University of Notre Dame
Bloodborne Pathogen Refresher Training

You will now begin the Bloodborne Pathogen Refresher Training.

The following program will review your occupational risks and the steps that you and ND must take to reduce your risks of exposure.

OSHA Standards for Research laboratories is the same as for employees at Health Care Facilities.
University of Notre Dame
Bloodborne Pathogen Exposure Control Program

- A Written Plan (ND Exposure Control Plan) is available at
  http://riskmanagement.nd.edu/assets/13356/bbppol06.pdf
- BBP Training
- Offering Hep. B Immunizations
- Preventing Exposures
- Evaluating & Treating Exposures
- Properly Disposing of Waste
Bloodborne Pathogens are micro-organisms that are present in human blood and cause diseases in humans.

Commonly we emphasize Hepatitis B, Hepatitis C and HIV (Human Immunodeficiency Virus)

Others include Malaria, Brucellosis and Syphilis
In addition to blood, other fluids may also present an infection risk. OSHA defines these as “Other Potentially Infectious Materials” or OPIM. These are listed below.

<table>
<thead>
<tr>
<th>Synovial Fluid</th>
<th>Pleural Fluid</th>
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<tbody>
<tr>
<td>Semen</td>
<td>Amniotic Fluid</td>
</tr>
<tr>
<td>Peritoneal Fluid</td>
<td>Saliva in Dental Procedures</td>
</tr>
<tr>
<td>Pericardial Fluid</td>
<td>Vaginal Secretions</td>
</tr>
<tr>
<td>Cerebraspinal Fluid</td>
<td>HIV or HBV Cultures</td>
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<tr>
<td>Bloody Body Fluids</td>
<td>Unfixed Tissue</td>
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Employer Responsibilities Include

- Implementing a written plan.
- Enforcing good work practices that include disinfecting surfaces, following universal precautions, and proper waste disposal.
- Controlling exposures through the use of needle buckets, biosafety cabinets, needleless IV systems, and self-sheathing needles.
- Training employees initially and through annual updates.
- Providing Personal Protective Equipment (PPE): gloves, lab coats/gowns/aprons, eye protection (i.e., goggles, faceshields, side shields)
- Identifying hazards by proper labeling of: incubators, freezers and centrifuges
- Managing medical wastes
Individual Responsibilities

Your Actions are key to good exposure control. These include:

- Attending training.
- Complying with and enforcing the ND Exposure Control Plan.
- Segregating medical waste properly.
- Properly selecting, wearing, removing, and disposing of Personal Protective Equipment (PPE).
Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV)

- Bloodborne viruses
- Can produce chronic infection
- Transmissible in healthcare and laboratory settings
Preventing Transmission of Bloodborne Viruses

- Promote hepatitis B vaccination as appropriate
- Treat all blood as potentially infectious
- Use barriers to prevent blood contact
- Prevent percutaneous (needle stick) injuries
- Safely dispose of sharps and blood-contaminated materials
Hepatitis B - Symptoms

Symptoms include:

Anorexia or loss of appetite
Vague abdominal discomfort
Nausea and vomiting
Sometimes arthralgias and rash
Jaundice or yellowing of the skin
Fever which may be absent or mild
Hepatitis B – Modes of Transmission

Hepatitis B can be transmitted in three ways:

1. Sexual transmission
   - Either homosexual or heterosexual

2. Parenteral
   - Such as an injury with needles and sharps

3. Perinatal
   - Virus can be transmitted from a mother to her infant during pregnancy
Hepatitis B – Vaccine Available

A safe and effective vaccine against Hepatitis B is available to all “potentially at risk” University individuals.

Contact Risk Management and Safety at 631-5037, if you think you may be at risk and need the vaccination.
Most common chronic bloodborne infection in U.S.
3.9 million Americans (1.8%) have current or past infection with HCV
40% of chronic liver disease HCV-related, leading to 8-10,000 deaths annually
HCV-associated end-stage liver disease most common indication for liver transplants in U.S. adults
HIV – Symptoms

“Within several weeks to several months after infection with the human immunodeficiency virus (HIV), many people develop an acute self-limiting mononucleosis-like illness lasting for a week or two.

Infected people may then be free of clinical signs for Many months to years before clinical manifestations, Including opportunistic infections and constitutional and neurological symptoms appear”.

HIV – Modes of Transmission

- Blood Contacts – needlesticks and exposure of skin and mucous membranes
- Sexual Contact – exchange of vaginal secretions and semen
- Mother to Infant – transmission can occur throughout the perinatal period – during pregnancy, at delivery & through breastfeeding

Although other modes of transmission (i.e., mosquitoes and kissing) have been suggested, none have been substantiated as distinctly different as those mentioned above.
HIV – No Vaccine Available

- Research continues toward the development of an “AIDS” vaccine.
- There is no vaccine available for the prevention of HIV infection.
Examples of agents frequently assigned to BSL-2:
- Bloodborne Pathogens as defined above (except in strict HIV or HBV research, which requires higher containment)
- Other Potentially Infectious [Human] Material (OPIM):
  - Human body fluids/particularly when visibly contaminated with blood
  - Human primary cultures and established cell lines.
- Herpes, EBV, Hepatitis C viruses
- *Listeria monocytogenes*, *Salmonella spp.*
- *Toxoplasma spp.*, *Brugia spp.*, *Plasmodium spp.*
- Non-Human Primate cell lines, primary cells, body fluids or tissues.
Cell line Cultures

- There is a clarification in the OSHA documentation* about established cell line cultures:
  - If they are capable of propagating viruses, they are considered OPIM under the law unless:
    - They have been tested, shown to be free of human pathogens and documented as such by the institution.
    - They should be manipulated at BSL-2. (Cell lines, to protect the culture are already usually manipulated in biosafety cabinets. To achieve BSL-2, add the operator-protective aspects of BSL-2 containment.)
  - ATCC BSL classifications and the fact that human (or non-human primate) cell lines come from ATCC does not assure that the cell lines have been tested and are free of pathogens. See http://www.atcc.org/Portals/1/Pdf/msds_animal.pdf

How do I choose appropriate protective equipment?

