Narration:

Welcome to our “Sharps Handling and Waste Management” tutorial.

This tutorial will review the requirements for the safe handling and disposal of sharps as well as biohazardous waste management.

Links:
Sharps

• Needles, syringes, scalpels, blades, razors, lancets, contaminated broken glass, glass slides and coverslips, metal collars from vials, glass vials, Pasteur pipettes, any contaminated glass tubing, hemocrit tubes
• Broken plastic ware if it gives a sharp edge that can pierce skin
• All glass slides and coverslips go into sharps containers
  – FFPE, cryostat, unused
  – Do not dispose of glass slides and coverslips as broken glass

Narration:

Sharps

• Sharps are needles, syringes, scalpels, blades, razors, lancets, contaminated broken glass, glass slides and coverslips, metal collars from vials, glass vials, Pasteur pipettes, any contaminated glass tubing and hemocrit tubes.
• Sharps are also broken plasticware if it gives a sharp edge that can pierce skin.
• All glass slides and coverslips go into sharps containers. Do not collect histological slides into cardboard boxes as broken glass. This includes FFPE slides, cryostat slides and unused slides. Unused slides go into sharps because housekeeping staff cannot determine if the slides pose a biohazard.
• Do not dispose of glass slides and coverslips as broken glass.

Links:

Biosafety SOPs Website  https://biosafety.mcmaster.ca/biosafety_SOPs.htm
FHS Safety Office forms and posters
http://fhs.mcmaster.ca/safetyoffice/forms_and_records.html
Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
Sharps Disposal

- Sharps containers are filled to a MAX of ¾ full
- Sharps are disposed in sharps containers
- Closed sharps containers are disposed in biohazard boxes

Narration:
Sharps disposal.

• Sharps containers are to be filled to a maximum of ¾ full.
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Who is at risk of sharps injury?

- Workers who use needles with biohazards
- Workers who handle biohazard and blood samples in glass tubes
- Workers who are involved in transport of waste sharps

Links:

Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm

Canadian Biosafety Standards (CBS) 2nd Edition
http://canadianbiosafetystandards.collaboration.gc.ca/cbs-ncb/index-eng.php
What is the result of a sharps injury?

- Exposure to the biohazard being handled
- Exposure to blood borne pathogens including HIV, Hepatitis B and Hepatitis C

Narration:

What is the result of a sharps injury?

Exposure to the biohazard being handled.
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Limiting Sharps Injury

• Minimize use of sharps where possible
• Use safety engineered sharps where possible
• Only use tongs or forceps to pick up dropped sharps or broken glass
• Do not recap sharps
• Have sharps containers readily available
• Use puncture resistant gloves

Narration:

Limiting Sharps Injury

• Minimize use of sharps where possible.
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Biosafety SOPs Website  https://biosafety.mcmaster.ca/biosafety_SOPs.htm
Managing Sharps Injury

- Follow first aid recommendations found in the PSDS for the organism if available.
- Follow first aid recommendations found in RMM407 for all other exposures.
- Inform their Supervisor of the incident.
- Within 1-2 hours, seek immediate medical attention, bringing information on biological inventory item to which the worker was exposed.
- Complete a Injury/Incident Form and arrange for it to be sent to the FHS Safety Office or EOHSS as soon as possible within 24 hours of the incident as per RMM1000 – Reporting & Investigating Injury/Incident/Occupational Disease Program.

Narration:

Managing Sharps Injury

Follow the first aid recommendations found in the PSDS for the organism if available. Follow the first aid recommendations found in RMM407 for all other exposures. Within 1-2 hours, seek immediate medical attention, bringing information on biological inventory item to which the worker was exposed. Inform the Supervisor of the incident. Complete an incident form and arrange for it to be sent to the FHS Safety Office or EOHSS as soon as possible, within 24 hours of the incident, as per RMM1000 – Reporting & Investigating Injury/Incident/Occupational Disease Program.

