

Bloodborne Pathogens Exposure Control Plan

Department: College of Public Health

This Exposure Control plan was implemented May 5, 1992.

Latest revision: [12/2021](#)

Template update:

- [Appendix G was updated to match the newly published BMBL 6th Edition](#)

Most Recent Annual Review Performed: 11/11/2022

- 1) Used updated 12/2021 template and incorporated CPH specific items (and checked links)
- 2) Updated list of employees in positions where individuals are at risk for BBP exposure (All & Some)
- 3) Included some instructions & examples (in blue font) for labs to use when tailoring plan to their specific lab

Most Recent Annual Review Performed: 11/11/2021

11/11/2021 Revisions:

- 1) Used updated 05/2021 template and incorporated CPH specific items (and checked links)
- 2) Updated list of employees in positions where individuals are at risk for BBP exposure (All & Some)
- 3) Included some instructions & examples (in blue font) for labs to use when tailoring plan to their specific lab

Template update:

- [Updated the language under Section M \(Laundry Procedures\) on page 11 of original template](#)
- [The post-exposure reporting phone number was changed on pages 12, 35, and 41 \(original template\). The previous version said to call UEHC main phone line and we updated it to call STICK \(1-319-467-8425\) for exposure evaluation. The "STICK" number is UEHC's 24-hr number for providing BBP post-exposure evaluations.](#)
- [The Incident Investigation Report \(Appendix F\) was removed since that form is now completed through Workflow.](#)
- [Updated the "OSHA booklet on How to Prevent Needlestick Injuries" link on the last page.](#)

Previous Reviews:

11/11/2020 Revisions:

- 1) Used updated 12/2019 template and incorporated CPH specific items (and checked links)
- 2) Updated list of employees in positions where individuals are at risk for BBP exposure (All &

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Some)

3) Included some instructions & examples (in blue font) for labs to use when tailoring plan to their specific lab

11/11/2019 Revisions:

1) Used Nov 2017 Template and incorporated CPH specific items (and checked links)

2) Updated list of employees in positions where individuals are at risk for BBP exposure (All & Some) and included additional information about BBP training

3) Included some instructions & examples (in blue font) for labs to use when tailoring plan to their specific lab

4) Updated Basic PPE to include closed-toe shoes and long pants

11/12/2018 Revisions:

1) Updated list of employees in positions where individuals are at risk for BBP exposure (All & Some)

Purpose:

The purpose of this document is to comply with OSHA's Occupational Exposures to Bloodborne Pathogens in Title 29 Code of Federal Regulations 1910.1030 and as revised in 2001 by the Needlestick Safety and Prevention Act P.L. 106-430. The intent of this exposure control plan is to prevent bloodborne infections by eliminating or minimizing employee exposures to blood, blood products, and other potentially infectious materials (OPIM).

Responsibilities:

Employees are expected to follow policies and procedures of their particular place of work. When new procedures or duties will be performed by an employee previously determined not to be at risk for potential exposure, it is the supervisor's responsibility to notify their Departmental Human Resources Representative and the Departmental Exposure Control Officer listed below. The employee will be subject to the requirements of the standard.

The exposure control officer must ensure the required employee training is completed and an annual program review and update is performed, as required by the regulations.

The Exposure Control Officer is Lisa Irving (CPHB / Rm S149 / 319-335-4516), who has overall responsibility for the program.

Electronic copies of the Exposure Control Plan and the Hepatitis B Vaccination Survey Instructions may be obtained from: <https://www.public-health.uiowa.edu/collegiate-health-and-safety-policies/> - Under the heading of 'Collegiate Health and Safety Policies'

Lab directors/managers should make sure employees are aware of the location of these documents.

Hard copies of the plan and the Hepatitis B Vaccination Survey Instructions should be printed by each lab and stored in a binder in the lab. Lab directors/managers should make sure employees are aware of the location of these documents.

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In accordance with the OSHA Bloodborne Pathogens standard, 29 CFR 1910.1030, the exposure control plan and the methods of compliance are as follows:

1. Exposure Determination

OSHA requires employers to perform an exposure determination concerning which employees may incur occupational exposure to blood or other potentially infectious materials (OPIM). The exposure determination is made without regard to the use of personal protective equipment (i.e. employees are considered to be exposed even if they wear personal protective equipment). This exposure determination is required in order to create a list of job classifications in which **all** employees may be expected to incur occupational exposure, regardless of frequency.

- a. In this department, the job classifications where **all** employees are considered potentially at risk are found on the list entitled "**List of Job Classification Risk Categorization by Department- All at Risk.**"

The following are job classifications and job duties that place these individuals at risk:

JOB CODE	DESCR
FP02	Postdoctoral Research Fellow
PRA2	Clinical/HC Research Associate

- Patient contact; exposure to blood or OPIM.
 - Handling, transporting, or disposing of blood, blood products, human cell lines, or tissue samples.
- b. In this department, the job classifications where **some** employees are considered potentially at risk are found on the list entitled "**List of Job Classification Risk Categorization by Department- Some at Risk.**"

The following are job classifications and job duties that place these individuals at risk:

JOB CODE	DESCR
FP01	Postdoctoral Research Scholar
FR19	Graduate Research Assistant
FT11	Professor
FT12	Associate Professor
FT19	Graduate Teaching Assistant
FV52	Visiting Scholar
PRJ1	Asst Research Scientist/Engin
PRK1	Research Assistant
PRK2	Research Associate
PRK3	Research Specialist
PRK4	Research Manager

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PRM2	Research Support Specialist
PRM3	Research Support Manager
S140	Ac/Sci Res Act
S160	Gen Sci Lab
S240	Work W/Indiv

- Patient contact; exposure to blood or OPIM.
- Handling, transporting, or disposing of blood, blood products, human cell lines, or tissue samples.

The following is a possible example that you may use as a template for sections a & b above:

The following are job classifications and job duties that place these individuals at risk:

E.g., Research Asst III Nat/Hlth Sci

E.g. Postdoctoral Research Fellow

E.g. Assistant Professor

- *E.g., Handling, transporting, or disposing of blood, blood products, human cell lines, or tissue samples.*

The above titled lists are available from the Human Resources Self Service web site: <https://login.uiowa.edu/uip/login.page?service=https://hris.uiowa.edu/portal/>. Department Administrators are generally the only individuals with access to the information discussed in this section. You'll need to ask someone who has access and can link to "HR Reports" from the tab labeled "Administration." When you click on the "HR Reports" link, "BBP Exposure Risk Report" is the first one listed. By clicking on this link, you will find a selection of five reports: "BBP Exposure - At Risk," "BBP Exposure - Not At Risk," "BBP Risk by Dept/Job-All," "BBP Risk by Dept/Job-Mixed," and "BBP Risk by Dept/Job-None."

Run the first two reports by entering your department's org and department number. Review these lists to make sure everyone is correctly categorized (at risk vs. not at risk). In order to change an individual's risk category, go back to the first "Administration" screen. The third column of that page, under the heading "HR Online Update," the 1st bullet "BBP Risk Status" is the link used to change an individual's risk category.

After all individuals are correctly identified as "at risk" or "not at risk," the HRIS process will update the records by the next business day, and you'll be able to run the next two reports that identify the job categories where: 1) everyone in the job classification is at risk (*BBP Risk by Dept/Job-All*), and 2) the report that identifies the job classifications where some individuals are at risk and some are not (*BBP Risk by Dept/Job-Mixed*).

The list of job classifications in which **some** employees may have occupational exposure is also required, and can be created in the manner described above. For employees in these classifications, a list of the tasks or procedures that place them at risk must be listed in the exposure control plan. By listing the job classifications and the duties where there is potential risk, it should be clearly understood which employees in these categories must be considered at risk to have occupational exposure.

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The lists could either follow this page or be placed under a tab at the back of your Exposure Control plan.

2. Implementation Schedule and Methodology

OSHA requires that this plan also include a schedule and method of implementation for the various requirements of the standard. The following complies with this requirement:

A. Universal Precautions

The increasing prevalence of HIV, HBV and HCV increases the risk of infection to individuals who have occupational exposure. **All** patients' blood and certain body fluids should be considered infected with HIV, HBV, HCV and/or other blood-borne pathogens, and infection-control precautions adhered to that minimize the risk of exposure to these materials. This is "universal precautions" and should be used when handling blood, bodily fluids containing visible blood, semen, vaginal secretions, cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid.

Universal precautions do not apply to saliva, feces, nasal secretions, sputum, sweat, tears, urine and vomit unless they contain visible blood. If it is difficult or impossible to differentiate between body fluid types in a particular circumstance, all body fluids must be considered potentially infectious material.

Universal precautions will be observed in this department in order to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious material is considered infectious regardless of the perceived status of the source individual.

B. Engineering and Work Practice Controls

Engineering and work practice controls are utilized to eliminate or minimize exposure to employees. Where occupational exposure remains after institution of these controls, personal protective equipment must also be used. The following engineering controls are used at this location: Some laboratories utilize sealed rotor centrifuges. *(Other labs may utilize additional controls, such as sharps containers, splash guards, biosafety cabinets, mechanical pipetting devices, safety equipment for centrifuges, safe needle devices, needleless devices, sharps with engineered sharps injury protection (SESIP) etc. - list here if applicable)*

The University of Iowa Hospitals and Clinic's Processed Stores Safety Medical Devices List, showing what SESIP devices are available, may be obtained by contacting the UIHC Material Services Processed Stores (<https://uihc.org/material-services-processed-stores>).

The above controls are examined and maintained on a regular schedule. The schedule for reviewing the effectiveness of the controls is as follows: sharps containers, pipetting devices and sealed rotor centrifuges are reviewed upon use by the users. The biosafety cabinets are reviewed daily upon use by the users, and undergo annual certification. *(Other labs may set their own schedule - such*

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as daily, once/week, etc. as well as list a particular person who has the responsibility to review the effectiveness of the individual controls, such as the supervisor for each department, etc.)

Appendix B provides information on ordering sharps disposal containers and outlines biohazard waste procedures.

