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BioSide *Lines*

FOSTERING SAFE WORK & LABORATORY PRACTICES THROUGH TRAINING & EDUCATION

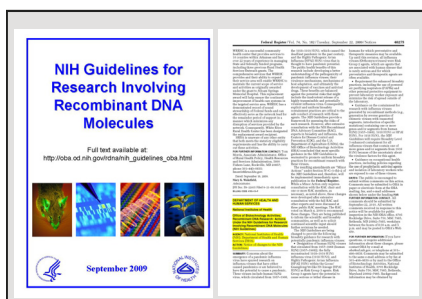
Who's New and Who's Who

The UW-Madison Office of Biological Safety (OBS) is pleased to announce the addition of seven new biological safety staff members. Joining Biological Safety Officer Jim Turk, Assistant Biological Safety Officer Jason Keaton, and Biosafety Specialist Marisa Trapp are Biosafety Specialists Jim Beduhn, Stephanie Kutz, Ann Larson, and John Wendt.

Biosafety Trainers Jeff Nytes and Tara Schnell are adding the excitement back into biological safety training as they improve and expand the training curriculum. Rebecca Moritz also is a great asset as the new Research

Compliance Officer. The new staff have diverse, scientific backgrounds, including previous positions at Covance Laboratories, UW-Madison research labs, UW-Madison Chemical Safety, and UW-Madison Occupational Health & Safety.

You may have met a few of us already as we visit labs around campus. With a wide variety of experience, we are here to be a resource and provide support related to biological safety regulations and standards. We hope you have already noticed changes for the better as we continue to enhance the biosafety program.



BIO-NEWS

AMENDMENTS TO THE NIH GUIDELINES

2009 revisions to the NIH Guidelines were published in the Federal Register and became effective September 22, 2009. The revised version of the [NIH Guidelines](http://www.fda.gov/oc/ohrt/nihguidelines.html) should be consulted when assessing recombinant research.

AUTOCLAVE EFFICACY TESTING:

Why relying on indicator tape may not be enough

You push the start button and the machine kicks on as usual, its gauges display prescribed temperature and pressure settings and after so many minutes the cycle appears complete. Upon further inspection that little piece of indicator tape has turned color. Is it enough? Can the material now be safely disposed in the trash?

Autoclaves are a common and important fixture in many laboratories. They provide an effective and economical method of sterilization through the application of moist heat under pressure. But failure to completely sterilize materials not only can interfere with research results, but also unnecessarily raises the risk of serious health hazards. So knowing whether your autoclave is working optimally is an important question and one that should be asked frequently.

While it has useful purposes, heat-sensitive indicator tape is insufficient in determining if an autoclave is operating effectively and may give a false sense of security if relied on as a primary testing method. Heat-sensitive indicator tape only shows that a high temperature (i.e. 121°C) was reached, but does not provide any indication if steam dispersal, air removal, adequate pressure and exposure time were attained during the autoclave run

cycle. Instead, two important procedures should be followed to assure sufficient functioning of an autoclave.

First, ensure an autoclave is performing properly by conducting routine maintenance. Follow the manufacturer's recommendations for preventative maintenance, performing daily and weekly maintenance procedures described in the owner's manual, and make sure all contractors are approved by the manufacturer. Contact your building manager for specific questions concerning autoclave maintenance and repair.

Secondly, regular efficacy testing with biological or chemical indicators should be performed. It is important to verify that conditions adequate for killing microorganisms have been reached inside the material. Testing also helps provide continuous assurance of an autoclave's ability to sterilize. In most situations, this testing should occur monthly.

Also, keep in mind that although most autoclave bags or tapes are imprinted with a temperature sensitive, color-changing dye, a positive reading does not ensure that the innermost parts of a large load are also sterile. Efficacy testing indicators should be buried in the center of a load to validate adequate steam penetration.

Efficacy test results should be recorded in a log book and made accessible for all lab personnel in order to prevent problems with sterilization of research materials and waste.

If you are using shared autoclaves and are unsure whether efficacy testing is conducted, we recommend contacting your building manager or others who may be charged with autoclave oversight to discuss testing procedures.

EFFICACY TESTING PRODUCT EXAMPLES

BIOLOGICAL (*Bacillus stearothermophilus* spore testing):

- ◆ SporAmpule® Biological Indicator
- ◆ ProSpore Ampoule Self-Contained Biological Indicator

CHEMICAL:

- ◆ 3M™ Comply™ Steri-Gage™
- ◆ Sterilometer-Plus®

Indicators can be ordered through MDS web ordering system vendors, such as Fisher Scientific, or contact OBS for assistance.

