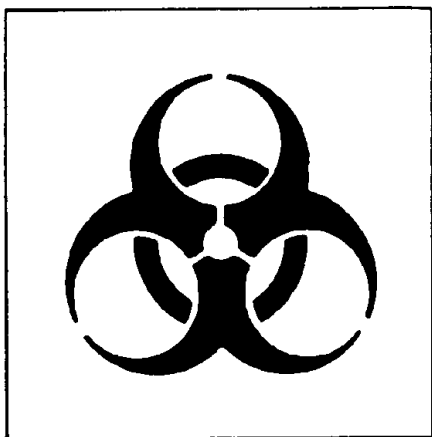
<sup>316</sup> 1910.145(f)(4)(v)

<sup>317</sup> 1910.145(f)(4)(vi)

<sup>318</sup> 1910.145(f)(8)(i)

<sup>319</sup> 1910.145(f)(8)(ii)





**Biological Hazard Symbol Configuration.**

**Figure 13: Biohazard Symbol Configuration (Occupational Safety and Health Administration, 2013)**

## **13 Hepatitis B Vaccination**

### **13.1 Confidentiality of Medical Records**

In accordance with the Health Insurance Portability and Accountability Act or HIPAA<sup>320</sup>, effective April 14, 2003, all patient-related medical information shall be kept confidential. (U.S. Department of Health & Human Services)

### **13.2 Hepatitis B Virus (HBV) Vaccine and Vaccination Series**

#### **13.2.1 General<sup>321</sup>**

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.<sup>322</sup>

All medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are:<sup>323</sup>

- made available at no cost to the employee;<sup>324</sup>
- made available to the employee at a reasonable time and place;<sup>325</sup>
- performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional;<sup>326</sup> and

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<sup>320</sup> <http://www.hhs.gov/ocr/hipaa/>

<sup>321</sup> 1910.1030(f)(1)

<sup>322</sup> 1910.1030(f)(1)(i)

<sup>323</sup> 1910.1030(f)(1)(ii)

<sup>324</sup> 1910.1030(f)(1)(ii)(A)

<sup>325</sup> 1910.1030(f)(1)(ii)(B)

<sup>326</sup> 1910.1030(f)(1)(ii)(C)

- 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.<sup>327</sup>

All laboratory tests shall be conducted by an accredited laboratory at no cost to the employee.<sup>328</sup>

### **13.3 Hepatitis B Vaccination<sup>329</sup>**

#### **13.3.1 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.<sup>330</sup>

Vaccination is encouraged unless:

- Documentation exists that the employee has previously received the complete hepatitis B vaccination series;
- Antibody testing reveals that the employee is immune; or
- Medical evaluation shows that vaccination is contraindicated.<sup>331</sup>

Participation in a prescreening program is not a prerequisite for receiving hepatitis B vaccination.<sup>332</sup>

#### **13.3.2 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.<sup>333</sup>

#### **13.3.3 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).<sup>334</sup>

#### **13.3.4 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.<sup>335</sup>

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<sup>327</sup> [1910.1030\(f\)\(1\)\(ii\)\(D\)](#)

<sup>328</sup> 1910.1030(f)(1)(iii)

<sup>329</sup> [1910.1030\(f\)\(2\)](#)

<sup>330</sup> [1910.1030\(f\)\(2\)\(i\)](#)

<sup>331</sup> [1910.1030\(f\)\(2\)\(i\)](#)

<sup>332</sup> [1910.1030\(f\)\(2\)\(ii\)](#)

<sup>333</sup> 1910.1030(f)(2)(iii)

<sup>334</sup> 1910.1030(f)(2)(iv)

<sup>335</sup> [1910.1030\(f\)\(2\)\(v\)](#)

### 13.3.5 Incomplete Vaccination Series and Missed Doses<sup>336</sup>

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.

An employee may be tested for antibody to Hepatitis B surface antigen, one to two months after the completion of the three-dose vaccination series. This 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 may be revaccinated with a second three-dose vaccine series and retested, unless they are HbsAg-positive (Hepatitis surface antibody-positive), as directed by the occupational health practitioner.

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.<sup>337</sup>

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 occupational health practitioner should indicate if antibody testing for employees is necessary and/or feasible.<sup>338</sup>

### 13.3.6 Vaccination Providers

Vaccination will be provided by:

Wright State Physicians Health Center

Student Health Services

725 University Boulevard (behind Nutter Center)

Dayton, OH 45435

937-245-7200

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<sup>336</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=25899](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25899)

<sup>337</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=23780](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23780)

<sup>338</sup> [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=23780](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23780)

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

### **13.3.7 Written Opinion**

Following the medical evaluation, a copy of the health care professional's written opinion (See Appendix P) 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.

### **13.3.8 Vaccine Declination**

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

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

I have been given the opportunity to be vaccinated with 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: \_\_\_\_\_

## 14 Post Exposure Evaluation and Follow-Up

### 14.1 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:<sup>339</sup>

- Exposure details<sup>340</sup>
- Source individual information<sup>341</sup>
- Collection and testing of blood for HBV and HIV serological status<sup>342</sup>
- Post-exposure prophylaxis, when medically indicated, as recommended by the USPHS<sup>343</sup>
- Counseling<sup>344</sup>
- Evaluation of reported illnesses<sup>345</sup>

#### 14.1.1 Exposure Details

Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred<sup>346</sup> The exposure details will be documented by the completion of Wright State's Illness and Injury Reporting Form.

#### 14.1.2 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;<sup>347</sup>

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.<sup>348</sup>

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.<sup>349</sup>

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.<sup>350</sup>

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<sup>339</sup> [1910.1030\(f\)\(3\)](#)

<sup>340</sup> 1910.1030(f)(3)(i)

<sup>341</sup> 1910.1030(f)(3)(ii)

<sup>342</sup> 1910.1030(f)(3)(iii)

<sup>343</sup> 1910.1030(f)(3)(iv)

<sup>344</sup> 1910.1030(f)(3)(v)

<sup>345</sup> 1910.1030(f)(3)(vi)

<sup>346</sup> 1910.1030(f)(3)(i)

<sup>347</sup> 1910.1030(f)(3)(ii)

<sup>348</sup> [1910.1030\(f\)\(3\)\(ii\)\(A\)](#)

<sup>349</sup> 1910.1030(f)(3)(ii)(B)

<sup>350</sup> 1910.1030(f)(3)(ii)(C)

### 14.1.3 Exposed Employee

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.<sup>351</sup>

The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.<sup>352</sup>

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.<sup>353</sup>

When an employee incurs an exposure, he/she should report to the nearest emergency treatment facility (See Appendix O).

## 15 Information Provided to the Healthcare Professional<sup>354</sup>

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

### 15.1 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).<sup>355</sup>

### 15.2 Providers for Post-Exposure Incidents

The healthcare professional evaluating an employee after an exposure incident is provided the following information:<sup>356</sup>

- A copy of the OSHA Bloodborne Pathogen Standard (29 CFR 1910.1030);<sup>357</sup>
- A description of the exposed employee's duties as they relate to the exposure incident;<sup>358</sup>
- Documentation of the route(s) of exposure and circumstances under which exposure occurred;<sup>359</sup>
- Results of the source individual's blood testing, if available;<sup>360</sup> and
- All medical records relevant to the appropriate treatment of the employee including vaccination status which are Wright State's responsibility to maintain.<sup>361</sup>

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<sup>351</sup> 1910.1030(f)(3)(iii)

<sup>352</sup> 1910.1030(f)(3)(iii)(A)

<sup>353</sup> [1910.1030\(f\)\(3\)\(iii\)\(B\)](#)

<sup>354</sup> 1910.1030(f)(4)

<sup>355</sup> 1910.1030(f)(4)(i)

<sup>356</sup> 1910.1030(f)(4)(ii)

<sup>357</sup> 1910.1030(f)(4)(ii)(A)

<sup>358</sup> 1910.1030(f)(4)(ii)(B)

<sup>359</sup> 1910.1030(f)(4)(ii)(C)

<sup>360</sup> 1910.1030(f)(4)(ii)(D)

<sup>361</sup> 1910.1030(f)(4)(ii)(E)

## 16 Health Care Professional's Written Opinion<sup>362</sup>

### 16.1 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.<sup>363</sup>

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.

#### 16.1.1 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.<sup>364</sup>

#### 16.1.2 Post-Exposure Evaluation

The healthcare professional's written opinion for post-exposure evaluation and follow-up shall be limited to the following information:<sup>365</sup>

- that the employee has been informed of the results of the evaluation; and<sup>366</sup>
- 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.<sup>367</sup>

#### 16.1.3 Other Findings or Diagnoses

All other findings or diagnoses shall remain confidential and shall not be included in the written report.<sup>368</sup>

### 16.2 Medical Recordkeeping for Written Opinions

Medical records required by this standard shall be maintained.<sup>369</sup>

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.
- when the employee is sent to a health care professional following an exposure incident.
- 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,

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<sup>362</sup> [1910.1030\(f\)\(5\)](#)

<sup>363</sup> [1910.1030\(f\)\(5\)](#)

<sup>364</sup> 1910.1030(f)(5)(i)

<sup>365</sup> 1910.1030(f)(5)(ii)

<sup>366</sup> 1910.1030(f)(5)(ii)(A)

<sup>367</sup> 1910.1030(f)(5)(ii)(B)

<sup>368</sup> 1910.1030(f)(5)(iii)

<sup>369</sup> 1910.1030(f)(6)

- 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.

## 17 Information and Training<sup>370</sup>

### 17.1 Training

#### 17.1.1 Training Provisions

All employees with occupational exposure shall receive training, at no cost to the employee and during their working hours.<sup>371</sup>

The training shall be provided:<sup>372</sup>

- at the time of initial assignment to tasks where occupational exposure may take place;<sup>373</sup>
- at least annually thereafter;<sup>374</sup>
- annual training for all employees shall be provided within one year of their previous training;<sup>375</sup>
- 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.<sup>376</sup>
- material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.<sup>377</sup>

Training is provided by EHS. Instructions to access the training is available at the EHS website at <https://www.wright.edu/facilities-management-and-campus-operations/services/occupational-and-environmental-training>.

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

#### 17.1.2 Training Elements

The Bloodborne Pathogen Training shall include at a minimum the following elements:<sup>378</sup>

- an accessible copy of the regulatory text of this standard and an explanation of its contents (See Appendix A);<sup>379</sup>
- a general explanation of the epidemiology and symptoms of bloodborne diseases;<sup>380</sup>

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<sup>370</sup> [1910.1030\(g\)\(2\)](#)

<sup>371</sup> 1910.1030(g)(2)(i)

<sup>372</sup> [1910.1030\(g\)\(2\)\(ii\)](#)

<sup>373</sup> 1910.1030(g)(2)(ii)(A)

<sup>374</sup> 1910.1030(g)(2)(ii)(B)

<sup>375</sup> 1910.1030(g)(2)(iv)

<sup>376</sup> [1910.1030\(g\)\(2\)\(v\)](#)

<sup>377</sup> 1910.1030(g)(2)(vi)

<sup>378</sup> [1910.1030\(g\)\(2\)\(vii\)](#)

<sup>379</sup> 1910.1030(g)(2)(vii)(A)

<sup>380</sup> 1910.1030(g)(2)(vii)(B)



- an explanation of the modes of transmission of bloodborne pathogens;<sup>381</sup>
- an explanation of Wright State's exposure control plan and the means by which the employee can obtain a copy of the written plan;<sup>382</sup>
- an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;<sup>383</sup>
- 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;<sup>384</sup>
- information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;<sup>385</sup>
- an explanation of the basis for selection of personal protective equipment;<sup>386</sup>
- 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;<sup>387</sup>
- information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;<sup>388</sup>
- 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;<sup>389</sup>
- information on the post-exposure evaluation and follow-up that Wright State is required to provide for the employee following an exposure incident;<sup>390</sup>
- an explanation of the signs and labels and/or color coding required the 29 CFR 1910.1030;<sup>391</sup> and
- an opportunity for interactive questions and answers with the person conducting the training session.<sup>392</sup>

### 17.1.3 Instructor Requirements<sup>393</sup>

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.<sup>394</sup>

Trainers must demonstrate evidence of specialized training in the area of bloodborne pathogens.<sup>395</sup>

See Appendix J for a list of qualified instructors.

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<sup>381</sup> 1910.1030(g)(2)(vii)(C)

<sup>382</sup> 1910.1030(g)(2)(vii)(D)

<sup>383</sup> [1910.1030\(g\)\(2\)\(vii\)\(E\)](#)

<sup>384</sup> [1910.1030\(g\)\(2\)\(vii\)\(F\)](#)

<sup>385</sup> 1910.1030(g)(2)(vii)(G)

<sup>386</sup> 1910.1030(g)(2)(vii)(H)

<sup>387</sup> 1910.1030(g)(2)(vii)(I)

<sup>388</sup> 1910.1030(g)(2)(vii)(J)

<sup>389</sup> 1910.1030(g)(2)(vii)(K)

<sup>390</sup> 1910.1030(g)(2)(vii)(L)

<sup>391</sup> 1910.1030(g)(2)(vii)(M)

<sup>392</sup> 1910.1030(g)(2)(vii)(N)

<sup>393</sup> 1910.1030(g)(2)(viii)

<sup>394</sup> 1910.1030(g)(2)(viii)

<sup>395</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=21010](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21010)

## 17.2 HIV and HBV Laboratory Facility Training Requirements<sup>396</sup>

### 17.2.1 HIV and HBV Laboratory and Production Facility

#### 17.2.1.1 Additional Training for Employees

Wright State employees in HIV or HBV research laboratories and HIV or HBV production facilities require additional training following initial training.<sup>397</sup>

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.<sup>398</sup>
- have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.<sup>399</sup>

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.<sup>400</sup>

## 18 Records

### 18.1 Medical Records<sup>401</sup>

Wright State shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with the Ohio Administrative Code 4167-3-01 "Employee Risk Reduction Standards<sup>402</sup>" and 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."<sup>403</sup>

#### 18.1.1 Medical Record Contents

This medical record shall include:<sup>404</sup>

- the name and social security number of the employee;<sup>405</sup>
- 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.<sup>406</sup>

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<sup>396</sup> 1910.1030(g)(2)(ix)

<sup>397</sup> 1910.1030(g)(2)(ix)

<sup>398</sup> 1910.1030(g)(2)(ix)(A)

<sup>399</sup> 1910.1030(g)(2)(ix)(B)

<sup>400</sup> 1910.1030(g)(2)(ix)(C)

<sup>401</sup> 1910.1030(h)(1)

<sup>402</sup> Ohio Administrative Code 4167-3-01

<sup>403</sup> 1910.1030(h)(1)(i)

<sup>404</sup> 1910.1030(h)(1)(ii)

<sup>405</sup> [1910.1030\(h\)\(1\)\(ii\)\(A\)](#)

<sup>406</sup> [1910.1030\(h\)\(1\)\(ii\)\(B\)](#)

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.<sup>407</sup> 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.<sup>2</sup>

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 procedures;<sup>408</sup>
- Wright State's copy of the healthcare professional's written opinion;<sup>409</sup> and
- a copy of the information provided to the healthcare professional.<sup>410</sup>

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.<sup>411</sup>

EHS is responsible for maintenance of a portion of the required medical records. Confidential records are kept in the following locations:

- licensed healthcare provider and
- 047 Biological Sciences II

Medical records are retained for at least the duration of employment plus 30 years.

