# BLOODBORNE PATHOGENS - INFECTIOUS WASTE MANAGEMENT OPERATING PROCEDURE

(Updated May 24, 2018)

This policy is developed in accordance with the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard (29 CFR 1910.1030), the Virginia Department of Environmental Quality - Virginia Waste Management Board (VDEQ): Regulated Medical Waste Management Regulations (VR 672-40-01:1/9 VAC 20-120), and under the auspices of the VCU Institutional Biosafety Committee (IBC).

**I. PURPOSE:** The purpose of this policy is to minimize university faculty, staff, and student exposure to bloodborne pathogens associated with biohazardous waste and to provide guidance for proper management of regulated medical waste (RMW) materials. The information provided in this policy is intended to compliment the procedures found in the VCU model Biosafety Manual.

**II. RESPONSIBILITY.**

A. Principal Investigators (PIs) are responsible for ensuring that their employees are properly trained and that work practices comply with the requirements of all applicable federal and state regulatory agencies and credentialing agency requirements. Principal investigators shall ensure that a complete Exposure Control Plan (ECP) is developed for all employees involved in tasks with the potential for exposure to bloodborne pathogens.

B. In accordance with the OSHA Bloodborne Pathogens Standard, all training, medical surveillance/treatment, immunizations, personal protective equipment (PPE), and other materials required for limiting employee exposure to bloodborne pathogens and other potentially infectious agents shall be provided to staff free of charge.

C. Principal investigators shall ensure that necessary supplies and equipment are provided and available to laboratory staff.

D. Safety and Risk Management (SRM) will assist (upon request) departments or individual laboratories in the training of employees in accordance with the provisions of this policy.

E. Issue of regulated medical waste ("red") bags, incineration boxes, labels, and pressure0resistant tape and pick-up of waste-filled red bags (incineration boxes) shall be requested through Facilities Management via QuickFM request. Provision of suitable containers for disposal of infectious sharps materials is the responsibility of the PI.

**III. REGULATED MEDICAL WASTE MATERIALS**.

A. The Virginia Department of Environmental Quality (DEQ) Medical Waste Management Regulations and university policy designate the following seven classes of "controlled regulated medical waste:"

1. Cultures and stocks of microorganisms and biologicals. Discarded cultures, stocks, specimens, vaccines, and associated items likely to have been contaminated with organisms likely to be pathogenic to healthy humans.

2. Human blood/blood products, other potentially infectious material (OPIM), and animal blood/blood products. Includes wastes consisting of human and animal blood/blood products (includes serum, plasma, etc.), and items contaminated by *significant* amounts human and animal blood/blood products. "Significant" quantities of blood are present when materials render visible release of liquid or dried blood upon being subjected to wringing and/or typical handling procedures. Under this definition, materials stained with small quantities of embedded and/or dried blood/blood products do not require disposal as RMW.

3. Tissues and other anatomical waste. This includes all human anatomical wastes and all human tissues, organs, body parts, body fluids, and similar materials.

4. Sharps materials. Includes all discarded needles and scalpels (regardless of contamination potential), any other sharps materials likely to be contaminated with pathogenic organisms, and all sharps used in patient care and veterinary practice.

5. Intentionally infected animal carcasses, body parts, urine, feces, bedding, and related waste. Also applies when source animals are known or suspected to be infected with organisms potentially pathogenic to healthy humans.

6. Residues, soils, liquids, and other debris resulting from cleanup of a spill of any regulated medical waste.

7. Solid waste contaminated by, or mixed with, regulated medical waste.

B. Recombinant DNA (rDNA) waste. In additional to the seven categories of regulated medical waste defined by the DEQ, the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines) classify all rDNA-containing waste as infectious waste (RMW).

C. Suitable methods for the management and disposal of regulated medical waste materials are discussed in Sections IV through VIII of this manual. Detailed instructions and university policies regarding safe work practices and the management/disposal of infectious agents are provided in the Biosafety Manual.

