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BioSide Lines

FOSTERING SAFE WORK & LABORATORY PRACTICES THROUGH TRAINING & EDUCATION

Safe Movement of Biological Materials

When you see someone walking outside the laboratory carrying a test tube while wearing gloves and a lab coat, what do you think? Do you ask yourself if the person is wearing protective gear because the test tube contains a pathogen? Could everything they've touched - doorknobs, switches and elevator buttons - be contaminated? Has that "someone" ever been you?

There are occasions when potentially hazardous biological materials must be transported out of the lab and through non-lab or public areas where lab coat and glove use is discouraged, or not allowed. How can this be done safely? Simply follow a few easy steps! First, place your test tube, bottle or other specimen container into a sturdy

bin with a secure-fitting lid and lined with absorbent material. Decontaminate the outer surface of the bin so that it can be handled without gloves; transport heavy or large items with a cart. Once you've reached your destination don gloves and lab coat and remove your specimen from the bin.

If moving material between buildings add a layer of padding or a third outer container around your material that could withstand a drop or impact. Attach a label with emergency contact information (name, laboratory, phone) and any precautions to take with your container.

Be prepared to deal with a spill on the spot. Know the location of spill kits in your area and be able to

manage a small spill quickly by keeping some simple items with you as you transport materials. Some absorbent towels and a small bottle of disinfectant will allow you to clean small spills or address a larger spill before it gets out of hand. Spill protocol information is available on the Office of Biological Safety (OBS) website (www.biosafety.wisc.edu), under the Emergency Response / Emergency and Spill Procedure page.



BIO-NEWS

BIOLOGICAL SAFETY CABINET (BSC) UPDATE

The current standard recommends that BSCs be considered for replacement every 15 years. In addition, servicing the discontinued Baker Biogard BSCs is becoming increasingly difficult due to a lack of parts. The Environmental Health Program (EHP) recommends you check your BSCs model type and date of manufacture to determine if and when replacement may be necessary. Contact EHP at 608-262-1809 for more details.

POLICY UPDATE:

Safety in Shared Laboratory Facilities

The sharing of equipment, laboratories and other facilities is becoming increasingly common within departments and buildings. Some safety considerations that arise with shared facilities and equipment include:

Different biohazard levels

– Materials requiring BSL-1 and BSL-2 practices and containment are often used in the same research area. In such instances, because safety measures must protect against the highest level of biohazard, BSL-2 precautions and containment are necessary (see inset).

Hazard communication

– Everyone using shared equipment or laboratory spaces must be aware of the types of materials being utilized as well as precautions necessary for use. This includes specific requirements for the use of personal protective equipment (PPE) such as lab coats, eye protection and gloves. One essential method of communication is the use of appropriate signage such as yellow laboratory emergency information placards and (where appropriate) BSL-2 door placards. Emergency contact information for each lab group should be readily available. Usage require-

ments for equipment and biohazard stickers should be posted where necessary.

Labeling – Research materials such as chemicals or biological materials in shared spaces should be clearly labeled with a name, date and identity of the materials.

IBC Policy on Shared Use of BSL-2 Facilities (IBC-Policy-009, effective 10/6/2010)

The UW-Madison Institutional Biosafety Committee (IBC) has adopted a policy to address situations where researchers who conduct activities under BSL-1 containment were assigned to work in an area where work is conducted by others under BSL-2 containment. The policy clarifies that all researchers in such areas must comply with BSL-2 procedures as described in the 5th edition of the Biosafety in Microbiological and Biomedical Laboratories (BMBL; <http://www.cdc.gov/biosafety/publications/index.htm>).

Training – Laboratory-specific safety training includes relevant information about all research conducted in those areas. This may require cross-training between research groups. Training should also include spill control and emergency response procedures.

Awareness of signs and symptoms of exposure

– The possibility of exposures or lab-acquired infections

needs to be recognized. Material Safety Data Sheets (MSDSs) or equivalent information on each hazardous material present must be readily available.

Equipment and room maintenance – Individuals should be designated to coordinate routine maintenance and repair of

shared equipment and regular cleanup of shared facilities. It may be preferable to alternate house-keeping responsibilities between user groups, including restocking of hand-washing materials, testing of eyewashes and autoclaves, and changing autoclave bags when full.

Hazardous material spills must be cleaned up quickly and appropriately. All users of the area must know the location of biological and chemical spill control materials; also see general recommendations and spill kit information on the OBS website under the Emergency Response /

Emergency and Spill Procedure page.

The operation of shared facilities needs to be managed to optimize efficiency and safety. Each facility, department or building should decide how best to govern how the facility is shared to ensure that appropriate safety precautions are in place. Ongoing communication and training to promptly and effectively address any issues that arise is a fundamental goal.