### **18.1.2 Confidentiality<sup>412</sup>**

Wright State shall ensure that employee medical records are:<sup>413</sup>

- kept confidential;<sup>414</sup> and

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<sup>407</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=25648](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25648)

<sup>408</sup> 1910.1030(h)(1)(ii)(C)

<sup>409</sup> 1910.1030(h)(1)(ii)(D)

<sup>410</sup> 1910.1030(h)(1)(ii)(E)

<sup>411</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=20693](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20693)

<sup>412</sup> 1910.1030(h)(1)(iii)

<sup>413</sup> 1910.1030(h)(1)(iii)

<sup>414</sup> 1910.1030(h)(1)(iii)(A)

- 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.<sup>415</sup>

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.<sup>416</sup>

## **18.2 Training Records<sup>417</sup>**

### **18.2.1.1 Content**

Training records shall include the following information:<sup>418</sup>

- the dates of the training sessions,<sup>419</sup>
- the contents or a summary of the training sessions,<sup>420</sup>
- the names and qualifications of persons conducting the training,<sup>421</sup> and
- the names and job titles of all persons attending the training sessions.<sup>422</sup>

### **18.2.1.2 Record Retention<sup>423</sup>**

Training records shall be maintained for 3 years from the date on which the training occurred.<sup>424</sup>

### **18.2.1.3 Availability<sup>425</sup>**

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.<sup>426</sup>

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.<sup>427</sup>

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.<sup>428</sup>

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

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<sup>415</sup> 1910.1030(h)(1)(iii)(B)

<sup>416</sup> [1910.1030\(h\)\(1\)\(iv\)](#)

<sup>417</sup> [1910.1030\(h\)\(2\)](#)

<sup>418</sup> 1910.1030(h)(2)(i)

<sup>419</sup> 1910.1030(h)(2)(i)(A)

<sup>420</sup> 1910.1030(h)(2)(i)(B)

<sup>421</sup> 1910.1030(h)(2)(i)(C)

<sup>422</sup> 1910.1030(h)(2)(i)(D)

<sup>423</sup> [1910.1030\(h\)\(1\)\(iv\)](#)

<sup>424</sup> 1910.1030(h)(2)(ii)

<sup>425</sup> 1910.1030(h)(3)

<sup>426</sup> 1910.1030(h)(3)(i)

<sup>427</sup> [1910.1030\(h\)\(3\)\(ii\)](#)

<sup>428</sup> [1910.1030\(h\)\(3\)\(iii\)](#)

Attn: Director, Environmental Health and Safety

### 18.3 Transfer of Records<sup>429</sup>

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).<sup>430</sup>

### 18.4 Sharps Injury Log<sup>431</sup>

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.<sup>432, 433, 434</sup>

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.<sup>435</sup>

#### 18.4.1 Sharps Injury Log Contents

The Sharps Injury Log shall contain, at a minimum:<sup>436, 437</sup>

- the date and time of the incident;<sup>438</sup>
- the type and brand of device involved in the incident,<sup>439, 440</sup>
- the job classification of each worker involved;<sup>441</sup>
- the department or work area where the exposure incident occurred<sup>442,443</sup>
- the procedure the worker was performing at the time of the incident;<sup>444</sup>
- an explanation of how the incident occurred.<sup>445,446</sup>
- the body part involved.<sup>447</sup>

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<sup>429</sup> [1910.1030\(h\)\(4\)](#)

<sup>430</sup> [1910.1030\(h\)\(4\)](#)

<sup>431</sup> [1910.1030\(h\)\(5\)](#)

<sup>432</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9639](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9639)

<sup>433</sup> 1910.1030(h)(5)(ii)

<sup>434</sup> <http://codes.ohio.gov/oac/4167-3>

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

<sup>436</sup> 1910.1030(h)(5)(i)

<sup>437</sup> <http://codes.ohio.gov/oac/4167-3>

<sup>438</sup> <http://codes.ohio.gov/oac/4167-3-06>

<sup>439</sup> [1910.1030\(h\)\(5\)\(i\)\(A\)](#)

<sup>440</sup> <http://codes.ohio.gov/oac/4167-3-06>

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

<sup>442</sup> 1910.1030(h)(5)(i)(B)

<sup>443</sup> <http://codes.ohio.gov/oac/4167-3-06>

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

<sup>445</sup> [1910.1030\(h\)\(5\)\(i\)\(C\)](#)

<sup>446</sup> <http://codes.ohio.gov/oac/4167-3-06>

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

- 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;<sup>448</sup>
- 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 sharp with protection, and the basis for the assessment;<sup>449</sup> and
- any other relevant description of the exposure incident.<sup>450</sup>

#### 18.4.2 PERRP Sharps Injury Form (and) Needlestick Report (SH-12)<sup>451</sup>

Wright State, as a public employer, must complete and submit a PERRP Sharps Injury Form and a Needlestick Report (SH-12) ([See APPENDIX K](#)) 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.*

### 18.5 PERRP 300P Log

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 PERRP 300P Log (OSHA's 300 Log equivalent for the state of Ohio's employers) or equivalent as an injury<sup>452</sup>. To protect the employee's privacy, the employee's name shall not be entered on the PERRP 300P 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)).<sup>453</sup>

Only work-related cuts, lacerations, punctures, and scratches that involve contamination with another person's blood or OPIM are recorded in the the PERRP 300P Log. If the cut, laceration, or scratch involves a clean object, or a contaminate other than blood or OPIM, the case is only recorded if it meets one or more of the recording criterion in Recording and Reporting Occupational Injuries and Illness 29 CFR part 1904.7.<sup>454</sup> The injury must be recorded if it results in one or more of the following<sup>455</sup>:

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

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

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

<sup>451</sup> <http://www.ohiobwc.com/employer/programs/safety/sandhperrp.asp>

<sup>452</sup> Ohio Administrative Code 4167-6-01 Recording and reporting occupational injuries and illnesses

<sup>453</sup> 1904.8(a)

<sup>454</sup> 1904.8(b)(2)

<sup>455</sup> 1904.7(b)(1)

- Death<sup>456</sup>
- Days away from work<sup>457</sup>
- Restricted work or transfer to another job<sup>458</sup>
- Medical treatment beyond first aid<sup>459</sup>
- Loss of consciousness<sup>460</sup>
- A significant injury or illness diagnosed by a physician or other licensed healthcare provider.<sup>461</sup>

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 PERRP 300P Log.

The sharps injury log shall be maintained for the five-year period required by Recording and Reporting Occupational Injuries and Illness 29 CFR 1904.33, "Recording and Reporting Occupational Injuries and Illness".<sup>462, 463</sup>

## 19 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

## 20 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.<sup>464</sup>

Research laboratories and production facilities shall meet the following criteria:<sup>465</sup>

### 20.1.1 Standard Microbiological Practices

All regulated waste shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.<sup>466</sup>

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<sup>456</sup> 1904.7(b)(1)(i)

<sup>457</sup> 1904.7(b)(1)(ii)

<sup>458</sup> 1904.7(b)(1)(iii)

<sup>459</sup> 1904.7(b)(1)(iv)

<sup>460</sup> 1904.7(b)(1)(v)

<sup>461</sup> 1904.7(b)(1)(vi)

<sup>462</sup> 1910.1030(h)(5)(iii)

<sup>463</sup> 1904.33(a)

<sup>464</sup> 1910.1030(e)(1)

<sup>465</sup> 1910.1030(e)(2)

<sup>466</sup> 1910.1030(e)(2)(i)

### 20.1.2 Special Practices

- Laboratory doors shall be kept closed when work involving HIV or HBV is in progress.<sup>467</sup>
- 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.<sup>468</sup>
- 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.<sup>469</sup>
- 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 1910.1030<sup>470</sup>
- 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.<sup>471</sup>
- 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.<sup>472</sup>
- 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.<sup>473</sup>
- 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.<sup>474</sup>
- Vacuum lines shall be protected with liquid disinfectant traps and high-efficiency particulate air (HEPA) filters or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary.<sup>475</sup>
- 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.<sup>476</sup>
- 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.<sup>477</sup>
- 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

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<sup>467</sup> 1910.1030(e)(2)(ii)(A)

<sup>468</sup> 1910.1030(e)(2)(ii)(B)

<sup>469</sup> 1910.1030(e)(2)(ii)(C)

<sup>470</sup> 1910.1030(e)(2)(ii)(D)

<sup>471</sup> 1910.1030(e)(2)(ii)(E)

<sup>472</sup> 1910.1030(e)(2)(ii)(F)

<sup>473</sup> 1910.1030(e)(2)(ii)(G)

<sup>474</sup> 1910.1030(e)(2)(ii)(H)

<sup>475</sup> 1910.1030(e)(2)(ii)(I)

<sup>476</sup> 1910.1030(e)(2)(ii)(J)

<sup>477</sup> 1910.1030(e)(2)(ii)(K)



be required to read instructions on practices and procedures, and shall be required to follow them.<sup>478</sup>

### 20.1.3 Containment Equipment<sup>479</sup>

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.<sup>480</sup>

Biological safety cabinets shall be certified when installed, whenever they are moved and at least annually.<sup>481</sup>

### 20.2 HIV and HBV Research Laboratories<sup>482</sup>

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.<sup>483</sup>
- An autoclave for decontamination of regulated waste shall be available.<sup>484</sup>

### 20.3 HIV and HBV Production Facilities<sup>485</sup>

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 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.<sup>486</sup>
- 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.<sup>487</sup>
- 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.<sup>488</sup>
- Access doors to the work area or containment module shall be self-closing.<sup>489</sup>
- An autoclave for decontamination of regulated waste shall be available within or as near as possible to the work area.<sup>490</sup>

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<sup>478</sup> 1910.1030(e)(2)(ii)(M)

<sup>479</sup> 1910.1030(e)(2)(iii)

<sup>480</sup> 1910.1030(e)(2)(iii)(A)

<sup>481</sup> 1910.1030(e)(2)(iii)(B)

<sup>482</sup> 1910.1030(e)(3)

<sup>483</sup> 1910.1030(e)(3)(i)

<sup>484</sup> 1910.1030(e)(3)(ii)

<sup>485</sup> 1910.1030(e)(4)

<sup>486</sup> 1910.1030(e)(4)(i)

<sup>487</sup> 1910.1030(e)(4)(ii)

<sup>488</sup> 1910.1030(e)(4)(iii)

<sup>489</sup> 1910.1030(e)(4)(iv)

<sup>490</sup> 1910.1030(e)(4)(v)

- 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).<sup>491</sup>

## 20.4 Training Requirements<sup>492</sup>

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:<sup>493</sup>

- 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.<sup>494</sup>
- employees shall have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.<sup>495</sup>
- 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.<sup>496</sup>

## 21 Dates<sup>497</sup>

### 21.1 Effective Dates<sup>498</sup>

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.<sup>499</sup>

The Information and Training and Recordkeeping of this section were in effect on or before June 4, 1992.<sup>500</sup>

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.<sup>501</sup>

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<sup>491</sup> 1910.1030(e)(4)(vi)

<sup>492</sup> 1910.1030(e)(5)

<sup>493</sup> 1910.1030(g)(2)(ix)

<sup>494</sup> 1910.1030(g)(2)(ix)(A)

<sup>495</sup> 1910.1030(g)(2)(ix)(B)

<sup>496</sup> 1910.1030(g)(2)(ix)(C)

<sup>497</sup> 1910.1030(i)

<sup>498</sup> 1910.1030(i)(1)

<sup>499</sup> 1910.1030(i)(3)

<sup>500</sup> 1910.1030(i)(4)

<sup>501</sup> 1910.1030(i)(4)

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## 23 Data and Records Management

Document ID	Document or Record	Reference	File Location	Retention
	OSHA Bloodborne Pathogen Standard	4 Plan Access		
	Wright State Exposure Control Plan	4 Plan Access		
	Annual Review of Exposure Control Plan	8 Annual Review		
	Exposure Determination	8 Exposure Determination		
	Exemption Request for Protective Devices	9.2.1.1 Exemption for Labeling, Engineering Controls, or Non-compliant Sharps		
	Needle Use Evaluation	12.3.4 Procedures for Evaluating Needle Use		
	Safer Sharps Devices Annual Review Form	12.3.4 Procedures for Evaluating Needle Use		
	Exemption Request for Specimen Labeling	9.3.5 General Work Practices		
	Integrative Pest Management Plan	9.3.8.1 Standard Microbiological Practices		
	Biosafety Manual	9.3.8.2 Special Practices		
	Hepatitis B Vaccination Records	10.3 Hepatitis B Vaccination		
	Hepatitis B Declination	10.3.3 Hepatitis B Declination 10.3.8 Vaccine Declination		
	Hepatitis B Written Opinion	10.3.7 Written Opinion		

Illness/Injury Form	11.1.1 Exposure Details

## 24 Metrics

Any metrics or key performance indicators (KPIs) associated with this Exposure Control Plan are established and tracked within the Wright State EHS Metrics Program.


## 25 Appendices

## **25.1 APPENDIX A: OSHA Bloodborne Pathogen Standard**

## **25.2 APPENDIX B: *Process Flow Diagram***





## 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

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional	Employees
ECP	Designate the Biological Safety Officer to oversee the Wright State ECP.	Provide all affected personnel with access to the ECP.	Assist in the development and implementation of the ECP.	Assist in the development and implementation of the ECP.	Read, understand, and comply with the requirements of the ECP.
	Provide a written ECP.	Become familiar with and adhere to the provisions of this ECP.	Comply with all applicable requirements established in the OSHA Bloodborne Pathogens.		
	Provide access to the ECP.				
	Maintain, review, and update the ECP annually and whenever necessary. This review may include new or modified tasks and procedures or revised employee job classifications or positions with occupational exposure.				