## IV. SAFE WORK PRACTICES.

A. Employees shall utilize standard precautions whenever working with potentially infectious materials. Under standard precautions, all blood products, OPIM, and human/animal tissues are considered infectious regardless of the perceived status of the source animal/individual and work practices are chosen appropriately under these assumptions.

B. Under standard precautions, the following engineering controls and work practices are essential for limiting potential exposure to blood borne pathogens and other infectious agents:

1. Employees shall thoroughly wash hands with soap and water immediately upon removal of gloves after performing of tasks involving potentially infectious materials. Additional considerations concerning hand hygiene are presented by CDC at this link: http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf.

2. If provided, employees shall be familiarized with the location and operation of eyewash stations and safety showers in the event of an exposure incident. All exposure incidents must be reported to Employee Health immediately.

3. University staff who encounter improper handling, staging, or disposal of potentially infectious and/or sharps materials shall notify SRM as soon as possible at 828-4404 or alternatively 828-1392.

4. Sharps Materials. All needles, scalpels, blades, scissors, disposable pipette tips, and other such items which pose laceration hazards shall be managed and disposed of as infectious sharps materials (special procedures for disposal of pipette tips provided in Section IV.B.6. of this document). Sharps materials shall be disposed of in the following manner:

a. Sharps Containers. Suitable sharps containers shall have the following properties:

(1) Rigid and puncture resistant.

(2) Leak resistant.

(3) Capable of being readily (without coming into contact with sharps materials) and securely sealed prior to disposal.

(4) Sharps containers shall be clearly marked with the following labeling: "BIOHAZARD - INFECTIOUS SHARPS."

b. Fingers/hands must never be placed inside of a sharps container. In the unlikely event that an item would have to be retrieved or dislodged from a sharps container, forceps or another mechanical device should be utilized.

c. Sharps containers shall not be overfilled. Sharps materials must fit completely into the container. Discarded sharps materials shall not protrude from the top of the container. When containers are full (the container is considered “full” when three fourths of its capacity is filled), seal them securely, arrange for disposal, and replace with new (empty) sharps containers.

d. Dispose of filled sharps containers within red bag-lined incineration box. Arrange for supply of red bags/incineration boxes and infectious waste pickup through VCU Quick FM.

e. Suitable sharps containers may either be purchased from laboratory supply catalogues or be manufactured from sturdy plastic containers offering secure and effective closure device (e.g., coffee cans, etc.). Improvised sharps containers must meet the labeling, performance, and handling requirements listed above.

f. Recapping of needles is prohibited unless the practice has been previously approved by the SRM via submission and approval of a Needle Recapping Waiver.

g. Needles, scalpels, and other mounted sharps materials may only be removed from mounting (or remounted) through mechanical means – breaking, bending, and/or shearing of needles is strictly prohibited.

5. Non-infectious broken glass includes all broken glassware which has not come into contact with potentially infectious agents. These materials may include such items as: glassware broken during or after cleaning, glassware broken while containing noninfectious materials (e.g., water, buffers, etc.), broken coffee cups, broken soda bottles, etc. Glass Pasteur pipettes, glass test tubes, glass flasks, and glass Petri dishes which have not come into contact with potentially infectious agents may also be classified as non-infectious broken glass if handled accordingly as detailed below:

a. Place all noninfectious broken glass items into a puncture resistant containers (e.g., sturdy cardboard/fiberboard box).

b. Do not fill above the top of the box, when approaching full, the box must be adequately sealed to prevent release of contents.

c. Clearly label box "NONINFECTIOUS BROKEN GLASS" (use an indelible black marker or other clearly visible permanent pen type).

d. Dispose of noninfectious broken glass boxes through housekeeping (or place in regular "domestic" trash dumpster).

6. Pipette tips: Special handling requirements.

a. Pipette tips with the potential for contamination with infectious materials will be handled by either of the two following means:

(1) Direct disposal into an incineration box which has been double-lined with red bags. Both bags must be individually sealed to prevent possible leakage of residual fluid. Tips with potential for retaining significant amounts of fluids should be handled as indicated below.

