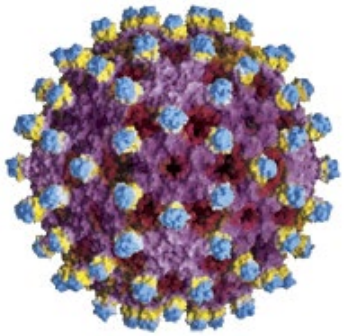
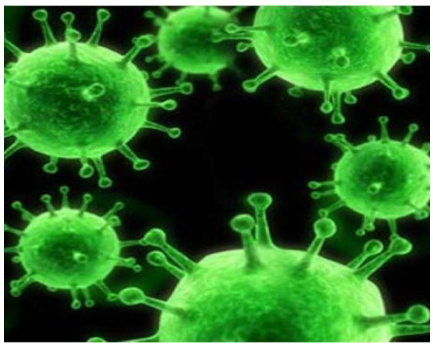
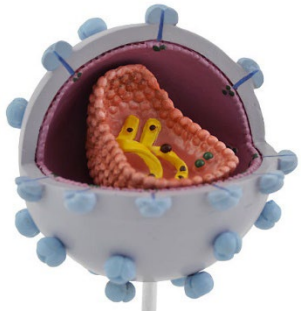
EXPOSURE CONTROL PLAN



Revision 08.2024

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Contents

Policy

A. Purpose

The University of Utah is committed to reducing the risks to individuals who have occupational exposure to Bloodborne Pathogens (BBP) and Other Potentially Infectious Material (OPIM). As defined in the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard 29 CFR 1910.1030, BBP are pathogenic organisms that are present in human blood and can cause disease in humans, including, but not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). OPIM are human bodily fluids (including cerebrospinal, synovial, pleural, pericardial, peritoneal, and amniotic fluids, and semen, vaginal secretions, saliva during dental procedures, and any body fluid visibly contaminated with blood), unfixed human tissue or organ (other than skin), and HIV or HBV-containing biological materials (for example, blood and tissues from experimental animals infected with HIV, HBV or other bloodborne pathogens or cell lines or tissue cultures containing HIV or HBV). Please see 29 CFR 1910.1030, for additional definitions.

This University of Utah Exposure Control Plan (ECP) includes an exposure determination for University employees and students, practices and procedures for minimizing risk of exposure, and appropriate post-exposure procedures and recordkeeping. This Exposure Control Plan will be reviewed and updated annually by the University of Utah Biosafety Officer.

While this document serves as the Campus-wide Exposure Control Plan (ECP) for the University of Utah, the Office of Environmental Health and Safety (EHS) has developed ECP templates that can be adapted and customized for individual laboratories or other settings or facilities. These templates can be found in the Safety Administrative Management (SAM) system (go to the 'Documents Library' and then select 'View Template' on the upper right).

B. Scope

This plan applies to all University of Utah research (including clinical research), academic, and other non-clinical activities performed on the Academic Campus, at the University Hospital and School of Medicine, the Huntsman Cancer Institute, or at off-campus facilities where there is the potential for exposure to BBP, blood or OPIM, performed by students, part-, and full-time employees. Exposures can occur through needlesticks, direct contact with non-intact skin, or splashes to the eyes, mouth, and nose. The University of Utah Health Care System has developed their own ECP for Hospital and Clinic employees for clinical work which can be accessed through Pulse.

At the University of Utah, we consider all work with human and non-human primate cell lines to be applicable to this standard, due to the potential presence of infectious materials (see SOP for Working with Human Samples and Cells). Based on these requirements, the IBC and Office of Comparative Medicine have established policies for the injection of human cells and tissues into animals (see Guidelines for PIs Injecting Human Cells and Tissues into Animals). **Important note: All** research use of human source materials, including well-established human cell lines and clinical samples, must be registered with the University of Utah

Institutional Biosafety Committee (IBC) (see https://ibc.utah.edu/ or contact the Biosafety Office at 801-581-6590 or biosafety@ehs.utah.edu).

C. Roles and Responsibilities

1. Office of Environmental Health and Safety (EHS):

The responsibilities of EHS include, but may not be limited to, the following:

- Designate the Biological Safety Officer (BSO) as the individual to oversee the University of Utah Exposure Control Plan.
- Develop, implement, evaluate, and periodically update the Exposure Control Plan for the University.
- Assist departments with hazard assessments to determine jobs or tasks where exposure to blood or OPIM is possible.
- Promote practices, procedures, and methods that conform to the concept of Universal Precautions.
- Ensure that employees/students with potential exposure to bloodborne pathogens observe Universal Precautions.
- Determine, in conjunction with the affected investigator/department, applicable engineering controls, safe work practices, housekeeping methods, and personal protective equipment (PPE) to prevent blood and/or OPIM exposure to campus community members.
- Assist investigators/departments with bloodborne pathogens and exposure control issues, upon request.
- Provide guidance and technical assistance to laboratories engaged in HIV and HBV research.
- Assist departments in the identification of employees/students that have potential exposures to bloodborne pathogens.
- Create training opportunities as deemed necessary and appropriate for each affected department.
- Ensure that individual investigators are compiling and maintaining (for a minimum of three years) all training records relative to the Exposure Control Plan. Records are also maintained by EHS.
- Coordinate the proper management and disposal of regulated waste; appropriate disposal bags and containers can be obtained from EHS through the Safety Administrative Management (SAM) system or can be procured by each department/facility/laboratory.
- Assist departments in communicating the Exposure Control Plan to third-party vendors who perform tasks on campus that potentially implicate exposure control issues, upon request.
- Conduct periodic inspections of University of Utah facilities to ensure compliance with the Exposure Control Plan.
- Review and recommend purchases of biological safety cabinets and other related safety equipment.
- Advise in the disinfection of facilities and equipment.
- Serve as university liaison to regulatory authorities.
- Provide a means for suggestions, complaints, and concerns regarding the Exposure Control Plan. These can be sent directly to the Biosafety office by telephone at 801-581-6590 or by e-mail at biosafety@ehs.utah.edu.

2. Principal Investigators and/or Supervisors:

Supervisors (including Principal Investigators) have a key role in the successful development, implementation and monitoring of the University of Utah Exposure Control Plan. Supervisors support and respect each employee's right to a safe working environment. The responsibilities of each supervisor include, but may not be limited to, the following:

- Ensure full compliance with the OSHA Bloodborne Pathogen Standard in the facility under their direction, as well as to other local, state and federal regulations that apply to their work environment, including the Exposure Control Plan.
- Principal Investigators of research laboratories must register their work with the Institutional Biosafety Committee (IBC). Registration for laboratory-based research is conducted using an online system, SciShield (formally called BioRaft). However, investigators conducting research involving the introduction of recombinant nucleic acid molecules or biohazards into human subjects will need to register their work with the IBC through ERICA, a web-based platform used by the University to ensure compliance with Human Subject Research Participant Protection regulations.
- Clearly identify the use of blood, products made from human blood, plasma, products made from plasma, human or non-human primate cell lines or OPIM when registering or amending a protocol with the IBC.
- Conduct a risk assessment to identify potentially hazardous procedures involving blood or OPIM, develop facility-specific Standard Operating Procedures (SOPs), instruct and train all personnel and students working in the lab on safe work practices, keep the lab space clean and up-to-date, and follow regulations for disposal of infectious waste.
- Provide all personnel with a potential exposure to blood or OPIM (at the time of job assignment) access to this document which must be reviewed and documented at least annually. Provide training records relative to the Exposure Control Plan, annually. Training documentation can be uploaded into the Safety Administrative Management (SAM) system.
- Ensure all affected personnel undertake initial (at the time of job assignment) and annual refresher bloodborne pathogen training.
- Ensure that universal precautions are understood and executed by employees/students with possible exposure to bloodborne pathogens.
- Promote practices, procedures, and methods that conform to the concept of universal precautions.
- Design and implement engineering controls and institute work-practice control procedures that will eliminate or minimize potential exposure to blood and OPIM.
- Provide appropriate PPE to employees/students that have potential exposure to bloodborne pathogens. Reusable PPE must be laundered at no cost to the employee.
- Ensure that employees wear PPE at all times when in the laboratory and remove PPE when leaving the lab.
- Maintain a clean and sanitary workplace environment.
- Post the universal biohazard symbol and appropriate Biological Safety Level (BSL) at the entrance of research laboratories. The facility BSL is set by the IBC.

