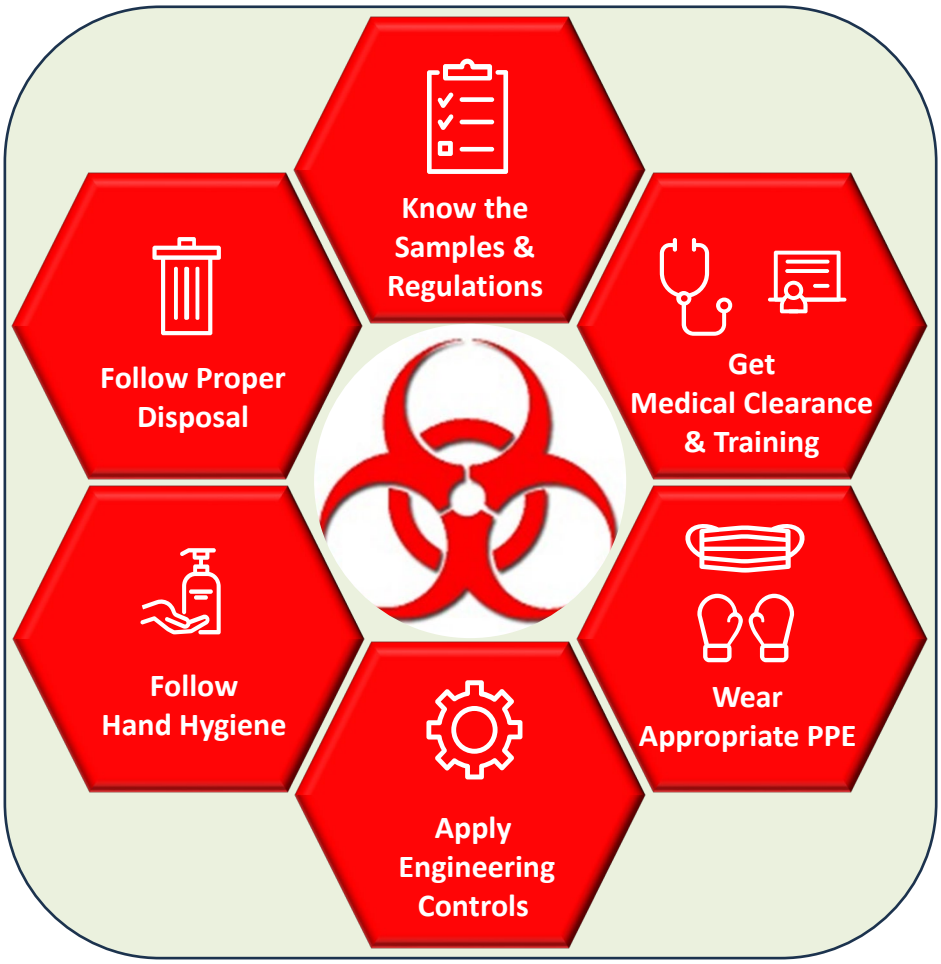

BLOODBORNE PATHOGEN EXPOSURE CONTROL PLAN (ECP)

ENVIRONMENTAL HEALTH & SAFETY

The University of Alabama at Birmingham

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BLOODBORNE PATHOGEN EXPOSURE CONTROL PLAN TEMPLATE FOR RESEARCHERS

PURPOSE:

The purpose of this Bloodborne Pathogen Exposure Control Plan (ECP) is to identify hazards and describe ways to minimize the risks of laboratory exposure to human blood or other potentially infectious materials, in compliance with the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) and the Respiratory Protection Standard (29 CFR 1910.134).

The ECP is applicable to all UAB research and clinical faculty, staff, students, trainees and official volunteers who have the potential for occupational exposure to bloodborne pathogens.

Name of Principal Investigator:	
Blazer ID:	
Department:	
Laboratory location:	

RESPONSIBILITIES:

I, as the Principal Investigator, recognize my responsibility to implement and monitor this bloodborne pathogen exposure control plan.

The PI, Manager, and/or Supervisor will ensure that employees receive information and specific training on the laboratory procedures and techniques to be followed as well as information included in this document as required by the Bloodborne Pathogens Standard. Documented training must occur prior to the start of work with human or primate specimens, and at least annually thereafter and when new or modified tasks or procedures affect a worker's occupational exposure. Records must be maintained by the PI or the department for at least 3 years. Providing all necessary SOPs, PPE, engineering controls and disposal materials to personnel in laboratory. Ensuring that guidelines are strictly followed by all the personnel.

