

I. PRINCIPLE

Courses taught in the Biomedical Sciences laboratories require the use of blood, body fluids, and other biohazardous materials. The purpose of this policy is to outline appropriate action in case of exposure to these materials.

II. SCOPE

This policy applies to all students, non-students, and staff at the University of Wisconsin – Milwaukee that utilize restricted areas in the Department of Biomedical Sciences teaching labs in which there is a reasonable risk of exposure to biohazardous material. Restricted areas containing possible biohazardous material include B70, B76, B78, B80, B86, B88, and B90.

III. UNIVERSAL (STANDARD) PRECAUTIONS

The practice of universal (standard) precautions is an approach to infection control in which all blood, body fluids, and other potentially infected materials (OPIM) are treated as if known to contain blood borne pathogens such as Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV). This practice is to be observed by all students and staff working in the Department of Biomedical Sciences.

IV. TRAINING

- A. All staff and students that expect to work unsupervised in the BMS Teaching labs must review this procedure, complete training by Lab Manager or PI, and fill out the Biohazard Safety in the BMS Laboratory Training Certification Log.
 - a. See [BMS 1.0 Utilization of Space and Supplies](#) for guidelines on unsupervised student access to BMS teaching laboratories.

V. PERSONAL PROTECTIVE EQUIPMENT, ENGINEERING CONTROLS, AND SAFE WORK PRACTICES

- A. **Personal protective equipment (PPE)** is worn to protect staff and students from potentially infectious materials used in the laboratory. This includes, but is not limited to: gloves, lab coats, face shields, goggles, masks, and vests. The use of PPE is to be in combination with safe work practices and engineering controls in order to reduce exposure to hazards in the Biomedical Sciences laboratories. See [SAFE 5.0 Personal Protective Equipment and Dress Code](#) for more information regarding PPE.
- B. **Engineering controls** involve the design of equipment and supplies used in the laboratory, and these designs are meant to reduce the risk of exposure or hazard of

infectious material and devices. These devices are engineered in such a way that they are safer to use. Examples of engineering controls used in the BMS labs are biological safety cabinets, hard sided sharps containers, and safe needle devices.

- C. **Safe work practices** are policies and practices that are in place to reduce the risk of exposure to staff and students while working in the BMS laboratories. Safe work practices followed in the BMS laboratory are to include, but are not limited to:
- a. Eating, drinking, chewing gum, handling of personal electronic devices, smoking, applying cosmetics, or handling of contact lenses is prohibited in the BMS laboratories listed in section II of this procedure.
 - b. All PPE must be removed prior to leaving BMS laboratories and/or hallways directly adjacent, i.e. lab coat and gloves should never be worn to the bathroom, or to get a drink from the water fountain.
 - c. All staff and students must wash their hands immediately if contaminated with potentially infected material, and prior to leaving the BMS laboratories and/or hallways directly adjacent.
 - i. Alcohol hand gel may be used while in the BMS labs if hands are not visibly contaminated, but hands should be washed with soap and water prior to leaving labs.
 - ii. Washing of disposable gloves is NOT acceptable.
 - d. Hand washing sinks are to be used for hand washing only, and no other materials may be poured in these sinks.

VI. CLEANING AND DECONTAMINATION OF BENCHTOPS

- A. Benchtops and other work areas must be decontaminated with a 10% bleach solution or other approved disinfectant at the end of each class period, or after a spill of potentially infectious material. It is recommended that staff and students decontaminate benchtops prior to beginning work as well, but is not required.
- a. Disinfectant should be sprayed 6-8 inches from benchtop surface and remain wet for 10 minutes. Surface can then be dried with paper towel.
 - b. BMS teaching Laboratories use germicidal disposable cloths for cleaning and decontamination of benchtops.