TRAINING FORUM:

Are you certified to ship biohazardous materials?

A colleague in New York is expecting a llama blood specimen from your lab. So get a box, call FedEx and you're good to go, right? Wrong!

There is more to shipping a biological specimen than a packing box and an address. Many biological specimens are considered hazardous materials when shipped commercially due to the fact that these materials can pose a serious danger to anyone who might come in contact with the shipment.

The shipping of hazardous materials is heavily regulated by the [U.S. Department of Transportation \(DOT\)](#) and the [International Air Transport Association \(IATA\)](#). Therefore, it is critical that one carefully follows the rules so potentially unsafe conditions are minimized. Severe penalties can be imposed including fines and possible jail time for violation of these regulations.

Accordingly, the law requires anyone involved in the hazardous materials shipping process to be properly trained and certified *before* initiating a shipment.

The UW-Madison Office of Biological Safety offers focused training on shipping infectious and biological substances. This training covers only biological materials and associated substances (such as dry ice) and is available online for new trainees and those who need to recertify. In addition to the online training, new trainees must attend a hands-on packing workshop (registration is available through the OBS website). The workshop is an optional step for recertification. Certification through the OBS is valid for two years. OBS will provide certificates when training is completed; individuals must retain certificates as proof of training.

Please contact OBS for additional questions regarding bio-hazmat shipping training, materials or your certification status.

POLICY UPDATE:

Reporting potential exposures to biohazardous materials

The online ***First Report of Biological Exposure or Release Event*** form should be submitted within 24 hours of any potential exposure to or release of an organism or biological toxin. Anyone can submit the form, although it is preferred that a PI, lab manager or other senior lab member report the incident.

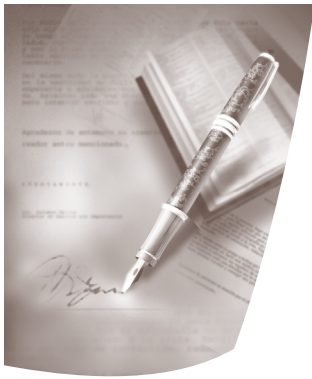
Potential exposures and releases include: needle sticks, animal bites, aerosol exposures, exposures to pathogenic and recombinant non-pathogenic organisms, other incidents potentially resulting in disease, as well as spills outside primary containment and potential releases to the environment. Unauthorized releases of transgenic animals or plants should also be reported on this form.

Submitting the form to OBS is a two-step process. First, click the "submit" button after completing the form. An email with the attached form is subsequently generated, which you should then send from your email client. We encourage labs to practice filling out the form and printing completed sample forms.

When submitted, this report form provides the Office of Biological Safety and the Occupational Health Program with information to ensure proper actions have been taken, including appropriate medical care, and it helps the University meet NIH reporting requirements.

The report form is located on the OBS homepage. Additional exposure response guidance can also be found on our website under "Emergency Response."

Please contact OBS for help filling out the form or questions about its use.



Biosafety Q&A

Universal Precautions in Biological Research

What materials are considered potentially infectious?

OBS promotes the Universal Precautions approach to infection control, in which all human blood and certain human body fluids are treated as if infectious. OBS also regards cells derived from human body fluids and tissues as an occupational risk to persons handling these cultures. This includes established cell lines, since it has been demonstrated that many of these lines contain active or latent viruses. Even if a cell line has been rigorously tested for every known viral agent, there are presumably additional pathogens that remain unidentified.

What policies and procedures apply to those working with potentially infectious materials?

The OSHA Bloodborne Pathogen Standard should be applied to laboratory work with human blood, tissues, body fluids and cell lines, according to the 5th edition *Biosafety in Microbiological & Biomedical Laboratories* (BMBL). Additionally, all laboratory staff working with human cells should be enrolled in and work under the policies and guidelines established by the University's *Bloodborne Pathogen Exposure Control Plan*.

Where can I get more information on the University's Bloodborne Pathogen Exposure Control Plan?

Contact the Occupational Health Program at 265-5000. Other useful references include:

5th edition BMBL: <http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm>

Occupational exposure to bloodborne pathogens; final rule. 1991. 29 CFR, Part 1910.1030. Federal Register 56(235).



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