(2). Disinfection in bleach solution (daily prepared stock at 10% or greater concentration) with minimum contact time of 30 minutes, and disposal as “noninfectious broken glass” (see Section VIII).

b. Pipette tips with no potential for contamination with potentially infectious materials must be discarded as “noninfectious broken glass” (see Section VIII).

7. Employees shall never engage in the following activities within work areas where handling or preparation of materials containing potentially infectious agents is being conducted:

a. Eating.

b. Chewing gum.

c. Drinking.

d. Use of tobacco (include smoking and chewing tobacco products).

e. Make-up/cosmetic application.

f. Handling or insertion of contact lenses.

g. Wearing of shorts.

h. Wearing of open-toed shoes.

8. Employees should avoid rubbing of eyes and oral contact with fingers/hands while working in areas where activities involving potentially infectious agents are being conducted. As noted previously, hands should be thoroughly scrubbed with soap and water prior to exiting laboratory spaces.

9. Refrigerators utilized for storage of potentially infectious materials shall be clearly labeled with BIOHAZARD and/or INFECTIOUS MATERIAL warnings. Food and drink items for personal consumption must never be stored within refrigerators used for storage of potentially infectious materials.

10. Storage and/or consumption of food and beverages shall be restricted from all work areas used for preparation or research activities involving potentially infectious agents (bench tops, counters, cabinets, shelves etc.).

11. Infectious material work areas should be cleaned routinely with a hospital-grade disinfectant. For additional information regarding proper disinfection and maintenance of work areas, and spill response, refer to Section 5 of this document and the VCU Biosafety Manual.

12. Laboratory supervisors (PIs and/or lab managers) shall carefully review recommended work practices with laboratory staff prior to their conducting activities which involve potential for exposure to infectious materials.

a. Work practices shall be selected which minimize potential employee exposure due to splashing, spraying, splattering, or other airborne release infectious materials.

b. When available engineering controls alone cannot suitably lower exposure risk, utilization of additional personal protective equipment (PPE) shall be implemented (PPE is detailed in Section X.).

**V. CLEANUP OF INFECTIOUS MATERIAL SPILLS.** The majority of the spills in research spaces involve small quantities of materials managed at BSL-2 or lower. Such small-scale spills can usually be safely cleaned up by laboratory staff; provided they are properly trained, possess the correct equipment, employ proper work methods during the response action, and dispose of waste generated accordingly. Clean-up of spills involving larger quantities, BSL-2+ agents, and/or special circumstances may require assistance from SRM. In the event of any significant incident involving biohazardous agents, contact the SRM emergency line (828-9834) immediately. A brief guide to the equipment, supplies, and work methods employed during small-scale biohazardous spill response is provided below.

A. Disinfectant. For routine disinfection of laboratory surfaces and cleanup of spills involving biohazardous materials or materials assumed to be infectious (under "standard precautions"), SRM recommends the use of freshly prepared 10% bleach solution (9 parts water to 1 part household bleach) or other hospital-grade disinfectant.

B. Spill Response Kits. Spill response kits must be maintained in all areas where infectious waste is managed. Each spill kit should, at a minimum, include:

1. At least one gallon of fresh* bleach solution or other disinfectant.

2. Absorbent materials, such as absorbent pads, vermiculite, or disposable towels, for containing spills.

3. Spray/mist bottles for bleach solution application.

4. A cache of unused "red bags" for disposing of waste generated during spill response or for overpacking leaking containers.

5. Rigid containers for disposal of contaminated broken glass and other sharps materials.

6. Liquid-impermeable disposable coveralls, gloves, boots, head coverings, and respiratory protection** such as N-95 respirators.