SCOPE:

Each laboratory (research and clinical) working with material of human origin must include an exposure control plan in the lab's safety manual. This manual should be available to for all employees who may have occupational exposure to human bloodborne pathogens.

The following plan may serve as a guide, but each lab should customize their plan to identify the specific BBP exposure hazards present in their work setting.

The PI or designee must review and update this plan annually or whenever the exposure risks or personnel at risk for exposure significantly change. Each Dean, Department Chair, or supervisor is responsible for implementation of this plan.

DEFINITIONS:

- **Bloodborne Pathogens** – BBP are microorganisms present in human blood that can infect and cause disease when exposed. Most notable pathogens include Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV). There are many other bloodborne pathogens, including malaria, syphilis, and brucellosis, Creutzfeld-Jacob agent, human T-lymphotropic virus type 1 etc.
- **Other Potentially Infectious Materials (OPIM)** – refers to semen, vaginal secretions; cerebrospinal, synovial, pleural, peritoneal, pericardial, or amniotic fluids, or tissue. 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. Any unfixed tissue or organ (other than intact skin) from a human (living or dead) is considered OPIM. 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 are also included.
- **Universal Precautions (UP)** – an approach to infection control in which all human blood and certain human body fluids (OPIM) are treated as if they are known to be infectious. Although the BBP standard incorporates UP, the infection control community has adopted Standard Precautions to account for other infectious body fluids (e.g., urine, saliva, feces, vomit, breast milk).
- **Standard Precautions** – is an approach to infection control. According to the concept of Standard Precautions, all human blood and body fluids (except sweat) are treated as if known to be infectious. Wearing proper PPE is one such precaution.
- **Exposure Incident** – means 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. Exposure to BBPs may occur via a splash, spray, or aerosolization of potentially infectious material onto mucosal membranes (e.g., eyes, nose, or mouth) or penetration through breaches in the skin (e.g., an accidental needle stick from a BBP contaminated sharp)
- **Regulated Medical Waste** – any 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 material – including liquid, semi-liquid, or solid material.
- **Engineering Controls –** controls that isolate or remove the bloodborne pathogens hazard from the workplace (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered injury protections and needless systems)
- **Sharps with Engineered Sharps Injury Protections –** 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.
- **Needleless Systems** – a device that does not use needles for the collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established; the administration of medication or fluids; or any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

EXPOSURE DETERMINIATION:

The Principal Investigator, laboratory supervisor and/or designated laboratory safety officer will identify laboratory employees and procedures in the laboratory that present the possibility of occupational exposure to bloodborne pathogens and/or OPIM. This determination is based on the risk of performing each procedure without the use of personal protective equipment.

The material used in this laboratory that may be associated with potential exposure to human or bloodborne pathogens include the items checked below:

- ☐ Human or primate blood, serum, plasma, blood products, components or cells
- ☐ Other potentially infectious materials (OPIM) which include: human or primate body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid visibly contaminated with blood, and all body fluids where it is difficult to differentiate between fluids.
- ☐ Any unfixed human or primate tissue or organ (other than intact skin).
- ☐ Cell, tissue or organ cultures containing HIV; culture medium or other solutions containing HIV, HBV, HCV; blood, organs or other tissues from experimental animals infected with HIV, HBV, or HCV.
- ☐ Contact with non-human primates
- ☐ Other(s) specify:

Name of the bloodborne pathogen in samples:

- ☐ Hepatitis B Virus (HBV)
- ☐ Hepatitis C Virus (HCV)
- ☐ Human Immunodeficiency Virus (HIV)
- ☐ Others (Specify

The job classifications in which laboratory employees may have occupational exposure to human pathogens in this work setting include the classifications checked below:

- ☐ Professor
- ☐ Postdoctoral Researcher

- ☐ Med Technologist/Technician
- ☐ Research Scientist
- ☐ Laboratory Assistant
- ☐ Graduate Student
- ☐ Undergraduate Student
- ☐ Other (specify):

The tasks and procedures used in this work setting that may pose risk of exposure to human or primate bloodborne pathogens may include:

- ☐ Venipuncture of humans (including co-workers or students) or primates
- ☐ Injections using primate or human specimens
- ☐ Use of needles with human or primate specimens
- ☐ Preparing, dissecting, cutting, or otherwise handling human or primate tissue
- ☐ Pipetting, mixing, or vortexing human or primate blood, or OPIM
- ☐ Centrifuging human or primate blood, or OPIM
- ☐ Handling tubes or other containers of human or primate blood, or OPIM
- ☐ Handling contaminated sharps or other contaminated waste
- ☐ Cleaning up spills of human or primate blood or OPIM
- ☐ Preparing or handling primary human or primate cell cultures
- ☐ Working or caring for non-human primates.