- Post a laboratory warning sign with the universal biohazard symbol and appropriate Biological Safety Level (BSL) at the entrance of research laboratories. This sign must also have at least two, current emergency contacts and the agents/materials used in the lab. Work with human blood or OPIM must be performed using Biosafety Level 2 (BSL-2) practices; human samples obtained from patients with a known infectious disease may require additional containment and practices. Contact the Biosafety Office at 801-581-6590 or biosafety@ehs.utah.edu for help obtaining a sign.
- Develop and implement cleaning schedules as deemed appropriate for the types of activities and facilities involved.
- Comply with additional criteria established for HIV and HBV laboratories.
- Make confidential medical evaluation and follow-up immediately available to an exposed individual, following an exposure incident.
- Report exposure incidents to the Biological Safety Officer (801-581-6590).
- Encourage employees to report any changes in their health status.
- Maintain needlestick logs (**Appendix C**) and provide copies to EHS upon request.
- Perform an annual Safer Sharps Alternative Review (**Appendix D**).
- Affix appropriate labels to containers of regulated waste, refrigerators, freezers, and other equipment containing blood or OPIM, and other containers of blood or potentially infectious materials.
- Ensure waste is labeled and disposed of properly.
- Provide, at no cost to the employee, all supplies, PPE, and controls that are necessary for compliance with the Exposure Control Plan. Vaccinations, including those for Hepatitis B virus and any determined necessary by the IBC, will be provided at no cost by the University of Utah.
- Conduct periodic surveillance of activities within their respective areas to ensure compliance with the Exposure Control Plan.
- Comply with shipping requirements for blood or OPIM.

3. Employees and Students:

All employees and students have a basic right to a workplace that is free of recognized hazards that may cause injury or illness. With respect to bloodborne pathogens, individuals have the right to information and training for controlling exposures to bloodborne pathogens, the availability of vaccination for hepatitis B, and post-exposure medical care and post-exposure consultation.

Responsibilities of employees and students include, but may not be limited to, the following:

- Read, understand, and comply with the requirements of the University of Utah and facility-specific Exposure Control Plans.
- Adhere to the established policies, Standard Operating Procedures (SOPs) and guidelines for biological safety, as trained, and following the supervisor's instructions.
- Notify supervisor and EHS if job tasks and responsibilities present occupational exposure concerns that have not been previously identified.
- Alert others in the work area, before work begins, of activities that may expose themselves or others to

bloodborne pathogens or OPIM.

- Follow universal precautions when handling blood or OPIM.
- Follow established work practice controls to eliminate or minimize occupational exposure.
- Be aware of engineering controls in the work place and the proper use of those controls.
- Be aware of the proper use, limitations, and location of PPE.
- Use appropriate work practice and engineering controls and PPE to eliminate or minimize exposure. Wear PPE at all times when in the laboratory and remove PPE when leaving the lab.
- Be aware of and observe established housekeeping procedures (e.g., use mechanical devices to clean up broken glass and not bare hands).
- Maintain work area in a clean and sanitary manner.
- Understand the additional requirements and protection for personnel working with HIV or HBV and follow established procedures.
- Attend initial and annual refresher biosafety and bloodborne pathogens training.
- After receiving initial EHS BBP training, you must register in the Hepatitis B virus vaccination program in Open Range, administered by Occupational Medicine. If you have not previously registered in the system (and have a paper record of vaccination status), during annual training you will receive information on how to register in Open Range and how to obtain vaccination, an antibody titer, or decline vaccination.
- Inform your immediate supervisor of any unsafe practices or conditions in the work area. Reports of unsafe practices can also be reported to EHS (https://oehs.utah.edu/resource-center/forms/hazard-report). Concerns over research misconduct or misbehavior can be reported anonymously at www.ethicspoint.com.
- Report any change in health status to your supervisor if there is a possibility it may be work related.
- Make certain that labels are appropriately affixed. Ensure waste is labeled with the words "Biohazardous Waste" and the universal biohazard symbol; dispose of waste properly.
- Notify supervisor to report labeling problems.
- Comply with all applicable requirements established in the OSHA Bloodborne Pathogens Standard and this Exposure Control Plan.

4. Institutional Biosafety Committee (IBC):

The IBC is authorized by the Vice President for Research to formulate policy and procedures related to the use of biohazardous agents, including: human pathogens, oncogenic viruses, other infectious agents, human gene transfer, and recombinant or synthetic nucleic acid molecules (rsNA), as well as samples that may harbor pathogenic organisms, such as human blood or OPIM, and acute biological toxins.

The IBC will:

- For work with blood or OPIM not known to harbor infectious agents, conduct an administrative review by the IBC Chair, Vice Chair, Director and /or Administrator. Approval at BSL-2 will be granted for up to 5 years.

- For work with blood or tissue known to harbor infectious agents, or work with the pathogenic organism themselves (such as HBV, HIV or SARS-CoV-2), conduct a full review by the convened IBC. Approval will be granted for up to 3 years.
- Set containment levels in accordance with NIH and Centers for Disease Control and Prevention (CDC) guidelines, and adopt emergency plans and procedures covering accidental spills and personnel contamination.
- Determine the necessity for health surveillance and prophylaxis for research projects.

5. Occupational Medicine:

The University of Utah Health Occupational Medicine Clinics offer services that treat work related injuries as well as preventive work physicals. In relation to the Bloodborne Pathogens Standard, Occupational Medicine offers Hepatitis B virus vaccination at their RedMed Clinic. The Hepatitis B virus vaccination program uses a system based in Open Range to track vaccinations, titer checks and vaccination declinations.

6. College Safety Committees and Reporting:

All colleges must establish, support, and maintain active safety committees. Detailed requirements for Safety Committees and their Roles and Responsibilities can be found here.

The primary functions and responsibilities of college safety committees are to:

- Assist the Dean/Director in fulfilling college/department-level health and safetyresponsibilities.
- Provide peer-to-peer safety consultation and review of existing or proposed operations regarding health and safety and compliance with University policies.
- Serve as the primary point-of-contact/liaison with Environmental Health and Safety to facilitate implementation of campus-wide health and safety requirements at the college/department level.
- Serve as primary contact for campus Emergency Management.
- Meet routinely, e.g., quarterly or monthly.
- Provide a local mechanism for faculty, staff, and students to raise health and safety issues and concerns.