Hand washing facilities are also available for employees who incur exposure to blood or other potentially infectious materials. OSHA requires that these facilities be readily accessible after experiencing an exposure. At this facility hand washing facilities are located: In each main lab space (*Other locations may include patient rooms, procedure areas, etc.*)

If hand-washing facilities are not feasible, the employer is required to provide either an antiseptic cleanser in conjunction with a clean cloth/paper towels or antiseptic towelettes. If these alternatives are used, hands must be washed with soap and running water as soon as feasible. (*Employers who must provide alternatives to readily accessible hand washing facilities should list the location, tasks, and responsibilities to ensure maintenance and accessibility of these alternatives.*)

After removal of personal protective gloves, employees shall wash hands and any other potentially contaminated skin area immediately or as soon as feasible with soap and water. If employees incur exposure to their skin or mucous membranes then those areas shall be washed or flushed with water, as appropriate, as soon as feasible following contact.

C. Needles

Contaminated needles and other contaminated sharps must not be recapped, bent, removed, sheared or purposely broken. Do not remove needles from the syringe. Place directly into a red sharps container immediately or as soon as possible.

A disposable needle holder (for use with vacutainer blood drawing tubes) is now available and must be evaluated and used where appropriate, eliminating the need to remove the needle from the holder. The needle and holder are discarded in a sharps container.

*Each lab must evaluate its use of needles. Where possible, alternatives must be utilized and if unable to eliminate the use of needles entirely, new safety features for needle systems or needleless systems **must be evaluated**. Determine which safety features or safe needle devices can be implemented most effectively. Document the devices evaluated, why they did/did not work for your application, including the implementation date for each specific new device.*

If your department's employees are responsible for direct patient care and are potentially exposed to injuries from contaminated sharps, you are required to solicit input from non-managerial employees in identifying, evaluating and selecting engineering and safe work practices. **This solicitation must be documented in this Exposure Control Plan.**

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Note: There are no employees responsible for direct patient care / employees have contact with Research Subjects / use of needles is evaluated on a case per case basis by the end user and supervisor. Laboratory staff is made aware of safe sharp devices and will determine which safe needle devices can be implemented most effectively.

D. Waste Containers for Sharps

All sharps must be placed into appropriate sharps containers. The sharps containers are puncture resistant, labeled with a biohazard label (see Appendix D for the biohazard label), and are leak proof. Sharps containers are located in appropriate laboratories; responsibility for checking and replacing containers lies with the end users and supervisory personnel. *(Labs should list where sharps containers are located as well as who has responsibility for checking and replacing containers when they are full)*

E. Work Area Restrictions

In work areas where there is a reasonable likelihood of exposure to blood or other potentially infectious materials, employees are not to eat, drink, apply cosmetics or lip balm, smoke, or handle contact lenses. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, or on counter tops or bench tops where blood or other potentially infectious materials are present.

F. Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.

All procedures will be conducted in a manner that will minimize splashing, spraying, splattering, and generation of droplets of blood or other potentially infectious materials. The department uses the following methods to accomplish this goal: centrifuge covers, removing rubber stoppers from blood tubes by covering the stopper with a gauze pad, or use of a face shield when opening blood tubes. *(Labs may list any other methods specific to their lab, such as dental dams, if appropriate, etc.)*

G. Specimens and Labeling

Specimens of blood or other potentially infectious materials will be placed in a container to prevent leakage during the collection, handling, processing, storage, and transport of the specimens.

The container used for this purpose will be labeled or color-coded in accordance with the requirements of the OSHA standard (see Appendix D for the Biohazard Label).

Any specimen that could puncture a primary container must be placed in a puncture resistant secondary container. *(The employer should list here how this will be carried out, e.g. which specimens, if any, could puncture a primary container, which containers can be used as secondary containers and where the secondary containers are located at the facility.)* **If work in your area does not involve specimens, delete this paragraph.**

If the primary container becomes contaminated on the outside, it must be placed within a secondary container that prevents leakage during the handling, processing, storage,

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transport, or shipping of the specimen.

H. Contaminated Equipment

Equipment that has become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless decontamination of the equipment is not feasible.

Equipment that cannot be decontaminated prior to servicing or shipping to be listed here

I. Personal Protective Equipment

The purpose of personal protective clothing and equipment is to prevent or minimize the entry of material into or onto the worker's body. This includes entry via apparent or in-apparent skin lesions or through the membranes of the eye, nose, or mouth. All personal protective equipment will be provided without cost to employees. Personal protective equipment will be chosen based on the anticipated exposure to blood or other potentially infectious materials. The protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to reach the employees' clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

Protective clothing will be provided to employees in the following manner: Each individual laboratory has responsibility for providing PPE to their lab personnel. Basic PPE includes: latex/nitrile gloves, lab coats and goggles/face shields. In addition to basic PPE, employees are expected to wear standard laboratory attire, which includes closed-toe shoes and clothing that covers the legs, such as long pants or equivalent. PPE will be worn when performing any of the duties that place an individual at risk. PPE should be selected based on the specific work, exposure conditions that will be encountered and the anticipated level of risk. *(List any additional lab specific items here; how the clothing will be provided to employees, who has responsibility for distribution, etc. and also list which procedures would require the protective clothing and the type of protection required. This information could be listed as an appendix to this program.)*

A checklist similar to the following could be used:

Personal Protective Equipment

Task

Gloves

Lab Coat

Face Shield

Clinic jacket

Protective eyewear (with solid side shield)

Masks

Surgical Gown

Shoe Covers

Utility Gloves

Examination Gloves

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Other PPE (list)

All personal protective equipment will be cleaned, laundered, repaired, replaced and/or disposed of by the employer at no cost to employees. Immediately (or as soon as feasible) remove garments penetrated by blood. All personal protective equipment will be removed prior to leaving the work area. The following protocol has been developed to facilitate leaving the equipment at the work area: Lab coats are laundered by University Laundry Services and are to be placed in the bags supplied by that service. Goggles and face shields are decontaminated by the user and left in the designated lab area. *(List any additional lab specific instructions here; where employees are to place the personal protective equipment upon leaving the work area, and other protocols, etc.)*

Gloves shall be worn where it is reasonable to anticipate employees will have hand contact with blood, other potentially infectious materials, non-intact skin, and mucous membranes. Disposable gloves are readily available in the laboratory and will be worn when performing any of the duties that place an individual at risk.

Gloves will be used for the following procedures: (list lab specific tasks here)

Disposable gloves are not to be washed or decontaminated for re-use and are to be replaced as soon as practical when they become contaminated. If they are torn, punctured, or when their ability to function as a barrier is compromised, they need to be replaced as soon as feasible. Utility gloves may be decontaminated for re-use provided that the integrity of the glove is not compromised. Utility gloves are to 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.

Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin length face shields, are required to be worn whenever splashes, spray, splatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

(List any lab specific situations requiring protection here)

J. Work-site Cleaning/Schedule:

The work-site must be maintained in a clean and sanitary condition. Where body fluids are present, the areas are cleaned and decontaminated according to the following schedule:

Area	Scheduled decontamination

See Appendix H for a template that could be used to comply with this required schedule.

Decontamination will be accomplished by utilizing the following materials: 10% Bleach

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(list any additional lab specific materials that will be utilized, such as EPA registered germicides)

All contaminated work surfaces will be decontaminated after completion of procedures and immediately, or as soon as feasible, after any spill of blood or OPIM, as well as at the end of the work shift if the surface may have become contaminated since the last cleaning. *Replace/dispose of bench paper when overtly contaminated and at the end of the workday.*

All bins, pails, cans, and similar receptacles shall be inspected and decontaminated on a regularly scheduled basis by staff as designated by each laboratory:

Responsible person	Inspection frequency

Do not use hands to pick up broken glassware that may be contaminated. Use a mechanical means, such as a brush and dustpan or tongs, and place in a sharps container for disposal.

K. Infectious/Biohazard Waste Handling Procedures

Infectious waste has been defined as blood, blood products, pathological wastes, microbiological wastes, and contaminated sharps. Additionally, the University of Iowa considers animal body parts, carcasses and bedding, etc., to be infectious waste, as listed in Appendix B.

1. Infectious wastes (excluding liquids, blood, and blood products) are processed in an industrial autoclave prior to ultimate disposal in a landfill and must be placed in lined Rubbermaid biohazardous waste tubs, as set forth in the waste disposal procedures outlined in Appendix B. Animal tissue, carcasses and bedding are disposed of by incineration. All waste containers must be labeled with the biohazardous waste certification label. If the bag or container is contaminated on the outside or leaks, a second leak proof bag or container that is also labeled and close-able must be placed over the first and sealed to prevent leakage during handling, storage, and transporting.
2. Place all needles and sharps in properly labeled sharps disposal containers. These must be easily accessible to personnel, replaced before getting too full, puncture resistant, leak-proof, and closeable to assure containment.
 - Sharps containers are located in each laboratory utilizing sharps: *(specify locations of sharps containers.)*
 - Infectious waste other than sharps shall be placed in biohazard boxes. These are located in: each laboratory *(specify locations of containers.)*
 - **Secure the lids on the sharps containers with tape** and label with the

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investigator's name and room number. Full sharps containers must then also be placed inside lined Rubbermaid biohazardous waste tubs and disposed of following procedures set forth in Appendix B.

- **DO NOT** throw sharps in wastebaskets, leave in patient's rooms, bed linens, or pockets of lab coats. Laundry, housekeeping, custodial, and waste hauling personnel are at risk of acquiring a needle-stick due to carelessness on the part of others. The chances of becoming infected after a single needle-stick from a hepatitis B source patient ranges from 7-30%.
3. Liquid wastes (e.g., blood, blood products) can be disinfected with a solution of 5.25% sodium hypochlorite (household bleach) diluted between 1:10 and 1:100, or autoclaved. Once disinfected, these can be disposed of in the sanitary sewer system. If liquid wastes are collected in bulk containers, the material must be solidified with a product such as Isolyzer and the container placed in a biohazardous waste container.
 - Custodial service will collect *properly* packaged and labeled waste and transport it to areas designated as waste collection points.

L. Biohazardous Spill Procedures

Biohazard Spill

1. Keep others out of the area to prevent spreading spilled material. Post warning signs if needed.
2. Contaminated clothing should be removed and placed in a biohazard bag for disinfecting/decontamination. Call the Biosafety Office to evaluate each case.
3. Wash hands and any exposed skin. Inform PI or supervisor of the spill and contact EHS (5-8501) for assistance, if necessary.
4. Put on protective clothing (lab coat, gloves, face protection and shoe covers, depending on the amount of spilled material).
5. Pick up any broken glass with forceps and dispose in a Sharps container.
6. Cover the spill with paper towels and add 10% bleach.
7. Allow 20 minutes contact time, discarding used paper towels in biohazard bag for autoclaving. Re-wipe the spill area with disinfectant.
8. Place all contaminated materials into a biohazard waste container, including gloves.
9. Wash hands with soap and water.

