WELCOME FROM THE BSO

As stated on the Biosafety Webpage, “Oklahoma State University has a standing tradition of promoting health and safety in laboratories and the environment. A safe and healthful laboratory environment is the product of individuals who are well trained, technically proficient in safe practices, and share responsibility for their own safety and for the safety of their colleagues, their community, and the environment.” In this edition of “The BioZone” you will find specific information for development of laboratory/facility specific biosafety manuals. While these manuals are not intended to cover every aspect of biosafety, essential basic procedures, precautions, and guidelines should be included. It is our hope that these manuals will be extensively used to train individuals and emphasize good microbiological and laboratory practices and techniques. Additionally, information regarding differences between the fields of biosafety and biosecurity are provided to provide a better understanding of the specific topics that fall under each area. Lastly we appreciate all of the feedback regarding our newsletter and look forward to the continued interest you all have shown.

Laboratory Specific Biosafety Manuals

The manual should be designed to: 1) protect employees, visitors, and the surrounding community from the health hazards in the laboratory; 2) meet applicable federal, state, and institutional guidelines or requirements; 3) define responsibilities for laboratory safety; 4) provide laboratory specific standard operating procedures; 5) provide information about safe work practices, safety equipment, and personal protective equipment; and 6) serve as a resource for laboratory staff.

Key Elements of a Laboratory Specific Biosafety Manual

- Responsibilities
- Identification of biohazards
- Entry requirements
- General laboratory safety practices
- Identification of operations that require engineering controls and safety equipment
- Administrative controls
- Safe handling of sharps
- Waste processing
- Disinfection/spill response
- Emergency procedures
- Training requirements and documentation
- Pest control management
- Transport of infectious materials protocol

The above information was extracted from a guidance document published by the Centers for Disease Control (CDC). More specific information regarding each of the key elements above may be found on the Biosafety webpage at http://compliance.vpr.okstate.edu/ibc/biosafety%20manual%20page.doc.
BIOSAFETY vs BIOSECURITY

BIOSAFETY
Protecting workers, the public and the environment from unintentional exposure to biohazardous materials

Examples of Biosafety:
• Personal Protective Equipment
• Training/knowledge
• Safe practices, such as safe sharps usage, minimizing splashes, handwashing
• Biosafety cabinets
• Autoclaves
• Disinfectants
• Laboratory design/ventilation
• Hazard awareness signage
• Medical surveillance (Occupational Medicine)
• Vaccinations
• Proper transport of materials

BIOSECURITY
Preventing theft and intentional misuse of biohazardous materials

Examples of Biosecurity:
• Fences
• Guards
• Locked buildings
• Security cameras
• Locked doors/monitored card access
• Challenging unknown visitors
• Locked storage units
• Documented inventories
• Coded labeling of materials
• Security risk assessment of personnel
• Registration/permits

Did you know??
"We spend $6 billion on athletic shoes a year. The National Cancer Institute spent $2.4 billion in 1997 trying to find a cure for cancer."

Have a SPILL?? DON’T PANIC!!

Attached is a Biosafety Spill Procedure. This document represents the minimum procedures for cleaning up a biohazardous spill. Please keep as a reference. If you would like an electronic version to manipulate to make specific to your laboratory, please contact Jennifer at jennifer.nangle@okstate.edu.
Biosafety Spill Protocol

The release or spill of biohazardous material will require a different response based on several factors including the actual agent and the associated risks, the amount of material spilled, type of spill and the location of the spill. The following guidelines provide a quick reference to individuals responding to a biohazardous spill or release. Each lab working with biohazardous material must have a lab specific spill response procedure.

Incidents must be reported to the Biological Safety Officer (BSO) (4-3203 or 880-4407) if containment level is BSL-2/ABSL-2 or BSL-3/ABSL-3. The Incident Report Form, located at http://compliance.vpr.okstate.edu/ibc/forms.htm, must be completed and returned to 219 Cordell North within 48 hours of the incident.

Personnel Exposure to Infectious Material

In the event that a substance enters the mouth, eyes, lungs, or penetrates comes in contact with skin, follow the instructions below and seek immediate medical attention.