LABORATORY SAFETY:

Eye Protection

Safety Eyewear

Your eyes are extremely vulnerable to injury and protecting them can be an easy thing to do if you follow basic preventative measures. Individuals should wear eye protection at all times when in a laboratory, not just during activities involving known hazardous materials. Inexpensive safety glasses are available from Material Distribution Services and other laboratory equipment suppliers. Contact lenses may be used with discretion and in combination with additional eye protection. This is particularly important as certain chemicals can cause contact lenses to bond to the eyes. For higher hazard activities, side shields on glasses, goggles or face masks may also be needed.

Prescription safety glasses, in a variety of stylish frames, may also be purchased at minimal cost from the Environment, Health & Safety Department (EH&S) under the state contract; call ahead to set up an appointment (608-890-1051). Many departments on campus will pay the cost of prescription safety glasses required for work. Ask your supervisor for details or go to the EH&S website (www.safety.wisc.edu) for more information.

Emergency Eyewash Stations

Like fume hoods and Bunsen burners, eyewashes are important components of all laboratories. These devices can help save your sight in the event of gross chemical contamination. There should be a functioning eyewash within 10 seconds (~55 ft.) clear travel of your workspace (ANSI Z358.1-2004). Eyewashes should be checked weekly by laboratory personnel to ensure water flow and quality. This helps clean out any rust, scale deposits or bacteria that may accumulate. For more information, see the Facilities and Containment / Emergency Showers and Eyewash page at the OBS website.

If you do not have a functional eyewash close to your lab area, please contact EH&S General Safety group at 608-265-5000 for a consultation/visit to determine eyewash installation options (inset is an example of a Guardian Eyewash/Drench hose unit).



OBS UPDATE:

Message from the BSO

As I am well into my second year serving as the Biological Safety Officer (BSO), I wanted to provide a brief update about OBS activities. As of November 2009, the Biosafety staff was increased to 10 full-time and two part-time employees. Among other improvements, this increase has enabled us to streamline the process for handling protocols, develop a robust training curriculum and implement a lab inspection program for all labs with Biosafety protocols (we are on schedule to complete the first round of these lab visits by mid-April).

I have received a great deal of feedback, mostly positive, and would like to thank all of

you for being patient during our continued efforts. I am confident that we will continue to improve the way we conduct business in a manner that supports you, the researcher, in being successful while helping to ensure compliance and the safety of you, your staff and students. My singular focus is to assist you in keeping the University of Wisconsin-Madison a top-ranked research university.

Thanks again for helping to make our first full year a successful one. As always, feel free to contact me with feedback, good or bad, at jturk@fpm.wisc.edu.

Sincerely,
Jim Turk, Biological Safety Officer



Biosafety Q&A

Cell Lines

Human and animal cell cultures have numerous applications in biomedical research, and their use has increased greatly in recent years. Questions commonly arise regarding the required safe handling practices of human and nonhuman primate cell lines and related materials. We have addressed some of these questions below:

What is the difference between primary and established cell lines? Do I have to handle them differently?

Cells cultured directly from a subject are called **primary cells**. Other than some cells derived from tumors, most primary cell cultures have limited lifespan. An **established** or **immortalized** cell line has acquired the ability to proliferate indefinitely either through random mutation or modification. Both primary and established human cell cultures are subject to Biosafety Level 2 (BSL-2) precautions and handled as potentially infectious materials. This applies even if the cell line has been rigorously tested for the presence of numerous human pathogens, such as Hepatitis B and Human Immunodeficiency Virus (HIV). See Appendix H of Biosafety in Microbiological and Biomedical Laboratories (BMBL) at www.cdc.gov/biosafety/publications/index.htm.

Why does the Office of Biological Safety (OBS) tell you these cells need to be handled as potentially infectious material (PIM) with BSL- 2 precautions and containment?

It is impossible to test cell lines for every known and unknown human pathogen. Just because the cells are negative for some common pathogens does not mean they are free of all pathogens. It is UW-Madison policy that all human and non-human primate cells, established and primary, are to be handled at BSL-2.

What type of containment do I need for well established cell lines like HeLa? Are they really considered infectious?

Based on the BMBL, the UW-Madison Institutional Biosafety Committee (IBC) has determined that all primary and established human and nonhuman primate cell lines should be handled with BSL-2 practices and containment (see UW-Madison Biohazard Recognition and Control policy). Precautions include use of appropriate personnel protective equipment (PPE), such as gloves, eye protection, and a lab coat. In addition, materials should be handled in a biosafety cabinet (BSC) and decontaminated prior to disposal.

What training do I need to work with human and non-human cell lines, tissues and body fluids?

The laboratory you currently work in should provide laboratory-specific safety training, related to these materials. In addition, mandatory Biosafety training modules are required for anyone working under a biosafety protocol. These include **Biosafety 101**, **Biosafety 104** and **Biosafety 201** (see the OBS website, and look under the Training tab for additional information). These trainings, along with the Bloodborne Pathogen (BBP) training through the Occupational Health Program, fulfill the required trainings for these materials. More information on the BBP training may be found at www2.fpm.wisc.edu/bbp/training/train.htm.



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