Section 12 Safety Information Book

Prevention of Exposure to Human-derived Chemicals that are Considered Potentially Infectious Human Materials

Departmental Exposure Control Plan

Departments: Biology, Chemistry and Psychology

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Introduction

Western Washington University is required to comply with the Washington Department of Labor and Industries' bloodborne pathogen's regulations found in the Washington Administrative Code, Part 296-823.

The University’s written bloodborne pathogens plan is in Section 12 of the Safety Information Book. It contains the University’s policy and procedures and includes an exposure control plan for prevention of exposure to human blood and other potentially infectious human materials. This document is the university’s exposure control plan for prevention of exposure to human-derived chemicals. Human-derived chemicals are considered a biological hazard (biohazard) and may contain bloodborne pathogens.

Exposure Control Plan Requirements

The bloodborne pathogens regulations require that a written exposure control plan be prepared if employees have reasonably anticipated duties that may result in occupational exposure to bloodborne pathogens. This document satisfies that requirement for handling human-derived chemicals that may contain bloodborne pathogens.

A human-derived chemical is a biochemical that originates from human blood or from human unfixed tissue or body organs other than intact skin. These biochemicals have the potential to be biohazards and to transmit bloodborne pathogens even if the originating patients have been tested and found to be negative for hepatitis and HIV.

This exposure control plan for human-derived chemicals does not include or require soliciting input in the identification, evaluation, and selection of effective safer medical devices because there are none used with chemicals.

Each department head or center director is responsible to have an exposure control plan if one or more employees or students under his or her authority has a potential for an occupational or academic-related exposure to bloodborne pathogens in human-derived chemicals. This document fulfills that purpose.

The exposure control plan is maintained in the department and is to be available to employees and students. A copy is to be in the Environmental Health and Safety office. This exposure control plan for human-derived chemicals consists of three parts:

(1) Exposure determination - identification and documentation of all job classifications and tasks with occupational exposure, without regard to the use of personal protective equipment;

(2) The schedule and method of implementation of each applicable part of the bloodborne pathogens regulations; and

(3) The procedure for evaluation of circumstances surrounding an exposure incident.

This document is the exposure control plan for handling human-derived chemicals at Western Washington University.

This plan is reviewed and updated at least annually to reflect significant changes in tasks or procedures and new or revised employee positions that may have occupational exposure. The review and update of such plans reflects the inclusion of changes in technology that could eliminate or reduce exposure to bloodborne pathogens.

This review does not include documentation, consideration, or implementation of relevant commercially available medical devices designed to eliminate or minimize occupational exposure. This is because medical devices are not relevant to human-derived chemical use in laboratories.

Human Immunodeficiency Virus (HIV) And Hepatitis B Virus (HBV) Research Laboratories And Production Facilities

This is not applicable to human-derived chemical use.

Universal Precautions for Handling Human-derived Chemicals

Universal precautions are not applicable because these are chemicals.
Requirements for Handling Human-derived Chemicals

Laboratory work involving human-derived chemicals is to be performed in compliance with Biosafety Level 2 containment and practices as described in *Biosafety in Microbiological and Biomedical Laboratories*, (CDC/NIH). Refer to Appendix 12-A of Procedures for Exposure to Human Blood and Other Potentially Infectious Human Material.

The following summarizes the specific requirements for handling human-derived chemicals:

- Hands are washed immediately or as soon as possible after removal of gloves or other personal protective equipment and after hand contact with human-derived chemicals. All contacted mucus membranes are thoroughly flushed with water.
- All personal protective equipment is removed immediately upon leaving the work area or laboratory or as soon as possible if overtly contaminated. Such equipment is placed in an appropriately designated area or container for storage, washing, decontamination, and/or disposal.
- Needle and sharp use is not applicable.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is potential for occupational or student exposure.
- Food and drink are never stored in refrigerators, freezers or cabinets where human-derived chemicals are stored or in areas of possible contamination.
- All procedures involving human-derived chemicals are performed in such a manner as to minimize splashing, spraying, and aerosolization of these substances.
- Mouth pipetting or mouth suctioning is prohibited.

**Schedule and Method of Implementation.** Work practice controls are implemented immediately. The method of implementation is: (1) evaluation of existing practices for compliance with the above procedures and (2) modification of non-complying procedures to ensure compliance.

Engineering Controls

Engineering controls include engineered equipment and machinery to eliminate or reduce exposure to human-derived chemicals. Chemical fume hoods may be used in containment of human-derived chemicals, though most human-derived chemicals are used in aqueous solutions and do not require fume hoods for exposure protection.