Exposure Determination

As an R1 research institution, much of the clinical and basic research at the University involves occupational exposure to BBP or OPIM (reasonably anticipated skin, eye, mucous membrane, or parenteral contact resulting from job duties). Additionally, there are other diverse activities on campus that can result in occupational exposure, such as the use of clinical/research specimens in laboratory classes, the cleanup of blood or OPIM in any of our campus facilities, or administering first aid.

Job Classification I: All employees have occupational exposure. These are employees involved in clinical or basic research that utilizes human source material. Some of their job tasks include:

- Handling human blood, components, or products
- Handling human-derived materials that may be contaminated with blood

- Handling unfixed human organs or tissues
- Culturing primary human cells or cultures known to contain HIV, HBV, or other bloodborne pathogen
- Culturing established human cell lines
- Handling OPIM
- Note: All research at the U on HIV and HBV is limited to standard research quantities (i.e., there is no HIV and HBV work at production scale).

Job Classification II: Some employees have occupational exposure. These are employees who may, or may not, come into contact with human source material during the performance of their job duties. These are employees involved in maintaining the facilities in clean and working order and employees with direct interactions with other people. Some job tasks that may lead to occupational exposure include:

- Cleaning up spills of blood or body fluids from unknown sources. For some jobs and activities, such as custodians, athletic trainers, housing staff, etc., the most likely exposure to blood or OPIM will arise from cleaning spilled blood or body fluids. Clean-up procedures specific to these activities are described in **Appendix A.**
- Administering first aid or interacting with a person who is injured.

This exposure determination should cover most, if not all, University of Utah employees that may experience an occupational exposure. However, for any job tasks not adequately predicted by this exposure determination, the parent facility/department/laboratory may utilize our ECP template to create a plan that works best for them. Laboratory and non-laboratory ECP templates can be found in the Safety Administrative Management (SAM) system (go to the 'Documents Library' and then select 'View Template' on the upper right).

Methods to Reduce Risk of Exposure

A. Universal Precautions

Universal Precautions assumes that **all** blood, body fluids, tissues, and OPIM are infectious, and employees/students should handle them accordingly. Because no test method can offer complete assurance of the absence of all bloodborne pathogens, Universal Precautions must always be observed when handling blood and OPIM collected from any source.

B. General Laboratory Practices, including Engineering and Work Practice Controls

Detailed laboratory practices for work at BSL-2 are described in the University of Utah Biosafety Manual.

1. Eating, drinking, chewing gum, smoking, applying cosmetics and contact lenses, or storage of foods is not permitted in the laboratory.
2. Personnel must wear PPE appropriate for their work*, such as that described in their laboratory Biosafety Manual, and it must be provided in the appropriate sizes at no-charge by their supervisor (including Principal Investigators).

- At a minimum, they must wear a lab coat, gloves and safety glasses, in conjunction with long pants and solid, closed shoes.
- No skirts, shorts, or sandals are to be worn in lab.
- Hypoallergenic gloves must be provided for employees with allergies to standard gloves.
- Replace gloves as soon as possible after becoming contaminated, torn, punctured, or otherwise compromised.
- PPE must be removed after it becomes contaminated and before leaving the work area.
- Disposable gloves may not be washed or decontaminated for re-use.
- PPE, including lab coats and gloves, must not be worn in public areas such as the bathrooms, elevators, break rooms or general office areas.
- All disposable PPE must be discarded in biohazard waste containers and all biohazardous waste policies must be followed.
- * The only exception to the use of PPE is under rare and relatively limited circumstances when the employee's professional judgement determines PPE would prevent the proper delivery of health care or public safety services or would create a greater hazard to their or their co-worker's personal safety. In those situations, the employees must not ignore the underlying concept of Universal Precautions nor should they decline to use PPE simply because it is not practical to use. If this exception is enacted, it must be investigated and documented to determine if it can be avoided in the future.

3. If a risk assessment determines respiratory protection is needed (e.g., N95, half-mask, full-face respirators), a written respiratory protection plan is required. Completion of a respirator medical evaluation (i.e., medical clearance) and respirator fit test are required for those who wear a respirator. Contact EHS for risk assessment or program assistance (questions@ehs.utah.edu or 801-581-6590). Contact Occupational Health (occupational.health@hsc.utah.edu) for assistance with respirator medical clearance and fit testing.

4. Perform procedures in a manner that minimizes splashing, spraying, splattering, and generation of droplets and aerosols. Aerosols may be generated during the use of centrifuges, blenders, shakers, magnetic stirrers, sonicators, serological pipets, pipettors, vortex mixers, syringes and needles, freeze-dried samples, vacuum-sealed samples, mortar and pestles, culture tubes, inoculating loops, and separatory funnels.

- Perform activities in a biological safety cabinet (BSC). A chemical fume hood can also be used for personnel protection, but does not protect the sample from contamination.
- In extenuating circumstances when a biological safety cabinet or fume hood cannot be used, the researcher must wear a mask and/or face shield in combination with safety googles or glasses with side protection. A splash guard can also be used.
- Perform centrifugation using centrifuge safety caps or sealed rotors: these should be loaded and unloaded in the BSC.
- Keep tubes closed when vortexing or centrifuging.
- Allow aerosols to settle prior to opening centrifuges, blenders, or mixed tubes.
- When reconstituting or diluting contents of an ampoule, do so slowly and carefully.

- Mix solutions by discharging the secondary fluid down the side of the container, as close as possible to the surface of the primary solution.
- Do not mix fluids by bubbling air through it with a pipet.
- Do not forcibly discharge fluid from pipets.
- Allow inoculating loops to cool before touching biological specimens.

5. Mouth pipetting is not permitted.

6. The use of syringes and needles, glass Pasteur pipettes, and other sharps such as scalpels, razors, and suture needles should be minimized and only used if there is no feasible alternative. Replace glass with plastic whenever possible.

- Needles should not be recapped, bent, broken or removed from disposable syringes.
- Used sharps and contaminated broken glassware, pipets and pipet tips must be disposed into sharps containers as soon as possible.
- The sharps containers shall be labeled with the universal biohazard symbol (see Section F), and shall be puncture-resistant, leak-proof, and closable for transport.
- EHS has developed Fact Sheets on "Sharps Protection for Researchers" and "Examples of Sharps Protection."
- Each year, a review of safer sharps devices must be conducted (see **Appendix D**).

7. Personnel must wash their hands and wrists with soap and water for a minimum of 20 seconds after handling infectious material, removal of gloves, and before leaving the laboratory. A sink for handwashing must be readily accessible.

8. Control the biohazard area. Keep laboratory doors and windows closed while work is in progress. Post a warning sign, such as the universal biohazard symbol (see Section F), when blood or OPIM is present in the area. Limit access to the laboratory during procedures involving blood or OPIM. Make sure doors to laboratory are secured and locked at the end of each day.

9. Specimens are to be placed in containers that prevent leaking during collection, handling, processing, and storage.

10. Specimens and other materials to be transported between work sites must be placed in a secondary container that is leak-proof and labeled with the universal biohazard symbol (see Section F). Containers for shipping specimens must meet the Department of Transportation and United States Postal Service requirements. Shipping of Category B biological materials and items requiring dry ice must only be performed by personnel trained by EHS. Category A biological materials must be shipped by EHS personnel. International shipping may require permits or authorization from the United States Department of Agriculture or Centers for Disease Control. Contact EHS for more information.

11. Pets are not allowed in the laboratory: ADA service animals may be accommodated with Office of Equal Opportunity (OEO) approval.