Biohazard Spill in a Biological Safety Cabinet (BSC)

If this section does not apply to your work situation, delete it.

1. Chemical decontamination procedures should be initiated at once, *while the cabinet continues to operate*, to prevent escape of contaminants from the cabinet.

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2. Spray or wipe walls, work surfaces, and equipment with 2% Wescodyne* (or other appropriate disinfectant detergent). A disinfectant detergent has the advantage of detergent activity. This is important because extraneous organic substances frequently interfere with the reaction between a microbe and a microbiocidal agent. Operator should wear gloves during this procedure.
3. Flood top tray, drain pans, and catch basins below work surface with disinfectant and allow to stand 20 minutes.
4. Dump excess disinfectant from tray and drain pans into cabinet base. Lift out tray and removable exhaust grille work. Wipe off top and bottom (underside) surfaces with disinfectant sponge or cloth. Replace in position. Gloves, cloth or sponge should be discarded in autoclave pan and autoclaved.

*West Chemical Products, Inc. 16-42 West Street, Long Island City, NY. 11101

M. Laundry Procedures

Laundry contaminated with blood or other potentially infectious materials must be handled as little as possible. Such laundry must not be sorted or rinsed in the area of use, but placed directly into autoclavable bags for decontamination or into biohazardous waste containers for disposal.

All employees who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or other potentially infectious materials.

Protective clothing known or reasonably suspected to be contaminated with biohazardous material(s) must be decontaminated (i.e. autoclaved or treated with an effective disinfectant) before it is sent to laundry services. If protective clothing will be autoclaved, it must be capable of withstanding high temperatures. Do not autoclave lab coats that are additionally contaminated with chemical or radioactive materials; dispose of the contaminated clothing as hazardous waste. Additionally, protective clothing that become grossly contaminated with biohazardous material(s) should be disposed of as biohazardous waste.

Laundry will be cleaned at the University of Iowa's Laundry Services. Laundry workers wear protective gloves and fluid resistant aprons or gowns while handling and sorting soiled linen.

N. Hepatitis B Vaccine

All employees who have potential exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the employee. The vaccine will be offered within 10 working days of their initial assignment to work involving the potential for occupational exposure to blood or other potentially infectious materials.

All injections are given intramuscularly, 1.0 ml in the deltoid muscle. The first dose is given, followed at 1 and 6 months with a second and third dose, respectively. After a

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series of three injections, over 95% of healthy adults develop protective antibodies.

Vaccination program

Departments are responsible for the cost of the vaccine and any related costs. The vaccine will be available to the employee after training is received, and should be offered/given **within 10 working days of initial assignment**. University Employee Health Clinic (UEHC) will provide this service and administer the vaccine according to standard recommendations for medical practice. An individual does not need the vaccine if he has immunity or previously received the vaccine. Should booster doses be recommended at a future date, they will be provided. All “at risk” personnel must complete an online Hepatitis B vaccination survey provided by UEHC, through ReadySet. If “at risk” employees initially decline the vaccine, they may decide later to receive it. Instructions on creating the ReadySet account and completing the survey can be obtained from the Departmental Exposure Control Officer: [Hepatitis B Vaccination Survey Instructions may be obtained under the heading of ‘Collegiate Health and Safety Policies’ at <https://www.public-health.uiowa.edu/collegiate-health-and-safety-policies/>](#) or the Environmental Health and Safety website as referenced in the Resources section.

The exposure control officer sends a reminder monthly to employees who are delinquent for completion of the Hep B Immunization Survey. The e-mail reminder is sent monthly (usually mid-month) based on a report received from Kay Shie (CPH HR).

The Hep B Immunization Survey e-mail reminder text is as follows:

According to the most recent Bloodborne Pathogens Training HR report, your status for the Hepatitis B Vaccine being OFFERED is listed as blank (should be a ‘Y’). There are two methods of getting the proof-of-SURVEY-completion status (through My Training or ReadySet - see attachment for instructions) – the attachment is entitled ‘BBP At-Risk and Proof of HBV Survey Completion – 4 options’ – the document provides instruction for providing proof of completion. Once you have proof of completing the Hepatitis B Vaccine SURVEY, please send the documentation to me at your earliest convenience. I will make note of your completion and then forward the proof on to EHS (you won’t send any personal identifying information - just the completion status).

If you received the Hep B series at UEHC, there should be a record of it as they are required to keep all employee records for the length of employment plus 30 years. If you received it at UEHC, your ReadySet account should show the completion under Test Results. If you have never set up a ReadySet account, you will need to create one, but once created, your old results should be visible.

If you received the vaccine elsewhere (e.g. a personal physician), UEHC would not have a record of the vaccination itself. That is where the acceptance/declination forms come into play. If UEHC received the old paper declination form, it would also show up in the ReadySet account under Test Results. There would be a comment that it was Legacy data. Unfortunately, given that the HR report does not list a Y under HepB_Offered, this likely means that UEHC does not have a record of you completing the old form. Thus, you would need to complete a new survey.

It is the offer of the vaccine that fulfills the federal requirements; whether any individual accepts or declines that offer is up to that individual. If UEHC does not have a record of an accepted offer, simply re-fill out the form (called a “survey”) that acknowledges an offer was made (Option 4 - step three - under “IF NO Record of HBV offer completion can be found” in the attached document). If you still have trouble getting a record of completing the Hep B Vaccine Survey, just let us know and we can work with the UEHC directly.

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*Departments are responsible for ensuring that all personnel 'At Risk' for bloodborne pathogen exposure receive training at the time of initial hire, reassignment, and annually, and are offered the HepB vaccination within 10 days of initial assignment. UEHC has implemented the Hepatitis B vaccination survey through their patient software, ReadySet. Instructions for creating a ReadySet account and completing the Hepatitis B vaccination survey are available on the EHS website by navigating to the EHS webpage <https://ehs.research.uiowa.edu/biological/bloodborne-pathogens-program> and clicking on the Hepatitis B Virus Vaccination Survey Instructions link under **Resources**.*

O. Post-Exposure Evaluation and Follow-up

Exposure Definition

Incidents that constitute an exposure involve contamination by blood, OPIM or high titers of cell-associated or free virus via

- 1) Percutaneous injury, e.g., needlestick;
- 2) Permucosal exposure, e.g., splash in eye or mouth;
- 3) Cutaneous exposure, e.g., nonintact skin, or contact with unprotected hands.

Medical Evaluation

When an exposure incident occurs, UEHC conducts a confidential medical evaluation and follow-up.

In the event of an exposure, take the following steps:

- Cleanse the area thoroughly.
- Report the incident immediately to the supervisor. (See Section III-34 of the *University Operations Manual* for procedures regarding accidents.) The employee, along with the supervisor and/or department, completes the State of Iowa standard form for Worker's Compensation Injuries (located on the HR Employee Self-Service website) within 24 hours. Note: Medical attention takes precedence over reporting.
- Always call STICK (1-319-467-8425) for directions to follow and/or an appointment.
- **For BBP related exposure incidents, UI employed students injured while working will utilize UEHC. Non-employed student, or employed students injured outside of work will use the Student Health Center during operating hours, and University Hospital's Emergency Treatment Center if the injury is emergent or occurs outside of operating hours.** For more information, a guideline is available at:
<http://ehs.research.uiowa.edu/work-related-injury-treatment>
- On weekends, holidays, or after 4:30pm on weekdays, go to University Hospital's Emergency Treatment Center for cleaning, treatment, etc.
- The supervisor must document route of exposure and circumstances of incident.
- UEHC and/or departmental supervisors will make the necessary calls to identify the source of exposure and, if possible, determine HBV, HCV and/or HIV status.

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Consent must be obtained from the source in order to perform testing for HIV.

- UEHC maintains a sharps injury record for the recording of percutaneous injuries from contaminated sharps. The sharps injury record contains the type and brand of device involved, the department or work area where the exposure incident happened and an explanation of how the incident occurred. The confidentiality of the injured employee is maintained.
- UEHC will collect a blood sample from the exposed worker as soon as possible to provide a baseline.
- UEHC will provide counseling.
- The employee will return to UEHC for results within 7-14 days of completion of the evaluation and subsequent visits, per protocol.

See Appendix C for UEHC's medical protocol for specific exposure situations.

Control Method Evaluation

In addition, the department must evaluate the circumstances of the exposure incident. The goal of this evaluation is to identify and correct problems in order to prevent recurrence of similar incidents. Information that needs to be included in the documentation is:

- The route(s) of exposure and circumstances under which an exposure incident occurred.
- An evaluation of the policies and “failures to control” at the time of the exposure incident.
- The engineering controls in place at the time of the exposure incident.
- The work practices and protective equipment or clothing used at the time of the exposure incident.

P. Training

Training for all employees must be conducted before undertaking tasks where occupational exposure may occur, with training each year if employees remain at risk for exposure. Training in this department is conducted in the following manner: using an on-line BBP training program through the Environmental Health & Safety Office/ICON. Biosafety staff at EHS are available to answer any questions that may arise. Nursing personnel at UEHC can answer BBP questions. Supervisors will notify all applicable employees that retraining is to be completed. The exposure control officer sends a reminder monthly to employees who are delinquent for BBP training. The e-mail reminder is sent monthly (usually mid-month) based on a report received from Lisa Irving (CPH HR).

The BBP training e-mail reminder text is as follows:

Our records indicate that you are an employee who has exposure to bloodborne pathogens. You are receiving this e-mail because your Bloodborne Pathogens training (required annually) has expired, is about to expire, or you have not yet taken the training for the first time. If you have already taken

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the course once, please complete the refresher training as soon as possible. If you have never taken the course, please complete the full course at this time, and the refresher course going forward. If you feel you have received this message in error, or you are no longer exposed to bloodborne pathogens, please let Lisa Irving (lisa-irving@uiowa.edu) know so she can remove your name from the list. If you have completed the training since this report was run (Date), thank you; your training status should update automatically, before the next generated report.