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional	Employees
Exposure mination	Assist departments with hazard assessments to determine jobs or tasks where exposure to bloodborne pathogens is possible.	Identify and document personnel with potential exposure to bloodborne pathogens and the associated tasks and responsibilities of those positions and provide this information to EHS Biosafety.	Assist in identifying and documenting personnel with possible exposure to bloodborne positions and provide this information to EHS Biosafety.	Assist in identifying and documenting personnel with possible exposure to bloodborne pathogens and the associated tasks and responsibilities of those positions and provide this information to EHS Biosafety.	Notify supervisor and EHS Biosafety if job tasks and responsibilities present occupational exposure concerns that have not been previously identified.
		The employee job description, responsibilities and tasks are used to assess potential exposures to human blood, tissues, organs, contaminated sharps or contaminated wastes and whether this potential exposure can be reasonably anticipated as part of the job.	Ensure job descriptions include bloodborne pathogens requirements if the position involves activities covered by the OSHA Bloodborne Pathogens Standard.		Alert others in the work area, before work begins, of activities that may expose themselves or others to bloodborne pathogens or OPIM.
		Obtain IBC approval prior to initiation of any research with human blood or tissues.			

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional	Employees
Standard/Universal Precautions	Promote practices, procedures, and methods that conform to the concept of standard/universal precautions.	Ensure that universal precautions are understood and executed by employees/students with possible exposure to bloodborne pathogens.			Observe standard/universal precautions when handling blood or OPIM.

Ensure that standard/universal precautions are observed by employees/students with potential exposure to bloodborne pathogens.	Promote practices, procedures, and methods that conform to the concept of standard/universal precautions.
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Environmental Health and Safety		Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional	Employees
Personal Protective Equipment (PPE)	Provide guidance and technical assistance to departments in the selection of the most appropriate types and quantities of PPE	Provide appropriate personal protective equipment to personnel that have potential exposure to bloodborne pathogens.			Be aware of the proper use, limitations, and location of available PPE.
		Ensure employees are trained in the proper use of selected and approved PPE.			Use appropriate PPE to eliminate or minimize occupational exposure.
					Properly wear PPE.
					Attend training sessions on PPE.
					Care for, clean, and maintain PPE.
					Inform supervisors of the need to repair or replace PPE.

Environmental Health and Safety		Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional	Employees
Housekeeping	Provide guidance and technical assistance to departments in the development and implementation of appropriate housekeeping methods.	Maintain a clean and sanitary workplace environment.			Be aware of and observe established housekeeping procedures (e.g., use mechanical devices to clean up broken glass not bare hands).
		Develop and implement cleaning schedules as deemed appropriate for the types of activities and facilities involved.			Maintain work area in a clean and sanitary manner.
					Before applying any EPA-registered disinfectant product, users must read the label to determine if the product is approved for the intended use site or pest.

	Environmental Health and Safety	Supervisor / Investigator	Principle Human Resources	Licensed Professional	Healthcare Employees
Hepatitis B Vaccination/Medical Testing	Assist departments in the identification of employees/students that have potential exposure to bloodborne pathogens.	Part of the training information session includes an explanation of the Hepatitis B Vaccination Program. A form must be completed at the session indicating whether the vaccination has been accepted or declined. Copies of these forms are forwarded to EHS and/or the Licensed Medical Provider.		Make available the hepatitis B vaccination to employees/students identified through the process of exposure determination to have a potential exposure to bloodborne pathogens.	Complete and submit the hepatitis B vaccination form (regardless of whether you are accepting the vaccine), and any additional vaccination forms as may be requested by Wright State.
		Provide the hepatitis B virus vaccine free of charge.		Make available a hepatitis B antibody titer analysis to employees/students identified through the process of exposure determination that believe they have been vaccinated but do not have records documenting the vaccination series.	
		Maintain hepatitis B virus declination statements and provide copies to EHS.			

	Environmental Health and Safety	Supervisor / Investigator	Principle Human Resources	Licensed Professional	Healthcare Employees
Post Exposure Evaluation and Follow-up	Provide direction on approved medical facilities capable of providing the confidential post exposure evaluation and follow-up.	Ensure that employees know what to do in the event of an exposure, spill, or emergency.		Make available the hepatitis B vaccination to personnel identified through the process of exposure determination to have a potential exposure to bloodborne pathogens.	Immediately (or as soon as feasible), report all exposure incidents to your supervisors and EHS Biosafety.
		Make available the hepatitis B vaccination to personnel identified through the process of exposure determination to have a potential exposure to bloodborne pathogens.		Provide the necessary occupational medical surveillance and 5 counseling to personnel who may have been exposed to bloodborne pathogens or OPIM.	Report all suspected exposure incidents.
		Report exposure incidents to EHS.		Determine the ability of an employee or student to perform their job or to participate in training without endangering the health and safety of patients, other employees, or themselves.	
		Maintain needlestick logs and provide copies to EHS.			

Information and Training	Create training opportunities as deemed necessary and appropriate for each affected department.	Provide visitors information and training as they apply to the work environment.	Coordinate with EHS Biosafety in the development of bloodborne pathogens training material.	Attend initial and annual refresher biosafety and bloodborne pathogens training.
		Provide training before individuals work with bloodborne or human materials.		
		Training must be completed 10 days after date-of-hire and before working with materials covered by the OSHA Bloodborne Pathogen Standard.		
		Arrange for annual re-training. Contact EHS Biosafety for instructions and additional information.		
		Provide employees specific training to work with infectious materials.		
		Train personnel in decontamination, disinfection, and autoclave procedures.		
		Train personnel that ship or receive infectious materials to fulfill regulatory DOT and/or IATA requirements. For details, contact EHS.		

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Professional	Healthcare	Employees
Training Records	Compile and retain all training records (for a minimum of three years) relative to the Exposure Control Plan.	Compile and retain employee/student training records for a minimum of three years.				

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Professional	Healthcare	Employees
Medical Records				Maintain confidential medical records for exposure incidents.		
				Maintain medical records for the duration of employment plus thirty years.		
				Maintain declination statements.		

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Professional	Healthcare	Employees
HIV, HBV, and HCV Laboratories	Provide guidance and technical assistance to laboratories engaged in	Comply with additional criteria established for HIV, HBV, and HCV laboratories.				Understand the requirements and protection



HIV, HBV, or HCV research.	for personnel working with HIV, HBV, and HCV.
	Follow established procedures.

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional
Labels and Signs	Provide labels to requesting departments.	Affix appropriate labels to containers of regulated waste, refrigerators, freezers, and equipment containing blood or OPIM, and other containers of blood or OPIM.		Make certain that labels are affixed appropriately.  Notify supervisor to report labeling problems.
		Post the universal biohazard symbol and appropriate Biological Safety Level at the entrance of HIV, HBV, and/or HCV laboratories.		

	Environmental Health and Safety	Supervisor / Principle Investigator	Human Resources	Licensed Healthcare Professional
Waste	Coordinate the proper management and disposal of regulated (infectious) waste.	Ensure waste is labeled and disposed properly.		Ensure waste is labeled and disposed properly.
	Provide support personnel for the collection and disposal of infectious sharps containers, biohazardous waste, and infectious waste.			



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## 25.3 APPENDIX C: Checklist for Exposure Control Plan Review

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the general industry standard 29 CFR 1910.1030. It applies to work activities that may result in exposure to blood or other potentially infectious materials. Such activities might include students learning how to take blood tests or employees who are trained in first aid and are required to render first aid in case of emergency. This checklist does not cover acts that result in exposure to blood or other potentially infectious materials when someone voluntarily helps others in an emergency. A yes answer to a question indicates that this portion of the inspection complies with the OSHA or U.S. Environmental Protection Agency (EPA) standard, or with a nonregulatory recommendation.

### Checklist for Exposure Control Review

#### Guidelines

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the general industry standard 29 CFR 1910.1030. It applies to work activities that may result in exposure to blood or other potentially infectious materials. Such activities might include students learning how to take blood tests or employees who are trained in first aid and are required to render first aid in case of emergency. This checklist does not cover acts that result in exposure to blood or other potentially infectious materials when someone voluntarily helps others in an emergency. A yes answer to a question indicates that this portion of the inspection complies with the OSHA or U.S. Environmental Protection Agency (EPA) standard, or with a nonregulatory recommendation.

#### Exposure Control Plan

1. Has a written exposure control plan been developed? [29 CFR 1910.1030(c)(1)(i), (c)(1)(ii), and (c)(2)]

Note: The exposure control plan must include (a) a list of tasks identified as having a potential for exposure to bloodborne pathogens; (b) methods to protect students and employees; (c) dates and procedures for providing hepatitis B vaccinations; (d) procedures for post-exposure evaluation and followup in case of exposure; (e) content and methods for training students and employees; and (f) procedures for maintaining records.
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2. Is the written exposure control plan available on request for examination or copying? [29 CFR 1910.1030(c)(1)(iii)]
3. Is the written exposure control plan updated yearly? [29 CFR 1910.1030(c)(1)(iv)]

#### Engineering and Work Practice Controls

4. Do students and employees follow universal precautions to prevent contact with blood or other potentially infectious materials? [29 CFR 1910.1030(d)(1)]

5. Are engineering and work practice controls implemented before personal protective equipment is used? [29 CFR 1910.1030(d)(2)(i)]
6. Are engineering controls examined and maintained on a regular schedule to ensure their effectiveness? [29 CFR 1910.1030(d)(2)(ii)]
7. Are handwashing facilities readily accessible? [29 CFR 1910.1030(d)(2)(iii),(iv)]

Note: If providing handwashing facilities is not possible, an appropriate antiseptic hand cleanser and clean cloth, paper towels, or antiseptic towelettes may be substituted. When antiseptic hand cleansers or towelettes are used, wash hands with soap and running water as soon as possible.

8. Do students and employees wash their hands immediately after removing gloves or other personal protective equipment? [29 CFR 1910.1030(d)(2)(v)]
9. Do students and employees wash or flush hands or other skin areas with soap and water after contact with blood or other potentially infectious materials? [29 CFR 1910.1030(d)(2)(vi)]
10. Is it prohibited to bend, recap, or remove contaminated needles or sharps except as noted below? [29 CFR 1910.1030(d)(2)(vii)]

Note: NIOSH recommends avoiding needle recapping.

Note: When no feasible alternatives are available, OSHA permits recapping or needle removal only through the use of a mechanical device or a one-handed technique. Such procedures could involve the one-handed "scoop" technique: using the needle itself to pick up the cap, and pushing cap and sharp together against a hard surface to ensure a tight fit. Or, the sharp might also be recapped by holding the cap with tongs or forceps to place it on the needle.

11. Can it be assured that the shearing and breaking of contaminated needles does not occur? [29 CFR 1910.1030(d)(2)(vii)]
12. Is it prohibited to eat, drink, smoke, apply cosmetics, and handle contact lenses in work areas where the potential exists for exposure to bloodborne pathogens? [29 CFR 1910.1030(d)(2)(ix)]
13. Are food and drink prohibited in refrigerators, freezers, shelves, cabinets, or on countertops or benchtops where blood or other potentially infectious materials are present? [29 CFR 1910.1030(d)(2)(x)]
14. Are tasks involving blood or other potentially infectious materials performed in a way that minimizes splashing and generating droplets of these substances? [29 CFR 1910.1030(d)(2)(xi)]
15. Is mouth pipetting and suctioning of blood or other potentially infectious agents prohibited? [29 CFR 1910.1030(d)(2)(xii)]
16. Are specimens of blood or other potentially infectious materials placed in an appropriate container that prevents leakage during collection, handling, processing, storage, or transport? [29 CFR 1910.1030(d)(2)(xiii)]

## Personal Protective Equipment

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17. Is personal protective equipment such as gloves, gowns, laboratory coats, face shields or masks, and eye protection provided free to persons potentially exposed to bloodborne pathogens? [29 CFR 1910.1030(d)(3)(i)]
18. Is personal protective equipment of appropriate sizes readily accessible or issued to all students and employees? [29 CFR 1910.1030(d)(3)(iii)]
19. Are hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives readily accessible to those who are allergic to the gloves normally provided? [29 CFR 1910.1030(d)(3)(iii)]
20. Is personal protective equipment repaired or replaced to maintain its effectiveness? [29 CFR 1910.1030(d)(3)(v)]
21. Do students and employees immediately remove garments that have been penetrated by blood or other potentially infectious materials? [29 CFR 1910.1030(d)(3)(vi)]
22. Do students and employees remove all personal protective equipment before leaving the work area? [29 CFR 1910.1030(d)(3)(vii)]
23. Do students and employees use an appropriately designated area or container for storage, washing, decontamination, or disposal of personal protective equipment? [29 CFR 1910.1030(d)(3)(viii)]
24. Do students and employees wear gloves whenever the possibility exists of hand contact with blood or other potentially infectious materials? [29 CFR 1910.1030(d)(3)(ix)]

Note: This includes touching contaminated items or surfaces and persons receiving phlebotomy training.
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25. Are disposable (single-use) gloves replaced as soon as they are contaminated, torn, punctured or cannot function as a barrier? [29 CFR 1910.1030(d)(3)(ix)(A)]
26. Is it prohibited to re-use disposable (single-use) gloves? [29 CFR 1910.1030(d)(3)(ix)(B)]
27. Are utility gloves decontaminated and re-used only if the integrity of the glove is not compromised? [29 CFR 1910.1030(d)(3)(ix)(C)]
28. Do students and employees wear masks and eye protection devices (such as goggles or glasses with solid side shields or chin-length face shields) whenever splashes or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated? [29 CFR 1910.1030(d)(3)(x)]
29. Are gowns, aprons, lab coats, clinic jackets, or similar outer garments worn whenever exposure to blood or other potentially infectious materials is anticipated? [29 CFR 1910.1030(d)(3)(xi)]
30. Is there a written method of decontamination and schedule for cleaning of all areas and surfaces that may become contaminated with blood or other potentially infectious materials? [29 CFR 1910.1030(d)(4)(i)]
31. Are all equipment and working surfaces cleaned and decontaminated immediately, or as soon as feasible, after contact with blood or other potentially infectious materials? [29 CFR 1910.1030(d)(4)(ii)]

32. Are protective covers used to cover equipment and surfaces removed and replaced as soon as feasible when they become overtly contaminated? [29 CFR 1910.1030(d)(4)(ii)(B)]

Note: Examples of protective coverings include: plastic wrap, aluminum foil, or absorbent paper backed with impervious material.