12. Equipment used to store or handle blood and OPIM shall be labeled with the universal biohazard symbol (see Section F). It must be cleaned and decontaminated after use and before being serviced, repaired, or transported from the work area. Any parts of the

equipment that cannot be decontaminated should be labeled with the biohazard symbol and the information communicated to all affected people.

13. BSCs must be certified annually. Before decommissioning or moving, BSCs must be decontaminated by an NSF-certified technician. Contact biosafety@ehs.utah.edu for assistance with these services.

14. Work areas must be disinfected regularly and kept clean.

- Bench tops, counters, and all other equipment used to work with blood and OPIM must be disinfected after completing activities, at the end of the work day, when work surfaces are overtly contaminated, or after any spill. A commonly used disinfectant is a freshly prepared 1:10 dilution of household bleach. Other suitable EPA-registered disinfectants are shown in the table below.
- Work surfaces and equipment may be covered to prevent contamination with infectious materials. Protective coverings should be removed and replaced at the end of the work, after a spill, or when they are overtly contaminated. Coverings must be discarded as biological waste.
- A schedule to clean floors, sinks, and equipment must be established.

Chemical Disinfectants		
Disinfectant	**Working Solution**	**General Use**
Bleach (Sodium Hypochlorite)	1:10 dilution of commercial bleach solution (0.5% sodium hypochlorite). Should be freshly prepared.	Disinfects work areas, floors, walls, glassware. Good general all around disinfectant. Disinfects liquid cultures for disposal.
Quaternary Ammonia (Commercial Grade)	10-100 ppm	Disinfects floors, work surfaces, glassware.
Phenolics (Commercial Grade)	2.8-3.0% Active Ingredient	Disinfects instruments and work surfaces.
Glutaraldehyde	2-3%	Disinfects instruments, including endoscopic tubes.
Iodophor	75-150 ppm	Disinfects instruments and surfaces, non-corrosive.

C. Additional Requirements for HIV and HBV Research Laboratories

1. During work, entry into the lab is limited to authorized persons, according to the lab's biosafety manual.

2. All work must be performed in a BSC.

3. All vacuum lines must be protected with liquid disinfectant traps with a HEPA filter.

4. In addition to a sink, the laboratory must include an eye wash.

5. An autoclave must be available for sterilizing waste.

D. Training & Training Records

1. General Bloodborne Pathogens Training

General Bloodborne Pathogens Training will be provided to all University employees with a potential exposure to BBP or OPIM. It is provided at no cost to the employee and conducted during their normal working hours. This training is provided at the time of initial assignment and annually thereafter. The training will include information on the hepatitis B vaccine and how to obtain it (see Section E, below).

Employees with access to Bridge sign up for BBP training in Bridge. There are three distinct BBP trainings available, and the employee should choose the one most appropriate for their job tasks:
BBP only: https://utah.bridgeapp.com/learner/training/3f3224a3/enroll
BBP and BSL2: https://utah.bridgeapp.com/learner/training/53cf8061/enroll
BBP, BSL2, and Viral Vectors: https://utah.bridgeapp.com/learner/training/8b095440/enroll

Students who do not have access to Bridge should reach out to the EHS training department for instructions at training@ehs.utah.edu with their name, Unid, and the name of the training.

Training records are accessible in Bridge, maintained for a minimum of three years from the date on which the training occurred. PIs or their delegates will need to upload training records into the Safety Administrative Management System (SAM) on an annual basis, in concert with their EHS inspection. All training records required by this standard will be provided upon request for examination and copying to the Director of the National Institute for Occupational Safety and Health (NIOSH), and the Assistant Secretary of the U.S. Department of Labor in accordance with 29 CFR 1910.20.

2. Task-Specific Training

Supervisors are required to provide employees with training and information to ensure that employees are apprised of the specific hazards present in their particular area of work. The training requirements include:

- At a minimum, employees shall be informed of the applicable details of the University of Utah Exposure Control Plan and the specific hazards of the tasks and procedures which may expose them to bloodborne pathogens and OPIM in their work setting.
- Employers must 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.
- An annual declaration of task-specific training must be uploaded into the Safety Administrative Management System (SAM).

3. Training for HIV/HBV Research Laboratories

Laboratory employees in HIV or HBV research laboratories will receive specialized initial training in addition to the established bloodborne pathogens training program. Additional elements of the expanded HIV and HBV training program will include:

- Provisions for the supervisor to verify 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.
- Provisions for the supervisor to verify that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.
- Provisions for the supervisor to provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The supervisor will ensure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

E. Hepatitis B Vaccination

All employees who have potential exposure to blood or other potentially infectious materials, including human and non-human primate cell lines, 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 following completion of the EHS bloodborne pathogens training.

Vaccination is encouraged unless: 1) documentation exists that the employee has previously received the series, 2) antibody testing reveals that the employee is immune, or 3) medical evaluation shows that vaccination is contraindicated.

After completing the BBP training provided by EHS, the employee will be contacted by Occupational Medicine to enroll in their Hepatitis B vaccination program, where they will be able to request vaccination or decline the vaccination. Employees who decline may request and obtain the vaccination at a later date at no cost. Documentation of refusal of the vaccination will be sent to the employee by email and kept in the Occupational Medicine Open Range system. Copies of vaccination records and/or declination statements can be obtained by sending an email to occupational.health@hsc.utah.edu.

Hepatitis B vaccination will be provided by the RedMed Clinic.

Note: *Students who are NOT employed, authorized volunteers, interns, or in medical clinical training at the University may have risk of exposure to bloodborne pathogens or OPIM in the course of participating in their academic program or other University-sponsored activity. The University of Utah is not required to cover the cost for these students to have a hepatitis B vaccine. However, the department is encouraged to adopt a policy that recommends affected students to obtain the vaccine privately and show evidence of this to the department prior to incurring the risk of exposure.*

F. Labels and Signs

All required labels and signs shall include the international biohazard symbol and the word “biohazard” or “biological hazard.” The color must be predominantly orange or orange-red with the lettering and universal biohazard symbol in a contrasting color (see image).

Warning labels must be affixed to:

- Containers of biohazardous waste.
- Containers used to store, transport, or ship blood or OPIM.
- Refrigerators and freezers where blood or OPIM are stored.
- Incubators used for primary cell cultures.
- Centrifuges and biosafety cabinets when used for work with blood or OPIM.

Warnings signs must be placed at the entrance to all spaces that contain bloodborne pathogens. The signs must include:

- The biosafety level for the room (e.g., research with human blood must be conducted at BSL-2 or higher).
- The name(s) of the biohazardous material that is present.
- The name and telephone number of the principal investigator, laboratory manager, or other responsible individual.
- The procedures for entering and exiting the room.
- Personal Protective Equipment to be worn while in the room.

Each department is responsible for purchasing their own biohazard bags and labels. Some waste containers, including sharps containers can be obtained from EHS through the SAM System.