Links:

RMM1000 http://www.workingatmcmaster.ca/med/document/RMM-1000-
Narration:

Sharps Resources

- Use of Sharps SOP
- Recapping SOP
- No Sharps Sign
  - Biosafety SOP Website https://biosafety.mcmaster.ca/biosafety_SOPs.htm
- Sharps Poster

Links:

Biosafety SOP Website https://biosafety.mcmaster.ca/biosafety_SOPs.htm
Summary

• Sharps have the ability to pierce or cut the skin.
• Plastic pipettes are not sharps.
• Sharps are discarded in sharps waste containers.
• Take steps to minimize the risk of sharps injury.
• Follow the appropriate treatment and reporting procedures for sharps injury.

Narration:

In summary:

• Sharps have the ability to pierce or cut the skin.
• Plastic pipettes are not sharps.
• Sharps are discarded in sharps waste containers.
• Minimize the risk of sharps injury.
• Follow appropriate treatment and reporting procedures for sharps injury.

Links:

Biosafety SOPs Website https://biosafety.mcmaster.ca/biosafety_SOPs.htm
Hazardous waste management at McMaster follows a number of different frameworks.

The top-tier framework is the institutional program, or RMM502, in the risk management manual. RMM502 outlines the legislations and best practices by which hazardous waste at McMaster must be managed. It also includes the responsibilities of the institution, the safety offices, all supervisors and all workers. The minimum criteria by which waste is managed across the institution, is RMM502.

Each faculty may have specific hazardous waste, or may have specific building and administration processes that require faculty-specific procedures to be followed. In addition, laboratories which are located in a hospital host, may also have host-specific procedures that they must follow. In this case, the host is responsible for the management of the waste and the McMaster supervisors and workers must follow those policies and procedures. It is very important to understand whose policies you are obliged to follow.
There may also be building specific-procedures to follow. These are usually at the
department level and can be found on your departmental website or through your
supervisor or departmental chair or director.

Finally, your laboratory will likely have its own specific procedures for handling
hazardous waste. This should be in the form of SOPs.

It is important to note that all procedures must adhere to the minimum framework
set out in RMM502.

Links:


Transport of Dangerous Goods

- McMaster uses waste disposal companies to remove, treat and dispose of solid biohazardous waste
- EXPENSIVE; segregate waste
- We are responsible for SAFE PACKAGING of these dangerous goods
- Transportation of Dangerous Goods requirements apply
- Do not modify the supplied biohazard waste containers

Narration:

Transport of dangerous goods.

McMaster uses waste disposal companies to remove, treat and dispose of our solid biohazardous waste. This is an extremely expensive service, therefore it is imperative that you segregate your waste carefully to ensure only biohazard waste is deposited into these receptacles. Our biohazardous waste is handled by a number workers once it leaves your laboratory. It is handled by housekeeping staff, by trucking staff and by waste processing and disposal staff. It is critical that we ensure safe packaging of these dangerous goods for the health and safety of those workers.

Since our biohazardous waste is being transported by road to a disposal company, the Transportation of Dangerous Goods Act and Regulations Apply. These regulations are very specific in the type of packaging required for transport. These details form part of the contract for service between McMaster and the waste disposal company. It is therefore critical that you do not modify the supplied biohazard waste containers, or substitute your own.
Links:


Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
Biohazard Waste Definitions

- Ontario uses the "C-4: The Management of Biomedical Waste in Ontario" as a method to categorized biomedical waste for the purposes of segregation and disposal
- https://www.ontario.ca/page/c-4-management-biomedical-waste-ontario

- Anatomical waste (human, animal)
- Fixed Anatomical Waste (human, animal)
- Blood Waste (human, animal)
- Microbiology Laboratory waste
- Cytotoxic Waste
- Sharps Waste
- Cytotoxic Sharps Waste

Depending on the waste category, the waste goes into red bag or yellow bag. If your location provides ONLY red bags, everything goes into red bags.