VII. BIOHAZARDOUS WASTE CONTAINERS AND DISPOSAL AREAS

- A. Biohazardous waste must be disposed of by students and staff in proper container, based on type of waste produced. If item to be disposed of contains biohazardous material that is *drippable*, *pourable*, *squeezable* or *flakeable*, it should be placed in the

proper biohazardous waste container in order to prevent spread to another human or animal. Types of disposal containers are as follows:

- a. Needle Disposal (small hard sided red container)– These are for the disposal of all needles and scalpels, regardless if they are contaminated with potentially infectious material.
- b. Biohazardous Sharps Waste (large hard sided red container) – These are for the disposal of contaminated glass or hard plastic, such as slides and capillary tubes.
- c. Biohazard Bag (Red or orange bag) – These are for the disposal of items contaminated with potentially infectious material, such as blood, reagents containing blood, body fluids, swabs, and microbiology cultures and tubes.
- d. Biohazardous Waste Pickup Area (B90) – This area is to be used for all reusable glassware, racks, and tubes containing liquid or agar. All tape must be removed from reusable items prior to being placed in this area, and items will be autoclaved and washed by the lab manager or staff as needed.

B. The following disposal areas can be found in the BMS labs, but should NOT be used for biohazardous waste disposal:

- a. Hazardous Waste Carboys
- b. Hazardous Waste Accumulation Area
- c. Broken Glassware boxes
- d. Regular trash

VIII. BIOHAZARD (BIOLOGICAL) SPILL RESPONSE

Small volumes of biohazardous materials (approximately 5mL or less) can be cleaned with disinfectant wipes and paper towel, and this can typically be disposed of in the regular trash. Materials that are grossly contaminated with blood and/or body fluids should be placed in a red biohazard bag.

Large volumes of biohazardous materials (approximately 5mL or more) may require special cleanup procedures. Large spills can spread easily on countertops, contaminating multiple items, and are more likely to contaminate lab coats and clothing. These spills should be cleaned up as follows:

- A. Alert people in the immediate area of the spill. Take appropriate action to ensure others are safe from the spill as well.
 - a. Post a temporary “hazard” sign near the spill, or DO NOT ENTER sign on the door, if necessary.
- B. Prior to leaving the area, remove any contaminated clothing that is capable of spreading the biohazardous material.

- a. Disposable items should be placed into a biohazard bag. It is recommended that any clothing be disposed of as well, but must at a minimum be disinfected with a bleach solution or disinfectant wipes before leaving the laboratory.

NOTE: If spill includes sharps (broken glass, needles, syringes, etc.), extra care must be taken. Forceps should be used to pick up broken glass, and all sharp objects should be placed in a hard sided biohazard box.

- C. Before attempting to clean area, formulate a plan of action, or ask for help. All materials needed for cleanup are available in the BMS labs and BMS store room. Proper Personal Protective Equipment (Gloves, safety goggles, and lab coat) must be worn during cleanup.
- D. A solution of 1 part household bleach and 9 parts water should be made in order to disinfect the area, and the amount made will depend on the size of the spill. A total volume of disinfectant at least five times the estimated spilled volume should allow adequate cleanup.
- E. Starting at the edges and working towards the center of the spill, cover with paper towel.
- F. Carefully saturate the paper towel with the bleach disinfectant, starting at the edges and working towards the center. Disinfectant should be poured as close to the spill as possible to limit splashing.
- G. Allow saturated paper towel to sit for a sufficient time to disinfect the spilled material.
 - a. Non-viscous material should sit for 15-20min
 - b. Viscous material should sit for at least 30min
- H. After disinfection, spill may be wiped up using the saturated paper towel, working from the edges to the center of the spill. This material should be placed in a red biohazard bag.
- I. Area should then be cleaned with fresh paper towel that has been saturated with disinfectant.
 - a. Area should remain wet for at least 15 minutes in order to complete disinfection.
- J. All materials from second disinfection should also be placed in the red biohazard bag, which must then be closed and autoclaved for disposal.

