Overview
It is the policy of Weill Cornell Medicine (WCM) that every laboratory working with the Human Immunodeficiency Virus (HIV) or with blood or other biological materials from subjects with known or suspected HIV infection adhere to the safety standards and procedures published by the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Department of Health and Human Services (HHS), and the Department of Labor Occupational Safety and Health Administration (OSHA).

This summary is intended as a brief outline to assist Principal Investigators in planning and instructing laboratory-based employees and students. It is not meant to replace the more detailed publications referenced above, the contents of which every person working with HIV or with biological samples possibly contaminated with HIV should be fully cognizant.

Applicability
This Update applies to all personnel working with blood or other potentially infectious materials known or suspected to contain HIV.

Responsibilities
Environmental Health and Safety (EHS) provides assistance to laboratory personnel to ensure awareness of, and compliance with, institutional, CDC, NIH, and OSHA standards with regard to working with materials known or suspected to be infected with HIV. The Biosafety Officer monitors laboratories working with such materials for compliance at periodic intervals.

Principal Investigators are responsible for developing and implementing compliant procedures and training and for ensuring that all staff in their laboratory are aware of the relevant CDC, NIH, and OSHA standards and procedures outlined above.

Laboratory Personnel maintain awareness of samples known or suspected to be infected with HIV in the laboratory and of procedures established by their Principal Investigator, and take all required training. Laboratory personnel are also expected to ensure that their Principal Investigator is aware of any new samples in this category that are being stored or used in the laboratory.

Procedure
GENERAL SAFETY CONSIDERATIONS
The Human Immunodeficiency Virus (HIV) is known to be the cause of the acquired immunodeficiency syndrome (AIDS) and various AIDS-related disease states. While transmission of the HIV virus does not occur through casual contact with infected individuals, it can be transmitted through blood or other biological materials from infected persons. The common pathways for transmission of HIV are through sexual contact involving exchange of biological fluids and through sharing of hypodermic needles by intravenous drug users. A number of cases of transmission of HIV to laboratory workers and to health care providers have been documented. These have usually involved accidental puncture wounds with contaminated needles or direct skin and/or mucous membrane exposure to blood. Because of the severity of HIV infection, it is essential that all persons working with materials known or suspected to be contaminated with HIV be fully aware of the risks involved and adhere to appropriate safety procedures.

Laboratory personnel should avoid direct contact of skin and mucous membranes with blood, blood products, excretions, secretions, tissues or other biological materials from persons known or suspected to be infected with HIV. Extreme care should also be taken to avoid accidental wounds from needles and to avoid contact of open skin lesions.

Strict adherence to standard microbiological practices must be followed when working with any human blood or other biological samples that have not been subjected to effective decontamination procedures.

LABORATORY CONTAINMENT AND PRACTICES
1. Follow the WCM Research Biosafety plan for working with pathogenic materials. Know the laboratory plan for managing an accidental spill of pathogenic materials. Always keep appropriate spill materials available in the lab.
2. Never mouth pipettes. Avoid hand-to-mouth or hand-to-eye contact in the laboratory. Never eat, drink, apply cosmetics or lip balm, handle contact lenses, or take medication in the laboratory.

3. Gloves must be worn for all procedures which might result in direct contact with potentially infectious specimens. **Gloves must be removed immediately upon leaving the work area.**

4. Dedicated lab coats, gowns, or uniforms are to be worn while working with any potentially infectious materials. **These garments must not be worn outside the laboratory work area.** When working with concentrated viral preparations, disposable garments are to be used and disposed of appropriately immediately at the termination of a work session.

5. All manipulation of potentially infectious materials should be performed carefully to minimize the creation of aerosols. All procedures involving the manipulation of infectious materials that may generate an aerosol must be conducted within a Biological Safety Cabinet (BSC) or other physical containment device. Face shields and masks are required for procedures during which a “splash” hazard exists.

6. Class II biological safety cabinets and other primary containment devices (e.g., centrifuge safety cups) must be used for handling all biological materials derived from persons known or suspected to be infected with HIV.