LABORATORY REQUIREMENTS:

Each laboratory where human or primate blood or OPIM is used must prepare an Exposure Control Plan. Standard precautions and Biosafety Level 2 practices and procedures (see Biosafety in Microbiological and Biomedical Laboratories BMBL 6th Edition) will be followed to minimize exposure to bloodborne pathogens.

Engineering and Work Practice Controls

Engineering controls are used to prevent or minimize exposure to bloodborne pathogens. Engineering controls are devices that reduce exposure risk by isolating the worker from the hazard.

- **Primary barriers:** Engineering controls are devices or equipment designed as primary barriers to mitigate exposure risk.
- *Examples:* Biosafety cabinets (BSC) and centrifuge safety cups are classical examples, both of which are designed to provide protection from infectious aerosols and droplets.
- **Secondary barriers:** The design and proper function of the facilities where infectious agent work will be conducted serve as secondary barriers for protecting personnel, the public, and the environment. The facility requirements vary, based on the procedures and transmission routes of the specific agents handled.
- *Examples:* HVAC system, directional airflow etc.,
- The laboratory should be maintained in a clean and sanitary condition. At a minimum, benches and biosafety cabinets are cleaned at the end of the day and after any spill using the appropriate disinfectant(s).
- Only approved sharps containers are to be used for sharps disposal (see UAB Medical Waste Management Plan).
- Needles shall not be recapped, removed from disposable syringes, purposefully bent or otherwise manipulated. When there is no alternative for recapping or removal of needles, the recapping or removal will be accomplished by a mechanical device (e.g. a needle block or holder). Mechanical devices will be disinfected as they become contaminated.
- Sharps disposal containers are inspected and maintained or replaced whenever necessary to prevent overfilling.
- Contaminated sharps are discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leakproof on sides and bottoms, and labeled or color-coded appropriately.
- Protected needle devices or safety needle systems will be evaluated and used whenever possible. Disposal containers (bags, sharps containers, red barrels, etc.) are required to be closed during transport. If there is a chance of leakage, an additional labeled container will be used.
- Employees must be made aware of signs and symptoms of latex sensitivity and provided with prevention strategies.
- Hands are washed after removing gloves, before exiting the lab, and before eating, drinking, smoking, handling contact lenses or other activities that may result in hand contact to a mucous membrane.
- Specific engineering controls and work practice controls used in this lab are listed below:

Engineering Controls	Workplace Controls

- This facility identifies the need for changes in engineering control and work practices through:

Personal Protective Equipment

- Personal protective equipment (PPE) and clothing is used in the laboratory to minimize or eliminate exposure to human bloodborne pathogens. The PI or department is responsible for supplying personal protective equipment and clothing and arranging for replacement or cleaning, as needed. Appropriate gloves are to be worn when exposure to blood or OPIM is probable. PPE must be replaced frequently and immediately if they become contaminated or damaged in any way.
- PPE is typically used in conjunction with engineering controls, but it can also serve as a primary barrier in cases where it may be impractical to work inside a BSC. The laboratory-specific biosafety manual should define the safety equipment needed for specific procedures or agents, including the PPE required.
- PPE training includes instructions on the type of PPE to use for distinct tasks, and how to use, care, and dispose of PPE used for the tasks or procedures the employees will perform.
- The types of PPE available to employees are as follows:

Information about PPE	
PPE training provided by:	
Ordering and distribution of PPE by:	
Location of PPE:	
List of PPE in Laboratory	

- PPE must be removed after it becomes contaminated, and before leaving the work area.
- Lab members must wear appropriate gloves when it can be reasonably anticipated that there may be hand contact with blood or OPIM, and when handling or touching contaminated

materials or surfaces; replace gloves if torn, punctured, contaminated, or if their ability to function as a barrier is compromised. Never wash or decontaminate disposable gloves for reuse. Wear appropriate face and eye protection when splashes, sprays, spatters, or droplets of blood or OPIM pose a hazard to the eye, nose, or mouth. Remove immediately or as soon as feasible any garment contaminated by blood or OPIM, in such a way as to avoid contact with the outer surface.

The procedure for handling used PPE is as follows:

- Laboratories using high volumes or concentrations of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), or Hepatitis C Virus (HCV) must follow additional safety practices and procedures according to their laboratory specific safety manual.

List of tasks or procedures that may pose risk of exposure to BBP:

List of lab personnel performing the tasks:

	Name of Lab Personnel	Date
1		
2		
3		
4		
5		
6		
7		
8		

UAB EMPLOYEE HEALTH PROGRAM:

The PI or department is responsible for arranging for Employee Health services **before an exposure** event occurs.

