

Managing Biomedical Waste

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Section 1: Biomedical Waste Management

Biomedical Waste

All staff working in healthcare must know how to manage biomedical waste. Various types of waste created in healthcare settings must be handled appropriately. This waste can be liquid or solid and may contain infectious or potentially infectious materials (Bansod & Deshmukh, 2023).

This course provides guidance for safe work practices while working with or around biomedical waste in all care settings. It includes how to handle and dispose of biomedical waste.

Biomedical waste, or BMW, is any healthcare-related waste that could spread infectious microorganisms to humans. This includes serious infections such as:

- Human immunodeficiency virus, or HIV
- Hepatitis B, or HBV
- Hepatitis C, or HCV

Not all bodily fluids have the same infectious risk level. They are either high or low risk.

High Risk

High-risk BMW includes potentially infectious materials, or OPIM, such as:

- Blood
- Blood products
- Body parts
- Semen
- Vaginal secretions
- Birth fluids
- Fluids in the:
 - Brain
 - Spine

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- Joints
- Lungs
- Abdomen
- Heart

There may be times you see a fluid and you are not sure what it is. ALWAYS assume it may contain bacteria or viruses that can cause infections. This is the best way to protect yourself!

Any unidentified body fluids should be considered BMW. These are sometimes called biohazards.

Low Risk

Low-risk BMW examples include (Argo, 2022):

- Nasal mucus
- Saliva
- Sweat
- Tears
- Urine
- Feces
- Vomit

Usually, these types of bodily fluids are not considered BMW. However, sometimes these types of low-risk fluids MUST be put into biohazard bags. This is true when there are known infectious pathogens present or if an item soiled with one of these bodily fluids is VISIBLY CONTAMINATED with blood or blood products!

Follow your organization's policies and procedures for guidance. Check with your supervisor if in doubt!

BMW Disposal

DO NOT put BMW into a regular trash container! Only regular trash goes into regular trash bins.

- Soft medical waste goes into biohazard bags.
- Sharps go into sharps containers.

Let's take a closer look at soft medical waste and sharps.

Soft Medical Waste

Soft medical waste includes any medical supplies that may have come in contact with blood or OPIM, such as:

- Used gloves
- Used wipes
- Used bandages
- Absorbents (such as gauze, feminine pads, and diapers)

Always place soft medical waste into a biohazard bag.

Sharps

Sharps are objects that can puncture or tear a person's skin. Items that can lead to sharps injuries include, but are not limited to (International Healthcare Worker Safety Center, 2021):

- Disposable syringes with needles
- Any type of medical needle
- Intravenous, or IV, stylets
- Blood glucose lancets
- Scalpel blades

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- Broken glass
- Razors
- Staples
- Any equipment with damaged or sharp parts

Sharps Containers

Because sharps may puncture the skin, they could also puncture biohazard bags. Therefore, all sharps must be disposed of in special containers, called **sharps containers**.

Sharps containers are to be conveniently placed for access. The sharps container should be (Food & Drug Administration [FDA], 2021):

- Properly labeled to indicate it contains biohazard materials.
- Made of a heavy-duty plastic material.
- Upright and stable during use.
- Leak- and puncture-resistant with a tight fitting lid.
- Resistant to allowing the contents to spill out.
- Designed to be permanently locked for proper waste disposal.

Used needles and other sharps should be immediately put into FDA-cleared sharps disposal containers (FDA, 2021). FDA-cleared sharps disposal containers are made from hard, rigid plastic to prevent puncturing. They are also marked with a line to indicate when the container is considered full. The container should be disposed of when it is “full.”

Mixing Wastes

NEVER mix regular trash and BMW. If you mix these, the entire container then requires a higher level of handling. For example:

- If you place regular trash in the red biohazard bag you CANNOT retrieve it. It now becomes BMW.
- If you place a red biohazard bag in a regular dumpster, the entire dumpster becomes BMW.

Universal Precautions

Universal precautions use a specific approach to handling blood and certain body fluids. These precautions treat all human blood and certain bodily fluids as if they contain an infectious disease (Occupational Safety and Health Administration [OSHA], n.d.).

Using the proper precautions will help prevent contact with infectious materials. With no contact, there is no exposure. With no exposure, there is no disease transmission.

Universal precautions require you to:

- Wash your hands before and after handling potentially infectious materials.
- Use personal protective equipment, or PPE, when needed.
- Clean equipment and surfaces appropriately.
- Dispose of contaminated materials according to policy.
- Manage leaks and spills appropriately.

PPE

PPE is specialized clothing or equipment worn to protect a person from a hazard. PPE can only protect you if it fits and is used properly! Follow your organization's guidelines for wearing PPE.

PPE for BMW may include (OSHA, n.d.):

- **Hand protection:** You MUST wear gloves when working with ANY BMW or spills! Change your gloves frequently. NEVER wash or reuse single-use gloves. You may be permitted to disinfect and reuse utility

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gloves if they show no sign of wear and tear.

- **Eye and face protection:** Splashes, sprays, and splatters are possible! You must protect your eyes and face. Use goggles or safety glasses to protect your eyes. Use a face shield or mask to protect your nose and mouth.
- **Body protection:** Wear protective clothing, such as a lab coat, gown, or apron, when your policy says you should.
- **Foot protection:** Wear closed toe shoes while at work. Shoe or boot covers may be required in certain areas. If unsure, ask your supervisor.
- **Lung protection:** N95 or higher level respirators may be needed. Respirators should be fit-tested, and you should be trained in how to use them.

