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- If this is the first time you are using these training modules in laboratory safety, you should read the instructions for moving from location to location within the training modules. Bring the pointer to the following rectangle (dashed blue) where it turns into a pointing hand (if adobe is set with the “hand icon” in the tool bar) and click the left mouse button (typical).
  - Go to [Instructions](#). If you have not read "[Expectations](#)," do so now.  
Do you wish to go to the [objectives for this training module](#)?
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# General Reminders and Requirements for Authorized Users of Level I & II Biohazards (EHS 53)

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Authorized Users and Authorized Occupants in Laboratories with Level I & II Biohazards shall:

- Comply with the requirements, conditions and procedures of the "University's Safety and Health Manual".
- Comply with the requirements, conditions and procedures of Part I of the "Laboratory Safety Manual" as presented in [EHS TM 51](#), "Basic Laboratory Safety" of this Safety Training Course.
- Comply with requirements, conditions, and procedures of this part (LSM-Part III as addressed in this training module) and all laboratory-specific Standard Operating Procedures.
- Comply with the requirements, conditions, and procedures specified in the Recombinant DNA Guidelines ([See LSM-III-3.6](#)) if the work involves recombinant DNA. Contact the chair of the Recombinant DNA committee for guidance.
- Comply with the requirements, conditions, and procedures specified in the Blood Borne Pathogen Program under the University's Safety and Health Committee if work is carried out under conditions in which contamination with human blood, fluids, or tissues is a potential problem. [See LSM-III-3.5 or EHS TM 17.](#) *Cf page 6.*
- Enforce laboratory-specific access restrictions which are usually posted on the "Laboratory Entrance Posting". [GT3](#)

# General Reminders and Requirements for Authorized Users of Level I & II Biohazards (Con't)

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For Authorized Users of Level I & II Biohazards :

- Carefully follow the basic rules of biosafety as stated in LSM Part I-2.6.3, I-2.5.3.11 & I-2.6.5, I-2.5.3.6, I-6.2.1.4, I-2.5.3.10 & I-3.6, I-2.5.3.7, I-2.5.3.5, and I-2.5.3.4 (These rules are covered in [EHS TM 51](#) of this Laboratory Safety Training Course .)
- Comply with any special precautions stipulated in the Safety Data Sheets for specific biohazards.
- Restrict the use of needles and syringes or any other "sharps" to those procedures for which there are no alternatives; use all "sharps" carefully to avoid self-inoculation.
- Use only needle-locking syringes or disposable syringes with needle as an integral part of syringe for injection or aspiration of Biohazards.
- Place contaminated sharps in a hard-walled container (leak- and puncture proof) for transport to a processing area for decontamination-- preferably by autoclaving.
- Do not use or handle Level III or IV Biohazards until trained for those levels of work.
  - ▶ Caution: Check the level assigned to a biohazard before you handle it for the first time.

# Disinfection and/or Sterilization and Aseptic Techniques

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For Authorized Users:

- Use aseptic techniques when protection from Biohazards (infectious agents) is required.
  - ▶ Note: Inoculation loops and other similar tools must be sterilized not only before use but also after use to avoid the dispersal of infectious agents.
- Isolate equipment and glassware potentially contaminated with Biohazards (infectious agents) and appropriately mark/label such materials until sterilization/disinfection is accomplished.
  - ▶ Note: This means that such equipment and glassware must be kept in a "reserved area which is appropriately labeled" and in appropriate containers.
  - ▶ Note: Authorized Occupants shall not handle or touch anything within such a "reserved area".

# Disinfection and/or Sterilization and Aseptic Techniques (Con't)

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For Authorized Users:

- Sterilize or disinfect contaminated equipment/glassware in an expedient fashion using the procedure stipulated in the laboratory-specific Standard Operating Procedures.
  - a) Use appropriate protective clothing and equipment in handling contaminated items.
  - b) Use sterilization equipment as specified by equipment manuals and/or laboratory-specific Standard Operating Procedures.
  - c) Use appropriate protective equipment and/or laboratory-specific procedures in loading and unloading autoclaves to protect against accidents.
  
- Disinfect work areas at the end of an experiment or the end of the day whichever comes first using the laboratory-specific disinfection procedures. (Note: This is the minimum frequency. Judgment is to be used in deciding whether the frequency should be greater.)
  
- Disinfect work areas after any known contamination episode or suspected episode.

# Fluids with Biohazards (cultures, tissues, body fluids, etc)

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Authorized Users shall:

- Collect, handle, process and store fluids with biohazardous agents in leak-proof containers provided by the Authorized Laboratory Supervisor.
- Note: Disposal of biohazardous waste is addressed in [EHS TM 51](#), “Basic Laboratory Safety” of this Training Program. ([LSM Part I-6](#) and [LSM Part III-6](#)). Consider [H.M. W.M. User Training](#), section 1 and 3 part of this module.
- Caution: Review the requirements listed in [page 2](#) when the potential for exposure to human or primate “Bloodborne Contaminants” exists.