Hepatitis B Vaccination: The PI/Manager will ensure that all persons in the laboratory/unit area who were determined to have occupational exposure to human bloodborne pathogens are offered Hepatitis B vaccination within ten days of starting work with human or primate specimens. The PI or department must maintain documentation of participation or declination. Medical records are confidential and are to be maintained by the UAB Employee Health Program or healthcare provider for at least 30 years post-employment. Hepatitis B Vaccination Declaration/Declination Forms are available by request to UAB Employee Health at ehocchealth@uab.edu.

Post-Exposure Evaluation and Follow-up: See the "UAB Exposure Response Plans" flow chart on the last page of this document for broad exposure response procedures.

A bloodborne pathogen exposure event is any situation, such as a spill, splash, needlestick, ingestion, or accident in which you have direct, unprotected contact with human or primate blood or OPIM. If this happens immediately flush the body part with water for 15 minutes, notify your PI or supervisor, **and contact the Employee Health Needlestick Team. Timing is of the essence, as treatment may only be effective if received within hours of an exposure.**

Needlestick Team: (205) 934-3411

If an exposure to material of primate origin occurs: Follow your lab's agent specific plan for potential exposure to Herpes B virus. (Attach plan, if applicable)

Prior to receiving treatment for an exposure, an UAB On-The-Job-Injury Initial Medical Evaluation Authorization form may be required. In all cases, an Incident Report Form must be completed. Your supervisor/colleagues can help to fill out OJI forms, and ensure spilled materials are contained and decontaminated. Additional information on UAB Instructions and Forms for OJI can be found on the UAB HR website.

Every individual handling material with potential bloodborne pathogens has the responsibility to report any exposure to these materials to their supervisor and the PI/Manager.

The PI/Manager is responsible for reporting the incident to UAB Employee Health. Employee Health will investigate the circumstances surrounding the exposure, and work with the PI/Manager to modify work practices and/or develop additional prevention strategies.

EH&S and EMPLOYEE HEALTH CONTACTS

Please contact us at EH&S for any questions, concerns, or advice for keeping your team safe. Our team is listed below:

Specialty	Contact Name	Email
Research Safety & Biosafety	Justin Roth, PhD	jcroth@uab.edu
	Brian LaGory	blagory@uab.edu
Employee Health	Julie Allen, CRNP	jsallen@uabmc.edu
	Kathy Jo Baker	kbaker@uabmc.edu
Lab Safety	Julie Gray	grayj@uab.edu
Medical/Biohazardous Waste	Laura Caltrider	parkelk@uab.edu