G. Spills and Exposures Procedures

1. Biological Spill Kits

Biological spill kits should be available wherever blood or OPIM are used or stored. Kits are available for purchase from EHS. The contents of the biological spill kit include:

- **Disinfectant** – Prepare a fresh 1:10 bleach solution. In other words, a pre-measured amount of bleach in a spray bottle is placed in the spill kit, but the cold water required to dilute the bleach is not added until right before use. Otherwise, use one of the over 500 EPA-registered disinfectants to be effective against BBP, following manufacturer’s instructions. Examples are Cavicide, Clidox-S, and Opti-cide 3. Note the date of manufacture and/or expiration.
- **Absorbent material** (paper towel, absorbent powder)
- **Personal protective equipment** (e.g., disposable gloves (2 pairs), eye protection, face shield or surgical mask, lab coat, shoe covers). It is necessary to review the PPE in the spill kit on a regular basis to verify quality. Gloves can degrade due to exposure to UV or fluorescent lighting, temperature extremes, and the effects of time. At the first sign of degradation (e.g., discoloration, brittleness, stickiness, tearing), replace the gloves in the spill kit with new ones. Likewise, the strap on splash goggles can undergo similar degradative processes.

- **Mechanical tools** (forceps or tongs, broom and dustpan) – Dispose of biohazardous waste after spill response. Purchase inexpensive plastic tools for this purpose.
- **Waste container** (biohazard bags) – By assembling all of the spill materials in a bucket or other leak-proof and puncture-proof container, you will have a secondary container readily available for proper containment of your biohazard bag.

2. Spills Procedures

SOPs for Spill cleanup are described in **Appendix A** (for spills outside a laboratory) and **Appendix B** (for spills in a laboratory). The appropriate procedure must be posted for visibility at the work site.

3. Post-Exposure Procedures

Exposures include:

- Direct skin, eye or mucosal membrane exposure to blood or OPIM, such as tissue culture media or cells, bodily fluids from humans or infected animals.
- Parenteral inoculation by a syringe needle or other contaminated sharp (needlestick).
- Ingestion of liquid suspension of an infected material or by contaminated hand to mouth exposure.
- Inhalation of infectious aerosols.

In the event of an exposure, follow these steps immediately:

a) Stop work.
b) Remove exposed PPE taking care to avoid contact of unexposed areas to infectious agents on the PPE.
c) Inform others in area about any biohazardous materials out of containment to prevent further exposure. **ALL exposed individuals must leave the area.** If possible, non-exposed workers should contain any remaining spill with absorbent pads, decontaminate with bleach, and/or seal off the site (see **Appendix B**).
d) Immediately wash affected areas with soap and water, or if exposure to eyes or mucous membranes occurred, immediately flush affected area with water for 10-15 minutes.
e) For serious/life threatening exposures or chemical burns, call 911.
f) After washing, notify lab supervisor or Principal Investigator of the exposure if they are immediately available. If not seek medical attention first and then report the exposure to them later.
g) Seek medical attention (if 911 has not already been called for serious/life threatening exposure). There are two procedures described below. The procedure you will use is determined by your association with the University.
    - **Procedure 1** is for if you are an employee or student (who is employed, an authorized volunteer, an intern, or in medical clinical training at the U). Go immediately to the RedMed Employee Health Clinic at the University Union Building or the Occupational Medical Clinic at the Redwood Health Center. After 5pm you will be seen by an Urgent Care Physician at the Redwood Health Center. After 9pm, go to the University of Utah Hospital Emergency Department or call an ambulance (911).

RedMed Employee Health Clinic
(ground floor of the A. Ray Olpin Student Union Building)

200 Central Campus Dr.
Salt Lake City, UT 84112
Phone: (801) 213-3303**
Hours: M-TH: 8:00AM – 5:00PM, Friday: 9:00AM – 3:30PM
Closed 1:30PM-2PM
**calling first is recommended, as this is a smaller clinic and for some exposures/injuries, they may recommend Redwood Health Center.

Redwood Health Center
Occupational Medicine Clinic
1525 West 2100 South
Salt Lake City, UT 84119
Phone: (801) 213-9777
Hours: M-F 8:00AM – 5:00PM

After Hours
Redwood Urgent Care
1525 West 2100 South
Salt Lake City, UT 84119
(801) 213-9900
M-F 5:00PM – 8:30PM
Sat.-Sun.: 9:00AM – 8:30PM

After 8:30 PM
Emergency Department at University Hospital
(main floor, northeast side of the hospital)
50 N. Medical Drive
Salt Lake City, UT 84132
(801) 581-2291

- **Procedure 2** is for if you are a student who is NOT: employed, an authorized volunteer, an intern, or in medical clinical training at the U. Go immediately to the Student Health Center at the Madsen Health Center. After hours there are multiple options for students to seek care described here, including contacting the 24 hour Nurseline at (855) 870-5858, Tele Doc, University of Utah Virtual Visits, or a University of Utah Urgent Care Center.

Student Health Center
555 Foothill Dr., Level 1
Salt Lake City, UT 84112
M-F 7:30AM-5:00PM
Extended Hours on Tuesdays until 7:30PM*
*Fall and Spring semesters and not during breaks/holidays

Closed Wednesdays 12:00PM-2:00PM
(801) 581-6431

h) Ensure that the physician is aware of all materials that were being used at the time of exposure (e.g., human blood, virus, bacteria, human tissue, animal tissue, other potentially infectious material). Also inform the Healthcare Provider of any medical conditions, such as pregnancy or immunosuppression, or drug treatment that you currently have or take.

i) **Post exposure prophylaxis must be initiated as soon as possible after exposure, if indicated.** Be sure to follow any physician-recommended follow-up evaluations or procedures.

j) Report the incident as soon as possible after medical care.

- Ensure that the incident is immediately reported to the Biosafety Officer (801-581-6590 **AND** biosafety@ehs.utah.edu) by the PI/Supervisor. If the project involves recombinant and synthetic nucleic acid molecules, the IBC will be required to report any significant problems with or violations of the NIH Guidelines for Research with Recombinant or Synthetic Nucleic Acid Molecules and any significant research-related accidents or illnesses to the NIH within 30 days.

AND

- If you followed **Procedure 1**, fill out and submit the Employer's First Report of Injury or Illness E1 Form 122. This form can be downloaded from the human resources website under "Forms > Absence Management" (https://www.hr.utah.edu/forms/index.php).
- If you followed **Procedure 2**, fill out and submit the Incident/Accident Report from Risk & Insurance Services.

4. Post-Exposure Evaluation and Follow-Up

Following a report of an exposure incident, the employee shall be provided a confidential medical evaluation and follow-up. This follow-up must include documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred, identification and testing of the source individual's blood if available, collection (no later than 10 calendar days after the exposure) and testing (no later than 30 days after the incident) of the employee's blood, post-exposure prophylaxis (when medically indicated), evaluation of reported illnesses, and counseling. The University of Utah will provide this evaluation and follow-up through the University of Utah Occupational Medicine Clinic or contracted health care providers at no cost to the employee.

A healthcare professional's written opinion will be made available within 15 days after completion of the evaluation. No later than 18 months after the date of the exposure incident, the employee will be retested. If an employee chooses not to complete the testing, that employee may jeopardize the availability of worker's compensation benefits.

The health care professional's written opinion for post-exposure evaluation and follow-up will be limited to the following information:

- Whether hepatitis B vaccination is indicated, and if the employee has received such vaccination
- That the employee has been informed of the results of the evaluation

- That the employee has been told about any medical conditions resulting from exposure to blood or OPIM which require further evaluation or treatment
- All other findings or diagnoses will remain confidential and will not be included in the written report.