33. Are all reusable receptacles such as bins, pails and cans that are likely to become contaminated with blood or other potentially infectious materials inspected and decontaminated on a regular schedule? [29 CFR 1910.1030(d)(4)(ii)(C)]
34. Are all reusable receptacles such as bins, pails and cans that are likely to become contaminated with blood or other potentially infectious materials cleaned and decontaminated immediately, or as soon as feasible, upon visible contamination? [29 CFR 1910.1030(d)(4)(ii)(C)]
35. Is picking up broken contaminated glassware with your hands prohibited? [29 CFR 1910.1030(d)(4)(ii)(D)]
36. Is broken contaminated glassware always cleaned up with mechanical means such as a brush and dust pan, tongs, or forceps? [29 CFR 1910.1030(d)(4)(ii)(D)]
37. Are contaminated sharps discarded immediately or as soon as feasible into containers? [29 CFR 1910.1030(d)(4)(iii)(A)(1)]
38. Are containers used for sharps disposal closable, puncture resistant, leakproof on sides and bottom, and labeled with a biohazard warning label or colored red? [29 CFR 1910.1030(d)(4)(iii)(A)(1)]
39. Are containers used for sharps disposal easily accessible and located in the area where sharps are used or can be reasonably anticipated to be found? [29 CFR 1910.1030(d)(4)(iii)(A)(2)]
40. Are containers used for sharps disposal maintained upright throughout use? [29 CFR 1910.1030(d)(4)(iii)(A)(2)(i)]
41. Are containers used for sharps disposal replaced routinely and not allowed to overfill? [29 CFR 1910.1030(d)(4)(iii)(A)(2)(ii)]
42. Are sharps containers closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping? [29 CFR 1910.1030(d)(4)(iii)(A)(3)(i)]
43. Are sharps containers placed in an appropriate secondary container if leakage is possible? [29 CFR 1910.1030(d)(4)(iii)(A)(3)(ii)]
44. Are reusable sharps that are contaminated with blood or other potentially infectious materials not stored or processed in a manner that requires a person to reach by hand into the containers where these sharps have been placed? [29 CFR 1910.1030(d)(4)(ii)(E)]
45. Are reusable containers not opened, emptied, or cleaned manually or in any other manner which might expose a person to the risk of skin puncture? [29 CFR 1910.1030(d)(4)(iii)(A)(4)]
46. Is regulated waste, other than sharps, placed into containers which are: [29 CFR 1910.1030(d)(4)(iii)(B)(1)]

- a. closable?
  - b. constructed to contain all contents and prevent leakage of fluid during handling, storage, transport or shipping?
  - c. labeled with a biohazard warning label or colored red?
  - d. closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping?
47. Are containers of regulated waste, other than sharps, that have become contaminated on the outside placed into appropriate secondary containers as defined in (17) above? [29 CFR 1910.1030(d)(4)(iii)(B)(2)]
  48. Is contaminated laundry handled as little as possible with a minimum of agitation or movement? [29 CFR 1910.1030(d)(4)(iv)(A)]
  49. Is contaminated laundry bagged or put into other containers at the location it is used? [29 CFR 1910.1030(d)(4)(iv)(A)(1)]
  50. Is contaminated laundry placed and transported in bags or containers labeled with the biohazard symbol or colored red? [29 CFR 1910.1030(d)(4)(iv)(A)(2)]
  51. Is wet contaminated laundry placed and transported in bags or containers that will prevent soak-through and/or leakage of fluids to the exterior? [29 CFR 1910.1030(d)(4)(iv)(A)(3)]
  52. Do persons who handle contaminated laundry wear protective gloves and other appropriate personal protective equipment? [29 CFR 1910.1030(d)(4)(iv)(B)]
  53. Are garments which have been penetrated by blood or other potentially infectious materials removed immediately or as soon as possible by the user? [29 CFR 1910.1030(d)(3)(vi)]
  54. Is the hepatitis B vaccination series made available to all persons who are reasonably anticipated to come in contact with blood or other potentially infectious materials through the performance of their job duties? [29 CFR 1910.1030(f)(1)]
  55. Is the hepatitis B vaccination series made available to persons who have received the required bloodborne pathogen training? [29 CFR 1910.1030(f)(2)]
  56. Within 10 days of initial assignment, is the hepatitis B vaccination series made available to persons whose job is reasonably anticipated to have contact with blood or other potentially infectious materials? [29 CFR 1910.1030(f)(2)(i)]
  57. Have persons who refused to take the hepatitis B vaccination series signed a statement to that effect following the form prescribed by the OSHA standard? [29 CFR 1910.1030(f)(2)(iv)]
  58. Is a confidential medical evaluation and follow-up made available to an exposed person following a report of an exposure incident? [29 CFR 1910.1030(f)(3) and (5)]

Note: The medical evaluation and follow-up must include documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred; identification and documentation of the source individual unless identification is infeasible or prohibited by state law; the HBV or HIV infectivity of the source individual if it can be legally determined; collection and testing of blood from the exposed individual for HBV and HIV serological status

provided consent is given; post-exposure prophylaxis when medically indicated; counseling; evaluation of reported illnesses; and a written opinion from a healthcare professional.

59. Are containers of regulated waste labeled with a biohazard warning label? [29 CFR 1910.1030(g)(1)(i)]

Note: Red bags or red containers may be substituted for a biohazard warning label. Containers include refrigerators and freezers containing blood or other potentially infectious materials, and other containers used to store, transport or ship blood or other potentially infectious materials.

60. Are individuals who are reasonably anticipated to have contact with blood or other potentially infectious materials in the course of their work or student activities provided training on bloodborne pathogens? [29 CFR 1910.1030(g)(2)]

Note: The training must include an accessible copy of the OSHA standard; a general explanation of the epidemiology and symptoms of bloodborne diseases; an explanation of the modes of transmission of bloodborne pathogens; an explanation of the exposure control plan and how to obtain a copy; an explanation of how to recognize tasks and other activities that may involve exposure to blood and other potentially infectious materials; an explanation of engineering controls, work practice controls and personal protective equipment; information on hepatitis B vaccine; emergency information and procedures; information on the post-exposure evaluation and follow-up; information on labels and color coding; and an opportunity for interactive questions and answers.

61. Is bloodborne pathogen training provided before or at the time of initial assignment where contact with blood or other potentially infectious materials is possible? [29 CFR 1910.1030(g)(2)(ii)(A)]
62. Is bloodborne pathogen refresher training provided at least annually? [29 CFR 1910.1030(g)(2)(ii)(C)]
63. Is additional bloodborne pathogen training provided when changes are instituted that might affect exposure such as modification of tasks or procedures or adoption of new tasks or procedures? [29 CFR 1910.1030(g)(2)(v)]
64. Is the bloodborne pathogen training material appropriate in content and vocabulary to the educational level, literacy, and language of people to be trained? [29 CFR 1910.1030(g)(2)(vi)]
65. Is the person(s) who conducts the bloodborne pathogen training knowledgeable in the subject matter? [29 CFR 1910.1030(g)(2)(viii)]
66. Are accurate medical records maintained regarding hepatitis B vaccinations, examinations, medical testing, follow-up procedures, and copies of written opinions given in response to exposure incidents? [29 CFR 1910.1030(h)(1)]

Note: These records are confidential.

67. Are records maintained of training that shows the dates of the training sessions, the contents of the training session, the names and qualifications of person conducting the



training, and the names of the persons attending the training sessions? [29 CFR 1910.1030(h)(2)(i)]

Source:

<http://www.cdc.gov/niosh/docs/2004-101/chklists/n77blo~1.htm>

Resources:

CDC Self-Inspection Checklist <http://www.cdc.gov/niosh/docs/2004-101/chklists/n77blo~1.htm>

OSHA Instruction Directive Number: CPL-01-01-069 Subject: Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens November 27, 2001

[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=directives&p\\_id=2570#VIII](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=directives&p_id=2570#VIII)

## 25.4 APPENDIX D: All Employees at Risk

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

Job classifications in which *all employees* may be expected to incur occupational exposure to blood or other potentially infectious materials

\*as determined by job description (only those positions whose research/job involves working with bloodborne pathogens)

**Table 5. List of all Wright State employees who have a reasonably anticipated risk of exposure to blood or other potentially infectious materials (OPIM) as a result of required occupational tasks.**

Job Classification	Specific Task
Athletic Trainers	Provide first aid and CPR
Athletic Coaches	Provide first aid and CPR
EHS Personnel	Handle infectious waste
LAR Personnel	Care and use of research animals which are potentially infected with BBP
Life Guard	Provide first aid and CPR
Medical Technician	Handling human or primate tissue, including preparation, dissection, cutting, or other
Medical Technologists	Handling human or primate tissue, including preparation, dissection, cutting, or other
Mortician	Handling human or primate tissue, including preparation, dissection, cutting, or other
Nurse	Provide medical care
Nurse, Instructional	Provide medical care
Nurse Practitioner	Provide medical care
Nurse, Student Health Services	Provide medical care
Pathologist	Handling human or primate tissue, including preparation, dissection, cutting, or other
Personal Assistants, Disability Services	Provide first aid and CPR
Physician	Provide medical care
Police Officer	First responder
Student Athletic Trainer	Provide first aid and CPR
Veterinarian	Care and use of research animals which are potentially infected with BBP

**Table 6. Departmental Position Titles with Exposure Tasks**

<b>Department</b>	<b>Job Title</b>	<b>Specific Task</b>
<b>Environmental Health and Safety</b>	Director	Handle infectious waste
	Assistant Director	Handle infectious waste
	Biological and Chemical Safety Officer	Handle infectious waste
	Radiation Safety Officer	Handle infectious waste
	Research Safety Specialist	Handle infectious waste
	Environmental Compliance Officer	Handle infectious waste
	Environmental Health and Safety Specialist	Handle infectious waste
<b>Facilities Management and Services</b>	Carpenter 1	Clean up blood or OPIM
	Carpenter 2	Clean up blood or OPIM
	Custodial Floor Care Technician, Lead	Clean up blood or OPIM
	Custodial Floor Care Technician	Clean up blood or OPIM
	Custodial Services Worker, Lead	Clean up blood or OPIM
	Custodial Services Worker	Clean up blood or OPIM
	Electrician 1	Clean up blood or OPIM
	Electrician 2	Clean up blood or OPIM
	Fire Safety Technician, Lead	Clean up blood or OPIM
	Fire Safety Technician	Clean up blood or OPIM
	Grounds Maintenance Equipment Manager	Clean up blood or OPIM
	Ground Maintenance Worker, Athletic	Clean up blood or OPIM
	Ground Maintenance Worker, Lead	Clean up blood or OPIM
	Ground Maintenance Worker, 1	Clean up blood or OPIM
	Ground Maintenance Worker, 2	Clean up blood or OPIM
	HVAC Technician	Clean up blood or OPIM

HVAC/Boiler Operator Technician	Clean up blood or OPIM
Locksmith, Lead	Clean up blood or OPIM
Locksmith	Clean up blood or OPIM
Maintenance Worker, Lead	Clean up blood or OPIM
Maintenance Worker, Assistant	Clean up blood or OPIM
Maintenance Worker	Clean up blood or OPIM
Painter 1	Clean up blood or OPIM
Painter 2	Clean up blood or OPIM
Plumber 1	Clean up blood or OPIM
Plumber 2	Clean up blood or OPIM
Printing Technician	Clean up blood or OPIM
Recycling Coordinator	Clean up blood or OPIM
Sign Maker	Clean up blood or OPIM
Stationary Engineer	Clean up blood or OPIM
Water Treatment Facility Operator 1	Clean up blood or OPIM
Water Treatment Facility Operator 2	Clean up blood or OPIM

## 25.5 APPENDIX E: Some Employees at Risk

Below are listed the job classifications and work activities in our facility where some employees will have reasonably anticipated exposure to human blood and other potentially infectious materials:

**Table 7. Some Employees at Risk by Job Title, Department, and Tasks.**

Job Title	Department/Location	Task
<b>Animal Handlers</b>	School of Medicine	Administering injections, drawing blood, cutting with knife or scalpel, dressing wounds, handling infectious wastes, handling infected animals, necropsy of infected animal carcasses, puncture wounds
<b>LAR Personnel</b>	Research Affairs	
<b>Veterinarian</b>		
<b>Athletic Coach</b>	Athletics	Dressing wounds, cleaning up human blood
<b>Athletic Trainer</b>		
<b>Student Athletic Trainer</b>		

<b>Disability Services Personal Assistant</b>	Office of Disability Services	Cleaning up human blood, assisting with personal hygiene, handling infectious wastes
<b>Environmental Health &amp; Safety</b>	Environmental Health & Safety	Cleaning up human blood, handling infectious wastes, handling infected animals, puncture wounds
<b>Laboratory Technician* Laboratory Research Associate* Laboratory Supervisor*</b>  *as determined by job description (only those positions whose research/job involves working with bloodborne pathogens)	Various	Administering injections, drawing blood, cutting with knife or scalpel, dressing wounds, handling infectious wastes, handling infected animals, manipulation of unfixed human tissue, manipulation of contaminated cultures/tissue, necropsy of infected animal carcasses, puncture wounds, sonication of human blood or components
<b>Life Guard</b>	Campus Recreation	Dressing wounds, cleaning up human blood, emergency first aid and response
<b>Medical Technician</b>  <b>Medical Technologist</b>  <b>Phlebotomist</b>	Biological Sciences  School of Medicine	Drawing blood, handling blood specimens, handling infectious wastes, manipulation of contaminated cultures, puncture wounds
<b>Mortician/Embalmer</b>  <b>Pathologist</b>	School of Medicine  Research Affairs	Autopsy, cleaning up human blood, cutting with knife or scalpel, embalming cadavers, handling infectious wastes, manipulation of unfixed human tissue, puncture wounds
<b>Nurse Practitioner</b>  <b>Nurse, Instructional</b>  <b>Nurse, Student Health Services</b>  <b>Physician</b>	College of Nursing  School of Medicine  Wright State Physicians	Administering injections, cleaning up human blood, drawing blood, cutting with knife or scalpel, dressing wounds, emergency first aid and response, handling infectious wastes, manipulation of unfixed human tissue, manipulation of contaminated cultures/tissue
<b>Police Officer</b>	University Police	Accident scene, cleaning up human blood, dressing wounds, emergency first aid and response, public disturbances, puncture wounds

## **25.6 APPENDIX F: Tasks and Procedures**

### **25.6.1 Laboratory and Clinical Task and Procedures**

1. Processing, handling or removing waste contaminated with human blood or other potentially infectious materials.
2. Performing vascular access procedures.
3. Processing or handling human blood (including human blood products), or other potentially infectious materials (including unfixed human tissues or organs) for research or clinical use.
4. Working with human cell lines (primary human cell lines or continuous human cell lines that have not been shown to be free of bloodborne pathogens)
5. Working with animals infected with HIV, HBV, or other bloodborne pathogens (including field work with exposure to ticks or other vectors)
6. Working with animal or human cells, tissues or organs infected with HIV, HBV or other bloodborne pathogens
7. Working with non-human primates or unfixed material from non-human primates
8. Transporting human blood or other potentially infectious materials.
9. Manipulating blood or other potentially infectious materials from patients.
10. Working with non-human materials, but use the same lab equipment other employees use with human blood or other potentially infectious material
11. First Aid responder.