Biological safety cabinets (tissue culture hoods) are NOT used with human-derived chemicals for personnel protection or safety. If used, they are only for product protection. Thus, they are NOT required to be certified at any time: when installed, whenever they are moved, nor annually. If provided, certification is the responsibility of the department and is in accordance with National Sanitation Foundation Standard Number 49.

Safety eyewashes and safety showers reduce exposure to chemicals if one’s person is splashed or spilled upon and are present in laboratories using human-derived chemicals. Facilities and equipment are inspected.

**Schedule and Method of Implementation.** The Facilities Management Department inspects on a regular schedule. Refer to the *Safety Information Book*, Section 7, *Chemical Hygiene Plan*, regarding inspections.

Personal Protective Equipment for Handling Human-derived Chemicals

The department head ensures that appropriate personal protective equipment is provided to each affected employee or student whenever there is a potential for occupational or academic exposure to biohazards that may be present in human-derived chemicals.

This activity may be delegated to supervisors and faculty members. Examples of such equipment include gloves, laboratory coats, and eye protection.
The department head, through supervisors or faculty members, ensures that each employee or student uses personal protective equipment whenever warranted. Protective equipment is available in the work or laboratory area or issued to employees in appropriate sizes. Students are either provided equipment or asked to provide it prior to any possible exposure. Hypoallergenic gloves are to be made readily accessible to those allergic to the normal gloves provided.

The supervisor or faculty member provides for the cleaning, laundering or disposal of all personal protective equipment. He or she also repairs or replaces required personal protective equipment as needed to maintain its effectiveness.

- **Gloves.** Gloves are worn when direct skin contact is possible with human-derived chemicals. They are worn when touching items or surfaces contaminated with human-derived chemicals. Disposable (single use) gloves are removed and replaced as soon as possible when soiled, torn, punctured, or their ability to function as a barrier is compromised. They are not washed or disinfected for reuse.

- **Utility gloves may be disinfected for re-use only if the integrity of the gloves is not compromised. They must be discarded if they are cracked, peeling, discolored, torn, punctured, or show any deterioration.**

- **Eye Protection.** Eye protection is worn if human-derived chemical use may result in a splash, spray, spatter or may form droplets or aerosols. Masks or face shields are not required.

- **Protective Body Clothing.** Optional protective clothing includes laboratory coats or aprons. These are worn only if clothes are likely to become soiled with human-derived chemicals.

**Schedule and Method of Implementation.** The department head initiates the procurement and use of personal protective equipment immediately. Additional information on personal protective equipment use is found later in this document. The method of implementation is:

1. Making equipment available;
2. Ensuring its use through periodic checks by the supervisors, faculty members, or other departmental personnel;
3. Ensuring that personal protective equipment is cleaned regularly or disposed of properly; and
4. Ensuring that equipment is repaired or replaced as needed.

**Housekeeping for Human-derived Chemicals**

Laboratory areas used to work with human-derived chemicals are to be maintained in a clean and sanitary condition. Equipment, environmental surfaces, and work surfaces are properly cleaned and disinfected after contact with human-derived chemicals.

Work surfaces are decontaminated with an appropriate disinfectant after completion of procedures involving human-derived chemicals, if surfaces become overtly contaminated, and immediately after any spill of human-derived chemicals.

Protective coverings such as plastic wrap, aluminum foil, or plastic-backed absorbent paper, may be used to cover and protect equipment and surfaces from splashing. These are generally not required for laboratory work with human-derived materials. If a faculty member decides to use such protections, the covering is removed and replaced if overtly contaminated.

Equipment that may become contaminated with human-derived chemicals is checked after use involving human-derived chemicals and is decontaminated prior to servicing or shipping.

Any receptacles that becomes contaminated with human-derived chemicals and that are intended for reuse such as bins, cans, and pails, are inspected, cleaned, and disinfected following use. They are cleaned and disinfected as soon as possible after visible contamination becomes present.

Broken glass that may be contaminated is not to be picked up directly with gloved hands. It is to be cleaned up using mechanical means, such as a brush and dustpan, tongs, cotton swabs, or forceps.
Schedule and Method of Implementation. Custodial staff routinely cleans environmental surfaces. The schedule and method of implementation are presented in the Facilities Management departmental procedures.

The routine cleaning of work surfaces and equipment is under the purview of the faculty member, as is cleaning and disinfection of equipment, environmental surfaces, and work surfaces that have been in contact with human-derived chemicals.

Chemical disinfectants are summarized later in this document with their use parameters and applications. They are all effective disinfectants for human-derived chemical use and eliminate bloodborne pathogens that might be present. Purchased disinfectants are recommended if their parameters meet those described.