First, determine the potential for contact with blood and other potentially infectious materials or OPIM. Then select the items that will prevent your skin, mucous membranes, and clothing from becoming contaminated.

Risk Management and Safety is available for consultation (631-5037)
How to Remove Gloves (1)

- Grasp outside edge near wrist
- Peel away from hand, turning glove inside-out
- Hold in opposite gloved hand
How to Remove Gloves (2)

- Slide un gloved finger under the wrist of the remaining glove
- Peel off from inside, creating a bag for both gloves
- Discard
One of the best techniques for infection control is using plenty of soap and water when washing your hands!
Use Engineering Controls to Reduce Risk of Bloodborne Pathogen Exposures from Needle sticks

- When feasible, “safety” syringe/needle systems should be used to reduce the risk of a contaminated needle stick exposure (when the needle will pierce human skin or be used with human blood or body fluids). When such contamination risk will not be present, ordinary syringe/needle systems should be used.
Employees must report any occupational accident, illness, or hazardous exposure to their supervisor.

Contact Risk Management and Safety 631-5037 if you have any questions.

Contact University Health Services for medical questions 631-7494.
Segregating Medical and Infectious Waste
Occupational Exposure

Reasonably anticipated skin, eye, mucous membrane or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties.
Exposure Incident

A specific eye, mouth, or other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious material that results from the performance of an employee’s duties.
Where do I go to be evaluated and treated for a BBP exposure?

Students (grad and undergrad) in lab for credit go to:
University Health Service  St. Liam’s Hall
631-7497

Employees go to
Notre Dame Wellness Center
Post-exposure Evaluation

- Confidential medical evaluation
- Document route of exposure
- Identify source individual
- Test source individuals blood (with individuals consent)
- Provide results to exposed employee
The biohazard symbol is reserved for indicating material with potential infection risks.

At ND universal precautions are used – all samples with blood/body fluids are considered infectious.
Refrigerators, incubators, and freezers containing or contaminated with biohazardous materials require a biohazard symbol and be stored in a secure/restricted area or kept locked at all times.
Other Issues

Sharps containers must be changed frequently enough so that they never become overfilled.
Additional Precautions for Research laboratory personnel

- Wash hands after handling viable material (even with gloves).
- No eating, drinking, handling contact lenses, applying cosmetics, food storage, in containment. For contacts, wear goggles.
- No mouth pipetting. Use mechanical pipettes.
- Follow safe handling rules for sharps.
- Be careful to minimize aerosols. For techniques that cause aerosols, e.g., centrifugation, the aerosols are contained in a biological safety cabinet.
- Decontaminate work surfaces after use and after spills.
- Disinfect cultures before they go into regulated medical waste.
- Lab directors provide adequate training, have evidence of staff proficiency and require medical surveillance for staff.
Bloodborne Pathogen Training for Research Staff

- Decontaminate work surfaces
- Report spills and accidents, Risk Management and Safety 631-5037,
- For emergencies, 911 from campus phone or 631-5555 from cell phone

Disinfectants do not replace standard microbiological practices or good hygiene!
Biological Spills/Decontamination

- While wearing PPE, cover spill with paper towels
- Soak towels with disinfectant (10% Bleach is effective)
  - Wait 10 minutes
  - While wearing PPE, clean up the spill using paper towels
  - Wipe spill area with disinfectant
  - Dispose of all clean-up materials as biological waste (red bag)

Notify Risk Management 1-5037 if you need assistance
Shipping Specimens & Infectious Agents

Infectious agents and other biological specimens sent from Notre Dame must be labeled and packaged according to DOT regulations. These regulations also require specific training. Contact Risk Management and Safety AT LEAST 48 hours prior to desired ship date to arrange for shipping.
University Recordkeeping
OSHA Requires the following records to be maintained by employers

Medical records include:

- Hepatitis B vaccination status
- Post-exposure evaluation and follow-up results

Training records include:

- Training dates
- Contents of the training
- Signature of trainer and trainee
Bloodborne Pathogen Training

Conclusion

You are at risk for occupational exposure to Bloodborne Pathogens.

The University Exposure Control Plan outlines the steps necessary to reduce infection risk. It can be found at:

http://riskmanagement.nd.edu/assets/13356/bbppol06.pdf

When accidents occur, prompt medical attention is necessary. The CDC recommends treatment within 2 hours.

Prevention is the key.
You have now completed your annual Bloodborne Pathogen Refresher training. Click on the following link to acknowledge your completion:

BBP Training Acknowledgement

(Some browsers are having difficulty recognizing this link. If the acknowledgement won’t open, right mouse click and click on open hyperlink)

THANK YOU!