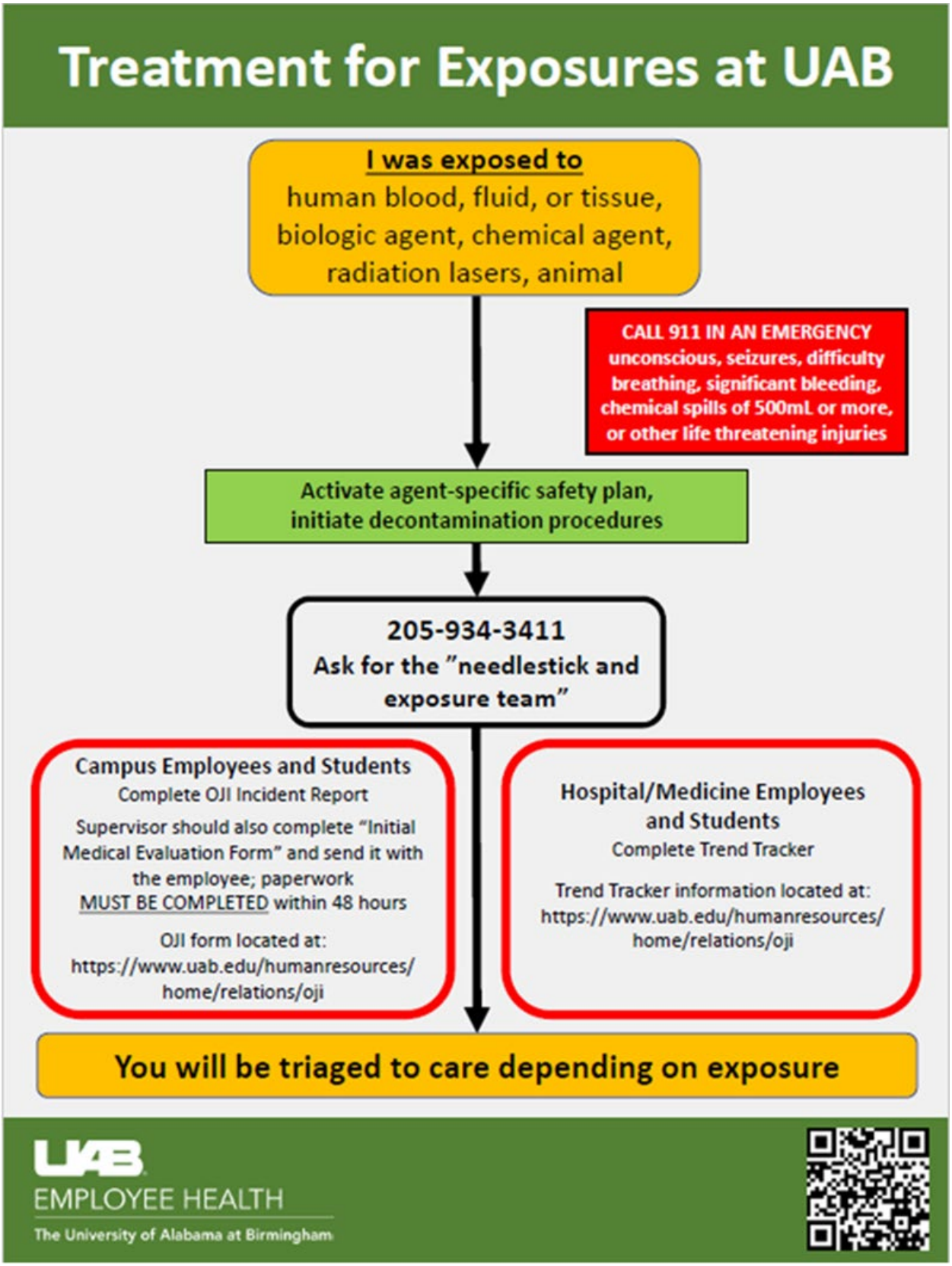
RESOURCES/REFERENCES

1. Centers for Disease Control and Prevention. Recommendations for prevention of HIV transmission in health-care settings. *MMWR* 1987; 369 (suppl no 2S).
2. McCunney, Robert J. ed. *Medical Center Occupational Health and Safety*. Philadelphia, PA: Lippencott Williams & Wilkins, 1999.
3. Risk and Management of Bloodborne Infections in Health Care Workers. Clin. Micro. Rev. July 2000.
4. UAB Campus Medical Waste Management Plan, Appendix 4.2, UAB Biosafety Manual 4th Edition, Apr 2024.
5. US Department of Labor/Occupational Safety and Health Administration. 1991. Occupational exposure to bloodborne pathogens; final rule. 29 CFR part 1910.1030. *Federal Register*, 56:64175-64182.
6. US Department of Health and Human Services/Department of Labor. Respiratory Protective Devices; final rule, 1995. 42CFR Part 84. *Federal Register,* 60:30336-30404.
7. US Department of Labor/Occupational Safety and Health Administration. 2006. Respiratory Protection 29 CFR 1910.134.
8. US Department of Health and Human Services, National Institute for Occupational Health and Safety *Latex Allergy* A Prevention Guide, 1999. DHHS (NIOSH) Publication No. 98-113.
9. For more information about the Bloodborne Pathogens Standard, the written Exposure Control Plan, and the Respiratory Protection Standard or for assistance in compliance, please contact your supervisor or PI or call EH&S Biosafety at biosafety@uab.edu. Copies of the standards and guidelines are available from the EH&S website.

REVIEW SCHEDULE:

Use the table below to track required annual reviews or edits of this document.

Reviewed (Yes or No)	Updated (Yes or No)	Date	Name of person


Treatment for Exposures at UAB
I was exposed to
human blood, fluid, or tissue, biologic agent, chemical agent, radiation lasers, animal
CALL 911 IN AN EMERGENCY
unconscious, seizures, difficulty breathing, significant bleeding, chemical spills of 500mL or more, or other life threatening injuries
Activate agent-specific safety plan, initiate decontamination procedures
205-934-3411
Ask for the "needlestick and exposure team"
Campus Employees and Students
Complete OJI Incident Report
Supervisor should also complete "Initial Medical Evaluation Form" and send it with the employee; paperwork MUST BE COMPLETED within 48 hours
OJI form located at:
https://www.uab.edu/humanresources/home/relations/oji
Hospital/Medicine Employees and Students
Complete Trend Tracker
Trend Tracker information located at:
https://www.uab.edu/humanresources/home/relations/oji
You will be triaged to care depending on exposure
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