Thank you for your prompt attention to this matter.

NOTE:

- 1) If training is delinquent by more than two months, your supervisor may be notified.**
- The CPH BBP course **BBP for College of Public Health (W130BO)** – has been removed as an option for initial training. Please take **BBP for Lab Workers (W003BO)** to satisfy the initial training requirement.
- We understand personnel with appointments in the hospital take a BBP training course to satisfy hospital compliance. There is no system in place at EHS to record completion of the hospital course for the CPH report. We have asked EHS to work on this issue. Until there is a system in place, personnel with dual appointments will need to take both the hospital and CPH required BBP training course.
- Departments are responsible for ensuring that all personnel 'At Risk' for bloodborne pathogen exposure receive training at the time of initial hire, reassignment, and annually, and are offered the HepB vaccination within 10 days of initial assignment. UEHC has implemented the Hepatitis B vaccination survey through their patient software, ReadySet. Instructions for creating a ReadySet account and completing the Hepatitis B vaccination survey is available on the EHS website, under "Forms". Audit changes for 2020/2021 will require proof-of-completion of the Hep B vaccine survey (Hep B vaccine was offered or completed).

Information regarding access to the BBP training:
[UI/UIHC Paid Employees ICON Registration](#)

Faculty, Staff, Grad Students and Post Docs

- IMPORTANT:** To receive credit for a course, you must register through the Employee Self Service website by clicking on the above link. Once in that system, click on 'My Career' and then 'My Training' in the Learning and Development area; enroll in the appropriate online-ICON course. By registering in this way, you will be certain that you have accessed the correct version of the course and that after completing the quiz (and receiving a passing grade), a record of course completion will be available on the Employee Self-service site within 48 hours. Each department is responsible for training its employees who are determined to be at risk of occupational exposure. [Training courses for "at risk" employees](#) are available. There are 3 different BBP courses available, make sure the employee(s) takes the course appropriate for each department:
- BBP for Lab Workers (W003BO)** is designed for laboratory employees and students upon initial training.
- BBP for Non-lab Workers (W131BO)** is designed for non-laboratory staff, such as Athletics, Residence Services, Public Safety, etc. upon initial and annual refresher training.
- BBP Refresher (W132BO)** is designed as a refresher course for laboratory employees and students across campus (CPH and others). The refresher course may be taken annually only if staff has already completed the BBP for Lab Workers or BBP for CPH courses during their initial training.

Please determine which BBP training you need. If you are not sure, please ask your supervisor or call EHS at 5-8501.

When completing BBP for Lab Workers and BBP for Non-lab Workers courses online, additional, site-specific, departmental information must be provided in order to be in regulatory compliance with OSHA. **A site-specific training form is available within the course content; it is the responsibility of**

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the employee, along with their supervisor or designated work area trainer, to complete the site-specific training and maintain a copy of this record.

An on-line course that meets the required training is available on EHS's web page: <http://ehs.research.uiowa.edu/icon-training-information>

Note: Bloodborne Pathogens (BBP) training is required annually.

Training must include an explanation of the following:

- 1) The OSHA standard for Bloodborne Pathogens.
- 2) Epidemiology and symptomatology of bloodborne diseases.
- 3) Modes of transmission of bloodborne pathogens.
- 4) This Exposure Control Plan, i.e. points of the plan, lines of responsibility, how the plan will be implemented, etc.
- 5) Procedures which might cause exposure to blood or other potentially infectious materials.
- 6) Control methods used in the work area to control exposure to blood or other potentially infectious materials.
- 7) Personal protective equipment available and who should be contacted.
- 8) Post Exposure evaluation and follow-up.
- 9) Signs and labels used.
- 10) Hepatitis B vaccine program.

These items are covered in EHS's online training and should be included in any departmental training program which does not utilize EHS's online courses.

HIV and HBV Research Laboratories and Production Facilities

(DELETE THIS ENTIRE SECTION IF THIS DOES NOT APPLY TO YOUR WORK SITUATION.)

This section does not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissues, or organs. These additional requirements apply only to research and production facilities, as defined in the **Definitions** section, and are listed below. Exposure to high concentrations of virus presents increased risk for infection and hence requires stringent infection control practices.

HIV and HBV Research Laboratories must:

- **Decontaminate all infectious liquid or solid waste** (this includes animal wastes) before disposal. Place in a durable, leak-proof container if it is to be decontaminated at a site away from the work area. An autoclave must be available to decontaminate regulated waste.

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- When potentially infectious materials or infected animals are present in the work place, have proper **signage** on all access doors and keep all doors closed while work is in progress. This entails a hazard warning sign with the biohazard symbol, the name of the infectious agent, requirements for entry, and name, telephone number of the lab director or other responsible person.
- Have policies included in the Exposure Control Plan on **limiting access** to authorized persons who have been advised of the hazards, who meet entry requirements (vaccination, PPE, etc., if required), and who comply with all **entry and exit procedures**. These include washing hands prior to leaving the work area. Thus, a **sink** is required in the lab, and an eye wash facility must be readily available in the work area.
- **No work is to be done on the open bench**. Perform **all** work in annually certified biological safety cabinets or other appropriate combinations of personal protection, physical-containment modules, or devices e.g., special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals.
- Wear appropriate PPE and remove it prior to leaving work area. Decontaminate it **before** laundering.
- All **vacuum lines** need to be protected with **HEPA filters** on liquid disinfectant traps.
- Injection or aspiration of potentially infectious fluids can only be done with a **needle-locking syringe or a disposable syringe-needle unit**. Hypodermic needles or syringes can only be used for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Proper disposal and caution when handling any of these are mandated.
- **Employee exposures** to potentially infectious materials due to a spill or accident must be **reported** immediately to the supervisor or person in charge. All spills must be contained and cleaned immediately by trained staff.
- Prepare, adopt, review, and update a **biosafety manual** that is required reading for all personnel. The biosafety manual should include the department's infection control plan.
- **Additional training requirements:**
 - Prior to working with HIV or HBV, employees will:
 - ✓ Demonstrate **proficiency** in standard microbiological practices and techniques specific to the facility.
 - ✓ **Be experienced** in handling human pathogens or tissue culture.
 - ✓ Demonstrate proficiency in **techniques** in a progression of work activities, but without handling pathogens, if there is no prior experience in pathogen handling.

Production Facilities have requirements that are in addition to all previously stated criteria.

- Work areas need to be restricted by entry through **two sets of doors**.

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- The ability to totally decontaminate the **interior surfaces** (walls, floors, ceilings) of the work area is required. Surfaces must be water resistant and sealable.
- An **eye wash** facility must be available. A hand-washing **sink** that is **foot, elbow or automatically operated** must be near the exit door in each work area.
- There will be **self-closing access doors** to the work area or containment module.
- An **autoclave** will be within or as near as possible to the work area.
- Verified **directional airflow** will be provided through a ducted exhaust-air ventilation system.

Do not delete information following this sentence.

Recordkeeping

All records required by the OSHA standard will be maintained by *(insert name or department responsible for maintaining records)*.

Medical records are maintained by University Employee Health Clinic (UEHC), located in Boyd Tower (UIHC).

Training records are maintained by each department for at least 3 years from date of training. They must include: dates of the training sessions, contents of the training sessions, names and qualifications of persons conducting the training, names and job titles of all persons attending the training sessions.

Note: Bloodborne Pathogens (BBP) training is required annually.

Employee accident reporting

- All accidents must be reported immediately to the supervisor.
- The supervisor and or the department representative will assist the employee in completing the Worker's Compensation report (located on the HR Employee Self-Service website) within 24 hours.
- The department should keep a copy of this report on file.

The departmental supervisor, along with the employee, must complete a bloodborne pathogens Incident Investigation form for each incident, documenting the circumstances and controls in place and identifying any corrective action taken to prevent future occurrences.

Dates

All provisions required by the standard were **implemented** by the following dates:

The Exposure Control Plan - May 5, 1992.

Information and Training - June 4, 1992

Engineering and Work Practice Control, PPE, Housekeeping, Hepatitis B vaccination, post-

2021

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exposure evaluation and follow-up, and labels and signs - July 6, 1992.

Needlestick and other Sharps Injuries- April 18, 2001.

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Q. APPENDICES

Appendix A: OSHA's Occupational Exposures to Bloodborne Pathogens
(29CFR Part 1910.1030)

Appendix B: Infectious Waste Disposal Procedures

Appendix C: The University Employee Health Clinic Management of Bloodborne Pathogen
Exposures

Appendix D: Biohazard Symbol

Appendix E: Definitions

Appendix F: Supervisor Checklist for Use of Human Blood or Other Potentially Infectious
Material

Appendix G: Laboratory Biosafety Level II Criteria

Appendix H: Laboratory Decontamination Schedule Template

Appendix I: Resources

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APPENDIX A

BLOODBORNE PATHOGENS STANDARD 1910.1030

Federal Register / Vol. 56. / Friday, December 6, 1991 / Rules and Regulations , as amended at 57 FR 12717, April 13, 1992; 57 FR 29206, July 1, 1992; 61 FR 5507, Feb. 13, 1996; 66 FR 5325 Jan.18, 2001; 71 FR 16672 and 16673, April 3, 2006; 73 FR 75586, Dec. 12, 2008; 76 FR 33608, June 8, 2011; 76 FR 80740, Dec. 27, 2011; 77 FR 19934, April 3, 2012

XI. The Standard

General Industry Part 1910 of title 29 of the Code of Federal Regulations is amended as follows:

PART 1910-[AMENDED

Subpart Z-[Amended]

1. The general authority citation for subpart Z of 29 CFR part 1910 continues to read as follows and a new citation for 1910.1030 is added:

Authority: Secs. 6 and 8, Occupational Safety and Health Act. 29 U.S.C. 655, 657, Secretary of Labor's Orders Nos. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable; and 29 CFR part 1911.

Section 1910.1030 also issued under 29 U.S.C. 653.

2. Section 1910.1030 is added to read as follows:

§ 1910.1030 Bloodborne Pathogens.

(a) *Scope and Application.* This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.

(b) *Definitions.* For purposes of this section, the following shall apply:

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

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

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

Clinical Laboratory means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

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

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

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

Decontamination means 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.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls means controls (e.g., sharps disposal

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containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

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

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

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

HBV means hepatitis B virus.