Narration:

Biohazard Waste Definitions

Ontario uses the C-4 guideline for the management of biomedical waste. This guideline specifies the types of biomedical waste, the required disposal containers, storage temperatures and disposal intervals.

C-4 divides all biomedical waste into:
- Anatomical waste (human and animal)
- Fixed anatomical waste (human and animal)
- Blood waste (human and animal)
- Microbiology laboratory waste
- Cytotoxic waste
- Sharps waste
- Cytotoxic sharps waste

Depending on the waste category, the waste goes into red bag or yellow bag. If your location provides ONLY red bags, everything goes into red bags.
Please see the PDF of the slides and notes for website addresses.

**Links:**


Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
<table>
<thead>
<tr>
<th>Biohazardous Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Solid and Liquid</td>
</tr>
<tr>
<td>• Liquid to be decontaminated and disposed in sanitary sewer</td>
</tr>
<tr>
<td>• Solid biohazardous waste to be segregated</td>
</tr>
<tr>
<td>– Lab disposables and solid culture waste</td>
</tr>
<tr>
<td>– Sharps waste, clean or contaminated with the above</td>
</tr>
<tr>
<td>– Animal carcasses, parts and human anatomical waste</td>
</tr>
<tr>
<td>– Cytotoxic solid waste and cytotoxic sharps &lt; needs sticker</td>
</tr>
</tbody>
</table>

**Narration:**

Biohazardous waste.

Biohazardous waste is also called pathological waste, microbiological waste, biomedical waste, infectious waste or medical waste. Regardless of it’s name, biohazardous waste is either in liquid form or in solid form. It is very important to ensure no liquids go into solid waste and no solids are disposed down the sink or toilet.

All biohazardous liquid waste can either be absorbed onto an absorbent medium such as paper towel, and discarded as solid waste, or it can be collected, decontaminated and disposed in the sanitary sewer. In large part, decontamination and disposal in the sanitary sewer is the easiest and most convenient method. However, care should be taken to follow the manufacturer’s instructions for use of the decontamination solution. Under no circumstances should liquid biohazardous waste be collected, sealed in a container and discarded in biohazard waste containers.
All solid biohazardous waste must be segregated from liquids. Solid biohazardous waste includes contaminated disposable items which have been freed of all liquids, sharps, animal carcasses and human anatomical waste.

It is important to also segregate cytotoxic waste materials. These are any of the above that have been in contact with cytotoxic drugs. This waste requires additional special handling procedures.

**Links:**

Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
Narration:

Liquid waste.

Biohazardous liquid waste is inactivated prior to disposal, or it can be absorbed onto absorbent material and discarded as solid waste.

Biohazardous liquids are mixed with a decontamination solution that is effective against the biohazards in use. The use of the decontamination solution is per the manufacturer’s instructions. After mixing, a minimum contact time must be waited. This contact time is also determined by the manufacturer. Once the contact time has elapsed, the mixture is neutralized poured down the sink with lots of running water.

Links:

Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
Narration:

These pictures show the result of discarding liquids, biohazardous or non-biohazardous, even contained, into biohazard solid waste containers. Biohazard solid waste containers are not meant for transporting or storing liquid waste, irrespective of its biohazard status. Please aspirate all liquids and dispose as biohazardous liquid waste. If liquids are non-hazardous they go down the sink, if liquids are hazardous they are disposed as hazardous liquids through chemical waste. For special situations, such as freezer cleanups, follow the instructions on the next slide.

Links:
Narration:

Freezer cleanups.

Freezer cleanups generate a large amount of liquid from the samples themselves and from the snow and ice cleared from the cold unit. Snow and ice from the cold unit are to be discarded in the sink. Samples can be handled in one of three ways:

1. Place samples in a BSC overnight. The next morning, aspirate all liquids and dispose as biohazardous liquid waste per your lab’s SOPs or;
2. Line an **autoclave bag** with paper towels or other absorbent material such as Yesterday’s News Cat Litter. Discard tubes into the autoclave bag. Ensure all liquids are absorbed. Close bag and discard into biohazard waste box or;
3. Arrange to receive biohazard pails from FHS Safety Office or EOHSS and follow the packing and pickup procedures established for your building.