- Remove all contaminated clothing and place it in a biohazard bag, the biological safety cabinet, or a biohazard waste container.
- Vigorously wash exposed area (if possible) with soap and water or disinfectant for one minute. If mouth or eyes are exposed, flush with water for one minute.
- If others are present in the laboratory warn them of the biohazard.
- Report the spill to the Principal Investigator or Lab Manager.
- If an individual is injured during work: Go to OSU Student Health Services Center or Stillwater Medical Center to obtain emergency care.
- On-site emergency assistance can be obtained by dialing 911.

Personnel working in a Biosafety Level 2 or 3 laboratory, or who have performed duties in the past 6 months in an area containing infectious materials, must notify their supervisors and seek medical attention if they:

- Develop a fever greater than 100.4 °F
- Display initial onset symptoms consistent with contraction of the infectious agent used in the laboratory.

Spills inside a Biosafety Cabinet (BSC): (spill or release inside a BSC does not pose a risk to others in the lab or to the environment)

- Leave the BSC turned on.
- Individual working in the BSC at the time of the spill should remove contaminated gloves, lab coat and discard into the biohazard waste container.
- New Personal Protective Equipment (PPE), including a lab coat and gloves, should be put on prior to placing arms and hands inside the cabinet.
- Cover spill with paper towels or other absorbent material and carefully pour disinfectant onto the spilled material and do not create any splashes.
- Wipe cabinet walls, work surfaces, and equipment located in the BSC with an approved disinfectant.
- Allow the disinfectant to stand for 20-30 minutes (or longer depending on the agent in use).
- All disposable material should be removed from the cabinet and placed into the biohazard waste container.
- Reusable material should be wiped down and either autoclaved or thoroughly chemically disinfected prior to reuse.
- If material is spilled into a drain pan, be sure that disinfectant is poured into the pan and allowed to sit for a 20-30 minute contact time. This liquid should then be poured into a container and autoclaved appropriately.
- Clean up person should remove PPE and discard into the biohazard waste container.
- Hands should be thoroughly washed and if clothes were contaminated, they should be changed prior to returning to regular work activities.
Minor Spills (less than 10 ml and generating little aerosol) on equipment, laboratory benches, walls, or floors:

- Alert everyone in the laboratory of the spill and ask for assistance with clean up.
- If you or your personal clothing is contaminated, do not leave the area. Ask for help in retrieving PPE and the spill response kit.
- Put on clean PPE including gloves, lab coat, and facial protection.
- Cover the spill area with paper towels or other absorbent material.
- Carefully pour disinfectant onto the spilled material and do not create any splashes.
- Allow 20-30 minutes of contact time.
- Use forceps to pick up broken glass and discard into sharps container.
- Discard cleanup materials into a biohazard waste container.
- Re-wipe area of spill with disinfectant and discard material into biohazard waste container.
- Remove PPE and discard into the biohazard waste container.
- Wash hands and other contaminated areas again with soap and water.

All other biohazardous material: (If agent involved in the spill is infectious via mucous membrane exposure or inhalation, and the spill has resulted in the creation of aerosols, the lab should be evacuated for 30 minutes to allow the aerosols to settle).

- Evacuate everyone, leave the biological safety cabinet operating and if possible place cultures inside cabinet.
- If personal clothing is contaminated, remove all outer clothing and place it into biohazard waste container, thoroughly wash hands and other apparently contaminated areas with soap and water.
- Leave the laboratory for 30 minutes to allow dissipation of aerosols created by the spill, close laboratory doors and post warning signs to prevent others from entering the laboratory.
- Report the accident to the Principal Investigator and to the BSO (4-3203 or 880-4407). Re-entry and appropriate PPE will be jointly decided upon by the PI and the BSO.
- Cover the spill area with paper towels or other absorbent material.
- Carefully pour disinfectant onto the spilled material and do not create any splashes.
- Allow 20-30 minutes of contact time.
- Pick up broken glass using forceps or other mechanical means (autoclavable broom and dust pan), discard in sharps container and autoclave.
- Use paper towels to wipe up the spill, working from the edges into the center.
- Clean the spill area with fresh towels soaked in disinfectant.
- Transfer all contaminated materials, including PPE, to biohazard waste container, cover with suitable lid, and autoclave according to standard directions.
- Wash hands with soap and water.

In the event of a major release of a biological agent that is infectious via mucous membrane exposure or inhalation, evacuate the area immediately. Everyone should gather at a designated sight in the cold zone and wait for assistance and/or instruction.

COLD ZONE = at least 100 feet away from the building UPWIND