



Puerto Rico Clinical and Translational Research Consortium

Universal Precautions for Handling Human Blood, Body Fluids and Tissues in Research Laboratories

1. Assume **ALL** human blood, plasma, serum, body fluids (semen, saliva, tears, cerebrospinal and amniotic fluid, milk and cervical secretions) and tissues to be contaminated with Human Immunodeficiency Virus (HIV) and/or Hepatitis Viruses (e.g., HBV) or other Bloodborne Pathogens handle these human biohazards with appropriate care.
2. Gain knowledge and be prepared:
 - a. Personnel should understand their risk categorization before initiating work:

Category I & II: Personnel occupationally, occasionally or frequently exposed to blood, body and tissues.

Category III: Personnel never perform tasks with or around such materials.
 - b. Be familiar with the CDC/ NIH Manual Biosafety in Microbiological and Biomedical Laboratories. Ask your supervisor to explain any procedures or concepts not clear to you **before** beginning to work.
 - c. Category I and II personnel must be offered the Hepatitis B vaccination.
3. **Remember:** The most susceptible route of laboratory infection for HIV and HBV is by accidental needle sticks, contamination of the mucous membranes, or through broken, abraded or irritated skin. Use appropriate caution and protection to prevent such contact.
4. Avoid spilling, splashing or open aerosolization of human blood or body fluids. Wear latex gloves, protective lab garments and face/eye shields when handling human materials
5. Understand the principles of good microbiological practice **before** working with biohazards materials. Examples include use of aseptic technique, proper decontamination procedures, emergency biohazard spill management and proper use of biosafety equipment. Develop proficiency **before** beginning work.
6. Use Biosafety Level-2 work practices, containment and laboratories when handling human materials where droplet and aerosol production are likely; avoid aerosol generating activities in handling human materials. When such procedures are necessary, use biosafety cabinets or other containment and personal protective equipment.
7. When culturing or manipulating known HIV or HBV, use Biosafety Level-3 (BL-3) procedures. Any procedure which requires concentration of HIV, HBV or other human viruses from human materials should be handled under BL-3 containment and handling conditions. Use appropriate biosafety level conditions (BL-2 or BL-3) when handling inoculated with human pathogenic materials.
8. Dispose of human and animal bio hazardous waste or materials in accordance with CDC/ NIH biosafety and institutional guidelines.
9. Decontaminate laboratory protective garments, equipment to render them non-infectious.

10. Clean all work areas and equipment used in handling human bio hazardous materials with proven disinfectant (e.g., 1: 10 dilution of Clorox) when concluding work to protect personnel from accidental infection.
11. Assume human serological and biological reagents (e.g., antibody, antigen or antisera) used in the laboratories are contaminated with HIV or other viruses and handle accordingly.
12. Understand and be familiar with the appropriate standard operating procedures for accidental exposure to human materials. Specific measures must be followed as per CDC/NIH Guidelines in the Universal Precautions. The specimens involved must be identified and tested for HIV and HBV and procedures followed.
13. Report **every** accident to your supervisor.
14. Responsibility for instituting, training and monitoring of biosafety practices in laboratories handling human materials, HIV or HBV rest with the Laboratory Supervisor or the designated Principal Investigator (PI). These individuals must categorize positions, provide facilities, biosafety equipment, biosafety procedures and training to employees accepting such work assignments to permit the safe conduct of the work. These responsible individuals must ascertain the proficiency of the employee in performing the assigned task **before** permitting the work to begin.