

EXPOSURE CONTROL PLAN – Appendix C Template for UAB Laboratories

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PURPOSE

The use of some techniques or specimens in UAB laboratories may result in employee exposure to human disease agents. The purpose of this Exposure Control Plan is to describe ways to eliminate or minimize the danger of exposure to human blood or other potentially infectious materials, in compliance with the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030), the CDC Tb Guidelines (FR 59:208, pp54242-54303), and the Respiratory Protection Standard (29 CFR 1910.134) and in conjunction with UAB Safety Manuals.

SCOPE

Each laboratory working with material of human origin must include this document or a similar document plus a copy of their laboratory monitoring reports (audit reports) and/or lab registration form (UABLR) in the lab's safety manual and have it available for all employees who may have occupational exposure to human bloodborne pathogens or *Mycobacterium tuberculosis*.

This plan may be customized within departments (adding to or deleting from this document) but must be in compliance with the UAB guidelines.

The PI or designee must review and update this plan annually or whenever any significant changes in procedure or personnel occur. Each Dean, Department Chair, and supervisor is responsible for implementation of this plan.

DEFINITIONS

- **Bloodborne Pathogens** – disease-causing organisms carried in the blood, and include organisms like HBV, HIV, HCV, malaria, Creutzfeld-Jacob agent, human T-lymphotropic virus type 1 and others.
- **Universal Precautions** – a method of infection control in which all human blood, tissue and certain other potentially infectious material (OPIM) are treated as if known to be infectious for HIV, HBV, HCV, or other bloodborne pathogens. OPIM includes semen or vaginal secretions; cerebrospinal, synovial, pleural, peritoneal, pericardial, or amniotic fluids, or tissue.
- **Occupational Exposure Event** – a specific eye, mouth, non-intact skin, inoculation, or injection contact with blood or other potentially infectious material or inhalation contact with material potentially infected with *Mycobacterium tuberculosis* as a result of the performance of job duties.

- **Regulated 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 nonneedle 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.
- **Needless Systems** – a device that does not use needles for a: the collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established, b) the administration of medication or fluids, or c) any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps

EXPOSURE DETERMINATION

The Principal Investigator, laboratory supervisor and/or designated laboratory safety officer will identify positions and procedures in the laboratory which present the possibility of occupational exposure to human or primate blood or other potentially infectious material. 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 primate 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:
 - _____
 - _____
 - _____

The material used in this laboratory that may be associated with potential exposure to *Mycobacterium tuberculosis* or other pathogens warranting use of a respirator include the items checked below:

- Manipulation of cultures of *Mycobacterium tuberculosis*
- Entrance into infected primate quarters
- Work involving the potential for aerosol production of a pathogen where a biosafety cabinet or other closed system cannot be used
- Entrance into an AFB (acid fast bacillus) Isolation room
- Other(s), specify:

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

Classification	✓ = Yes
Professor	<input type="checkbox"/>
Postdoctoral Researcher	<input type="checkbox"/>
Medical Technologist/Technician	<input type="checkbox"/>
Staff Research Associate	<input type="checkbox"/>
Laboratory Assistant	<input type="checkbox"/>
Graduate Student	<input type="checkbox"/>
Undergraduate Student	<input type="checkbox"/>
Other(s), specify:	<input type="checkbox"/>

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.

Grounds and Maintenance personnel or Environmental Services personnel may face the risk of exposure to bloodborne pathogens during the performance of their duties. Blood or blood-contaminated needles or containers may be encountered.

Occupational risks for exposure to HIV, HBV, and HCV are well documented and specifically are associated with injection, inoculation (including contamination of broken skin) or mucous membrane exposure to blood and other potentially infectious body fluid. As a precaution, when differentiation between fluid types is difficult, University employees must treat all human body substances as if contaminated.

RESPONSIBILITIES

I, _____, as the Principal Investigator/Laboratory Director, recognize my responsibility to implement and monitor this bloodborne pathogen 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 within ten days of starting work with human or primate specimens, and annually thereafter with records maintained by the PI or the department for at least 3 years.

REQUIREMENTS

Each laboratory where human or primate blood or OPIM is used must prepare an Exposure Control Plan.

Universal precautions and Biosafety Level 2 practices and procedures (see Biosafety Manual) will be followed to minimize exposure to bloodborne pathogens.

Documentation for equipment requiring regular examination or maintenance will be kept by laboratory staff as noted in the Laboratory Registration and Lab Monitoring documents for this lab.

The worksite is 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 disinfectant(s) as declared in the Laboratory Registration and Lab Monitoring documents for this lab.

Protective gloves are worn if exposure to blood or OPIM is probable. They must be replaced frequently and immediately if they become contaminated or damaged in any way. Hand creams and lotions may affect the protective properties of gloves and their use in conjunction with protective gloves is avoided.

Employees must be made aware of signs and symptoms of latex sensitivity and provided with prevention strategies (see NIOSH document).

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.

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. In specific situations where it can be justified that 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.

Engineering controls, including but not limited to protected needle devices or safety needle systems will be evaluated and used whenever possible, in an effort to reduce the potential for needlestick injury to the

user as well as those working downstream, i.e., waste handlers, environmental services, and laundry personnel.

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.

Personal protective equipment (PPE) and clothing is used in this laboratory to minimize or eliminate exposure to human bloodborne pathogens. The PI or department is responsible for supplying personal protective equipment and clothing and making arrangements for replacement or cleaning as needed. Respiratory protection must be made available and employees trained and fit tested if their work involves potential exposure to *Mycobacterium tuberculosis*, including but not limited to, contact with non-human primates or entrance to rooms where they are housed.