7. Laboratory doors shall be kept closed when work involving infectious or potentially infectious agents is in progress. Access to the laboratory is to be limited to authorized personnel. Doors of all laboratories handling infectious agents and materials must be posted with a Health and Safety Door Sign.

8. Laboratory work surfaces must be decontaminated with an appropriate EPA-approved disinfectant following any spill of potentially infectious materials, as well as at the completion of daily work activities.

9. In the event of a spill outside of containment, **EHS** should be notified promptly. A spill or accident that results in an exposure incident shall be immediately reported following the WCM Bloodborne Pathogens Exposure Control Plan.

10. All laboratory waste shall be decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens. All waste should be identified by label and an indicator showing whether or not material has been decontaminated.

11. Hand washing is essential after removing gloves and other personnel protective equipment, after handling potentially infectious agents and prior to exiting the laboratory.

12. Needles and syringes or other sharp instruments should be restricted in laboratories where infectious agents are handled. If you must utilize sharps, consider using safety sharp devices or substitute with plastic when available. Never recap a used needle. Dispose of syringe-needle assemblies in properly labeled, puncture resistant, autoclavable sharps containers.

13. The use of disinfectant traps and in-line filters on vacuum lines to protect vacuum lines from potential contamination is required. Please refer to the Tissue Culture Waste Guide for additional information.

14. When transporting infectious materials to another laboratory, always use leak-proof sealed and properly packed containers (primary and secondary containers). Avoid contaminating the outside of the container and be sure the lid is on tight. Decontaminate the outside of the container before transporting.

**EXPERIMENTAL ANIMAL STUDIES**

Experimental animals inoculated with potentially infectious materials must be maintained in approved animal facilities. The staff of the Research Animal Resource Center (RARC) must be informed in advance of initiation of any studies with HIV or with biological samples from subjects known or suspected to be infected with HIV which involve the use of experimental animals.

**INSPECTION OF LABORATORIES AND LABORATORY PERSONNEL**

**EHS**

To ensure that appropriate practices, containment procedures and staff training are carried out, all laboratories will be monitored for compliance at periodic intervals by the Biosafety Officer (EHS).

**Laboratories**

Any laboratory working with HIV or with biological materials from persons known or suspected to be infected with HIV must be inspected by the Biosafety Officer (EHS), who will certify that the laboratory meets the physical containment levels specified in the relevant CDC-NIH guidelines and summarized above.
Laboratory Personnel

All personnel who intend to work with HIV or with blood or other biological samples from persons known or suspected to be infected with HIV must be trained in appropriate microbiological techniques and laboratory safety procedures. When new personnel are assigned to a project involving samples known or suspected to be contaminated with HIV, the Principal Investigator in charge of the laboratory will ensure that all appropriate training is provided.

Procedure in Event of Exposure

Procedures have been developed to provide immediate care for needlesticks and bodily fluid exposures which may happen to employees of WCM. Enforcement of the procedures permits documentation of exposures and initiation of preventative measures.

All puncture wounds and other exposures to blood and body fluids must be reported immediately to Workforce Health and Safety at (212) 746-4370 so that the exposure can be documented and appropriate preventive measures initiated. Each case will be assessed and counseling given concerning the epidemiology of Hepatitis B and HIV and will include, if appropriate, indications for prophylactic AZT and/or Hepatitis immunization.

Since maximum benefit of therapy may occur with prompt treatment, the following policy has been established:

- For exposures Monday through Friday (8:30 a.m. to 4:30 p.m.), the employee will report to Workforce Health and Safety. During nights, weekends, or holidays, the employee will report to the NYP Emergency Room for immediate and, if appropriate, early treatment.
- Follow-up treatment for all exposures will be given by Workforce Health and Safety.

References

EHS Program Manual, Section 3.2 - Research Biosafety

EHS Update - Tissue Culture Waste Guide


OSHA Regulations (Standards - 29 CFR) - Occupational Safety and Health Standards, Standard Number: 1910.1030, Bloodborne pathogens, Appendix: A