### **25.6.2 Custodial Tasks and Procedures**

1. Clean-up human blood or body fluid spills in common areas.

### **25.6.3 Facilities Management and Campus Operations Tasks and Procedures**

1. Respond to waste-line repairs and clean-up of waste water.
2. Repair/service drains used for the disposal of human blood or body fluids.

### **25.6.4 Police Task and Procedures**

1. Arrest injured suspects.
2. Emergency first-aid responder.
3. Collect sharps evidence.

### **25.6.5 Other Areas (not listed above) Task and Procedures**

1. First Aid responder.
2. Clean up human blood or body fluid spills.

### **25.6.6 List of Tasks and Procedures used to Identify Employees at Risk**

The following worksheet can be used to identify tasks used by workers exposed to bloodborne pathogens.

Identify which procedures used in the work place that may create a risk of BBP exposure (check off all that might apply).

- ☐ Phlebotomy or venipuncture of humans or primates
- ☐ Injections into humans or animals using primate or human specimens

- ☐ Other use of needles with human or primate specimens
- ☐ Handling human or primate tissue, including preparation, dissection, cutting, or other
- ☐ Pipetting, mixing, or vortexing human or primate blood, fluid, or tissue
- ☐ Centrifuging human or primate blood, fluid, or tissue
- ☐ Handling tubes or other container or human or primate blood, fluid, or tissue
- ☐ Handling contaminated sharps or other contaminated waste
- ☐ Cleaning spills of human or primate blood or other body fluids
- ☐ Preparing or handling primary human cell lines or cultures, or primate cell cultures
- ☐ Others

## 25.7 APPENDIX G: Sharps Container Performance Evaluation Form

No single sharps disposal container design meets all the disposal containment needs for all health care settings or for an entire institution. Container selection should be based on a comprehensive site-specific hazard analysis.

The safety performance criteria for sharps disposal containers are divided into four areas.

1. Functional: The container should remain functional during its entire use. They must be durable, lead resistant, and puncture resistant under all normal environmental conditions.
2. Accessible: The containers must be accessible to workers how maintain, or dispose of sharp devices. This criterion includes sufficient number, sufficient container volume and safe access to the disposal opening on individual containers. Other important factors include convenient placement and (if necessary) portability of containers within the workplace.
3. Visible: The containers should be visible to the workers who must use them. Container fill status and warning labels are also important visibility criteria.
4. Accommodate the user. The container design should accommodate the use, the facility, and the environment.

Resource: <https://www.cdc.gov/niosh/docs/97-111/pdfs/97-111.pdf?id=10.26616/NIOSH PUB97111>

## QUESTIONNAIRE FOR EVALUATING SHARPS DISPOSAL CONTAINER PERFORMANCE

The following product selection questionnaire was developed by the Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health in conjunction with NIOSH Educational Resource Centers; The Johns Hopkins University, Baltimore; the University of Texas, Houston; the University of California, Berkeley; and the Mount Sinai School of Medicine, New York City.

### INSTRUCTIONS:

*Product evaluators should inspect and operate containers to be evaluated in side-by-side comparisons. Representative sharps (syringes, IV sets, blades, biopsy needles, pipettes, etc.) should be used to test candidate products. Actual use conditions should be simulated, if possible. Prior to inserting test sharps, attempt to reopen sealed containers and attempt to spill or remove contents from unsealed containers if this is a functional requirement. Evaluation facilitators should provide product manufacturer literature and visual instructions and should demonstrate proper operation of each of the containers. Use of this guideline requires knowledge that the ideal product may not exist and that this evaluation tool was based on common product designs available at the time.*

## FUNCTIONALITY

### PLEASE CIRCLE YOUR RESPONSE

	agree . . . . . disagree				
Container is stable when placed on horizontal surface and when used as described in the product labeling for use in trays, holders, or enclosures . . .	1	2	3	4	5
Container provides for puncture, leak, and impact resistance . . . . .	1	2	3	4	5
Container, labels, warning devices, and brackets are durable . . . . .	1	2	3	4	5
Container is autoclavable, if necessary . . . . .	1	2	3	4	5
Container is available in various sizes and capacities . . . . .	1	2	3	4	5
Container is available with auxiliary safety features (e.g., restricted access to sharps in the container), if required . . . . .	1	2	3	4	5
Closure mechanism will not allow needlestick injury . . . . .	1	2	3	4	5
Closure mechanism provides secure seal . . . . .	1	2	3	4	5
Design minimizes needle-tip flipback . . . . .	1	2	3	4	5
Design promotes clinical performance (e.g., will not compromise sterile field or increase injury or infection control hazards) . . . . .	1	2	3	4	5



	agree ..... disagree				
Design resists easy reopening after sealing for final disposal or autoclaving .....	1	2	3	4	5
Inlet design defeats waste removal when open .....	1	2	3	4	5
Inlet design prevents spillage of contents (physical or liquid) while sharps disposal container is in use in the intended upright position .....	1	2	3	4	5
Containers designed to be reopenable have removable lids design with tight closure that facilitates ease of removal with grip safety and comfort ..	1	2	3	4	5
Mounting brackets are rugged and designed for ease of service and decontamination .....	1	2	3	4	5

### ACCESSIBILITY

	agree ..... disagree				
Container available in various opening sizes and shapes .....	1	2	3	4	5
Containers are supplied in sufficient quantity .....	1	2	3	4	5
Container has an entanglement-free opening/access way .....	1	2	3	4	5
Container opening/access way and current fill status visible to user prior to placing sharps into container .....	1	2	3	4	5
Internal design/molding of container does not impede ease of use .....	1	2	3	4	5
Handles, if present, located above full-fill level .....	1	2	3	4	5
Handles, if present, facilitate safe vertical transport and are located away from opening/access way and potentially soiled surfaces .....	1	2	3	4	5
Fixed locations place container within arm's reach of point of waste generation .....	1	2	3	4	5
Fixed locations allow for installation of the container below horizontal vision level .....	1	2	3	4	5
If necessary, in high patient or visitor traffic areas, container should provide for security against tampering .....	1	2	3	4	5

---

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## VISIBILITY

	agree ..... disagree				
Color or warning label implies danger .....	1	2	3	4	5
A warning indicator (i.e., color or warning label) is readily visible to the user prior to user placing sharps into container .....	1	2	3	4	5
Overfill level provided and current fill status is readily visible to the user prior to use placing sharps into container .....	1	2	3	4	5
Sharps disposal container complies with OSHA requirements .....	1	2	3	4	5
Disposal opening/access way is visible prior to user placing sharps into container .....	1	2	3	4	5
Security, mounting, aesthetic, and safety features do not distort visibility of the opening/access way or fill status indicator .....	1	2	3	4	5

## ACCOMMODATION

	agree ..... disagree				
No sharp edges in construction or materials .....	1	2	3	4	5
Safety features do not impede free access .....	1	2	3	4	5
Promotes patient and user satisfaction (i.e., aesthetic to extent possible) ...	1	2	3	4	5
Is simple to operate .....	1	2	3	4	5
Any emissions from final disposal comply with pollution regulations .....	1	2	3	4	5
Easy to assemble, if required .....	1	2	3	4	5
Components of containers that require assembly are easy to store prior to use .....	1	2	3	4	5
Use allows one-handed disposal .....	1	2	3	4	5
Product available in special designs for environments with specific needs (e.g., laboratories, emergency rooms, emergency medical services, pediatrics, correctional facilities) .....	1	2	3	4	5
Mounting system durable, secure, safe, cleanable, and, where appropriate, lockable .....	1	2	3	4	5
Mounting systems allow height adjustments .....	1	2	3	4	5
Design promotes task confidence .....	1	2	3	4	5
Cost effectiveness .....	1	2	3	4	5

SELECTING, EVALUATING, AND USING SHARPS DISPOSAL CONTAINERS 17

## VISIBILITY

	agree ..... disagree				
Color or warning label implies danger .....	1	2	3	4	5
A warning indicator (i.e., color or warning label) is readily visible to the user prior to user placing sharps into container .....	1	2	3	4	5
Overfill level provided and current fill status is readily visible to the user prior to use placing sharps into container .....	1	2	3	4	5
Sharps disposal container complies with OSHA requirements .....	1	2	3	4	5
Disposal opening/access way is visible prior to user placing sharps into container .....	1	2	3	4	5
Security, mounting, aesthetic, and safety features do not distort visibility of the opening/access way or fill status indicator .....	1	2	3	4	5

## ACCOMMODATION

	agree ..... disagree				
No sharp edges in construction or materials .....	1	2	3	4	5
Safety features do not impede free access .....	1	2	3	4	5
Promotes patient and user satisfaction (i.e., aesthetic to extent possible) ...	1	2	3	4	5
Is simple to operate .....	1	2	3	4	5
Any emissions from final disposal comply with pollution regulations .....	1	2	3	4	5
Easy to assemble, if required .....	1	2	3	4	5
Components of containers that require assembly are easy to store prior to use .....	1	2	3	4	5
Use allows one-handed disposal .....	1	2	3	4	5
Product available in special designs for environments with specific needs (e.g., laboratories, emergency rooms, emergency medical services, pediatrics, correctional facilities) .....	1	2	3	4	5
Mounting system durable, secure, safe, cleanable, and, where appropriate, lockable .....	1	2	3	4	5
Mounting systems allow height adjustments .....	1	2	3	4	5
Design promotes task confidence .....	1	2	3	4	5
Cost effectiveness .....	1	2	3	4	5

SELECTING, EVALUATING, AND USING SHARPS DISPOSAL CONTAINERS 17

## **OTHER COMMENTS**

What design or performance requirements are missing from the product you evaluated that are really needed to safely or more comfortably conduct your job or sharps-related task?

**Additional Evaluator Concerns and Comments:**

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## 25.8 APPENDIX H: Needlestick-Prevention Device (NPD) Evaluation Form

### Wright State University's Needlestick-Prevention Device (NPD) Evaluation Form

Device: \_\_\_\_\_

Supplies/Trade Name \_\_\_\_\_

Applications: \_\_\_\_\_

Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_

*For each question circle the appropriate response for the needlestick-prevention (NPD) device being evaluated.*

#### Healthcare Worker Safety

- |    |   |     |    |
|----|---|-----|----|
| 1. | A. Does the NPD prevent needlesticks during use (i.e., before disposal)?  | Yes | No |
|    | B. Does it do so after use(i.e., does the safety mechanism remain activated through disposal of the NPD)?   | Yes | No |
| 2. | A. Does NPD provide protection one of the following ways: Either intrinsically or automatically? (Answer "No" if a specific action by the user is required to activate the safety mechanism.) | Yes | No |
|    | B. If "No," is the mechanism activated in one of the following ways: either by one-handed technique or by a two-handed technique accomplished as part of the usual procedure?                 | Yes | No |
| 3. | During the use of NPD do user's hands remain behind the needle until activation of the safety mechanism is complete?  | Yes | No |
| 4. | Is the safety mechanism reliable when activated properly?   | Yes | No |
| 5. | Does the NPD minimize the risk of user exposure to the patient's blood?   | Yes | No |

#### Patient Safety and Comfort

- |    |   |     |    |
|----|---|-----|----|
| 6. | Does the NPD minimize the risk of infection to the patient ( e.g., through cross-contamination)?                            | Yes | No |
| 7. | Can the NPD be used without causing more patient discomfort than a conventional device?                                     | Yes | No |
| 8. | For IV NPDs: Does the NPD attach comfortably ( i.e., without causing patient discomfort at the catheter port or IV tubing)? | Yes | No |

#### Ease of use and Training

- |     |   |      |      |      |      |
|-----|---|------|------|------|------|
| 9.  | Is NPD Operation obvious? That is can the device be used properly without extensive training?   | Yes  | No   |      |      |
| 10. | Can the NPD be used by a left-handed person as easily as by a right handed person?  | Yes  | No   |      |      |
| 11. | Is the technique required for using the NPD the same as that for using a conventional device?   | Yes  | No   |      |      |
| 12. | Is it easy to identify the type and size of the product from the packaging?   | Yes  | No   |      |      |
| 13. | For intravenous (IV) catheters and blood collection needle sets: Does the NPD provide a visible blood flashback during initial insertion? | Yes  | No   |      |      |
| 14. | Please rate the ease of using this NPD  | Exc. | Good | Fair | Poor |
| 15. | Please rate the quality of the in-service training  | Exc. | Good | Fair | Poor |

#### Compatibility

- |     |   |     |    |
|-----|---|-----|----|
| 16. | Is the NPD compatible with devices ( e.g., blood collection tubes) from a variety of suppliers?   | Yes | No |
| 17. | For IV NPDs:  |     |    |
|     | A. Is the NPD compatible with intralipid solutions?   | Yes | No |
|     | B. Does the NPD attach securely at the catheter port?   | Yes | No |
|     | C. Does the NPD attach securely or lock at a Y-site ( e.g. for piggybacking)?   | Yes | No |
| 18. | Is the NPD easy to dispose of in sharps containers of all sizes (if required)?  | Yes | No |
| 19. | Does using the NPD instead of a conventional device result in only a modest (if any) increase in sharps container waste volume? ( Answer "No" if the NPD will increase waste volume significantly.) | Yes | No |

#### Overall

- |     |  |     |    |
|-----|--|-----|----|
| 20. | Would you recommend using this device? | Yes | No |
|-----|--|-----|----|

Comments (e.g., describe problems, list incompatibilities)

Source: ECRI, Plymouth Meeting, Pennsylvania

EHS-1910.1030-F-5 (Rev. 2019-10-19)