Sealing and Transferring BMW

Sealing

Biohazard bags must be **properly sealed**. To do so:

1. Twist the neck of the biohazard bag.
2. Bend and tape the end of the bag so that it forms a tight seal and prevents leakage.
3. Tie a knot in the neck if there is room.

Transferring

You must follow certain steps when transferring BMW. Always wear proper PPE when handling BMW products, including biohazard bags. Wear a glove on the hand holding the biohazard bag. Your other hand, with no glove, can be used to open a door or push the elevator button, if needed.

Even if the outside of the biohazard bag is not contaminated, you still **MUST** wear a glove.

BMW Disposal and Storage

Disposal

Your organization will have a written plan that describes how it will dispose of BMW. Disposal methods vary between states. The typical options are:

- Using a mail-back system.
- Using a pick-up service.
- Treating on site. The most common methods for treating waste on-site are through incineration (or burning) and autoclave (or steaming under pressure). You must be trained to perform either of these methods.

Storage

Storage areas are designated areas where BMW is placed until a transporter can pick it up. Ask your supervisor if you are unsure where the storage areas are.

All storage areas must be controlled and labeled! Only employees can enter these areas.

Cleaning Spills

Decontamination is the process of removing harmful germs and bacteria from objects or surfaces, making them safe for handling.

Proper decontamination and cleanup is a critical part of preventing exposure.

Follow your site-specific plan for a BMW spill or leak. Only employees who have been trained can clean spills. Follow your organization's policies and procedures. If you are unsure of what to do, talk to your supervisor immediately.

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When a spill or leak is found:

- The affected area should be cleaned immediately.
- Assume the spill or leak is contaminated, as with all blood and bodily fluids.
- Wear PPE, including gloves, a mask, a gown, and glasses or a face shield when a splash is possible.
- Use disposable, absorbent items such as paper towels to soak up any liquids.
- Put all contaminated materials in the proper hazardous materials container.
- Scoop or pick up sharps and solids with forceps or tongs to avoid picking them up with your hands.
- Put sharps into a sharps container.
- Clean the area with an approved disinfectant or bleach solution.
- Wash your hands after managing it.

Biohazard Exposure

If a biohazard comes into contact with your eyes, nose, or mouth, immediately rinse the area with running water for at least 10 minutes. If a biohazard comes into contact with any wound or crack in your skin, immediately wash the area with soap and water.

Inform your supervisor if either of these events occurs.

Quick Check

Which of the following bodily fluids are considered high-risk biomedical waste?

- A. Blood products
- B. Semen
- C. Saliva
- D. Urine
- E. Vaginal secretions
- F. Spinal fluid

Feedback [High-risk biomedical waste includes blood products, semen, vaginal secretions, and spinal fluid. Anything contaminated by these fluids **MUST** be placed in a biohazard bag. Saliva and urine are considered low-risk biomedical waste.]

Key Takeaways

- Everyone in your organization is responsible for following the BMW management plan.
- Wear proper PPE to protect yourself from diseases and infections.
- Always assume that blood and bodily fluids are infected.
- With proper knowledge, planning, and care, exposure is avoidable.

Section 2: Conclusion

Course Summary

Now that you have finished viewing the course content, you should have learned the following:

- The process for handling and disposing of biomedical waste

Course Contributor

The content for this course was revised by Tameka N. Warren, MSN, RN, CLC.

Tameka N. Warren, MSN, RN, CLC, earned her Bachelor and Master of Science in Nursing degrees from Indiana University School of Nursing at IUPUI, and her Associate of Science in Nursing from Ivy Tech College.

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She has over 18 years of nursing experience in public health, regulation, home health, leadership, education, maternal child community health, and long-term care environments. Tameka has served as a leader in home healthcare practices, quality improvement, and education as a community health nurse and a Public Health Nurse Surveyor (Home Health & Hospice) certified by CMS for the Indiana State Department of Health. She has served as a maternal and infant mortality advocate in managing home visiting services, supporting legislation to improve maternal child care in diverse communities, and as an ALPP Certified Lactation Counselor. She has also served as an Adjunct Clinical Professor to further awareness about the importance of community health nursing. Tameka's passion is to serve the most vulnerable populations affected by health disparities and to inspire a new generation of nurses to do the same successfully.

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Exam and BrainSparks

Q #	Question	Response
1	When cleaning up a biomedical waste spill, you should do all of the following EXCEPT:	Use PPE to protect yourself.
		Place red biohazard bags in the trash.
		Wash your hands.
		Place sharps in a sharps container.
2	Which of the following should go into a sharps container?	Used tissues
		Gloves
		Used bandages
		Needles
3	Which type of personal protective equipment, or PPE, should you wear when transferring biomedical waste?	Gloves
		Face mask
		Lab coat/apron
		Respiratory device
4	True or False: After touching body fluid of any kind, you must wash your hands even when gloves are worn.	True
		False
5	Which sharps container should be avoided?	One that indicates it contains biohazard materials
		One that is made of a soft plastic material
		One that is puncture-resistant and has a tight fitting lid
		One that is designed to be permanently locked for proper waste disposal
6	Which type of medical waste should you avoid putting into a biohazard bag?	Used gloves
		Used wipes
		Used razors
		Used bandages

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