HIV means human immunodeficiency virus.

Needleless systems means a device that does not use needles for: (1) The collection of bodily fluids after initial venous or arterial access is established; (2) The administration of medication or involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral

contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials means

(1) 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, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

(2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

(3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

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

Personal Protective Equipment 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 hazard are not considered to be personal protective equipment.

Production Facility means a facility engaged in industrial-scale,

large volume or high concentration production of HIV or HBV.

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.

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 volume found in production facilities.

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

Source Individual means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the

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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.

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

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

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

(c) *Exposure control--(1) Exposure Control Plan.* (i) Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure.

(ii) The Exposure Control Plan shall contain at least the following elements:

(A) The exposure determination required by paragraph(c)(2),

(B) The schedule and method of implementation for paragraphs (d) Methods of Compliance, (e) HIV and HBV Research Laboratories and Production Facilities, (f)

Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, (g) Communication of Hazards to Employees, and (h) Recordkeeping, of this standard, and

(C) The procedure for the evaluation of circumstances surrounding exposure incidents as required by paragraph (f)(3)(i) of this standard.

(iii) Each employer shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.20(e).

(iv) The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. The review and update of such plans shall also:

(A) Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens; and

(B) Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

(v) An employer, who is required to establish an Exposure Control Plan shall solicit input from non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation, and

selection of effective engineering and work practice controls and shall document the solicitation in the Exposure Control Plan.

(vi) The Exposure Control Plan shall be made available to the Assistant Secretary and the Director upon request for examination and copying.

(2) *Exposure determination.* (i) Each employer who has an employee(s) with occupational exposure as defined by paragraph (b) of this section shall prepare an exposure determination. This exposure determination shall contain the following:

(A) A list of all job classifications in which all employees in those job classifications have occupational exposure;

(B) A list of job classifications in which some employees have occupational exposure, and

(C) A list of all tasks and procedures or groups of closely related task and procedures in which occupational exposure occurs and that are performed by employees in job classifications listed in accordance with the provisions of paragraph (c)(2)(i)(B) of this standard.

(ii) This exposure determination shall be made without regard to the use of personal protective equipment.

(d) *Methods of compliance--(1) General-Universal precautions* shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all

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body fluids shall be considered potentially infectious materials.

(2) *Engineering and work practice controls.* (i) Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment shall also be used.

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

(iii) Employers shall provide handwashing facilities, which are readily accessible to employees.

(iv) When provision of handwashing facilities is not feasible, the employer shall provide either 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.

(v) Employers shall ensure that employees wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.

(vi) Employers shall ensure that employees wash hands and any other skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials.

(vii) Contaminated needles and other, contaminated sharps shall not be bent, recapped or removed

except as noted in paragraphs (d)(2)(vii)(A) and (d)(2)(vii)(B) below. Shearing or breaking of contaminated needles is prohibited.

(A) Contaminated needles and other contaminated sharps shall not be bent, recapped or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.

(B) Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.

(viii) Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:

(A) Puncture resistant;

(B) Labeled or color-coded in accordance with this standard;

(C) Leakproof on the sides and bottom; and

(D) In accordance with the requirements set forth in paragraph (d)(4)(ii)(E) for reusable sharps.

(ix) 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.

(x) 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.

(xi) All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.

(xii) mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.

(xiii) 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.

(A) The container for storage, transport, or shipping shall be labeled or color-coded according to paragraph (g)(1)(i) and closed prior to being stored, transported, or shipped. When a facility utilizes Universal Precautions in the handling of all specimens, the labeling/ color-coding of specimens is not necessary provided containers are recognizable as containing specimens. This exemption only applies while such specimens/containers remain within the facility. Labeling or color-coding in accordance with paragraph (g)(1)(i) is required when such specimens/ containers leave the facility.

(B) If outside contamination of the primary container occurs, the primary container shall be placed within a second container which prevents leakage during handling, processing, storage, transport, or shipping and is labeled or color-coded according to the requirements of this standard.

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(C) If the specimen could puncture the primary container, the primary container shall be placed within a secondary container, which is puncture-resistant in addition to the above characteristics.

(xiv) Equipment which may become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary, unless the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible.

(A) A readily observable label in accordance with paragraph (g)(1)(i)(H) shall be attached to the equipment stating which portions remain contaminated.

(B) The employer shall ensure that this information is conveyed to all affected employees, the servicing representative, and/or the manufacturer, as appropriate, prior to handling, servicing, or shipping so that appropriate precautions will be taken.

(3) *Personal protective equipment*—(i) *Provision*. When there is occupational exposure, the employer shall provide, at no cost to the employee, appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices. Personal protective equipment will be considered "appropriate" only if it does not permit blood or other

potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

(ii) *Use*. The employer shall ensure that the employee uses appropriate personal protective equipment unless the employer shows that the employee temporarily and briefly declined to use personal protective equipment 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.

(iii) *Accessibility*. The employer shall ensure that appropriate personal protective equipment 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.

(iv) *Cleaning, Laundering, and Disposal*. The employer shall clean, launder, and dispose of personal protective equipment required by paragraphs (d) and (e) of this standard, at no cost to the employee.

(v) *Repair and Replacement*. The employer shall repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the employee.

(vi) If a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible.

(vii) All personal protective equipment shall be removed prior to leaving the work area.

(viii) When personal protective equipment is removed it shall be placed in an appropriately designated area or container for, storage, washing, decontamination or disposal.

(ix) *Gloves*. Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures except as specified in paragraph (d)(3)(ix)(D); and when handling or touching contaminated items or surfaces.

(A) Disposable (single use) gloves such as surgical or examination gloves, shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or when their ability to

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function as a barrier is compromised.

(B) Disposable (single use) gloves shall not be washed or decontaminated for re-use.

(C) Utility gloves 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.

(D) If an employer in a volunteer blood donation center judges that routine gloving for all phlebotomies is not necessary then the employer shall:

- (1) Periodically reevaluate this policy;
- (2) Make gloves available to all employees who wish to use them for phlebotomy;
- (3) Not discourage the use of gloves for phlebotomy; and
- (4) Require that gloves be used for phlebotomy in the following circumstances:

(i) When the employee has cuts, scratches, or other breaks in his or her skin;

(ii) When the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual; and

(iii) When the employee is receiving training in phlebotomy.

(x) Masks, Eye Protection, and Face Shields. 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 other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

(xi) Gowns, Aprons, and Other Protective Body Clothing. 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.

(xii) 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, orthopedic surgery).

(4) *Housekeeping.* (i) General. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer 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.

(ii) All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

(A) Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after

completion of procedures; immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the work shift if the surface may have become contaminated since the last cleaning.

(B) 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 work-shift if they may have become contaminated during the shift.

(C) 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.

(D) 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 dust pan, tongs, or forceps.

(E) 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

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containers where these sharps have been placed.

(iii) Regulated Waste.

(A) Contaminated Sharps

Discarding and Containment. (1) Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:

(i) Closable;

(ii) Puncture resistant;

(iii) Leakproof on sides and bottom; and

(iv) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard.

(2) During use, containers for contaminated sharps shall be:

(i) 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);

(ii) Maintained upright throughout use; and

(iii) Replaced routinely and not be allowed to overfill.

(3) When moving containers of contaminated sharps from the area of use, the containers shall be:

(i) Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;

(ii) Placed in a secondary container if, leakage is possible.

The second container shall be:

(A) Closable;

(B) Constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and

(C) Labeled or color-coded according to paragraph (g)(1)(i) of this standard.

(4) 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,

(B) Other Regulated Waste Containment. (1) Regulated waste shall be placed in containers, which are:

(i) Closable;

(ii) Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;

(iii) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard; and

(iv) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

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

(i) Closable;

(ii) Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;

(iii) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard; and

(iv) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

(C) Disposal of all regulated waste shall be in accordance with applicable regulations of the United States, States and

Territories, and political subdivisions of States and Territories.

(iv) Laundry.

(A) Contaminated laundry shall be handled as little as possible with a minimum of agitation. (1) 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.

(2) Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard. When a facility utilizes Universal Precautions 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.

(3) 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.

(B) The employer shall ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.

(C) When a facility ships contaminated laundry off-site to a second facility which does not utilize Universal Precautions in the handling of all laundry, the facility

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generating the contaminated laundry must place such laundry in bags or containers which are labeled or color-coded in accordance with paragraph (g)(1)(i)

(e) *HIV and HBV Research Laboratories and Production Facilities.* (1) This paragraph 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 standard.

(2) Research laboratories and production facilities shall meet the following criteria:

(i) Standard microbiological practices. All regulated waste shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.

(ii) Special practices.

(A) Laboratory doors shall be kept closed when work involving HIV or HBV is in progress.

(B) Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leak-proof, labeled or color-coded container that is closed before being removed from the work area.

(C) 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.

(D) 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 (g)(1)(ii) of this standard.

(E) 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.

(F) 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.

(G) 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.

(H) 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.

(I) 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.

(J) 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.

(K) 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.

(L) A spill or accident that results in an exposure incident shall be immediately reported to the

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laboratory director or other responsible person.

(M) A biosafety manual shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

(iii) Containment equipment. (A) 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.

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

(3) HIV and HBV research laboratories shall meet the following criteria:

(i) Each laboratory shall contain a facility for hand washing and an eye wash facility, which is readily available within the work area.

(ii) An autoclave for decontamination of regulated waste shall be available.

(4) HIV and HBV production facilities shall meet the following criteria:

(i) 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.

(ii) 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.

(iii) 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.

(iv) Access doors to the work area or containment module shall be self-closing.

(v) An autoclave for decontamination of regulated waste shall be available within or as near as possible to the work area.

(vi) 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).

(5) *Training Requirements.* Additional training requirements for employees in HIV and HBV research laboratories and HIV and HBV production facilities are specified in paragraph (g)(2)(ix).

(f) *Hepatitis B vaccination and postexposure evaluation and follow-up-(1) General.* (i) The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees *who* have had an exposure incident.

(ii) The employer shall ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are:

(A) Made available at no cost to the employee:

(B) Made available to the employee at a reasonable time and place;

(C) Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional; and

(D) Provided according to recommendations of the U.S. Public Health Service current at the time these evaluations and

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procedures take place, except as specified by this paragraph (f).