Storage and Transportation of Human-derived Chemicals

If contamination of the outside of a container is likely, a second, leak-proof container is provided outside of the first. The outer container is closed to prevent leakage during handling, storage or transport. If materials that may puncture a container are used, the outer container described above is to be puncture-resistant.

Schedule and Method of Implementation. Storage and transportation safety controls are implemented immediately. The method of implementation is: (1) evaluation of existing practices for compliance with the above procedures and (2) modification of non-complying procedures to ensure compliance.

Disposal of Human-derived Chemicals

All wastes contaminated with human-derived chemicals destined for disposal are placed in closable, leak-proof containers or bags that are labeled with a biohazard symbol. If contamination of the outside of the container is likely, it is over-bagged as described above under transportation.

Prior to disposal, all materials overtly soiled with human-derived chemicals, solutions containing human-derived chemicals (generally aqueous) and containers with unwanted solid human-derived chemical are disinfected or steam-sterilized to remove the biohazard prior to chemical disposal. Following disinfection or sterilization, the biohazard label is defaced completely or removed.

Chemical disposal is in accordance with applicable federal, state, and municipal regulations for human-derived chemicals. Sharps disposal is not applicable.

Schedule and Method of Implementation. Waste disposal for human-derived chemicals and associated safety controls are implemented immediately. The method of implementation is: (1) evaluation of existing practices for compliance with the above procedures and (2) modification of non-complying procedures to ensure compliance.

Laundry Contaminated with Human-derived Chemicals

The only laundry that might become contaminated with human-derived chemicals is a laboratory coat. As noted above, these are optional for use.

Laundry that is overtly soiled with human-derived chemicals is handled as little as possible and with a minimum of agitation. This contaminated laundry is bagged at the location where it was used. Bags for contaminated laundry contain a biohazard symbol until disinfected or autoclaved and are labeled as a hazardous chemical. If the laundry is wet or may soak through the bag, the bag is to be leak-proof.

Overtly contaminated laundry is not provided directly to a laundry service. It is disinfected or sterilized in or near the work area and disposed of as a chemically contaminated waste. Once disinfected, the biohazard label is defaced completely or removed. Laundry (laboratory coat) overtly contaminated with human-derived chemicals is NEVER washed with an individual's personal belongings or sent directly to a laundry service.

Schedule and Method of Implementation. Laundry safety controls described above are implemented immediately. The method of implementation is: (1) evaluation of existing practices for compliance with the above procedures and (2) modification of non-complying procedures to ensure compliance.
**Hepatitis B Virus (HBV) Vaccination for Human-derived Chemicals**

HBV vaccination is offered to all employees or students (except as described in the policy) who may be occupationally or academically exposed to bloodborne pathogens via human-derived chemicals. Exceptions are if the employee or student has had a previous HBV vaccination or if antibody testing indicates that the employee or student is immune.

Departments are required to pay for employee immunizations, but may require immunizations for students who are in laboratory classes. Student immunizations may be available through the Student Health Center.

An employee or student may initially decline the vaccination by signing the declination section at the end of this document and in the Policy and Program in Table 12-3. A signature does not preclude an employee from accepting a vaccination at a later time. If booster dose(s) are recommended in the future, they are provided according to standard medical practices.

HBV antibody testing is to be made available to an employee or student who desires such testing prior to deciding whether or not to receive HBV vaccination. If the employee or student is immune to HBV because of an adequate antibody titer, then the University is not required to offer vaccine.

**Schedule and Method of Implementation.** A vaccination program is implemented immediately. The method of implementation is:

1. Evaluation of existing personnel with reasonably anticipated occupational exposure for vaccination status;
2. Offering of vaccination to applicable personnel; and
3. Maintaining appropriate medical records (refer to Table 12-3, vaccination form).

**Post-Exposure Evaluation and Follow-Up**

Following a report of an occupational exposure incident, the University provides a confidential medical evaluation and follow-up through the workers’ compensation program. Students receive medical follow-up at the Student Health Center.

The department head ensures that the route(s) of exposure for an incident and associated circumstances are documented. Generally, commercial sources for human-derived chemicals are tested prior to distribution and found negative for HBV and HIV.

Blood samples may be requested from an exposed employee or student. This may be as soon as possible after the incident for determination of HIV and/or HBV status, although actual testing may be performed at a later date at the employee's or student's request. The medical follow-up program for an exposed employee or student includes antibody or antigen testing, counseling, illness reporting, and safe and effective post-exposure prophylaxis according to standard medical practice.

The Environmental Health and Safety office is notified regarding workers' compensation. All incidents are monitored by the Central Health and Safety Committee; however, in keeping with university confidentiality policies, the names and identifiers of persons involved in an incident are omitted from reports.