The circumstances surrounding the exposure incident must be investigated immediately by the supervisor. Information regarding the exposure incident, source material, and employee vaccination status should be provided to the University of Utah Occupational Medicine and/or the employee's health care provider. Site-specific procedures should be reevaluated and revised as necessary to prevent recurrences of similar incidents. EHS is available to assist you with evaluating the following:

- Engineering controls and work practices used at the time of the exposure
- A description of any devices being used (e.g., sharps, centrifuge, blender)
- Protective equipment or clothing worn at the time of the exposure incident
- A review of the procedures being performed at the time of the incident
- A review of the employee's training record

5. Laundry

The University of Utah Hospital can be used to clean contaminated clothing and other articles that require laundering. Linen Services can be found in the Acute Care Building in the University Hospital, 801-581-2200. You must have a chartfield on-file with linen services for billing (~$2.20/lab coat). Alternatively, there are commercial laundry services that can clean contaminated lab coats, such as Cintas, Alsco and Vestis.

The following laundering requirements must be met:

- Handle contaminated laundry as little as possible, with minimal agitation.
- Place wet contaminated laundry in leak-proof, labeled or color-coded containers before transport to the University Hospital Laundry.
- Contact outside providers for information on their transport requirements.

H. Documentation and Recordkeeping

1. Medical Recordkeeping

The University of Utah Occupational Medicine Clinic will establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020. The record shall include:

- The name and employee identification number of the employee.
- 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.
- A copy of all results of examinations, medical testing, and follow-up procedures required.
- The copy of the healthcare professional's written opinion as required.
- A copy of the information provided to the healthcare professional as required.

The University of Utah Occupational Medicine Clinic will ensure that employee medical records required are kept confidential and not disclosed or reported without the employee's express written consent to any person

within or outside the workplace except as required by the standard or as may be required by law. The University of Utah Occupational Medicine Clinic will maintain the records required for at least the duration of employment plus thirty years in accordance with 29 CFR 1910.1020.

2. Sharps Injury Log

The University of Utah is required to establish and maintain a sharps injury log (see **Appendix C**) 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 is maintained by each supervisor. The sharps injury log must contain the following information:

- The type and brand of device involved in the incident.
- The laboratory in which the exposure occurred.
- An explanation of how the incident occurred and personnel involved.

3. Documentation of Updated Safe Practices

Consideration of changes in technology that reduce or eliminate exposure must be evaluated and documented annually by each supervisor (**Appendix D**), including solicitation of input from non-managerial staff.

4. OSHA Recordkeeping

Human resources will evaluate all incident reports to determine if cases meet OSHA's Recordkeeping Requirements (29 CFR 1904). All percutaneous injuries from contaminated sharps are also recorded in the Sharps Injury Log (**Appendix C**).

I. Laboratory Biological Waste Disposal

This section describes procedures for the proper handling and disposal of biological waste from research, instructional, and clinical laboratories at the University of Utah. These procedures are based on state and federal law, requirements from the Occupational Safety and Health Administration (OSHA), Centers for Disease Control (CDC) and National Institutes of Health (NIH), and good laboratory practice. Failure to manage biological waste properly could result in personal injury, disruption to research, fines, or criminal prosecution.

1. Biowaste Disposal – Solids

- The Office of Environmental Health and Safety (EHS) SAM System allows research investigators to request hazardous material pickups by EHS staff and request empty containers.
- Waste containers obtained from EHS are solid sided, leak proof, lined with red biohazard bags, and labeled with a biohazard symbol. Keep the container lid closed unless someone is working nearby and regularly adding waste to the container.
- When the red bag is ¾ full, loosely tie or tape the bag closed. Secure the lid on the waste container, perform a surface decontamination of the container, and move it to a convenient storage location or transport it to a biohazardous waste storage room, if available. Biohazardous waste must be moved or transported inside a rigid, leak-resistant, labeled container with the lid closed. Request a pickup from your lab using the SAM System. If you have an autoclave available for disinfection of biohazardous

waste, place a red biohazard bag in a solid puncture resistant container. Place a Ziploc bag or balloon containing water in the bag when it is about half full to generate steam during autoclaving. When the red bag is full, loosely tie or tape the bag closed. Secure the lid on the waste container, perform a surface decontamination, and move it to the autoclave room.

    - Note: Autoclaves used for decontamination of biological waste must be tested using a biological indicator weekly or every 40 hours, whichever is less frequent. EHS has guidance documents on autoclave use and testing.

- The bag must be removed and placed in a solid autoclave resistant tray: the bag should **NEVER** be placed directly on the floor. After the cycle, the bag may be disposed of as regular trash, but a visible indicator of decontamination must be present. For example, prior to autoclaving, place autoclave tape across the biohazard symbol, and after autoclaving, put the autoclaved bag into an opaque trash bag.

2. Biowaste Disposal – Liquids

- Blood, aspirated tissue culture media, or other liquid waste generated from BSL-2 experiments must be disinfected and then disposed. Bleach is typically used to disinfect liquids, but other agents, such as ZZZ or Vesphene III se, may be used if effective.
- If you use bleach:
    - Ensure the final concentration exceeds 0.5% sodium hypochlorite (no less than one-part bleach to 9 parts liquid).
    - Ensure the bleach is fresh: in tissue culture media traps change at least twice weekly. Undiluted bleach stocks should be replaced every 6 months.
    - Ensure the media is exposed to disinfectant for at least 20 minutes prior to disposal.
    - Dispose down the sink with running water
- If you use ZZZ or Vesphene III se:
    - Ensure the final concentration exceeds 400ppm (one part disinfectant to 99 parts water).
    - In tissue culture media traps change at least every 3 months (indicate the date of the last change on the flask). Check the expiration date on the disinfectant stock bottle.
    - Ensure the media is exposed to disinfectant for at least 20 minutes prior to disposal.
    - Collect waste into containers marked “Unwanted Materials” and date when you start collecting. When full or 6 months after your start date (whichever happens first), arrange pickup by EHS through the SAM System. **NO DRAIN DISPOSAL** without prior EHS approval**.**
    - If the container will be unattended (outside of your immediate control) then label it with the date, time and the words “Biohazardous liquid” and keep it in a secondary container (for example, a plastic tub) while it is disinfecting.
- If you use other agents to decontaminate liquid cultures, follow the instructions on the packaging. Contact the Biosafety Office (801-581-6590) for advice on appropriate disinfectants and procedures for disposal of treated waste.
- Mixed liquid and solid waste should be separated in a biosafety cabinet (decant the liquid from the solid). Manage the liquids and solids separately as detailed above.

3. Use and Disposal of Sharps

- Do not recap needles by hand. RECAPPING OF NEEDLES IS PROHIBITED.
- Do not remove needles from syringes by hand.
- Do not bend, break, or otherwise manipulate needles by hand.
- Avoid using needles whenever possible.
- Replace glass materials with plastic (such as plastic Pasteur pipettes) whenever possible.
- Immediately after use, discard needle and syringe (whether contaminated or not) into puncture resistant sharps containers. RECAPPING OF NEEDLES IS PROHIBITED.
- Use a Food and Drug Administration (FDA)-cleared sharps container if you generate sharps waste (pictured below). A description of FDA-Cleared Sharps containers can be found here. FDA-cleared sharps disposal containers are made from rigid plastic, come marked with a line that indicates when the container should be considered full, which means it is time to dispose of the container, and have the Universal Biohazard symbol.

- Never discard sharps into regular trash.
- Never discard sharps into bags of biological waste.
- Use care and caution when cleaning up after procedures that require the use of syringes and needles.
- Do not overfill sharps containers. Close completely when 3/4 full, request pickup from the EHS through the SAM System.
- Locate sharps containers in areas in which needles are commonly used. Make containers easily accessible.
- Replacement sharps containers may be obtained through the SAM System or can be ordered from laboratory supply distributors, such as VWR and ThermoFisher. Be sure to select sharps containers that withstand autoclaving.