7. Eye protection gear, including splash resistant safety glasses and face shields.

8. A broom, heavy duty brush, and dustpan (for spills involving sharps materials).

9. Extra clothing to replace contaminated items (e.g., scrubs, etc.).

C. Small-Scale Biohazardous Spill Response. Large spills and/or incidents involving special hazards/conditions should be reported to SRM emergency line immediately (828-9834). Details of recommended response actions for routine small-scale spills occurring in open laboratory areas are as follows:

1. Evacuate spill area to allow aerosol to settle (30 minutes minimum, greater time may be required depending upon nature of the incident).

2. Freshly prepared 10% bleach solution may either be applied directly via spray bottle to mist the spill area or via saturated disposable pads/towels or cloth material. Care should be taken to avoid spraying spills with a forceful stream to avoid creation of aerosol.

3. Allow bleach solution to remain in contact with the spilled material for a minimum of 20 minutes.

4. Don two layers of gloves and eye protection prior to removing bleach-treated spill and clean-up materials from incident site.

5. Place all waste resulting from clean-up directly into a red bag for disposal.

6. Following removal of bleach-saturated towels, mist spill area again with freshly prepared 10% bleach solution and thoroughly wipe down and clean surfaces until no residual material is visible (used towels should again be placed into red bag for disposal).

7. Tools and equipment contaminated by spillage of potentially infectious materials should also be thoroughly immersed (when possible) or wiped down with freshly prepared 10% bleach solution (or other suitable disinfectant) prior to reuse.

8. When incidents involve broken glass or other sharps materials, clean-up should be conducted entirely through mechanical means as follows:

a. Apply, work, and remove towels used for saturating and cleaning spill surfaces with forceps or other hand-held instrument.

b. Sweep or brush remaining broken glass and/or other sharps materials into a dustpan.

c. Place all resulting waste into an approved sharps container (as detailed in Section IV).

d. Mist area again with freshly-prepared 10% bleach solution and repeat steps a, b and c.

e. Use of vermiculite may facilitate cleanup of spills involving broken glass.

9. After the completion of clean-up of surfaces and equipment affected by the spill, personal protective gear used during the clean-up shall be thoroughly disinfected (with freshly-prepared 10% bleach solution) prior to being replaced in spill response kit. Disposable items used during cleanup (e.g., gloves, paper suits, etc.), must be placed in red bag for disposal. Personal clothing items contaminated during spill or clean-up operation should also be disposed via red bag.

10. Restock spill kit to replace items used during incident response.

11. Empty bleach solution from spray bottle and rinse with tap water (include the pump mechanism as leaving bleach solution in spray bottle may lead to corrosion and failure of the pump).

12. Prepare a report detailing the date, location, nature of infectious waste involved, a description of the incident, cleanup procedures, and disposal method. Forward one copy of the report to SRM, PO Box 980112, Attention: Biosafety Office.

D. Additional information regarding response to spills involving biohazardous agents (including response to spills occurring in biological safety cabinets) and additional/more detailed SOPs are available in the Biosafety Manual.

**VI. RED BAG PROTOCOL.** In accordance with DEQ/OSHA regulations and NIH guidelines; generators of RMW are responsible for proper handling packaging, labeling, and storage of RMW. The majority of RMW generated within university laboratories is transported offsite for incineration at a permitted RMW disposal facility. Details of university requirements for the management, staging, packaging, and labeling of RMW are listed below.

A. All bags used for disposal of RMW (as defined in Section 6 of this document) must meet the following standards:

1. All bags shall be red in color.

2. All bags shall be highly leak and tear resistant.

3. All bags shall bear the label "Regulated Medical Waste" in large print.

4. All bags must bear universal biohazard symbol at least two inches in height.

B. All waste-filled red bags should be placed into a rigid outer container prior to transport off site.

1. University laboratories package all RMW within cardboard incineration boxes to meet outer container requirements. Incineration boxes and red bags may be requested through VCU Quick FM.