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

Regulated medical waste will be handled in accordance with the UAB Medical Waste Management Plan.

OCCUPATIONAL MEDICINE PROGRAM

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

- **BLOODBORNE PATHOGENS**

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. Copies of the Declination form are available on the OH&S website. Medical records are confidential and are to be maintained by the UAB Occupational Medicine Program or healthcare provider for at least 30 years post employment.

Post-Exposure Evaluation and Follow-up: 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 and notify your PI or supervisor **and...**

If an exposure to human blood, body fluids, or unfixed tissue occurs during normal work hours: Immediately call the Employee Health Rapid Response Team at 4-3675, page them through UAB Paging at 4-3411 or follow your specific response plan (ex., HIV, HBV, and HCV research labs).

If an exposure to human blood, body fluids, or unfixed tissue occurs after work hours or on holidays: Immediately page the Employee Health Rapid Response Team through UAB Paging at 4-3411 or follow your specific response plan (ex., HIV, HBV, and HCV research labs).

Prompt medical attention may reduce the risk of serious health consequences after an exposure event. If contact to Employee Health cannot be made, proceed directly to the UAB Hospital Emergency Room and tell them you have had an occupational exposure involving bloodborne pathogens.

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

If an exposure to concentrated virus, altered strains, exotic strains, or recombinants of bloodborne pathogens occurs: During their regular business hours (M-F 8am to 4:30pm) proceed directly to *The Workplace* (933-5300). Otherwise, proceed to UAB Hospital Emergency Room and tell them you have had an occupational exposure involving research strains of bloodborne pathogens. Specify that the Occupational Medicine Physician on-call be contacted to assist in the evaluation.

In all cases a [UAB Incident/Accident](#) form must be completed.

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 Occupational Health & Safety (4-2487). OH&S will investigate the circumstances surrounding the exposure, and work with the PI/Manager to modify work practices and/or develop additional prevention strategies.

- **TB EXPOSURE CONTROL**

Respirator Fit Testing: Fit testing is conducted under the supervision of Mr. Bill Davis, Industrial Hygienist, UAB Department of Occupational Health & Safety (4-2487). For activities where respiratory protection is indicated, NIOSH-certified respirators may be used.

Each employee planning to use a respirator will complete a health screening questionnaire, fit testing, and training before they are cleared for use. During the fit testing session, employees learn the brand and size of respirator to wear, how to place it on the face and check for proper fit, how to care for and store it, and when to replace it.

The choice of respirator is based on activity specific risk assessment. In general, NIOSH-certified N-95 respirators are used for activities which may include spill clean up of material containing Tb; entrance into infected primate quarters; work involving the potential for aerosol production and where a biosafety cabinet or other closed system can not be used; entrance into an AFB Isolation room.

Employees may only use the respirator brand and size for which they have been fitted based on the tasks to be performed.

Tb Screening: The PI/Manager will ensure that all persons in the laboratory/unit area who are determined to have occupational exposure to non-human primates and/or *Mycobacterium tuberculosis* are screened for tuberculosis before being assigned to work where potential exposure may occur and regularly thereafter as prescribed by the UAB Occupational Medicine Program. Tb screening is conducted by *The Workplace* (933-5300) in the form of the Mantoux skin test or chest x-ray. The PI or department must maintain documentation of participation or declination. Copies of the Declination form are available on the OH&S website. The PI and/or the department are responsible for arranging and financing these medical services.

Post-Exposure Evaluation and Follow up:

If an exposure to *Mycobacterium tuberculosis*, altered strains, exotic or drug resistant strains (ie., MDR-Tb), or recombinants of Mtb occur: During their regular business hours (M-F 8am to 4:30pm) proceed directly to *The Workplace* (933-5300). Otherwise, proceed to UAB Hospital Emergency Room and tell them you have had an occupational exposure involving research strains of Mtb. Specify that the Occupational Medicine Physician on-call be contacted to assist in the evaluation. Complete a [UAB Incident/Accident](#) form.

RESOURCES/REFERENCES

Centers for Disease Control and Prevention. Recommendations for prevention of HIV transmission in health-care settings. *MMWR* 1987; 369 (suppl no 2S).

McCunney, Robert J. ed. *Medical Center Occupational Health and Safety*,. Philadelphia, PA: Lippencott Williams & Wilkins, 1999.

Risk and Management of Bloodborne Infections in Health Care Workers. *Clin. Micro. Rev.* July 2000.

UAB Biosafety Manual, 5th Edition, October 2000.

UAB Medical Waste Management Plan, Appendix J, UAB Biosafety Manual 5th Edition, October 2000.

US Department of Labor/Occupational Safety and Health Administration. 1991. Occupational exposure to bloodborne pathogens; final rule. 29CFR part 1910.1030. *Federal Register*, 56:64175-64182.

US Department of Health and Human Services, Centers for Disease Control and Prevention Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Facilities, 1994. FR 59.208, pp54242-54303

US Department of Health and Human Services/Department of Labor. Respiratory Protective Devices; final rule, 1995. 42CFR Part 84. *Federal Register*, 60:30336-30404.

US Department of Labor/Occupational Safety and Health Administration. 1993. Respiratory Protection 29 CFR 1910.134.

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.

For more information about the Bloodborne Pathogens Standard, the written Exposure Control Plan, the Tb Guidelines, and the Respiratory Protection Standard or for assistance in compliance, please contact your supervisor or PI or call OH&S Biosafety at 4-2487. Copies of the standards and guidelines are available from the OH&S website.

REVIEW SCHEDULE

This plan was implemented on _____
Date PI, Manager or Supervisor Signature

Reviewed (Circle Responses)		Updated		Date	PI, Manager or Supervisor Signature
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		