## 25.9 APPENDIX I: Needlestick Prevention Device (NPD) Cost Calculation Worksheet

Needlestick Prevention Device (NPD) Cost Calculation Worksheet\*

WORKSHEET		SAMPLE DATA	
<b>PROTECTIVE SYSTEM</b>		<b>Protective blood collection tube holder</b>	
<b>NPD (supplier/trade name)</b>		XYZ Medical Pro Hold	
A. Price per device	A= \$ _____	A=	\$4.00
B. Uses per year	B= _____	B=	130,000
C. Uses per device	C= _____	C=	300
D. Quantity used per year (B ÷ C)	D= _____	D=	433
E. NPD cost per year (A × D)	E= \$ _____	E=	\$ 1,732
<b>Additional component</b>		XYZ Medical ProHold Companion 1 Qt Sharps Container	
F. Price per device	F= \$ _____	F=	\$3.50
G. Uses per year	G= _____	G=	Dispose of 130,000 needles
H. Uses per device	H= _____	H=	NA (see next entry)
I. Quantity used per year (G ÷ H)	I= _____	I=	32**
J. Additional component cost per year (F × I)	J= \$ _____	J=	\$112
K. Annual protective system cost (E + J)	K= \$ _____	K=	\$1,844
<b>CONVENTIONAL SYSTEM</b>		<b>Blood collection tube holder</b>	
<b>Conventional device</b>		XYZ Medical Tube Holder	
L. Price per device	L= \$ _____	L=	\$0.15
M. Uses per year	M= _____	M=	130,000
N. Uses per device	N= _____	N=	300
O. Quantity used per year (M ÷ N)	O= _____	O=	433
P. Conventional device cost per year (L × O)	P= \$ _____	P=	\$65
<b>Additional component</b>		<b>Conventional 1qt sharps container</b>	
Q. Price per device	Q= \$ _____	Q=	\$2.13
R. Uses per year	R= _____	R=	Dispose of 130,000 needles
S. Uses per device	S= _____	S=	NA (see next entry)
T. Quantity used per year (R ÷ S)	T= _____	T=	32**
U. Additional component cost per year (Q × T)	U= \$ _____	U=	\$68.16
V. Annual conventional system cost (P + U)	V= \$ _____	V=	\$133.16
<b>RELATED DISPOSAL COSTS</b>			
<b>Additional sharps containers</b>			
W. Disposal volume of each NPD	W= _____	W=	14 cm <sup>3</sup> (tube holder only)
X. Disposal volume of each conventional device	X= _____	X=	12 cm <sup>3</sup> (tube holder only)
Y. Sharps container volume	Y= _____	Y=	1 qt (≈ 943cm <sup>3</sup> )
Z. Number of additional sharps containers per year ((W × X) ÷ Y)	Z= _____	Z=	1 (assumes 100% packing efficiency)
AA. Price per sharps container	AA= \$ _____	AA=	\$3.50
AB. Annual additional sharps containers cost (Z × AA)	AB= \$ _____	AB=	\$3.50
AC. Other additional disposal costs	AC= \$ _____	AC=	None
AD. Total annual increase in disposal costs (AB + AC)	AD= \$ _____	AD=	\$3.50
<b>NSI COST</b>			
AE. Number of NSIs per year with conventional device	AE= _____	AE=	6
AF. Projected NSIs per year with NPD (50% × AE)	AF= _____	AF=	3
AG. Cost of each NSI	AG= \$ _____	AG=	\$540
AH. Annual NSI cost savings (AG × [AE - AF])	AH= \$ _____	AH=	\$1,620
AI. MISCELLANEOUS COSTS	AI= \$ _____	AI=	None
AJ. NET PROTECTIVE SYSTEM COSTS (K+AD+AI-AH)	AJ= \$ _____	AJ=	\$227.50
AK. ANNUAL INCREASE IN EXPENDITURES (AJ - V)	AK= \$ _____	Annual increase in expenditures: \$94.34	

\*The figures obtained by completing this worksheet should be used for comparison purposes only. These figures will not reflect the actual costs and cost savings associated with implementing the alternative under consideration, and they cannot reflect the true value of using an NPD in terms of staff safety and the economic impact on NSIs that result in seroconversion.  
 \*\*Calculated by multiplying the estimated volume of one needle (0.23 cm<sup>3</sup>) by the number of needles per year (130,000) and then dividing by the volume of one sharps container (1 qt = 943 cm<sup>3</sup>). Note that this analysis assumes 100% packing efficiency.

Source: Reprinted with permission of ECRI, Plymouth Meeting, Pennsylvania © 1998 ECRI

EHS-F-1910.1030-6 (Rev. 2019-10-19)

## 25.10 APPENDIX J: Non-Compliant Documentation for Sharps and/or Engineering Controls

### Non-compliant Documentation for Sharps and/or Engineering Controls

*If the PI/Supervisor decides that a non-compliant sharp is necessary for a certain procedure, the reason must be documented. Submit documentation to EHS and retain a copy for your records. Review annually.*

The following exceptions apply to the required engineering controls (in reference to the [Bloodborne Pathogens Standard \(1910.1030 \(d\)\(3\)\(A\)1.-3\)](#):

- **Market Availability:** The engineering control is not available in the marketplace.
- **Patient Safety:** The engineering control is not required if a licensed healthcare professional directly involved in a patient's care determines that use of the engineering control will jeopardize the patient's safety or the success of a medical, dental or nursing procedure involving the patient.
- **Safety Performance:** The engineering control is not required if the employer can demonstrate by means of objective product evaluation criteria that the engineering control is not more effective in preventing exposure incidents than the alternative used by the employer.
- **Availability of Safety Performance Information:** The engineering control is not required if the employer can demonstrate that reasonably specific and reliable information is not available on the safety performance of the engineering control for the employer's procedures, and that the employer is actively determining by means of objective product evaluation criteria whether use of the engineering control will reduce the risk of exposure incidents occurring in the employer's workplace.

Complete the below information if non-compliant sharps are in use (add additional pages as necessary).			
Device Information	Reason(s) for Exception	Name and Department	Date (Initial Use and Annual Re-evaluation)
<i>Example:</i> 25g X 1" needle	<i>Example:</i> <ul style="list-style-type: none"> <li>• Specific size needed for research use.</li> <li>• Not available on market.</li> </ul>	<i>Example:</i> John Smith Biology	<i>Example:</i> April 1, 2011

EHS-F-1910.1030-2-0 (rev. 2019-10-19)  
 Non-compliant Documentation for Sharps and/or Engineering Controls  
 Submit to EHS and retain a copy for your records.

## 25.11 APPENDIX K: EPA-registered tuberculocidals List B



**UNITED STATES ENVIRONMENTAL PROTECTION  
AGENCY**

WASHINGTON, DC 20460

CHEMICAL SAFETY AND OFFICE  
OF POLLUTION PREVENTION

**List B: EPA's Registered Tuberculocide Products Effective Against  
Mycobacterium tuberculosis**

**Date: 01-04-2018**

Note: "An individual pesticide product may be marketed and sold under a variety of names. If you are seeking additional information about a pesticide product, refer to the EPA Registration Number, found on the product label, not the brand name. When purchasing a product for use against a specific pathogen, check the EPA Reg. No. versus the products included on this list.

All EPA-registered pesticides must have an EPA registration number. Alternative brand names have the same EPA Reg. No. as the primary product. The EPA Reg. No. of a primary product consists of two set of numbers separated by a hyphen, for example EPA Reg. No. 12345-12. The first set of numbers refers to the company identification number, and the second set of numbers represents the product number.

In addition to primary products, distributors may also sell products with identical formulations and identical efficacy as the primary products. Distributor products frequently use different brand names, but you can identify them by their three-part EPA Reg. No. The first two parts of the EPA Reg. No. match the primary product, plus a third set of numbers that represents the Distributor ID number. For example EPA Reg. No. 12345-12-2567 is a distributor product with an identical formulation and efficacy to the primary product with the EPA Reg. No. 12345-12.

Information about listed products is current as indicated by the dates on this list. If you would like to review the product label information for any of these products, please visit our [product label system](#). Inclusion on this list does not constitute an endorsement by EPA."



<b>List B: EPA's Registered Tuberculocide Products</b>		
<b>Effective Against Mycobacterium tuberculosis</b>		
Registration #	Product Brand Name	Company
211-32	PHENO-CEN SPRAY DISINFECTANT/DEODORANT	CENTRAL SOLUTIONS, INC.
211-36	TRI-CEN	CENTRAL SOLUTIONS, INC.
211-62	LOW PH PHENOLIC 256	CENTRAL SOLUTIONS, INC.
303-223	BEAUCOUP GERMICIDAL DETERGENT	HUNTINGTON PROFESSIONAL PRODUCTS
498-134	SRAYPAK SPRAY CLEANSE	CHASE PRODUCTS CO
498-194	SPRAYPAK SPRAY DISINFECTANT/LUBRICANT	CHASE PRODUCTS CO
498-197	SPRAY DISINFECTANT	CHASE PRODUCTS CO
675-1	VANI-SOL BOWL CLEANSE	RECKITT BENCKISER LLC
777-71	LYSOL BRAND FOAMING DISINFECTANT BASIN TUB & TILE CLEANER II	RECKITT BENCKISER LLC.
777-81	LYSOL BRAND DISINFECTANT TOILET BOWL CLEANER	RECKITT BENCKISER LLC.
777-99	BRACE	RECKITT BENCKISER LLC.
777-105	LYSOL BRAND IV I.C. DISINFECTANT	RECKITT BENCKISER LLC.
954-10	CLIPPERCIDE SPRAY	KING RESEARCH, INC.
954-13	SPACIDE	KING RESEARCH, INC.
1043-19	STAPHENE DISINFECTANT SPRAY AND DEODORIZER	STERIS CORPORATION
1043-26	1-STROKE ENVIRON	STERIS CORPORATION
1043-92	LPH SE	STERIS CORPORATION
1043-114	VESTA-SYDE INTERIM INSTRUMENT DECONTAMINATION SOLUTION	STERIS CORPORATION
1043-119	SPOR-KLENZ READY TO USE	STERIS CORPORATION
1043-120	SPOR-KLENZ CONCENTRATE	STERIS CORPORATION
1043-124	HASTE-SSD- COMPONENT B	STERIS CORPORATION
1043-125	HASTE -SSD - COMPONENT A	STERIS CORPORATION
1130-15	WEIMAN GERMICIDAL SOLUTION	WEIMAN PRODUCTS, LLC.
1130-19	WEIMAN DISINFECTING WIPES	WEIMAN PRODUCTS, LLC.

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Registration #	Product Brand Name	Company
1672-65	AUSTIN A-1 ULTRA DISINFECTING BLEACH	JAMES AUSTIN COMPANY
1677-129	OXONIA ACTIVE	ECOLAB INC.
1677-237	FF-ATH	ECOLAB INC.
1839-83	DETERGENT DISINFECTANT PUMP SPRAY	STEPAN COMPANY
1839-174	STEPAN TOWELETTE	STEPAN COMPANY
1839-223	SCTB WIPE	STEPAN COMPANY
1839-225	SC-RTU-TB	STEPAN COMPANY
3862-104	HOSPITAL SURFACE DISINFECTANT AND DEODORIZER	ABC COMPOUNDING CO, INC
3862-177	TEK-TROL DISINFECTANT CLEANER CONCENTRATE	ABC COMPOUNDING CO, INC
3862-178	TEK-PHENE	ABC COMPOUNDING CO, INC
3862-179	OPTI-PHENE CLEANER DISINFECTANT DEODORANT	ABC COMPOUNDING CO, INC
3862-181	FOAMING DISINFECTANT CLEANER	ABC COMPOUNDING CO, INC
4313-93	OCIDE PLUS	CARROLL COMPANY
5741-6	PD-64 PHENOLIC BASE CLEANER & DISINFECTANT	SPARTAN CHEMICAL COMPANY, INC.
5741-22	STERIPHENE II BRAND DISINFECTANT DEODORANT	SPARTAN CHEMICAL COMPANY, INC.
5813-1	CLOROX BLEACH	CLOROX CO.
5813-20	FRESH SCENT CLOROX	CLOROX CO.
5813-50	ULTRA CLOROX BRAND REGULAR BLEACH	CLOROX CO.
5813-52	ULTRA CLOROX BRAND 6.15% BLEACH	CLOROX CO.
5813-59	CLOROX DISINFECTING SPRAY III	CLOROX CO.
5813-71	ULTRA CLOROX BLEACH FORMULA C	CLOROX CO.
5813-97	BRAC	CLOROX CO.
8383-7	SPORICIDIN BRAND DISINFECTANT TOWELETES	CONTEC, INC.
8714-8	CLIDOX-S BASE	PHARMACAL RESEARCH LABORATORIES, INC.
9150-2	ANTHIUM DIOXIDE	INTERNATIONAL DIOXIDE INC.
9150-3	CARNEBON 200 2% AQUEOUS STABILIZED CHLORINE DIOXIDE	INTERNATIONAL DIOXIDE INC.
9150-11	CRYOCIDE 20	INTERNATIONAL DIOXIDE INC.