(iii) The employer shall ensure that all laboratory tests are conducted by an accredited laboratory at no cost to the employee.

(2) *Hepatitis B Vaccination.* (i) Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(1) and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.

(ii) The employer shall not make participation in a prescreening program a prerequisite for receiving hepatitis B vaccination.

(iii) If the employee initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, the employer shall make available hepatitis B vaccination at that time.

(iv) The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in appendix A.

(v) If a routine booster dose(s) of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster dose(s) shall be made

available in accordance with section (f)(1)(ii).

(3) *Post-exposure Evaluation and Follow-up.* Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following elements:

(i) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred;

(ii) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law;

(A) The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the employer shall establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, shall be tested and the results documented.

(B) 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.

(C) 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.

(iii) Collection and testing of blood for HBV and HIV serological status;

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

(B) 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.

(iv) Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service;

(v) Counseling; and

(vi) Evaluation of reported illnesses.

(4) *Information Provided to the Healthcare Professional.* (i) The employer shall ensure that the healthcare professional responsible for the employee's Hepatitis B vaccination is provided a copy of this regulation.

(ii) The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided the following information:

(A) A copy of this regulation;

(B) A description of the exposed employee's duties as they relate to the exposure incident;

(C) Documentation of the route(s) of exposure and

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circumstances under which exposure occurred;

(D) Results of the source individual's blood testing, if available; and

(E) All medical records relevant to the appropriate treatment of the employee including vaccination status which are the employer's responsibility to maintain.

(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.

(i) The healthcare professional's written opinion for Hepatitis B vaccination shall be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination.

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

(A) That the employee has been informed of the results of the evaluation; and

(B) 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.

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

(6) *Medical recordkeeping.* Medical records required by this 2021

standard shall be maintained in accordance with paragraph (h)(1) of this section.

(g) *Communication of hazards to employees-* (1) *Labels and signs.* (i) Labels. (A) Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials, except as provided in paragraph (g)(1)(i)(E), (F) and (G).

(B) Labels required by this section shall include the following legend:



(C) These labels shall be fluorescent orange or orange-red or predominantly so, with lettering or symbols in a contrasting color.

(D) 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.

(E) Red bags or red containers may be substituted for labels.

(F) Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use are exempted from the labeling requirements of paragraph (g).

(G) 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.

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

(I) Regulated waste that has been decontaminated need not be labeled or color-coded.

(ii) Signs.

(A) The employer shall post signs at the entrance to work areas specified in paragraph (e), HIV and HBV Research Laboratory and Production Facilities, which shall bear the following legend:



(Name of the Infectious Agent)
(Special requirements for entering the area)
(Name, telephone number of the laboratory director or other responsible person.)

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

(2) *Information and Training.* (i) Employers shall ensure that all employees with occupational exposure participate in a training program which must be provided

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at no cost to the employee and during working hours.

(ii) Training shall be provided as follows:

(A) At the time of initial assignment to tasks where occupational exposure may take place;

(B) Within 90 days after the effective date of the standard; and

(C) At least annually thereafter.

(iii) For employees who have received training on bloodborne pathogens in the year preceding the effective date of the standard, only training with respect to the provisions of the standard which were not included need be provided.

(iv) Annual training for all employees shall be provided within one year of their previous training.

(v) Employers shall provide additional training 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.

(vi) Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.

(vii) The training program shall contain at a minimum the following elements:

(A) An accessible copy of the regulatory text of this standard and an explanation of its contents;

(B) A general explanation of the epidemiology and symptoms of bloodborne diseases;

(C) An explanation of the modes of transmission of bloodborne pathogens;

(D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;

(E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;

(F) 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;

(G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;

(H) An explanation of the basis for selection of personal protective equipment;

(I) 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;

(J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

(K) 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;

(L) Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;

(M) An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and

(N) An opportunity for interactive questions and answers with the person conducting the training session.

(viii) 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.

(ix) Additional Initial Training for Employees in HIV and HBV Laboratories and Production Facilities. Employees in HIV or HBV research laboratories and HIV or HBV production facilities shall receive the following initial training in addition to the above training requirements.

(A) The employer 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.

(B) The employer shall assure that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.

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(C) The employer 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 employer shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

(h) *Recordkeeping - (1) Medical Records.* (i) The employer shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020.

(ii) This record shall include:

(A) The name and social security number of the employee;

(B) 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 as required by paragraph (f)(2);

(C) A copy of all results of examinations, medical testing, and follow-up procedures as required by paragraph (f)(3);

(D) The employer's copy of the healthcare professional's written opinion as required by paragraph (f)(5); and

(E) A copy of the information provided to the healthcare professional as required by paragraphs (f)(4)(ii)(B)(C) and (D).

(iii) Confidentiality. The employer shall ensure that employee medical records required by paragraph (h)(1) are:

(A) Kept confidential; and

(B) Are 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.

(iv) The employer shall maintain the records required by paragraph (h) for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.1020.

(2) *Training Records.* (i) *Training records shall include the following information:*

(A) The dates of the training sessions;

(B) The contents or a summary of the training sessions;

(C) The names and qualifications of persons conducting the training; and

(D) The names and job titles of all persons attending the training sessions.

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

(3) *Availability.* (i) The employer 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.

(ii) 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.

(iii) 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 29 CFR 1910.1020.

(4) *Transfer of Records.* (i) The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

(ii) If the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director, at least three months prior to their disposal and transmit them to the Director, if required by the Director to do so, within that three month period.

(5) *Sharps injury log.* (i) The employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee. The sharps injury log shall contain, at a minimum:

(A) The type and brand of device involved in the incident,

(B) The department or work area where the exposure occurred, and

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- (C) An explanation of how the incident occurred.
- (ii) The requirement to establish and maintain a sharps injury log shall apply to any employer who is required to maintain a log of occupational injuries and illnesses under 29 CFR 1904.
- (iii) The sharps injury log shall be maintained for the period required by 29 CFR 1904.6
- (i) *Dates - (1) Effective Date.* The standard shall become effective on March 6, 1992.
- (2) The Exposure Control Plan required by paragraph (c) of this section shall be completed on or before May 5, 1992.
- (3) Paragraph (g)(2) Information and Training and (h) Recordkeeping shall take effect on or before June 4, 1992.

(4) Paragraphs (d)(2) Engineering and Work Practice Controls, (d)(3) Personal Protective Equipment, (d)(4) Housekeeping, (e) HIV and HBV Research Laboratories and Production Facilities, (f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, and (g) (1) Labels and Signs, shall take effect July 6, 1992.

Appendix A to Section 1910.1030-Hepatitis B Vaccine Declination (Mandatory)

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.

[56 FR 64004, Dec. 06, 1991, as amended at 57 FR 12717, April 13, 1992; 57 FR 29206, July 1, 1992; 61 FR 5507, Feb. 13, 1996; 66 FR 5325 Jan. 18, 2001; 71 FR 16672 and 16673, April 3, 2006; 73 FR 75586, Dec. 12, 2008; 76 FR 33608, June 8, 2011; 76 FR 80740, Dec. 27, 2011; 77 FR 19934, April 3, 2012]

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APPENDIX B

INFECTIOUS WASTE DISPOSAL PROCEDURES

INTRODUCTION

The University of Iowa's Biohazard Waste Management Plan has been prepared in accordance with EPA, OSHA and State of Iowa Regulations. At the University of Iowa, biohazardous waste is transported off site in 28 or 40-gallon Rubbermaid containers for disposal. Most biohazardous waste is disposed of by processing in an industrial autoclave prior to disposal in a landfill.

This memo is intended to clarify segregation, packing and pickup of wastes, both biohazardous and uncontaminated.

DEFINING BIOHAZARDOUS WASTE

Biohazardous waste typically includes waste containing pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in an infectious disease. The UI also includes all sharps from medical areas, patient care, and research, in addition to the waste types described below.

BIOHAZARDOUS WASTE TYPES

1. Cultures, stocks of infectious agents and associated biologicals including but not limited to:
 - Specimens from medical, pathology and research laboratories;
 - Disposable culture/petri dishes;
 - Devices used to transfer, inoculate, and mix cultures;
 - Wastes from the production of biologicals; and
 - Discarded live and attenuated vaccines.
2. Human blood, blood products, and body fluids.
3. All sharps (contaminated and uncontaminated) such as:
 - Needles and syringes;
 - Scalpels, razors, microtome blades;
 - Pasteur pipettes;
 - Slides and cover plates; and
 - Broken glass.
4. Carcasses, body parts and bedding from animals exposed to pathogens in research.
5. Other laboratory wastes including but not limited to:
 - Specimen containers;
 - Disposable gloves, lab coats, masks and aprons;
 - Disposable pipettes;
 - All cell culture materials;
 - All microorganisms constructed using rDNA;
 - Pipette tips; and

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- Solidified blood and body fluids.
- All wastes that have been steam sterilized.

HANDLING BIOHAZARDOUS WASTE

Waste must be segregated at the point of origin by the generator. Culture plates and vials containing pathogenic organisms must be autoclaved prior to disposal, using autoclavable bags (orange or red). Place in a redbag-lined biowaste container after autoclaving. *Do not use the biohazard box's red liner for autoclaving.*

Waste must be placed either directly into the red-bag lined biowaste tub, *or* a red-bag lined white biowaste box. *Do not put chemical or radioactive waste into the biohazardous waste. Contact EHS at 5-8501 for disposal of chemical or radioactive waste.*

All sharps must be placed in a red sharps container or a Winfield Sharps container.

Animal carcasses, body parts and bedding from animals exposed to pathogens should be disposed of in accordance with Animal Resources' procedures. Call 5-7985 for more information.

Human tissues and body parts are disposed of in the Anatomy crematory, call the Anatomy Donor Coordinator at 5-7762.

Human blood, blood products and body fluids greater than 500 ml must be *solidified* with a product such as Isolyzer and placed in a biowaste box or tub. Amounts less than 500ml can be disinfected with a bleach solution (1:10 final dilution) and sewerred.

UNCONTAMINATED WASTE

Uncontaminated sharps must also be placed in a red sharps container.

Plastic bottles and jars, e.g. media, bleach, or alcohol containers - place in regular trash, or recycle bin, if available.

Glass bottles or jars - empty, rinsed and unbroken - place in a **sturdy** cardboard box. If no box is available, place in a biowaste tub.