2. VCU Health System facilities may utilize closable plastic roll-off dumpsters provided for the purpose to meet outer container requirements. Disposal of RMW generated within

hospital facilities may involve onsite disinfection/treatment (via RotoClave) or transportation offsite for treatment via incineration.

C. Outer containers used for transporting of RMW must bear the following information and labeling:

1. The name, address, and telephone number of the generator and the date of generation (date which inner bags and box were sealed and prepared for transportation).

2. "Regulated Medical Waste" in large print.

3. The universal biohazard symbol.

D. Red bags must never be overfilled. Prior to placing in box, seal red bag by gathering ends and wrapping tightly with several loops of heavy tape. The resulting seal must be leakproof.

1. The use of two red bags (“double-bagging’) is strongly recommended for all RMW.

2. Red-bagged waste bearing visible damage and/or evidence of leakage must be overpacked (“double-bagged”) inside a second, intact, red bag.

E. Free liquids must be placed in sturdy leakproof containers which are highly resistant to breakage prior to being placed within red bags.

F. Sharps material should never be placed directly into red bags; all sharps materials shall be packaged within securely closable, leak-proof, puncture-resistant containers prior to placing in red bag/incineration box (as detailed in Section IV.B.4.).

G. The total weight of individual incineration box may not exceed 45 pounds or the contractor will reject the box. We recommend that filled boxes not exceed 40 pounds to reduce likelihood of rejection. Rejected boxes will have to be repacked to meet weight restrictions.

H. Spill response kits must be maintained in all areas where RMW is managed (refer to Section V for recommended supplies and clean-up procedures).

I. All areas utilized for the staging or storage of red bags must have impervious surfaces which can be readily sanitized. Regulated medical waste should never be staged on carpeted or wooden floor surfaces. Stage and store RMW in areas which are not readily accessible to the general public and limit access to collection and storage areas to specifically designated personnel.

J. Discarded RMW may be stored at room temperature for no more than seven days past generation date. Regulated medical waste may be stored for up to 14 days when refrigerated at 2° to 7º Celsius (35º to 45º Fahrenheit). Regulated medical waste may never be stored onsite for more than fourteen days past generation date. The time restrictions placed on storage of RMW make it critical that Quick FM requestes be placed as soon as containers are filled and sealed (the date the box is closed is considered the generation date) to ensure disposal guidelines are met.

K. Reusable containers must be thoroughly disinfected (in accordance with manufacturer’s directions) after each use.

L. Personnel handling red bags will wear leak-resistant gloves at all times. Filled red bags should never be "stuffed" into incineration boxes as this increases the possibility of being injured by stray sharps in the bag. Hands should be thoroughly scrubbed with soap and water following glove removal.

M. Red bags will not be utilized for containing any materials other than RMW.

N. Red bags (even if unused) must never be disposed of in the municipal waste stream. All red bags must be transported from the facility by licensed contractors for disposal via incineration at a permitted RMW disposal facility. The collection, transportation, and disposal of red bag waste is coordinated through VCU Quick FM.

O. Additional/regularly updated information regarding red bag waste management is also available in the Biosafety Manual.

P. Containers utilized for staging of infectious waste materials shall thoroughly disinfected following each use.

**VII. AUTOCLAVING PROCEDURES**. The DEQ allows for onsite treatment of RMW through autoclave sterilization. If DEQ autoclave procedural requirements are followed, properly treated materials are no longer classified as RMW and may be disposed of as unregulated solid waste. The DEQ regulations (and university requirements) for onsite treatment of RMW are summarized below.

A. Autoclave units shall be operated at one of the following temperature, pressure, and time regimens:

1. Temperature of not less than 250° Fahrenheit for 90 minutes at 15 lbs/in$^2$.

2. Temperature of not less than 272° Fahrenheit for 45 minutes at 27 lbs/in$^2$.

3. Temperature of not less than 320° Fahrenheit for 16 minutes at 80 lbs/in$^2$.

B. Autoclave units shall be quality controlled at a frequency of no less than once per month. Each quality control event shall consist of the following:

1. Testing under full load conditions.

2. Use of spores of *B. stearothermophilus* to verify kill capacity (kits providing ready-to-use ampules are available through laboratory supply catalogues).