Links:
How is solid waste packaged?

- Human anatomical waste and animal carcass waste (food grade, purchased specimens or lab animals) must go through Anatomy or the Animal Facility waste streams.
- All other Level 1 and level 2 solid biohazardous waste is to go into DOUBLE BAG LINED BIOHAZARD CONTAINERS.
- Some waste may have special handling procedures in addition to standard procedures; your supervisor is to provide SOPs under these circumstances.
- The color of the bag depends on your location.
- Additionally, level 2 biohazardous waste MUST be pre-bagged inside the BSC, sprayed out, then disposed in the double bag-lined biohazard containers. This results in three bags total.
- We strongly recommend LEVEL 1 biohazardous waste is clear-bagged on the bench first, then disposed in double bag-lined biohazard containers.
- Biohazard containers are filled to a MAX of ⅔ full.
- Check for weight restrictions.

Narration:

How is solid waste packaged?

Any human anatomical waste, any animal carcass waste such as food grade items, purchased specimens or lab animals, must go through the anatomical waste stream. These streams are provided by the School of Anatomy and the Animal Facility. If you require an anatomical waste stream to be set up in your area, contact your safety office.

All other solid waste items, whether they are level 1 or level 2 items, must go into the biohazard waste container, which are lined with two bags.

It is important to note that if you are working with items for which special government permission was obtained for import or obtainment, there may be additional handling and packaging requirements. Your supervisor would have been involved in the government processes and therefore is responsible for ensuring SOPs are in place for these special circumstances.
Depending on your location, the bag may be red or yellow and the container may be a box or a tote bin.

Additionally, level 2 biohazardous materials are required to be bagged inside the biological safety cabinet, sprayed out and then disposed in the double bag-lined biohazard waste container. This results in three total bags between the biohazard and the container. We strongly recommend that level 1 biohazardous waste is clear-bagged on the bench first, then disposed in double bag-lined biohazard waste containers.

All biohazard waste containers are filled to a maximum of ¾ full. There may also be weight restrictions on the outside of the container, depending on its size.

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Canadian Biosafety Standards (CBS) 2nd Edition  
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Biohazard Box Placement

- Cardboard is generally discouraged in any laboratory since it is a surface that cannot be decontaminated.
- Biohazard boxes are a necessity.
- If possible, keep them out of any pathway that a culture vessel travels i.e. out of the direct line of a potential spill.
  - Opposite side of room from incubators and BSC.
- If not, understand that if contaminated by a spill - you must safely dispose of the biohazard bags, their contents and the biohazard box as solid biohazardous waste itself.

Narration:

Biohazard box placement.

Biohazard totes can be easily decontaminated since they are plastic. Cardboard is generally discouraged in any laboratory since it is absorbent and cannot be decontaminated. However, biohazard waste boxes are a necessity.

If possible, keep the biohazard waste boxes out of any workflow pathway that a culture or sample vessel travels, for example, out of the direct line of a spill. It is recommended that you place biohazard waste boxes on the opposite side of the room, or as far away from biological safety cabinets and incubators as possible.

If a biohazard waste box is contaminated by a spill, that entire box and its contents must now be safely packaged in another biohazard waste box.

Links:
**Sharps**

- Needles, syringes, scalpels, blades, razors, lancets, contaminated broken glass, glass slides, metal collars from vials, glass vials, Pasteur pipettes, any contaminated glass tubing, hematocrit tubes
- Broken plastic ware if it gives a sharp edge that can pierce skin
- All glass slides and coverslips go into sharps containers
  - FFPE, cryostat, unused
  - Do not dispose of glass slides and coverslips as broken glass
- Sharps containers are filled to a MAX of ¾ full.
- Sharps are disposed in sharps containers, closed sharps containers are disposed in biohazard containers.
- Sharps containers should be clearly marked as SHARPS.