The department head ensures that the following information is supplied to the evaluating physician:

1. A copy of the bloodborne pathogens regulations; and
2. A description of the affected employee's or student's duties as they relate to the exposure. The department head obtains and provides the affected employee or student with a copy of the evaluating physician's written opinion within 15 working days of the completion of the evaluation.

The physician's opinion is limited to the following information:

1. The physician's recommended limitations upon the employee's or student's ability to receive hepatitis B vaccination;
2. A statement that the employee or student has been informed of the results of the medical evaluation.
and that the individual has been told about any medical conditions resulting from exposure to human-derived chemicals which require further evaluation and treatment; and

(3) Specific findings or diagnoses that are related to the individual's ability to receive a HBV vaccination. Any other finding remain confidential. Refer to Tables 12-4 and 12-5 in the Bloodborne Pathogens Policy and Program, Section 12 of the Safety Information Book for forms relating to this information.

**Schedule and Method of Implementation.** The department head implements the protocols described above for any incident involving exposure to human-derived chemicals.

**Medical Records**

Medical records for each employee are kept for the duration of employment plus 30 years in the Environmental Health and Safety office. These records remain confidential. They include the hepatitis B vaccination records, physical examinations, medical testing, and follow-up procedures relating to the employee's ability to receive vaccination or to post-exposure evaluation following an incident. They include the information in the Policy and Program in Tables 12-4 and 12-5.

**Schedule and Method of Implementation.** The department head ensures that any medical records for any individual are sent to the Environmental Health and Safety office for permanent filing.

**Signs and Labels for Human-derived Chemicals**

Labels displaying a biohazard symbol (in orange) are required on containers of human-derived chemicals including wastes until the chemicals have been disinfected or steam sterilized.

**Schedule and Method of Implementation.** The department head ensures, either through inspection or by direction of faculty, that appropriate labels are in place. The Environmental Health and Safety office has biohazard labels available.

**Training for Human-derived Chemicals**

Training for compliance with the bloodborne pathogens regulations is required at the time of initial employment, classroom assignment, or research assignment and at least annually thereafter. Training includes all items shown in the Bloodborne Pathogens Policy and Program (Section 12) of the Safety Information Book.

Training records include the date of each session, the content or a summary of the session, the names of persons conducting the training session, and the names of all persons attending the training session. The records are kept for five years. They are provided on request for examination and copying to employees/affected students and their representatives.

**Exposure Determination for Human-derived Chemicals**

This exposure control plan includes identification of all job classifications, classroom assignments, and research assignments with occupational or academic exposure to human-derived chemicals.

The exposure determination is made without consideration of personal protective equipment. The exposure determination is shown later in this text. In keeping with University policy, students are included in this listing.

**Schedule and Method of Implementation.** This document includes list of job classifications, classroom assignments, and research assignments with occupational exposure as follows:

1. There are no job classifications in which all employees or students have an occupational or academic exposure.

2. Job classifications in which some employees and students have occupational or academic exposure are provided later in this document. In conjunction with these, tasks are identified.

**Sharps Injury Log for Human-derived Chemicals**

This section is not applicable
Checklists for Human-derived Chemicals

Departments: Chemistry, Biology and Psychology

Universal Precautions
Universal precautions are not applicable to human-derived chemicals.

Departmental Engineering Controls
Chemical fume hoods or biological safety cabinets may be used but are not required. A safety eyewash and shower are recommended.

Departmental Cleaning/Disinfecting Agents

<table>
<thead>
<tr>
<th>Use</th>
<th>Disinfectant</th>
</tr>
</thead>
<tbody>
<tr>
<td>For disinfecting clean surfaces</td>
<td>1 part bleach diluted with 99 parts water (bleach is 5% sodium hypochlorite) Minimum contact time: 10 minutes</td>
</tr>
<tr>
<td>For disinfecting soiled areas or spills</td>
<td>1 part bleach diluted with 9 parts water Minimum contact time: 10 minutes</td>
</tr>
<tr>
<td>For disinfection of surfaces, except</td>
<td>Ethanol or isopropyl alcohol Minimum contact time: 10 minutes</td>
</tr>
<tr>
<td>motors and electrical</td>
<td>Disinfection of surfaces: Commercial cleaners effective against hepatitis B virus Minimum contact time: follow manufacturer's instructions</td>
</tr>
</tbody>
</table>

Departmental Personal Protective Equipment

The following personal protective equipment is worn when handling human-derived chemicals. Refer to the departmental hazard assessment certification in Section 5 of the Safety Information Book.