3. Recordkeeping of quality control events.

C. Logbooks shall be maintained which record the following data for each autoclave event:

1. Date and time of autoclave use.

2. Autoclave cycle (e.g., 90 minutes at 250° Fahrenheit).

3. Autoclave operator and identification of responsible laboratory.

4. Brief description of waste type and quantity.

5. Quality control, maintenance, and calibration information.

6. Logbook records shall be retained for three years following last entry date.

D. Materials treated onsite via autoclaving must be containerized as follows:

1. Bags shall be orange in color, impervious, tear resistant, and capable of retaining integrity through heat and pressure of the sterilization cycle.

2. Orange bags shall bear the following labels:

a. "BIOHAZARD, REGULATED MEDICAL WASTE."

b. The universal biohazard symbol.

3. Individual orange bags shall be sealed to the extent of being leakproof, if tears or holes in bag are evident, the bag must be overpacked within a second orange bag.

4. Each bag will be tagged with color-indicating (temperature) autoclave tape.

5. Immediately upon the completion of the sterilization cycle, to each orange bag the following label (with requested information provided) shall be securely fixed (download to Adobe PDF).

Virginia Commonwealth University - SRM
Box 980112
Richmond, Virginia 23298-0112
Date Autoclaved:_____
Responsible Person:_____
Phone Number:_____

The generator certifies that this waste has been treated in accordance with the Virginia Regulated Medical Waste Management Regulations and is no longer regulated medical waste.

6. Infectious sharps materials and noninfectious sharps which pose a laceration hazard (e.g., Pasture pipettes, broken glass, etc.) are not acceptable in the autoclave waste stream. Dispose of infectious and noninfectious sharps as indicated in Section IV.

7. Containers utilized for staging of infectious waste materials shall thoroughly disinfected following each use.

**VIII. CHLORINATION:** Utilization of chlorination as a disinfection method biohazardous material may be acceptable for several applications involving small material quantities with minimal infectious properties. In some cases, chlorination may actually be safer and more

effective than available alternatives. The university Biosafety Office reviews requests for utilizing chlorination for sterilization of infectious materials on a case-by-case basis. In order to determine if chlorination is a viable sterilization alternative for your laboratory, contact Safety and Risk Management.

**IX. LAUNDRY PROCEDURES.** Laboratory coats and other garments which may become contaminated with potentially infectious materials must be segregated from other "clean" laundry and stored in red bags until they can be properly decontaminated or disposed of. The VCU laundering guidelines are provided below:

A. For all items heavily saturated with blood products or tainted with BSL-2 or above biohazardous materials, disposal via red bag waste stream is strongly advised.

B. Laundry items contaminated with minute quantities of known or suspected infectious materials products may be disinfected by fully saturating affected areas with freshly prepared 10% bleach solution. Following a minimum 20 minute contact time (with 10% bleach solution), decontaminated garments should be washed in hot water with detergent and bleach added to cycle. In any case, reusable laboratory personal protective equipment may not be washed in home or laundromat washing machines.

C. Laundering of materials contaminated with more than minute quantities of blood products must be performed by specially licensed contracting firms. Arrangement for the services of a laundering contractor is a departmental responsibility. For assistance in retaining a laundering contractor, submit a QuickFM request.

X. PERSONAL PROTECTIVE EQUIPMENT.

A. Personal protective equipment must be utilized whenever engineering controls and work practices alone cannot provide ample exposure protection. Principal investigators shall provide all needed PPE to laboratory staff free of charge. Principal investigators shall also be responsible for providing training to all laboratory staff which details proper use of PPE. Safety and Risk Management can assist with PPE training upon departmental or laboratory request.