4. Contaminated Serological Pipets and Pipet Tips

Serological pipets (glass and plastic) and disposable pipet tips are considered puncture hazards and should be disposed of as sharps. Contaminated pipets and tips should be discarded in approved sharps containers, as described above.

Due to the large size of serological pipets, investigators disposing of large numbers of these can request 20

gallon hard-sided biohazard waste containers (pictured below) from EHS through the SAM System. These will be picked up by EHS staff as for other biohazardous waste.

21 Gallon Waste Container

5. Decontaminated Serological Pipets and Pipet Tips

It is possible to decontaminate serological pipets and tips prior to disposal. Ensure that both the inside and outside of the pipets or tips are exposed to the approved disinfectant (e.g., a freshly prepared 1:10 dilution of bleach) for at least 20 minutes. However, serological pipets and disposable tips are still considered puncture hazards. Therefore, after removing the disinfectant, they can be disposed of in a Broken Glass box (rigid puncture resistant boxes lined with a plastic bag and labeled "Broken Glass": pictured below), which can be obtained from your custodial staff or from EHS. Once they are 3/4 full, they should be closed with tape and disposed of as regular trash by your custodians. **DO NOT dispose of CONTAMINATED SHARPS into the broken glass box!**

Broken Glass Box

NOT for CONTAMINATED SHARPS!

Uncontaminated puncture hazards only!

Exposure Control Plan Approved By:

Signed by:
Erin Rothwell
DEB8CE4C9A7D4D9...

8/30/2024

Signature Date

Erin Rothwell, Ph.D., Vice President for Research

DocuSigned by:
Caren J. Frost
DE613FE33E0345E...

8/30/2024

Signature Date

Caren J. Frost, Ph.D., M.P.H., Associate Vice President for Research Integrity & Compliance

Signed by:
DEBBIE ECKERT
98B3733404144BF...

8/29/2024

Signature Date

Debbie Eckert, Ph.D., Biosafety Officer

Signed by:
Fred Monette
FDE39FA28FB4426...

9/10/2024

Signature Date

Fred Monette, M.S., Executive Director, Environmental Health and Safety

Appendix A: Cleaning up Spills of Blood or OPIM outside of the laboratory.

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

1. If an exposure incident has occurred, follow the proper procedure for any exposed personnel. Exposed personnel should not be performing cleanup activities; they should be following the exposure incident procedure
2. Secure area of the spill. Use barricades, tape, cones, etc., to keep unauthorized persons out of the spill area. Make sure to identify all contaminated areas. Look for tracking, splatter, etc.
3. Get organized. Identify a "hot" (contaminated) and "cold" (clean) zone. Stage cleanup materials in the cold zone just outside the hot zone. Get the disposal bag ready by turning the top edge downward. This will provide a degree of rigidity for the bag and will keep the exterior of the bag from becoming contaminated. Remember you will have to decontaminate any non-disposable equipment used during the cleanup procedure.
4. Don appropriate Personal Protective Equipment (PPE).
5. Remove any broken glass or other sharps using forceps. DO NOT use your hands!!! Place sharps in a biohazard sharps container for disposal.
6. Apply an absorbent material such as paper towels over the blood or other potentially infected material (identified as "blood" from this point forward in the procedure).
7. Apply a disinfectant solution such as a freshly made solution of 1-part bleach in 9-parts water. Saturate the absorbent material such that the solution penetrates the material and soaks into the blood underneath.
8. Allow the saturated absorbent material to sit on the spill for at least 20 minutes.
9. Remove the absorbent material and as much absorbed blood as possible. Place all materials in the disposal bag.
10. Inspect the area for any missed contamination. Repeat the cleaning step as many times as needed to completely clean the area.
11. Thoroughly clean the area with the disinfectant solution and paper towels or other absorbent wipes. Place all materials in the disposal bag.
12. Decontaminate all non-disposable equipment. Dispose of contaminated disposable equipment in the disposal bag, leaving the gloves for last.
13. Close and secure the disposal bag, and place in a secure location.
14. Remove barricades etc., used to secure the spill area.
15. Initiate a hazardous materials disposal request via the EHS website.

Appendix B: Cleaning up Spills of Blood or OPIM in a laboratory

All spills or breaks involving Recombinant or Synthetic Nucleic Acid Molecules and hazardous biological materials should be cleaned up using appropriate biosafety procedures, described below. If there is any doubt about what to do, call the PI (*Telephone #*), or the Biosafety Officer 1-6590, or the University's internal emergency number: 5-2677.

*1:10 dilution of bleach is an appropriate disinfectant for decontaminating human cells and samples and is prepared by diluting household bleach (typically ~5-8% sodium hypochlorite) 1:10 with cold water (creating a ~0.05% sodium hypochlorite solution). Alternatively, another EPA-approved disinfectant can be used.

A. Spills inside of a Biosafety Cabinet
    a. Stop work.
    b. If you are splashed by the material, change PPE. Always change gloves.
    c. Keep the biosafety cabinet running.
    d. Contain the spill by covering with paper towels (to avoid splashes or aerosols).
    e. Saturate the spill with a freshly prepared 1:10 dilution of bleach*. Let sit for a 20-minute exposure time.
        - For large spills (greater than 10ml) use undiluted bleach or disinfectant.
        - In the event of a spill into the drip pan/catch basin, add an equal volume of disinfectant and wait for 20 minutes to clean up the disinfected material.
    f. Wipe up spill, disposing of towels in biohazard bag.
        - If the biohazard bag is to be autoclaved, liquid bleach should be neutralized with sodium thiosulfate after it is used for disinfection. A good rule of thumb is if your absorbent towels are dripping wet, the bleach should be neutralized prior to autoclaving.
    g. Wipe spill area with freshly prepared 1:10 dilution of bleach*. Allow to air dry.
    h. Disinfect all other materials used in the biosafety cabinet by disinfecting the surface with freshly prepared 1:10 dilution of bleach* with a 20-minute contact time. Do not attempt to disinfect contaminated cardboard or other paper items that absorb liquid: contaminated items should be disposed of.
    i. Wipe spill area and disinfected equipment with alcohol or water to remove the bleach residue, which can be corrosive.
    j. Place all towels or absorbent materials into a designated container for biohazardous waste.
    k. Remove PPE, discard disposable PPE as biohazardous waste and wash hands.