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Registration #	Product Brand Name	Company
9480-4	SANI-CLOTH GERMICIDAL WIPES	PROFESSIONAL DISPOSABLES INTERNATIONAL, INC.
9480-8	PDI SANI-CLOTH BLEACH WIPES	PROFESSIONAL DISPOSABLES INTERNATIONAL, INC.
9480-9	FREESTAR	PROFESSIONAL DISPOSABLES INTERNATIONAL, INC.
9616-13	VERTEX GERMICIDAL ULTRA BLEACH	VERTEX CHEMICAL CORP
9804-1	OXINE	BIO-CIDE INTERNATIONAL INC
10088-104	MIS-TERY HOUSEHOLD DISINFECTANT AND DEODORIZER SPRAY	ATHEA LABORATORIES INC
10088-105	C-SPRAY DISINFECTANT DEODORANT	ATHEA LABORATORIES INC
10492-4	DISCIDE ULTRA DISINFECTING TOWELETTES	PALMERO HEALTH CARE
10492-5	DISCIDE ULTRA DISINFECTING SPRAY	PALMERO HEALTH CARE
10807-177	MISTY II DISINFECTANT & DEODORANT	AMREP, INC
11525-30	DISINFECTANT SPRAY "G"	KIK CUSTOM PRODUCTS, INC.
11694-98	MEDAPHENE PLUS DISINFECTANT DEODORANT	ITW PROFESSIONAL BRANDS
15136-9	WAVICIDE-06 PLUS	MEDICAL CHEMICAL CORP.
33176-5	AIRYSOL BRAND SURFACE DISINFECTANT	AMREP, INC.
33176-6	AIRYSOL BRAND MULTI-PURPOSE DISINFECTANT CLEANER	AMREP, INC.
34810-18	THYMO-CIDE	WEXFORD LABS, INC.
34810-21	READY TO USE WEXCIDE	WEXFORD LABS, INC.
34810-25	READY TO USE THYMO CIDE	WEXFORD LABS, INC.
34810-31	WEX-CIDE-128	WEXFORD LABS, INC.
34810-36	CLEAN-CIDE WIPES	WEXFORD LABS, INC.
39967-83	OCIDE HOSPITAL CLEANER- DISINFECTANT	LANXESS CORPORATION
44446-67	CONCEPT HOSPITAL DISINFECTANT DEODORANT	QUESTVAPCO CORPORATION
46781-6	CAVICIDE	METREX RESEARCH
46781-8	CAVIWIPES	METREX RESEARCH
46781-12	CAVICIDE 1	METREX RESEARCH

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Registration #	Product Brand Name	Company
46781-13	CAVIWIPES 1	METREX RESEARCH
46781-14	CAVIWIPES BLEACH	METREX RESEARCH
46781-15	CAVICIDE BLEACH	METREX RESEARCH
46851-1	OMNI II	CERTOL INTERNATIONAL, LLC
46851-5	OMC II SPRAY	CERTOL INTERNATIONAL, LLC
46851-10	PROSPRAY TM WIPE, DISINFECTANT TOWELETTES	CERTOL INTERNATIONAL, LLC
52252-4	MINNCARE COLD STERILANT	MINNTECH CORP
52252-7	ACTRIL COLD STERILANT	MINNTECH CORP
52252-10	BIOREDOX PA STERILANT	MINNTECH CORP
52252-11	REVOX PA STERILANT	MINNTECH CORP
54289-4	PERACLEAN 15% (PEROXYACETIC ACID SOLUTION)	EVONIK CORPORATION
55195-3	COLDCIDE 0.25%	COLCIDE INC
56392-1	PRECISE HOSPITAL FOAM CLEANER DISINFECTANT	CLOROX PROFESSIONAL PRODUCTS COMPANY
56392-8	DISPATCH HOSPITAL CLEANER DISINFECTANT TOWELS WITH BLEACH	CLOROX PROFESSIONAL PRODUCTS COMPANY
59894-9	KWIKKILL DISINFECTING/DEODORIZING SPRAY/SOLUTION	M & S RESEARCH, INC.
59894-10	KWIKKILL DISINFECTANT DEODORIZING CLEANING WIPES	M & S RESEARCH, INC.
60142-3	VIRAHOL HOSPITAL SURFACE DISINFECTANT TOWELETTE	VERIDIEN CORPORATION
62296-1	LET'S TOUCH	RBR PRODUCTIONS, INC.
65787-1	AMUCHINA	ALCAVIS HDC, LLC
66171-1	ADVANTAGE 256 CLEANER DISINFECTANT DEODORANT	PRESERVE INTERNATIONAL
66171-2	ADVANTAGE 128	PRESERVE INTERNATIONAL
67603-4	SPRAY DISINFECTANT	SHERWIN- WILLIAMS DIVERSIFIED BRANDS
67619-1	CPPC BLEACH	CLOROX PROFESSIONAL PRODUCTS CO
67619-7	CPPC ULTRA BLEACH	CLOROX PROFESSIONAL PRODUCTS CO
67619-8	CPPC ULTRA BLEACH 2	CLOROX PROFESSIONAL PRODUCTS CO

Registration #	Product Brand Name	Company
67619-20	REX	CLOROX PROFESSIONAL PRODUCTS CO
67619-21	CARB	CLOROX PROFESSIONAL PRODUCTS CO
67619-24	BLONDIE	CLOROX PROFESSIONAL PRODUCTS CO
67619-25	DAGWOOD	CLOROX PROFESSIONAL PRODUCTS CO
69151-1	PAROX HOSPITAL DISINFECTANT	STERITECH, INC
70060-19	ASEPTROL S10-TAB	BASF CORPORATION
70144-1	OPTI-CIDE 3	MICRO-SCIENTIFIC INDUSTRIES, INC.
70467-3	BioSURF	MICRYLIUM LABORATORIES
70590-1	HYPE-WIPE	CURRENT TECHNOLOGIES INC
70590-2	BLEACH-RITE DISINFECTING SPRAY WITH BLEACH	CURRENT TECHNOLOGIES INC
70627-1	SPRAY DISINFECTANT HG	DIVERSEY, INC.
70627-6	PHENOLIC DISINFECTANT HG	DIVERSEY, INC.
70627-56	OXIVIR TB	DIVERSEY, INC.
70627-60	OXIVIR WIPES	DIVERSEY, INC.
72083-2	HALOSOURCE BLEACH	HALOSOURCE, INC.
73232-1	ALPET D2	BEST SANITIZERS, INC.
74559-1	ACCEL TB	VIROX TECHNOLOGIES INC.
74559-3	ACCEL TB WIPES	VIROX TECHNOLOGIES INC.
74986-5	SELECTROCIDE 5G	SELECTIVE MICRO TECHNOLOGIES, LLC
82341-1	ECAFLO ANOLYTE	IET, INC.
83831-1	SURFACE DISINFECTANT PLUS	GERM PRO PRODUCTS
84545-4	PERADOX HC SOLUTION PART A	SBIOMED, LLC
84545-5	PERADOX HC ACTIVATOR SOLUTION PART B	SBIOMED, LLC
84683-1	BENEFECT BROAD SPECTRUM DISINFECTANT	OH SO CLEAN, INC.
84683-4	BENEFECT BOTANICAL DAILY CLEANER DISINFECTANT TOWELETTE	OH SO CLEAN, INC.
84683-5	CLEAN WELL BROAD SPECTRUM DISINFECTANT	OH SO CLEAN, INC.
84890-6	M-2205 FARM DISINFECTANT/SANITI ZER	PURELABS, LLC

Registration #	Product Brand Name	Company
87508-3	PERFORMACIDE	ODORSTAR, LLC
88089-2	PERIDOX	BIOMED PROTECT, LLC
88089-4	PERIDOX RTU (TM)	BIOMED PROTECT, LLC
88494-1	WEDGE DISINFECTANT	NORTH AMERICAN INFECTION CONTROL, LTD.

## 25.12 APPENDIX L: Sterilants List A



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, DC 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

**List A: Antimicrobial Products Registered with the EPA as Sterilizers**  
**Date: 8/15/16**

Note: "An individual pesticide product may be marketed and sold under a variety of names. If you are seeking additional information about a pesticide product, refer to the EPA Registration Number, found on the product label, not the brand name. When purchasing a product for use against a specific pathogen, check the EPA Reg. No. versus the products included on this list.

All EPA-registered pesticides must have an EPA registration number. Alternative brand names have the same EPA Reg. No. as the primary product. The EPA Reg. No. of a primary product consists of two set of numbers separated by a hyphen, for example EPA Reg. No. 12345-12. The first set of numbers refers to the company identification number, and the second set of numbers represents the product number.

In addition to primary products, distributors may also sell products with identical formulations and identical efficacy as the primary products. Distributor products frequently use different brand names, but you can identify them by their three-part EPA Reg. No. The first two parts of the EPA Reg. No. match the primary product, plus a third set of numbers that represents the Distributor ID number. For example EPA Reg. No. 12345-12-2567 is a distributor product with an identical formulation and efficacy to the primary product with the EPA Reg. No. 12345-12.

Information about listed products is current as indicated by the dates on this list. If you would like to review the product label information for any of these products, please visit our [product label system](#). Inclusion on this list does not constitute an endorsement by EPA."



<b>List A: EPA's Registered Antimicrobial Products as Sterilizers</b>		
<b>Registration #</b>	<b>Product Brand Name</b>	<b>Company</b>
335-233	PEROXAL 70 BIO	ARKEMA INC.
1043-119	SPOR-KLENZ READY TO USE	STERIS CORPORATION
1043-120	SPOR-KLENZ CONCENTRATE	STERIS CORPORATION
1043-121	GW002 TERTIARY BLEND	STERIS CORPORATION
1043-123	VAPROX 59 HYDROGEN PEROXIDE STERILANT	STERIS CORPORATION
1043-124	HASTE-SSD- COMPONENT B	STERIS CORPORATION
1043-125	HASTE -SSD - COMPONENT A	STERIS CORPORATION
1677-129	OXONIA ACTIVE	ECOLAB INC.
1677-158	VORTEXX	ECOLAB INC.
1677-216	EXSPOR BASE CONCENTRATE	ECOLAB INC.
1677-226	VIRASEPT	ECOLAB INC.
1677-228	OXY-PAK	ECOLAB INC.
5741-18	NABC	SPARTAN CHEMICAL COMPANY, INC.
7182-1	STERI-GAS BRAND CARTRIDGES/ST ERI-VAC STERILIZER	3M
7675-14	SODIUM HYPOCHLORITE 150	FMC CORPORATION
8714-8	CLIDOX-S BASE	PHARMACAL RESEARCH LABORATORIES, INC.
9804-1	OXINE	BIO-CIDE INTERNATIONAL INC
36736-2	ETHYLENE OXIDE 100%	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
36736-3	STERILIZING GAS 3	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
36736-4	STERILIZING GAS 4	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
36736-5	STERILIZING GAS 5	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION

Registration #	Product Brand Name	Company
36736-6	STERILIZING GAS 6	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
36736-7	STERILIZING GAS 8	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
36736-8	ETHYLENE OXIDE - MUP	ARC SPECIALTY PRODUCTS, BALCHEM CORPORATION
52252-4	MINNCARE COLD STERILANT	MINNTECH CORP
52252-7	ACTRIL COLD STERILANT	MINNTECH CORP
52252-10	BIOREDOX PA STERILANT	MINNTECH CORP
52252-11	REVOX PA STERILANT	MINNTECH CORP
52374-18	AQUACHLOR	BRENNTAG SOUTHWEST, INC.
53345-10	SODIUM CHLORITE SOLUTION 25	ERCO WORLDWIDE
53345-12	SODIUM CHLORITE SOLUTION 37	ERCO WORLDWIDE
58779-4	VAPROX HYDROGEN PEROXIDE STERILANT	STERIS CORP
58779-5	ENVIROSYSTEM S ETHYLENE OXIDE STERILANT	STERIS CORP
67470-6	ETHYLENE OXIDE	HONEYWELL INTERNATIONAL, INC
67470-7	ETHYLENE OXIDE 100 R	HONEYWELL INTERNATIONAL, INC
67470-8	OXYFUME 2000	HONEYWELL INTERNATIONAL, INC
67470-9	OXYFUME 2002	HONEYWELL INTERNATIONAL, INC
67470-10	STERIFLO	HONEYWELL INTERNATIONAL, INC
67619-10	CPPC EVEREST	CLOROX PROFESSIONAL PRODUCTS CO
68660-10	INTEROX 35% HYDROGEN PEROXIDE	SOLVAY CHEMICALS, INC.
69340-1	ANPROLENE AN-71/73	ANDERSEN STERILIZERS INC

Registration #	Product Brand Name	Company
69340-2	ANPROLENE AN 79	ANDERSEN STERILIZERS INC
69340-4	EOGAS AN-2014	ANDERSEN STERILIZERS INC
69340-5	EOGAS AN-1005	ANDERSEN STERILIZERS INC
69340-6	EOGAS AN-1006	ANDERSEN STERILIZERS INC
69340-7	AN1004 EOGAS 4	ANDERSEN STERILIZERS INC
69340-8	AN6006	ANDERSEN STERILIZERS INC
70060-19	ASEPTROL S10- TAB	BASF CORPORATION
70299-7	SANIDATE DISINFECTANT	BIOSAFE SYSTEMS, LLC
71871-3	STERRAD HYDROGEN PEROXIDE	ADVANCED STERILIZATION PRODUCTS
72372-1	B-CAP 35 ANTIMICROBIAL AGENT	FMC CORPORATION
73711-5	BIOLENE BX	BIOLENE S.R.L.
81242-1	YGIENE 206	BIONEUTRALGROU P, INC.
82932-1	ALL-CLEAR	KIDDE FIRE FIGHTING
83315-1	CITRISIL	STERISIL, INC.
83315-2	STERISIL DENTAL WATER MICROBIOLOGI CAL CARTRIDGE	STERISIL, INC.
84545-4	PERADOX HC SOLUTION PART A	SBIOMED, LLC
84545-5	PERADOX HC ACTIVATOR SOLUTION PART B	SBIOMED, LLC
88089-2	PERIDOX	BIOMED PROTECT, LLC
88089-3	PERIDOX WITH THE ELECTROSTATI C DECONTAMINAT ION SYSTEM	BIOMED PROTECT, LLC

## 25.13 APPENDIX M: Products registered against HIV/HBV List D

## 25.14 APPENDIX N: Wright State Laundry Facilities

Table 8. Wright State Laundry Facilities

Wright Location	State	Building Room	Instructions
Main Campus Dayton	-	Health Sciences 102 (LAR Loading Dock)	Obtain access code from Supervisor/Principle Investigator
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.<sup>502</sup>

## 25.15 APPENDIX O: Emergency Treatment Facilities

Table 9: 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

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<sup>502</sup> [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=21010](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21010)

## 25.16 Appendix P: Written Opinion for Vaccine

### Health Care Professionals

Written Opinion for Hepatitis B Vaccination\*

1. Employee Name: \_\_\_\_\_
2. Date of Office Visit: \_\_\_\_\_
3. Health Care Facility Address: \_\_\_\_\_
4. Health Care Facility Telephone: \_\_\_\_\_

As required under the bloodborne pathogen standard:

- Hepatitis B vaccination is \_\_\_\_ is not \_\_\_\_ recommended for the employee named above.

The employee named above is scheduled to receive the hepatitis B vaccination on the following dates:

- First of three \_\_\_\_\_
- Second of three \_\_\_\_\_
- Third of three \_\_\_\_\_

Signature of health care provider: \_\_\_\_\_

Printed or typed name of health care provider: \_\_\_\_\_

This form is to be returned to the employer, and a copy provided to the employee within 15 days.

Employer Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\*This form was taken from: *Model Exposure Control Plan for Home Care: A Guide for Hospice/Home Agencies on the Bloodborne Pathogens Standards*. OSHA Office of Occupational Nursing, (1994).