- Disposable gloves: [ ] Vinyl OR [ ] Latex OR [ ] Nitrile
- Hypoallergenic gloves are optional upon request only
- Laboratory coats are optional [ ] Disposable OR [ ] Reusable
- Safety goggles are optional unless a splash hazard is present

Departmental Laundry – Laboratory Coats
Use of laboratory coats is optional. Lab coats would be the only laundry potentially generated. Laundry is cleaned by the laundry service holding the current university contract. Departments are responsible for any costs incurred.

An overtly contaminated lab coat is never placed in the normal laundry. It is placed in a red (orange) bag or another type of bag with a biohazard label and handled separately until it is disinfected or steam sterilized. Then, the biohazard label is removed and it is disposed of as chemical waste.
**Checklists for Human-derived Chemicals - Continued**

**Departments: Chemistry, Biology and Psychology**

**Departmental Equipment/Material Cleaning And Disposal**

The method for cleaning and disinfecting re-usable personal protective and other equipment, other than lab coats, is to create a cleaning - disinfecting solution as shown in the above table and to use that to clean and disinfect re-useable equipment that may be contaminated, including counter tops.

Disposable items such as gloves, masks, aprons, and other personal protective equipment that are not overtly contaminated are discarded in the normal waste containers.

Overtly contaminated items are placed in a bag with a biohazard symbol. As appropriate, they may be transported in secondary containment. They may be autoclaved using a steam sterilizer or disinfected with chemical disinfectant. Biohazard labels are removed after disinfection or sterilization. If chemicals remain present, the containers or items are disposed of as chemical waste.

Solids and aqueous chemical solutions of human-derived chemicals are sterilized or disinfected with chemical disinfectants. Once rendered non-biohazardous, the biohazard labels are removed. They are disposed of as chemical wastes.

Sharps disposal is not applicable.

**Biological Safety Cabinet & Certification Information**

Biological Safety Cabinets not required for personal protection. They may be used for product protection.

**Exposure Determination for Handling Human-derived Chemicals**

Department Job Classifications or Academic Assignments and Tasks for Which Some Individuals Have Occupational or Academic Exposure to Human-derived Chemicals

<table>
<thead>
<tr>
<th>Exposure Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate or undergraduate research assistants in laboratories having or handling human-derived chemicals</td>
</tr>
<tr>
<td>Undergraduate or graduate research interns or volunteers in laboratories having or handling human-derived chemicals</td>
</tr>
<tr>
<td>Faculty members in laboratories having or handling human-derived chemicals</td>
</tr>
<tr>
<td>Employees with titles including instruction/classroom support technician, research technologist, research assistant, research associate (all levels for each) in laboratories having or handling human-derived chemicals</td>
</tr>
<tr>
<td>Students in academic teaching laboratories during any laboratory experiment that involves handling human-derived chemicals that have not been disinfected or steam sterilized</td>
</tr>
<tr>
<td>Undergraduate or graduate students or employees who unpack, inventory and/or transport human-derived chemical containers received at WWU that are out of their transport packaging</td>
</tr>
</tbody>
</table>
Table 12-3.  Hepatitis B Vaccination

**Information**

1. Hepatitis B (HBV) vaccination is to be offered to each University employee or student without charge or loss of pay if he or she has the risk of occupational exposure to human blood or blood products. Students in laboratory classes may be asked to provide their own vaccination or declination.

2. HBV antibody testing shall be made available to an employee who desires such testing prior to deciding whether or not to receive HBV vaccination. If the employee or student is found to be immune, vaccination is not required to be offered.

3. HBV vaccine is both safe and effective. Three shots of vaccine given intramuscularly in the upper arm will usually provide protection. The most common side effects of vaccination are soreness, swelling, and redness at the vaccination site.

4. You cannot get AIDS (HIV) or HBV from this vaccine. Blood-derived vaccines are processed to completely inactivate HIV and known viral groups. Newer vaccines are not made from blood products. Vaccinated persons do not develop HIV antibodies and may donate blood unless other contraindications are present.

**Procedure**

1. Use a separate form for each employee or student.

2. If vaccination is accepted, provide the three vaccination dates.

3. File this form with the supervisor. Send one copy of this form to the Environmental Health and Safety office.

**Employee/Student Name** (Printed) ________________________________

Department _______________________ Supervisor Name (printed) ______________

☐ I accept vaccination for Hepatitis B virus. Dates of vaccination: ____________

☐ I decline vaccination for Hepatitis B virus.

Results of antibody testing for HBV: ________________________________

*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 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.*

________________________  __________________________
Employee/Student Signature  Supervisor, Faculty member or Witness Signature

________________________  __________________________
Date  Date

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