IX. BROKEN GLASSWARE

- A. Contaminated broken glassware must be picked up in such a way that reduces the risk of injury to staff and students, and should never be cleaned up by hand. Recommended cleanup for contaminated broken glassware is autoclavable tongs or cardboard that can be disposed of properly after use. Broken contaminated glassware should be placed in a hard sided biohazard box.

- B. Uncontaminated broken glassware should never be cleaned up by hand. Recommended cleanup for uncontaminated broken glassware is by broom and dustpan, tongs, or cardboard. Uncontaminated broken glassware can be placed in “Broken Glass” box, which is disposed of in normal trash when full.

X. HAZARDOUS WASTE

- A. Hazardous Waste Carboys (B70, B90) – These containers are to be used when disposing of hazardous waste that is ignitable, corrosive, reactive or toxic. The most commonly disposed of hazardous waste in the BMS labs is Gram Stain. Chemical inventory sheet provided with each carboy must be filled out with chemical and quantity whenever carboy is used. See guidelines on back of chemical inventory sheet for information regarding what can be placed in these containers. Hazardous waste carboys are picked up every other month by University Safety & Assurances, or as needed.
- B. Hazardous Waste Accumulation Area (B76) – This area is to be used for disposal of hazardous waste, and all containers MUST be labeled with contents. Items in hazardous waste accumulation areas are picked up every other month by University Safety & Assurances, or as needed.

XI. REGULAR TRASH

- A. Regular trash canisters can be found in all BMS labs, and are for the disposal of waste that does not fall under one of the categories described in sections VII-IX. Examples include, but are not limited to: gloves, paper towel, gauze, plasticware, intact glassware, and wrappers (Unless grossly contaminated with blood, body fluids, or other potentially infectious material)

XII. PREGNANT STUDENTS AND STAFF

Extra caution should be taken by those that are pregnant when working with potentially infectious materials due to the risk of maternal-fetal transmission. Some chemicals used in the BMS labs may be linked to adverse side effects to developing fetuses, and Material Data Safety Sheets (MSDS) are available upon request. MSDS outline potential dangers of chemicals, including risk to the fetus, and can be provided by the student to their primary care physician to determine whether any chemicals used in the lab pose additional risk to the student or staff member.

It is the responsibility of the staff or student to notify the instructor or lab manager if you are pregnant and have questions or need special accommodations.

XIII. REFERENCES

US Department of Labor. OSHA Blood Borne Pathogens Standard. 29CFR 1910.1030

US Department of Labor. Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens. OSHA Directive Number CPL2-2.44D, effective Nov.27, 2001 [OSHA Office of Health Compliance Assistance, tel. 202-693-2190]

Wisconsin Department of Natural Resources Administrative Codes Chapter NR 526 "Medical Waste Management". Register, January, 2006, No. 601.

Turgeon, Mary Louise, and Karen Munson Ringsrud. "Safety in the Clinical Laboratory." *Linne & Ringsrud's Clinical Laboratory Science: The Basics and Routine Techniques*. 6th ed. Maryland Heights, MO: Mosby Elsevier, 2012. Print.

XIV. PROCEDURAL NOTES

- A. Each student and staff member must follow standard precautions to prevent exposure to blood-borne pathogens, and this practice is to be taught in each course held in the department of Biomedical Sciences prior to working in the laboratory. Safety agreement (Attachment A) must be filled out by each student working in the BMS labs and retained for one year by the instructor.
- B. All students participating in an activity in which they will have blood drawn by venipuncture or capillary draw must read and sign an informed consent form (Attachment B). Informed consent form is to be retained for one year by the instructor
- C. Biohazardous Waste Disposal Guidelines sheet [SAFE 3.0.D] may be printed and posted as a quick reference to the disposal guidelines found in this procedure.

XV. ATTACHMENTS

[SAFE 3.0.A - Safety Agreement](#)

[SAFE 3.0.B – Informed Consent form](#)

[SAFE 3.0.C – Biohazard Safety in the BMS Laboratory Training Certificate](#)

[SAFE 3.0.D – Biohazardous Waste Disposal Guidelines](#)