**Narration:**

Sharps.

Sharps include needles, syringes, scalpels, blades, razors, lancets, contaminated broken glass, glass slides and coverslips, metal collars from vials, glass vials, Pasteur pipettes, any contaminated glass tubing and hematocrit tubes. Broken plasticware can be considered a sharp if it gives a sharp edge that can pierce skin.

All glass slides and coverslips go into sharps containers. This is because housekeeping staff cannot discern if it poses a biohazard. Do not dispose of glass slides and coverslips as broken glass.

Sharps containers are filled to a maximum volume of ¾ full. Sharps containers are closed and then disposed in biohazard waste containers.

Sharps containers should clearly be marked as ”SHARPS”.

**Links:**
Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm

Biosafety SOPs  https://biosafety.mcmaster.ca/biosafety_SOPs.htm
Plastic Pipette Tips

- Plastic pipette tips are not sharps
- Do not puncture skin
- Collect biohazard plastic pipette tips in any plastic bottle with screw-cap lid – the bottle must be labelled “Biohazard Pipette Tips”
- Collect non-biohazard plastic pipette tips in a plastic bottle or box – the bottle must be labelled “Non-Biohazard Pipette Tips”.

Narration:

Plastic pipette tips.

Plastic pipette tips are not sharps since they do not puncture the skin. Collect biohazard plastic pipette tips in any plastic bottle with a screw cap lid, and label as “Biohazard Pipette Tips”. Once ¾ full, this container can be closed and discarded in the solid biohazard waste container.

Collect non-biohazard plastic pipette tips in a plastic bottle or box, which is clearly labelled “Non-Biohazard Pipette Tips”. Once full this container can be disposed in the appropriate solid waste stream.

Links:

Biosafety Waste Disposal
https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
What next?

• The following items are determined by your location. Consult your supervisor or area manager.
  – Box closure method
  – Waste pickup location
  – Pickup schedule
  – Supply of empty containers and liner bags
  – Container labelling

Narration:

The disposition of your sealed biohazardous waste containers will depend on your location. Consult your supervisor or area manager to determine:

• Box closure method
• Waste pickup location
• Pickup schedule
• Supply of empty containers and liner bags
• Container labelling

Links:
Responsibility for Waste

• Never leave a waste bag unattended. It is either always under your director control OR deposited into a biohazard box/tote OR deposited into a biohazard pail.

Discovery of abandoned bags of biohazard waste in any corridor or waste closet is a safety incident and your Departmental Chair is immediately notified. This is a serious hazard for housekeeping staff in addition to any lab workers using the area or the waste closet.

Narration:

It is never acceptable to leave any bagged biohazard waste unattended. Your biohazard waste must be under your direct control at all times. You must either deposit securely closed bags into a biohazard box or a biohazard tote or deposited into a biohazard pail.

Discovery of abandoned bags of biohazard waste in any corridor or waste closet is a safety incident and your Departmental Chair is immediately notified. This is a serious hazard for housekeeping staff in addition to any lab workers using the area or the waste closet.

Links:
Summary

- Waste procedures are determined by your location
- Biohazard liquids are inactivated prior to disposal in the sink
- Solid waste is segregated into anatomical, sharps and solid waste streams
- Biohazard box to be protected from spills
- Sharps include glass slides but not plastic pipette tips

Narration:

In summary, waste procedures are determined by your location. Biohazard liquids are inactivated prior to disposal in the sink. Solid waste is segregated into anatomical, sharps and solid waste streams. The biohazard waste box must be protected from spills. Sharps include glass slides and coverslips but not plastic pipette tips.

Links:


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https://biosafety.mcmaster.ca/biosafety_waste_disposal.htm
Thank you for your participation.

http://biosafety.mcmaster.ca

**Narration:**

Thank you for your participation.

**Links:**

Biosafety Web Site  https://biosafety.mcmaster.ca