## 25.17 Appendix Q: Hepatitis B Vaccination Form

### VACCINE INFORMATION STATEMENT

## Hepatitis B Vaccine: *What You Need to Know*

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis)

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite [www.immunize.org/vis](http://www.immunize.org/vis)

### 1 Why get vaccinated?

**Hepatitis B vaccine** can prevent **hepatitis B**. Hepatitis B is a liver disease that can cause mild illness lasting a few weeks, or it can lead to a serious, lifelong illness.

- **Acute hepatitis B infection** is a short-term illness that can lead to fever, fatigue, loss of appetite, nausea, vomiting, jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements), and pain in the muscles, joints, and stomach.

- **Chronic hepatitis B infection** is a long-term illness that occurs when the hepatitis B virus remains in a person's body. Most people who go on to develop chronic hepatitis B do not have symptoms, but it is still very serious and can lead to liver damage (cirrhosis), liver cancer, and death. Chronically-infected people can spread hepatitis B virus to others, even if they do not feel or look sick themselves.

Hepatitis B is spread when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. People can become infected through:

- Birth (if a mother has hepatitis B, her baby can become infected)
- Sharing items such as razors or toothbrushes with an infected person
- Contact with the blood or open sores of an infected person
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Exposure to blood from needlesticks or other sharp instruments

Most people who are vaccinated with hepatitis B vaccine are immune for life.

### 2 Hepatitis B vaccine

Hepatitis B vaccine is usually given as 2, 3, or 4 shots.

**Infants** should get their first dose of hepatitis B vaccine at birth and will usually complete the series at 6 months of age (sometimes it will take longer than 6 months to complete the series).

**Children and adolescents** younger than 19 years of age who have not yet gotten the vaccine should also be vaccinated.

Hepatitis B vaccine is also recommended for certain **unvaccinated adults**:

- People whose sex partners have hepatitis B
- Sexually active persons who are not in a long-term monogamous relationship
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who have household contact with someone infected with the hepatitis B virus
- Health care and public safety workers at risk for exposure to blood or body fluids
- Residents and staff of facilities for developmentally disabled persons
- Persons in correctional facilities
- Victims of sexual assault or abuse
- Travelers to regions with increased rates of hepatitis B
- People with chronic liver disease, kidney disease, HIV infection, infection with hepatitis C, or diabetes
- Anyone who wants to be protected from hepatitis B

Hepatitis B vaccine may be given at the same time as other vaccines.



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention

## 25.18 Appendix R: Post Exposure Medical Consultation Contact

Contact Information	Phone Number and Script
24-hour Help Miami Valley Access Center	<b>937-208-2340</b> Say "I need a Wright State I.D. Doctor" <i>An I.D. Doctor is an infectious disease doctor</i>

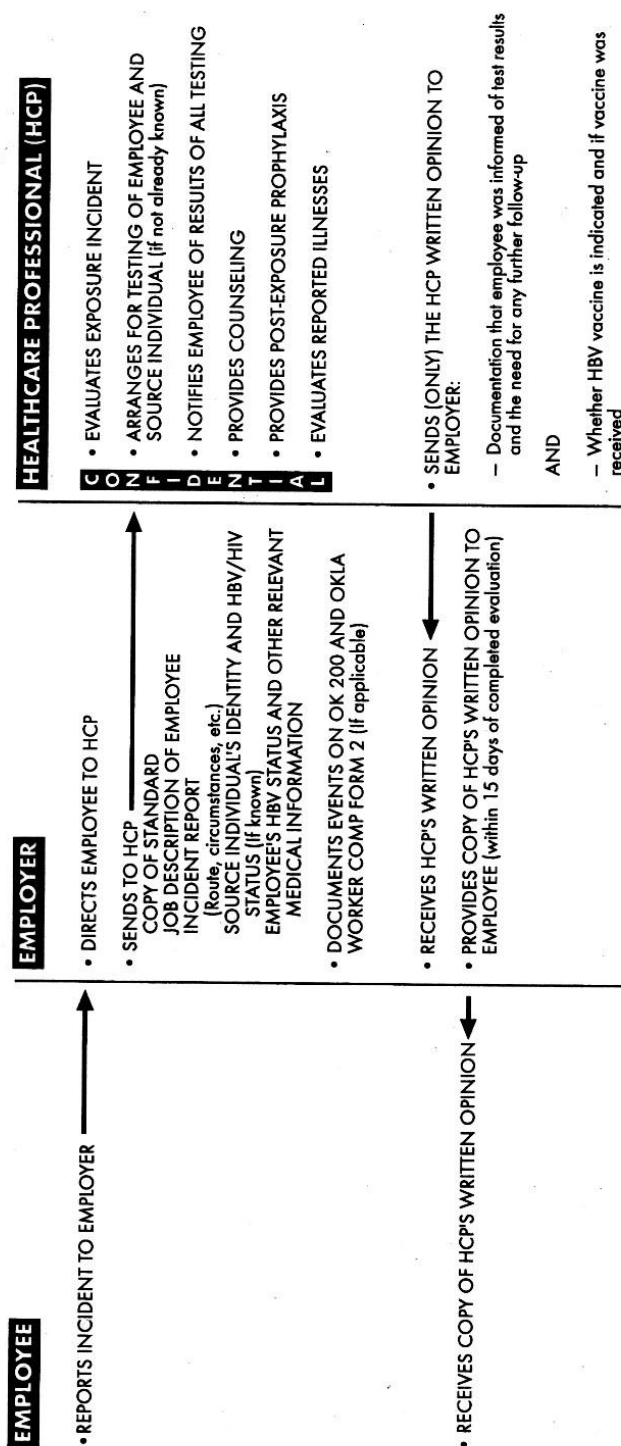
## 25.19 Appendix S: Post Exposure Algorithm form and Post-Exposure Checklist



# ALGORITHM FOR POST EXPOSURE EVALUATION AND FOLLOWUP

(U.S. DEPARTMENT OF LABOR/OSHA, 1992b)

EXPOSURE INCIDENT OCCURS



## 25.20 Appendix T: Post Exposure Checklist

The following steps must be taken, and information transmitted, in the case of an employee's exposure to bloodborne pathogens:

ACTIVITY	COMPLETION DATE
Employee furnished with documentation regarding exposure incident? Y or N	_____
Source identified? Person or origin laboratory? Y or N	_____
_____ Name/Location	
Source material tested and results given to exposed employee? Y or N	_____
Consent has not been obtained.	
Exposed employee's blood collected and tested? Y or N	_____
Appointment arranged for employee with health care professional.	_____
_____ Professional's Name	
Documentation forwarded to healthcare professional?	
• Bloodborne Pathogens Standard	_____
• Description of exposed employee's duties.	_____
• Description of exposure incident, including routes of exposure.	_____
• Result of source testing.	_____
• Employee's medical records.	_____

## 25.21 APPENDIX U: Physician or Other Licensed Health Care Professional (PLHCP) Recommendation/Opinion

### BLOODBORNE PATHOGENS

#### PHYSICIAN OR OTHER LICENSED HEALTH CARE PROFESSIONAL (PLHCP) RECOMMENDATION/OPINION

DATE:

Exposed Employee:

Date of Exposure Incident:

This Opinion meets the requirements of the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens standard, 1910.1030(f)(5) *Healthcare Professional's Written Opinion*.

This employee experienced exposure to potentially infectious materials in the performance of job-related duties. The post-exposure evaluation is now complete.

Hepatitis B vaccination: is/is not indicated for this employee.

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

This Opinion is a confidential medical record and may not be disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by law.

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Signature Date

**1910.1030(f)(5) *Healthcare Professional's Written Opinion*.** The employer 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.

## 25.22 APPENDIX V: Qualified Instructors

Marjorie Markopoulos, Ph.D., CBM, CCHO, CSP

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Director, Environmental Health and Safety

Greg Merkle

Environmental Health and Safety Specialist

Ron Hamilton, OSH

Environmental Health and Safety Specialist

### **25.23 APPENDIX W: Needlestick Report (SH-12)**

In the event of a percutaneous injury, as referred to as a needlestick injury, a PERRP Sharps Injury Needlestick Report (SH-12) or equivalent must be completed in addition to the Injury/Illness Report Form. This form must be completed by anyone experiencing a needlestick injury, including employees, students, and vendors. EHS will maintain the Sharps Injury Form Needlestick Injury (SH-12) for 5 years, in accordance with Illness and Injury Log Recordkeeping Procedure.



Bureau of Workers'  
Compensation

Public Employment Risk Reduction Program  
State of Ohio  
Division of Safety and Hygiene  
13430 Yarmouth Drive  
Pickerington, Ohio 43147  
614-644-2246 or 800-671-6858  
Fax: 614-621-5754

**Sharps Injury Form  
Needlestick Report**

**Instructions:** This form is to be used to report needlestick or sharps injuries by personnel in your organization responsible for reporting such incidents to the Public Employment Risk Reduction Program. It is preferred that the public employer submit all forms via the Internet.

**Public employer information**

1) Employer: \_\_\_\_\_ 2) Facility: \_\_\_\_\_ Risk #: \_\_\_\_\_

3) Address: \_\_\_\_\_

4) City: \_\_\_\_\_ 5) State: OH 6) ZIP code: \_\_\_\_\_ 7) County: \_\_\_\_\_

Address of reporter if different from facility where injury occurred (no P.O. boxes): \_\_\_\_\_

8) Date reported: \_\_\_\_\_ By: \_\_\_\_\_ Phone: \_\_\_\_\_

**Injury information**

9) Date of injury: \_\_\_\_\_ 10) Time of injury: \_\_\_\_\_ 11) Age of injured: \_\_\_\_\_ 12) Sex of injured: ☐ Male ☐ Female

**13) Type of Sharp: Needle**

- ☐ Blood gas syringe ☐ Insulin syringe with needle ☐ IV catheter- loose ☐ Needle connected to IV line  
☐ Needle factory-attached to syringe ☐ Other nonsuture needle ☐ Other syringe with needle  
☐ Prefilled cartridge syringe (i.e. Tubex-type) ☐ Syringe- other ☐ Tuberculin syringe with needle ☐ Vacuum tube collection  
☐ Winged steel needle

**Surgical instrument (non glass)**

- ☐ Lancet ☐ Other non-glass sharp ☐ Scalpel ☐ Staples ☐ Suture needle ☐ Trocar ☐ Wire

**Glass**

- ☐ Ampule ☐ Blood tube ☐ Other glass ☐ Other tube ☐ Slide

14) Brand (write brand name or "unknown"): \_\_\_\_\_ 15) Model number: \_\_\_\_\_

16) Job classification of injured person: ☐ Aide (e.g. CNA/HHA) ☐ Chiropractor ☐ CRNA/NP ☐ EMT/paramedic ☐ Firefighter  
☐ Housekeeper/laundry ☐ LPN ☐ Maintenance ☐ MD/DO ☐ Other ☐ PA ☐ Phlebotomist/lab tech  
☐ Respiratory therapist ☐ RN ☐ Road crew ☐ School personnel (not nurse) ☐ Sewer & Sanitation ☐ Surgery assistant/OR tech

17) Employment status of injured person: ☐ Contractor/contract employee ☐ Employee ☐ Other ☐ Student ☐ Volunteer

18) Type of location/facility/agency where sharps injury occurred: ☐ Bloodbank/center/mobile ☐ Clinic ☐ Correctional facility ☐ EMS/fire/police  
☐ Home health ☐ Hospital ☐ Laboratory (freestanding) ☐ Other ☐ Outpatient treatment (e.g. dialysis -infusion therapy)  
☐ Radiology ☐ Residential facility (e.g. MHMR-shelter) ☐ School

19) Work area where sharps injury occurred (select best choice): ☐ Autopsy/pathology ☐ Blood bank/center/mobile ☐ Central sterile  
☐ Critical care unit ☐ Dialysis room/center ☐ Emergency dept. ☐ EMS/fire response ☐ Field (non EMS)  
☐ Floor - not patient room ☐ Home ☐ Infirmary ☐ Laboratory ☐ L&D ☐ Medical/outpatient clinic ☐ OR  
☐ Patient/resident room ☐ Pre-op or PACU ☐ Procedure room ☐ Radiology ☐ Roadside park ☐ Seclusion room  
☐ Service/utility area (e.g. laundry) ☐ Sewage treatment facility ☐ Other

20) Original intended use of sharp: ☐ Contain specimen/pharmaceutical ☐ Cutting (surgery) ☐ Draw arterial sample ☐ Draw venous sample  
☐ Drilling ☐ Electrocautery ☐ Finger stick/heel stick ☐ Heparin or saline flush ☐ Injection - IM ☐ Injection - SC/ID  
☐ Obtain body fluid/tissue sample ☐ Other injection/aspiration IV ☐ Start IV or set up heparin lock ☐ Suturing - deep  
☐ Suturing - skin ☐ Unknown/NA ☐ Wiring ☐ Other

BWC-6611

SH-12

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**Injury information - continued**

- 21) When did injury occur? ☐ Before ☐ After ☐ During ...the sharp was used for its intended purpose.
- 22) If the exposure occurred "during" or "after" the sharp was used, was it: ☐ Because the injured was bumped during the procedure  
☐ Because the item was placed in an inappropriate place (e.g. table/bed/trash)  
☐ During OR procedure reaching for or passing instrument ☐ While disassembling  
☐ While the sharp was being placed in a container ☐ While recapping ☐ Other
- 23) Involved body part: ☐ Arm (but not hand) ☐ Face/head/neck ☐ Hand ☐ Leg/foot ☐ Torso (front or back)
- 24) Did the device being used have any engineered sharps injury protection? ☐ Yes ☐ No ☐ Don't Know
- 25) Was the protective mechanism activated? ☐ Yes ☐ No ☐ Don't Know
- 26) Was the injured person wearing gloves? ☐ Yes ☐ No ☐ Don't Know
- 27) Had the injured person completed a hepatitis B vaccination series? ☐ Yes ☐ No ☐ Don't Know
- 28) Was there a sharps container readily available for disposal of the sharp? ☐ Yes ☐ No ☐ Don't Know
- 29) Had the injured person received training on the exposure control plan in the 12 months prior to the incident? ☐ Yes ☐ No ☐ Don't Know
- 30) Exposed employee: If sharp had no engineered sharps injury protection, do you have an opinion that such a mechanism could have prevented the injury?
- ☐ Yes ☐ No

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 31) Exposed employee: Do you have an opinion that any other engineering, administrative, or workpractice control could have prevented the injury?

☐ Yes ☐ No

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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