B. Selection of PPE shall be based on the anticipated level of exposure to potential bloodborne pathogens posed by the laboratory procedure(s) to be performed. Appropriately selected PPE shall protect the employee from contact with potential bloodborne pathogens via contact with skin, eyes, mucous membranes, and/or through aerosol inhalation under normal conditions throughout the period of exposure risk. Suitable PPE should also prevent the clothing of laboratory staff members from coming into contact with blood or other potentially infectious materials.

C. The following PPE items shall be considered the minimum acceptable level of protection and shall be worn during all activities involving potentially infectious agents:

1. Gloves (latex, nitrile, or other approved impervious material). Gloves may not be worn outside of laboratories.

2. Laboratory coat, either reusable or disposable.

3. Eye/face protection (OSHA-approved safety goggles or glasses equipped with splash guards). If the hazard involves splash or spray, a face shield should be used in conjunction with safety glasses.

D. Procedures which pose exposure risks that cannot be suitably managed by engineering controls and minimum level PPE (i.e., gloves, laboratory coat, and eye/face protection) shall require the implementation of a higher level of PPE. A listing of some of the more common "high" level PPE utilized within university laboratories and specific functions is provided below:

1. Respirators. Respirators are utilized whenever potential for exposure to bloodborne pathogens via inhalation exists. The use of any respiratory protection device must be preapproved by SRM. Under the university Respiratory Protection Program, SRM assists with the selection of suitable respiratory protection devices and provides fit testing and respirator training for all university staff. Refer to the SRM Respiratory Protection Program web page for additional information.

2. Face Shields. Procedures which involve a high potential for splashing and/or spattering of blood or other infectious materials require the use of a face shield in addition to safety glasses/goggles. The face shield serves to protect the exposed skin of the face and offers additional eye protection to the wearer.

3. Disposable Clothing. Procedures involving high potential for splashing/spattering of blood or other potentially infectious materials may also necessitate protection beyond the standard lab coat. Disposal clothing composed on impervious fabric should be donned to protect underclothing and skin while conducting such activities.

E. Please note that the wearing of clothing which exposes skin on the legs (e.g., shorts, short skirts, etc.) and feet (e.g., sandals, flop-flops, “crocs,” etc.) is strictly prohibited within university laboratories.

**XI. BIOLOGICAL SAFETY CABINETS (BSCs).** The BSC serves as a first line of defense in protecting the researcher and laboratory environment from exposure to potentially harmful biological agents. University policies regarding the use and maintenance of BSCs are discussed below.

A. All manipulations involving agents classified (by NIH/CDC) BSL-2 or greater which have the potential of generating biohazardous aerosols must be performed within a certified BSC.

B. All BSCs utilized for manipulations involving bloodborne pathogens and/or BSL-2 or greater classified organisms must be certified at least annually per the requirements of National Sanitation Foundation Standard 49.

C. Signage should be conspicuously posted on all BSCs not certified for use involving BSL-2 or greater agents indicating that the BSC is not suitable for work involving biohazardous agents.

D. Work involving biohazardous agents in conjunction with volatile chemicals which may produce toxic and/or flammable vapors must be performed within BSCs which are vented to the building exterior and designed for such use.

E. More detailed information regarding BSCs can be viewed at the following URL: http://www.cdc.gov/biosafety/publications/bmbl5/BMBL5_appendixA.pdf

## XII. HEPATITIS B VACCINATION.

A. Hepatitis B (HBV) vaccinations are available free of charge to all university staff who are assigned to areas where potential for occupational exposure to the viral pathogen is present. Principal investigators shall notify staff of the availability of HBV vaccinations and shall make all necessary arrangements with VCU Employee Health for providing vaccination services.

B. Employees who decline the HBV vaccination shall sign the OSHA-required "Hepatitis B Declination Form" (provided in Section XV). Employees who initially decline the HBV vaccination, but decide at a later date to receive the vaccination, shall be provided with the vaccination upon request and at no charge.