B. Spills outside of a Biosafety Cabinet
    a. Stop work.
    b. If you are splashed by the material, dispose of PPE and wash hands.
    c. Ensure that any other people in the vicinity are notified that a spill has occurred and that the room should be evacuated. Post a "Do Not Enter" notice on the door. Notify the PI or lab supervisor.

d. If you need assistance with the spill clean-up, call EHS (1-6590).
e. Wait 60 minutes before re-entering the room to allow aerosols to settle.
f. Assemble Spill cleanup materials and don PPE, including lab coat, eye protection and face shield or mask, 2 pair of gloves, shoe covers. If the lab coat does not have cuffed sleeves, disposable sleeve covers should be worn.
g. Contain the spill by covering with paper towels (to avoid splashes or aerosols)
h. Saturate spill with freshly prepared 1:10 dilution of bleach*. Let sit for 20-minute exposure time.
    - For large spills (greater than 10ml) use undiluted bleach or disinfectant.
    - Wipe areas around the spill that may have splatter and any reusable equipment with freshly prepared 1:10 dilution of bleach*.
i. Wipe up spill, disposing of towels in biohazard bag: if sharps may be present use tongs or a brush and pan and dispose in biohazard sharps container.
    - Work concentrically to clean up the absorbent material. Always work from the outer edge of the spill toward the center.
    - If the biohazard bag is to be autoclaved, liquid bleach should be neutralized with sodium thiosulfate after it is used for disinfection. A good rule of thumb is if your absorbent towels are dripping wet, the bleach should be neutralized prior to autoclaving.
j. Spray spill area with freshly prepared 1:10 dilution of bleach*. Allow to air dry.
k. Wipe spill area and disinfected equipment with alcohol or water to remove the bleach residue, which can be corrosive.
l. Remove PPE, discard disposable PPE as biohazardous waste and wash hands.
m. Remove the "Do Not Enter" sign and inform others that it is safe to re-enter the room.
n. Once the spill has been contained, complete an EHS Incident Report.

C. Spills Inside of a Centrifuge Contained Within a Closed Cup, Bucket, or Rotor
    a. Put on lab coat, gloves, and proper eye protection prior to opening centrifuge. Open carefully to assess the damage.
    b. Prepare the disinfectant*: consult the instructions of the centrifuge rotor to identify suitable disinfectants*.
    c. If the spill is contained within a closed cup, bucket, or rotor, spray the exterior with disinfectant and allow at least 20 minutes of contact time. Remove the carrier to the nearest biosafety cabinet (BSC).
        - *Note, if possible, avoid using bleach on centrifuge rotors and buckets to avoid damaging the equipment. If bleach is used, ensure all surfaces are wiped down with soap and water after disinfection. Alternatively, use an EPA-registered disinfectant, such as Cidex or Cavicide.*
    d. Gather supplies needed, such as a sharps container for broken glass and bins filled with disinfectant and place into the BSC.
    e. Open the centrifuge rotor or bucket inside of the BSC. Use a mechanical device (forceps, tongs, etc.) to remove broken glass and place directly into sharps container. Carefully remove any

unbroken tubes and place into a bin filled with disinfectant for at least 20 minutes. Wipe carrier/bucket with disinfectant.

f. After disinfection, carrier, bucket, or rotor must be washed with a mild soap and water.
g. Spray the interior of the centrifuge chamber with disinfectant, let sit for at least 20 minutes and then wipe down with soap and water.
h. Dispose of all clean-up materials (except sharps) in an appropriate biohazardous waste container. Dispose of sharps in a biohazard sharps container.
i. Remove PPE, discard disposable PPE as biohazardous waste and wash hands.

If you are concerned that the spill is not contained within the rotor or bucket:

- Ensure that any other people in the vicinity are notified that a spill has occurred and the room should be evacuated. Post a "Do Not Enter" notice on the door. Notify the PI or lab supervisor.
- If you need assistance with the spill clean-up, call EHS (801-581-6590).
- Wait 60 minutes before re-entering the room to allow aerosols to settle.
- Proceed with clean up as described above.

Note: Many centrifuge rotors can be disinfected by autoclaving. Check the manufacturer's instructions.

D. Emergency Spills: Environmental Risk
   a. Stop work.
   b. Ensure that any other people in the vicinity are notified that a spill has occurred and that the room should be evacuated. Post a "Do Not Enter" notice on the door. Notify the PI or lab supervisor.
   c. Call EHS (801-581-6590). Provide information on the nature of the material spilled.
   d. Take appropriate precautions to limit exposure or spread of spill to other areas.

Appendix C: Sharps Injury Log

A sharps injury log must be maintained by each supervisor for 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. A new log should be created each calendar year.

Laboratory/Facility Name: _____ Year 2_____

Date	Case/ Report #	Type of Device (e.g. syringe, suture needle)	Brand Name of Device	Work Area where injury occurred (e.g. Geriatrics, Lab)	Brief description of how incident occurred (i.e., procedure being done, action being performed (disposal, injection, etc.), body part injured)

29 CRF 1910.1030, OSHA's Bloodborne Pathogens Standard, in paragraph (h)(5), requires an employer to establish and maintain a Sharps Injury Log for recording all percutaneous injuries in a facility occurring from contaminated sharps. The purpose of the Log is to aid in the evaluations of devices being used in healthcare and other facilities and to identify problem devices or procedures requiring additional attention or review. This log must be kept in addition to the injury and illness log required by 29 CFR 1904. The Sharps Injury Log should include all sharps injuries occurring in a calendar year. The Log must be retained for five years following the end of the year to which it relates. The Log must be kept in a manner that preserves the confidentiality of the affected employee.

Appendix D: Safer Sharps Annual Review Form

This form (or equivalent) must be completed on an annual basis by any University of Utah Facility/laboratory that performs sharps-related procedures on human samples or other potentially infectious material. Contact the Biosafety Office at (801) 581-6590 if you have questions or need further information.

Reviewer's Name: Job Title:

Department/Clinic: Date:

Supervisor/PI Name: Telephone #:

In accordance with OSHA's application of the "Needlestick Safety & Prevention Act", all sharps that are being used where there is exposure to human blood or OPIM must be reviewed on an annual basis. This includes all needles, syringes with needles, scalpels, capillary tubes, and lancets. During your annual review of devices, you must inquire about new or prospective safer options.

The purpose of this form is to document:

- Sharps devices currently in use;
- The criteria used in the selection of the safer sharps devices in use, and;
- Annual consideration of new safer sharps devices.

Complete the table below as completely as possible to document the sharps devices that are being used. Use multiple pages if necessary.

This review form must be maintained with your safety records.

	Device #1	**Device #2**	**Device #3**
Name of Sharps Device			
Manufacturer			
Model/Size in Use			
Procedures Performed			
***Safer Sharps Device? (Y/N)**			

Description of Safety Feature			
Justification for Selection (must consider newly marketed safer sharps devices			

*A justification must be documented (below) for any device that does **not** meet the criteria of a safer sharps device (see *Sharps with engineered sharps injury protection* definition below). Acceptable justifications include, but are not limited to:

- Use of a safer sharps device will jeopardize patient or employee safety.
- Use of a safer sharps device is medically inadvisable.
- Market unavailability of an appropriate safer sharps device.

Note that cost is not typically an acceptable justification.

Sharps with engineered sharps injury protection: This includes non-needle sharps or needle devices containing built-in safety features that are used for collecting fluids or administering medications or other fluids, or other procedures involving the risk of sharps injury. This description covers a broad array of devices, including:

- Syringes with a sliding sheath that shields the attached needle after use;
- Needles that retract into a syringe after use;
- Shielded or retracting catheters
- Intravenous medication (IV) delivery systems that use a catheter port with a needle housed in a protective covering.

Description of procedure and justification for not using safer sharps device:

Appendix E: Contact Information and Guidance Links

Office of Environmental Health and Safety Mainline: 801-581-6590

E Mail: Biosafety@ehs.utah.edu

IBC Website: https://IBC.Utah.edu

IBC Policies: https://ibc.utah.edu/biosafety-policies.php

IBC Fact Sheets and SOP library: https://ibc.utah.edu/library.php

IBC Training Matrix: https://ibc.utah.edu/training.php

EHS Website: https://oehs.utah.edu/

Safety Administrative Management System (SAM): https://oehs.utah.edu/topics/lab-management-system