Broken laboratory glass - place in sharps containers.

PREPARING FOR PICKUP

Properly packaged and labeled waste will be removed from labs by Facility Management (FM) custodial staff per schedule or as needed. Instructions for packaging biohazardous waste can be found on the EHS website: <http://ehs.research.uiowa.edu/biohazardous-waste-instructions-preparing-containers-disposal>

1. Do not overfill biowaste tubs. Keep weight below 50 lbs.
2. Secure sharps container closure with tape. Secure biowaste box liner, then close and seal the box. Close cardboard box with glass containers and label as uncontaminated.

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3. Place sharps container or biowaste box into a red-bag lined biowaste tub. Use a gooseneck knot to close red bag. Secure lid on tub. Follow same procedures if red tubs are filled directly. All waste must be in a red-bag lined biowaste tub before it will be removed.
4. Attach a signed and dated Biohazardous Waste Certification label. Instructions for labeling Biohazardous Waste Certifications can be found on the EHS [Biohazardous Waste webpage](#).
5. Place in designated area for pickup. Check with custodial staff for pickup information.
6. Obtain clean biowaste tubs and red liners from designated dock areas, or call EHS at 5-4625.

ORDERING CONTAINERS

Containers available from Biochemistry Stores (BS) are listed below. Chemistry Stores (CS) also stocks two items, as listed below.

<u>Item</u>	<u>Capacity</u>	<u>BS#</u>	<u>CS#</u>
Winfield Sharps Container #187	23.5 qt.....	159042.....	NA
Winfield Sharps Container #180	10 qt.....	159044	NA
Winfield Sharps Container #182	6.2 qt.....	159046	NA
Winfield Sharps Container #184	3 qt.....	159048	NA
Winfield Sharps Container	1 qt.....	159049	NA
Red Sharps Container, w/lid	2 gal	159031	NA
Red Sharps Container, w/lid	8 gal.	159040	in stock (6 gal)
Biohazard Box, Red Liner	15 gal.	159032.....	81000
Autoclave Bags, Red 2 mil.....	25x35 in	065700	NA
Autoclave Bags, Orange 2 mil	25x35 in	065705	NA
Autoclave Bags, Orange 2 mil	14x19 in	065710	NA

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APPENDIX C

THE UNIVERSITY EMPLOYEE HEALTH CLINIC (UEHC) MANAGEMENT OF BLOODBORNE PATHOGENS EXPOSURES

I. Exposures to Blood and Bloody Body Fluids

- A. Exposures to bloodborne pathogens consist of:
 - 1. Needle-sticks or cuts from sharp instruments that are contaminated with blood.
 - 2. Contact of the eye, nose, mouth, or non-intact skin with blood or body fluids containing blood.
 - 3. Human bite.
- B. Immediately following an exposure to blood or bloody body fluids:
 - 1. Clean wounds with soap and water.
 - 2. Flush mucous membranes with clean water.
 - 3. Flush eyes with clean water or sterile eye irrigant.

II. Reporting An Exposure

- A. All staff members who have exposures to blood or body fluids that contain visible blood should Call STICK (1-319-467-8425) for exposure evaluation. **If post-exposure prophylaxis (PEP) treatment is needed, it should be started within two hours after the exposure.** During business hours calls are directed to the University Employee Health Clinic (UEHC). After hours calls are directed to the [Integrated Call Center \(ICC\)](#). Follow-up treatment and evaluation will be at UEHC. If a medical device is involved in the exposure, staff should bring manufacturer's name of medical device or equipment to UEHC.
- B. The staff member who sustained an exposure must complete the following forms:
 - 1. "State of Iowa Workers Comp Form- First Report of Injury."
 - 2. "Needlestick/Hepatitis Exposure Report"; completed by personnel in the UEHC to document the route(s) of exposure and the circumstances under which the exposure incident occurred. This document will be filed in the employee's UEHC medical record.
 - 3. UIHC staff must complete the "Unusual Incident and Accident Report" which is located on the Patient Safety Net.
 - 4. Non-UIHC staff, along with their supervisor must complete the Incident Investigation Form via Workflow.

III. Source

- A. Source patient will be determined if possible.
- B. If source is known, UEHC or ETC will notify the source's physician/dentist as soon as possible, that his/her patient was involved in an exposure. UEHC will ask the physician or dentist whether the source has known risk factors and will request appropriate lab testing.
- C. If source patient is known, but refuses to be tested, no testing can be performed. (Under current Iowa law, the patient has the right to refuse testing.)

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- D. When testing the source, his/her physician/dentist approaches the patient to gain consent for appropriate tests and to sign the appropriate forms.
 - 1. If one of the physicians caring for the patient is the person exposed, this person should NOT ask for permission to test the source patient. Another physician on the team should ask the patient for permission to do the testing.
- E. Results of source testing are kept confidential and are shared with the source by the primary care physician/dentist.

IV. Employee/Staff/Volunteers

- A. After appointment is scheduled, report to UEHC for counseling, gathering of information from the source and employee, treatment and documentation.
- B. Information obtained includes risk factors, immunizations and titers, medications, and health problems.
- C. Post exposure prophylaxis (PEP) is initiated, if deemed necessary. Appropriate lab work is also drawn.
- D. Follow-up appointments are scheduled per protocol.
- E. Confidentiality issues concerning disclosure of source results and the maintenance of medical records are discussed.

**APPENDIX D
BIOHAZARD SYMBOL**



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APPENDIX E DEFINITIONS

Blood--human blood, human blood components and products made from human blood.

Bloodborne pathogens--pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Clinical Laboratory--a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

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

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

Contaminated Sharps--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 wires.

Decontamination--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.

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

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

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

HBV--hepatitis B virus.

HIV--human immunodeficiency virus.

Licensed Healthcare Professional--a person whose legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

Needleless Systems--means a device that does not use needles for: (1) The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established; (2) The administration of medication or fluids; or (3) Any other procedure involving the potential for

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occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

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

Other Potentially Infectious Materials (OPIM)--(1) the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, and any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs or other tissues from experimental animals infected with HIV or HBV.

Parenteral--piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Personal Protective Equipment (PPE)--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 hazard are not considered to be personal protective equipment.

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

Regulated Waste--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.

Research Laboratory--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 volume found in production facilities.

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

Source Individual--any 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

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and nursing homes; human remains; and individuals who donate or sell blood or blood components.

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

Universal Precautions (UP)--an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

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

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APPENDIX F

SUPERVISOR CHECKLIST FOR USE OF HUMAN BLOOD OR OTHER POTENTIALLY INFECTIOUS MATERIALS

Using this checklist ensures that proper procedures have been followed before beginning any work with human blood or other potentially infectious materials. (*Section number in parentheses refers to the section of the Exposure Control Plan*).

Exposure Determination (*Section 1*)

- Employer has performed an exposure determination concerning employees who may incur occupational exposure to blood or OPIM.

Medical Surveillance (*Section 2*)

- All affected personnel have either received Hepatitis B vaccinations or been offered the vaccination and there is a completed Hepatitis B Vaccination survey on record at the University Employee Health Clinic (UEHC).
(Hepatitis B vaccination surveys are completed online, through ReadySet.)
- Procedures for responding to an exposure incident are in place.
Post exposure evaluation is done through UEHC (dial STICK (1-319-467-8425)), a Bloodborne Pathogens Incident Investigation Report is completed via workflow and a State of Iowa Employers Work Injury Report is completed and all incidents evaluated to prevent repeat occurrences.

Training and Information (*see Section 2*)

- All affected personnel have taken the Bloodborne Pathogens Exposure Control Training annually.
- All new affected personnel receive Bloodborne Pathogens Exposure Control Training prior to their first assignment involving potential exposure.
- All affected personnel have received training on work site specific practices.
- Records are kept documenting all training.
- Biohazard warning labels and door signs are affixed to doors, refrigerators and freezers. Signs are provided by EHS, phone number 5-8501.

Safe Work Practices (*see Section 2*)

- All affected employees are required to practice Universal Precautions.
- Appropriate personal protective equipment is provided at no cost to personnel.
- Hand washing and eyewash facilities are provided.
- Alternative safe sharps devices are used wherever it will reduce personnel exposure, either by removing, eliminating or isolating the hazard, regardless of cost.
- Evaluations of alternative safer sharps devices are documented annually in writing.

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APPENDIX G

Biosafety Level 2 (BSL-2) Criteria from Biosafety in Microbiological and Biomedical Laboratories (BMBL), 6th Edition

Biosafety Level 2 (BSL-2) builds upon BSL-1. BSL-2 is suitable for work with agents associated with human disease and pose moderate hazards to personnel and the environment. BSL-2 differs from BSL-1 primarily because: 1) laboratory personnel receive specific training in handling pathogenic agents and are supervised by scientists competent in handling infectious agents and associated procedures; 2) access to the laboratory is restricted when work is being conducted; and 3) all procedures in which infectious aerosols or splashes may be created are conducted in BSCs or other physical containment equipment.

The following standard and special practices, safety equipment, and facility specifications are recommended for BSL-2.