C. If a routine booster dose of HBV vaccine is recommended by the U.S. Public Health Service at a future date, such booster doses shall be provided to the employee at no charge. Additional information regarding HBV vaccine and related employee requirements or concerns is available within the VCU model Exposure Control Plan.

## XIII. POST EXPOSURE EVALUATION AND FOLLOW-UP.

A. All exposure incidents shall be investigated, documented and reported to the Biosafety Office. Employees shall report exposure incidents to their supervisor immediately.

B. All potentially exposed staff members shall proceed to Employee Health (828-0584) for medical evaluation as soon as possible. The medical evaluation shall include the following elements:

1. Documentation of exposure route (e.g., skin contact, needle stick, etc.).

2. Description of circumstance under which the incident occurred.

3. The identification and documentation of the source individual (not required if the employer can establish that identification is impossible or prohibited by federal, state, or local law).

4. Collection and testing of specimens from the source individual for HBV and HIV serological status.

5. Post-exposure treatment for the employee when medically indicated in accordance with U.S. Public Health Service guidance.

6. Counseling.

7. Evaluation of any resulting illness.

C. Healthcare professionals evaluating exposed employees will be provided with all the above-listed information (as available) and shall retain copies of the following documents on site:

1. The university Bloodborne Pathogen - Infectious Waste Management Program (this document).

2. The OSHA Bloodborne Pathogen Regulations (29 CFR 1910.1030).

D. All laboratory tests required in association to the exposure incident shall be conducted by accredited laboratories at no cost to affected employee(s).

E. Employees shall receive a copy of the attending healthcare professional's written opinion within 15 days of the completion of the exposure evaluation.

**XIV. TRAINING AND RECORDKEEPING.**

A. All employees who have the potential for coming into contact with bloodborne pathogens and/or other infectious materials shall be provided with training which fully covers the details of this plan, the university biosafety manual, the model university exposure control plan, IBC requirements, and applicable elements of OSHA 29 CFR 1910.1030.

B. Follow-up training shall be conducted on (at minimum) an annual basis after the initial training session. Additional training shall also be conducted within individual laboratories prior to initiation of new or modification of existing procedures involving potentially infectious materials.

C. Training programs shall include the following elements:

1. An accessible copy of a complete laboratory-specific Exposure Control Plan and documentation of explanation of contents to all laboratory employees.

2. An accessible copy of the Biosafety Manual and documentation of explanation of contents to laboratory all laboratory employees.

3. Institutional Biosafety Committee-Mandated Training: The IBC requires that all university staff working within laboratories complete applicable sections of BioRAFT Information Management System-based training under the direction of their supervisor.

4. An accessible copy of OSHA 29 CFR 1910.1030 (Bloodborne Pathogen Standard) and documentation of explanation of contents to all lab employees.

5. Provision and documentation that employees were provided a general explanation of the epidemiology and symptomology of diseases associated with bloodborne pathogens.

6. Discussion of the modes for the transmission of bloodborne pathogens and other infectious materials.

7. An explanation of the employer's exposure control plan and a written copy of the plan.

8. Discussion of methods for identifying tasks which involve the potential for exposure to blood products and other infectious materials.

9. Detailed information regarding the use and limitations of engineering controls for reducing exposure risks.

10. Detailed information regarding the use and limitations of PPE for reducing exposure risk.

11. Hands-on training detailing PPE types, applications, and proper use and care.

**XV. HEPATITIS B DECLINATION FORM**: All employees involved in tasks which pose the potential for exposure to bloodborne pathogens who decline free HBV vaccination shall be required to sign the following form:

I understand that due to my occupational exposure to blood or other infectious materials that I may be at risk for acquiring hepatitis B virus infection. I have been given the opportunity to be vaccinated with the hepatitis B vaccine at no charge. However, I decline the hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have exposure to blood or other potentially infectious materials and I want the hepatitis B vaccine, I can receive the vaccination series at no charge to me.

(print name) _____

(title) _____

(signature) _____

(date) _____