# Special Requirements in the Use of Animals

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For Authorized Users:

- Handle and care for animals and associated equipment and materials as specified by the "policies and procedures" of the Animal Care Committee.
  - ▶ Note: The latter specify the responsibilities for cleaning cages, the disposition of bedding materials, etc. (No one is an AU of animals until training in these policies and procedures has been obtained.)
- Do not permit animals in the laboratory other than those being used in the experiments.
- Appropriately decontaminate cages, preferably by autoclaving, before they are cleaned and washed. (Note: This applies to Authorized Users who have been approved or instructed to perform this function.)
- Put on surgical-type masks before entering animal rooms housing nonhuman primates.
- Use laboratory coats, gowns, or uniforms in the animal room and remove them before leaving the animal facility. ("Should" for Animal Biosafety Level I and "shall" for Animal Biosafety Level II)

# Shipping and Transporting Biohazardous Agents/Organisms

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- Authorized Users shall not ship or transport biohazardous agents/organisms without prior consultation with EHS concerning DOT, EPA and other regulations that must be satisfied. Only someone with training in these regulations may prepare and send shipments or transport them. *Cf p15*

# Safety Data Sheets and Labeling

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Authorized Users (AU) shall:

- Comply with the requirements of the Safety Data Sheets for specific biohazards.
- Label containers with hazardous biological agents with the a label bearing the standard biohazard symbol and the name of the hazardous biological agent. (See also [I-3.4.4](#) or [TM 51](#), “Basic Laboratory Safety”) [Include person and date.]
  - ▶ Note: In some cases, labeling the tray or secondary container may suffice as a temporary measure. This is not permitted for stocks or materials stored with other agents and materials.
  - ▶ Warning: The discovery of "orphan" (unknown and unclaimed) containers with any hazardous materials, which is inclusive of hazardous biological agents, is clear non compliance with the safety requirements of this Laboratory Safety Manual!
- Clearly define and label an area reserved for work with a specific hazardous biological agent. (The label shall have the standard biohazard symbol and the name of the agent.)
  - ▶ Note: Authorized Occupants shall not make contact with such a reserved area or any container in such a reserved area.

# Warning signs and Laboratory Entrance Posting (LEP)

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All individuals shall:

- Comply with the requirements of warning signs and the LEP.
- Cooperate in maintaining required warning signs and the LEP.
- *See also LSM Part [1-3.4.5](#) and [3.4.6](#) and [EHS TM 51](#), “Basic Laboratory Safety” of this Safety Training Course.*

# Biological Safety Cabinets

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Authorized Users shall:

- Use Biological Safety Cabinets according to the laboratory-specific Standard Operating Procedures.
- ▶ Note: Typical Instructions: *(See also [EHS TM 51](#), “Basic Laboratory Safety.” of this Laboratory Safety Course.)*
  - a) Carefully avoid actions which might disrupt the inward airflow through the work opening. (Includes control of traffic past the cabinet--the traffic that is necessary must be gentle and slow.)
  - b) Minimize the frequency of insertion and withdrawal of hands and arms into the cabinet. (Plan work ahead of time and provide necessary [but not more than necessary] supplies and equipment to perform the task before beginning the work with the agent.)
  - c) Prevent or minimize opening and closing of doors to the room in which the cabinet is located--whether the lab itself or an isolation booth.
  - d) Place materials inside the cabinet in such a fashion that the laminar inward flow of air is not disrupted.

# Sources of Infectious Wastes Requiring Special Disposal Procedures

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- Operations that involve processing and/or analysis of specimens for identification, diagnosis, separation, or purification of cells or substances from human or animal blood and body fluids (which may or do contain infectious agents).
- In vitro or in vivo methods for the propagation of pathogenic microorganisms/infectious agents.
- Operations involving any handling of infected animal carcasses.
- Production of biological products in which pathogenic microorganisms/infectious agents are used.

# Management of Infectious Wastes

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Authorized Users shall:

- Inactivate, at the earliest stages possible, all infectious agents in the waste.
  - Provide total containment of the waste until inactivation has been accomplished and verified.
  - Follow the laboratory-specific procedures for the decontamination/inactivation of biohazardous waste including carcasses with infectious agents. See [LSM III.2.2.2](#)
- Reminder:*                    [Hazardous Materials W.M. User Training](#) is now part of this lesson.

# Disposal Procedures for Biohazardous Waste

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For Authorized Users:

- Process biohazardous waste according to the laboratory-specific Standard Operating Procedures.
- Label containers with inactivated waste (no longer a biohazard) with a wide strip of masking tape bearing the words, "sterilized" or "decontaminated".
- Personally take containers of inactivated or treated waste (no longer a biohazard) to the dumpster and **do NOT** ask service personnel to do so.
- Do not dispose of viable or untreated suspensions of infectious waste in the sewer.

# Disposal Procedures for Biohazardous Waste (Con't.)

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For Authorized Users :

- May release inactivated/treated waste liquids (no longer a biohazard) into the sanitary sewer system if the liquid would otherwise be suitable for disposal via the sewer system. (No other prohibited materials are in the liquid and the material is in a physical state appropriate for release in the sewer.) Plenty of water should be used to provide proper flushing and the sink drain should be decontaminated with appropriate chemical sterilizing solution on a periodic basis specified in the laboratory-specific procedures.
- Do not use external waste treatment facilities or deliver infectious waste to commercial haulers until written approval for the proposed procedures has been granted by EHS.  
Note: This constitutes shipment. See [page 8](#) above or *Part III-2.2.6*.

# Monitoring and Record Keeping

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Authorized Users shall:

- Perform all safety surveys and inspections required by laboratory-specific Standard Operating Procedures (SOP's).
- Keep all records required by laboratory-specific SOP's. ([Questions?](#) or [EHS 53 Exam?](#) )