A. *Standard Microbiological Practices*

1. The laboratory supervisor enforces the institutional policies that control safety in and access to the laboratory.
2. The laboratory supervisor ensures that laboratory personnel receive appropriate training regarding their duties, potential hazards, manipulations of infectious agents, necessary precautions to minimize exposures, and hazard/exposure evaluation procedures (e.g., physical hazards, splashes, aerosolization) and that appropriate records are maintained.
3. Personnel receive annual updates and additional training when equipment, procedures, or policies change. All persons entering the facility are advised of the potential hazards, are instructed on the appropriate safeguards, and read and follow instructions on practices and procedures. An institutional policy regarding visitor training, occupational health requirements, and safety communication is considered. Personal health status may affect an individual's susceptibility to infection and ability to receive available immunizations or prophylactic interventions. Therefore, all personnel, and particularly those of reproductive age and/or those having conditions that may predispose them to increased risk for infection (e.g., organ transplant, medical immunosuppressive agents), are provided information regarding immune competence and susceptibility to infectious agents. Individuals having such conditions are encouraged to self-identify to the institution's healthcare provider for appropriate counseling and guidance.
4. A safety manual specific to the facility is prepared or adopted in consultation with the facility director and appropriate safety professionals. The safety manual is available, accessible, and periodically reviewed and updated as necessary.
 - a. The safety manual contains sufficient information to describe the biosafety and containment procedures for the organisms and biological materials in use, appropriate agent-specific decontamination methods, and the work performed.
 - b. The safety manual contains or references protocols for emergency situations, including exposures, medical emergencies, facility malfunctions, and other potential emergencies. Training in emergency response procedures is provided to emergency response personnel and other responsible staff according to institutional policies.
5. A sign incorporating the universal biohazard symbol is posted at the entrance to the laboratory when infectious materials are present. Posted information includes: the laboratory's Biosafety Level, the supervisor's or other responsible personnel's name and telephone number, PPE requirements, general

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- occupational health requirements (e.g., immunizations, respiratory protection), and required procedures for entering and exiting the laboratory. Agent information is posted in accordance with the institutional policy.
6. Long hair is restrained so that it cannot contact hands, specimens, containers, or equipment.
 7. Gloves are worn to protect hands from exposure to hazardous materials.
 - a. Glove selection is based on an appropriate risk assessment.
 - b. Gloves are not worn outside the laboratory.
 - c. Change gloves when contaminated, glove integrity is compromised, or when otherwise necessary.
 - d. Do not wash or reuse disposable gloves, and dispose of used gloves with other contaminated laboratory waste.
 8. Gloves and other PPE are removed in a manner that minimizes personal contamination and transfer of infectious materials outside of the areas where infectious materials and/or animals are housed or manipulated.
 9. Persons wash their hands after working with potentially hazardous materials and before leaving the laboratory.
 10. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption are not permitted in laboratory areas. Food is stored outside the laboratory area.
 11. Mouth pipetting is prohibited. Mechanical pipetting devices are used.
 12. Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware are developed, implemented, and followed; policies are consistent with applicable state, federal, and local requirements. Whenever practical, laboratory supervisors adopt improved engineering and work practice controls that reduce risk of sharps injuries. Precautions are always taken with sharp items. These include:
 - a. Plasticware is substituted for glassware whenever possible.
 - b. Use of needles and syringes or other sharp instruments is limited in the laboratory and is restricted to situations where there is no alternative (e.g., parenteral injection, blood collection, or aspiration of fluids from laboratory animals or diaphragm bottles). Active or passive needle-based safety devices are to be used whenever possible.
 - i. Uncapping of needles is performed in such a manner to reduce the potential for recoil causing an accidental needlestick.
 - ii. Needles are not bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.
 - iii. If absolutely necessary to remove a needle from a syringe (e.g., to prevent lysing blood cells) or recap a needle (e.g., loading syringes in one room and injecting animals in another), a hands-free device or comparable safety procedure must be used (e.g., a needle remover on a sharps container, the use of forceps to hold the cap when recapping a needle).
 - iv. Used, disposable needles and syringes are carefully placed in puncture-resistant containers used for sharps disposal immediately after use. The sharps disposal container is located as close to the point of use as possible.
 - c. Non-disposable sharps are placed in a hard-walled container for transport to a processing area for decontamination, preferably by autoclaving.
 - d. Broken glassware is not handled directly. Instead, it is removed using a brush and dustpan, tongs, or forceps.
 13. Perform all procedures to minimize the creation of splashes and/or aerosols.
 14. Decontaminate work surfaces after completion of work and after any spill or splash of potentially infectious material with appropriate disinfectant. Spills involving infectious materials are contained, decontaminated,

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and cleaned up by staff who are properly trained and equipped to work with infectious material. A spill procedure is developed and posted within the laboratory.

15. Decontaminate all cultures, stocks, and other potentially infectious materials before disposal using an effective method, consistent with applicable institutional, local, and state requirements. Depending on where the decontamination will be performed, the following methods are used prior to transport:
 - a. Materials to be decontaminated outside of the immediate laboratory are placed in a durable, leak-proof container and secured for transport. For infectious materials, the outer surface of the container is disinfected prior to moving materials and the transport container has a universal biohazard label.
 - b. Materials to be removed from the facility for decontamination are packed in accordance with applicable local, state, and federal regulations.
16. An effective integrated pest management program is implemented.
17. Animals and plants not associated with the work being performed are not permitted in the laboratory

B. Special Practices

1. Access to the laboratory is controlled when work is being conducted.
2. The laboratory supervisor is responsible for ensuring that laboratory personnel demonstrate proficiency in standard microbiological practices and techniques for working with agents requiring BSL-2 containment.
3. Laboratory personnel are provided medical surveillance, as appropriate, and offered available immunizations for agents handled or potentially present in the laboratory.
4. Properly maintained BSCs or other physical containment devices are used, when possible, whenever:
 - a. Procedures with a potential for creating infectious aerosols or splashes are conducted. These include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.
 - b. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory using sealed rotors or centrifuge safety cups with loading and unloading of the rotors and centrifuge safety cups in the BSC or another containment device.
 - c. If it is not possible to perform a procedure within a BSC or other physical containment device, a combination of appropriate personal protective equipment and administrative controls are used, based on a risk assessment.
5. Laboratory equipment is decontaminated routinely; after spills, splashes, or other potential contamination; and before repair, maintenance, or removal from the laboratory.
6. A method for decontaminating all laboratory waste is available (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).
7. Incidents that may result in exposure to infectious materials are immediately evaluated per institutional policies. All such incidents are reported to the laboratory supervisor and any other personnel designated by the institution. Appropriate records are maintained.

C. Safety Equipment (Primary Barriers and Personal Protective Equipment)

1. Protective laboratory coats, gowns, or uniforms designated for laboratory use are worn while working with hazardous materials and removed before leaving for non-laboratory areas (e.g., cafeteria, library, and administrative offices). Protective clothing is disposed of appropriately or deposited for laundering by the institution. Laboratory clothing is not taken home.

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2. Eye protection and face protection (e.g., safety glasses, goggles, mask, face shield or other splatter guard) are used for manipulations or activities that may result in splashes or sprays of infectious or other hazardous materials. Eye protection and face protection are disposed of with other contaminated laboratory waste or decontaminated after use.
3. The risk assessment considers whether respiratory protection is needed for the work with hazardous materials. If needed, relevant staff are enrolled in a properly constituted respiratory protection program.
4. In circumstances where research animals are present in the laboratory, the risk assessment considers appropriate eye, face, and respiratory protection, as well as potential animal allergens.

D. Laboratory Facilities (Secondary Barriers)

1. Laboratory doors are self-closing and have locks in accordance with the institutional policies.
 2. Laboratories have a sink for handwashing. It should be located near the exit door.
 3. An eyewash station is readily available in the laboratory.
 4. The laboratory is designed so that it can be easily cleaned.
 - a. Carpets and rugs in laboratories are not appropriate.
 - b. Spaces between benches, cabinets, and equipment are accessible for cleaning.
 5. Laboratory furniture can support anticipated loads and uses.
 - a. Benchtops are impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.
 - b. Chairs used in laboratory work are covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.
 6. Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, they are fitted with screens. Illumination is adequate for all activities and avoids reflections and glare that could impede vision.
 7. Vacuum lines in use are protected with liquid disinfectant traps and in-line HEPA filters or their equivalent. Filters are replaced, as needed, or are on a replacement schedule determined by a risk assessment.
 8. There are no specific requirements for ventilation systems. However, the planning of new facilities considers mechanical ventilation systems that provide an inward flow of air without recirculation to spaces outside of the laboratory.
 9. BSCs and other primary containment barrier systems are installed and operated in a manner to ensure their effectiveness.
 - a. BSCs are installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs are located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.
 - b. BSCs can be connected to the laboratory exhaust system by either canopy connection (Class IIA only) or directly exhausted to the outside through a hard connection (Class IIB, IIC, or III). Class IIA or IIC BSC exhaust can be safely recirculated back into the laboratory environment if no volatile toxic chemicals are used in the cabinet.
 - c. BSCs are certified at least annually to ensure correct performance.

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APPENDIX H

SCHEDULE FOR CLEANING AND DECONTAMINATION

Under the Bloodborne Standard, each work area must be kept clean and sanitary and a cleaning schedule implemented. This written schedule must address locations within the facility, types of surfaces to be cleaned, and tasks or procedures to be performed.

Facility area, surface or equipment	Frequency	Disinfectant used	Procedure for decontaminating equipment/surfaces
Example: Workbench	<i>Daily and after spills, or when contaminated</i>	<i>10 % bleach</i>	Using disposal wipes, wipe bench tops with a solution of 10% bleach.
Ex: Faceshield	Daily and when visibly contaminated	10 % bleach	Using disposal wipes, wipe face-shield with a solution of 10% bleach.

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APPENDIX I

RESOURCES

University of Iowa

[University of Iowa Biosafety Manual](#)

[University of Iowa Biohazard Waste Guide](#)

[University of Iowa UEHC Hepatitis B Vaccination Survey, Instructions for Completion](#)

Regulations

Needlestick Safety and Prevention Act (H.R.5178). Public Law 106-430 - Signed 11/6/2000:

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=106_cong_bills&docid=f:h5178enr.txt.pdf

OSHA. Bloodborne Pathogens Website

<http://www.osha.gov/SLTC/bloodbornepathogens/index.html>

OSHA. Occupational Exposure to Bloodborne Pathogens; Needlestick and Other Sharps Injuries; Final Rule

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=16265&p_table=FEDERAL_REGISTER

Bloodborne Disease Information

Information about HIV/AIDS:

<http://www.cdc.gov/hiv/>

Information about Hepatitis B:

<https://www.cdc.gov/hepatitis/hbv/>

Information about Hepatitis C:

<https://www.cdc.gov/hepatitis/hcv/>

Information on Latex Allergies:

<http://www.cdc.gov/niosh/latexalt.html>

Safer Sharps Devices Information

OSHA booklet on How to Prevent Needlestick Injuries:

<https://www.osha.gov/SLTC/etools/hospital/hazards/sharps/sharps.html>

Preventing Needlestick Injuries in Health Care Settings (National Institute of Occupational Safety and Health Alert):

<http://www.cdc.gov/niosh/docs/2000-108>

Biochem Stores:

<http://www.medicine.uiowa.edu/biochemstores/>

UIHC Processed Stores: Safety Medical Devices List:

<https://uihc.org/material-services-processed-stores>