inthe**know**
CAREGIVER TRAINING

AN INFECTION CONTROL MODULE:

HANDLING BIOMEDICAL WASTE

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We hope you enjoy this inservice, prepared by registered nurses especially for caregivers like you!

Instructions for the Learner

If you are studying the inservice on your own, please do the following:

- Read through **all** the material. You may find it useful to have a highlighting marker nearby as you read. Highlight any information that is new to you or that you feel is especially important.
- If you have questions about anything you read, please ask your supervisor.
- Take the quiz. Think about each statement and pick the best answer.
- Check with your supervisor for the right answers. You need **8 correct** to pass!
- Print your name, write in the date, and then sign your name.
- Email In the Know at feedback@knowingmore.com with your comments and/or suggestions for improving this inservice.

THANK YOU!

After finishing this inservice, you will be able to:

Identify and describe items that are considered biomedical waste.

❖

Discuss the proper way to handle and dispose of used sharps in facilities and in homes.

❖

Demonstrate how to seal, transport, and store full sharps containers and biohazard bags.

❖

Perform safe containment and clean-up of small spills of potentially infectious blood or other body fluids.

❖

Use standard precautions whenever handling biomedical waste.

Inside This Inservice:

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CAREGIVER TRAINING

An Infection Control Module:
Handling Biomedical Waste

AN EXTREME ACCIDENTAL EXPOSURE

Myra was assigned to care for Mr. Rhodes. He was a large man—6 ft. 3 in. tall and nearly 300 pounds. He was also completely immobile and suffering from an antibiotic resistant infection. The infection was in his intestines and caused a nearly constant drainage of infectious mucous and watery stool from his rectum. This meant that he needed to be repositioned and cleaned frequently to prevent skin breakdown.

Because of the infection, Mr. Rhodes was on *contact precautions*. A gown and gloves were required for everyone who entered the room. A red biohazard bag was placed just inside the door so that all contaminated materials could be discarded before leaving the room.

At the beginning of her shift, Myra peeked in at Mr. Rhodes and told him (from the doorway) that she would be right back to help him. She needed to go get some more gowns from the supply room. Mr. Rhodes groaned and said, "I need help right now." Myra put on gloves and entered the room.

When Myra approached the bed she noticed that Mr. Rhodes was lying in a large puddle of mucous and stool on a stack of disposable waterproof pads. She retrieved some clean pads and pulled the biohazard bag close to the bed.

Myra helped Mr. Rhodes roll onto his side. Unfortunately, his hip was still on the pads, making them difficult to pull out. As she tugged on the pads, Mr. Rhodes shifted a little further onto his side. This released the pads, but because Myra was pulling so hard, it released them too quickly. The pads came flying out from under Mr. Rhodes—spilling their contents down Myra's pants and shoes and all over the floor. At the same time Myra stumbled backwards and bumped into the biohazard bag, which fell over and spilled its contents onto the floor.

Now standing in a puddle of mucus and stool, Myra had to decide how to contain the spill and protect herself and others from becoming infected.

What should she do? What would <u>you</u> do?

Keep reading to learn all about biomedical waste. You'll find out what it is, what to do with it, and how to handle and prevent accidental exposures like the one Myra had.

WHAT EXACTLY IS BIOMEDICAL WASTE?

Biomedical waste is any solid or liquid waste which may present a threat of infection to humans, including:

- **INFECTIOUS WASTE:** Waste contaminated with blood, waste from patients in isolation wards, discarded diagnostic samples containing blood and body fluids, infected animals from laboratories, and contaminated materials (swabs, bandages) and equipment (such as disposable medical devices).
- **SHARPS:** Syringes, needles, disposable scalpels and blades, etc.
- **PHARMACEUTICALS:** Expired, unused, and contaminated drugs and vaccines, and drugs used in cancer treatment.
- **RADIOACTIVE WASTE:** Glassware contaminated with radioactive diagnostic material or radiation therapy materials.

Please note: urine and feces are not usually considered biomedical waste unless the person has a known or suspected infection.

This inservice will focus mainly on infectious wastes and sharps. If you routinely come in contact with pharmaceuticals or radioactive waste, be sure to ask for proper training in handling these materials.

It's important to handle and dispose of biomedical waste properly because it places healthcare workers, sanitation workers, and the general public at risk for becoming infected with dangerous diseases.

Biomedical waste can be created by:

- Hospitals.
- Clinics.
- Nursing homes.
- Laboratories.
- Funeral homes.
- Dentists.
- Veterinarians.
- Physicians' offices.
- Pharmacies that provide flu shots.
- Body piercing salons.
- Tattoo shops.
- Individuals in their own homes who use syringes and/or lancets for diabetes care.

The Facts

THE FACTS ABOUT BIOMEDICAL WASTE

- Of the total amount of waste generated by healthcare activities, about 80% is general waste. The remaining 20% is considered hazardous material that may be infectious, toxic, or radioactive.
- The majority of medical waste—about two million tons annually—comes from hospitals.
- Each client's treatment in a skilled nursing care facility produces about 8 ounces of biomedical waste per day.
- More than 90 percent of medical waste is incinerated at roughly 2,400 medical waste incinerators in the U.S.

WHAT'S NEW?

*Grab your favorite highlighter! As you read this inservice, **highlight five things** you learn that you didn't know before. Share this new information with your co-workers!*

DID YOU KNOW?

Most biomedical waste is treated by incineration.

Incinerators burn the waste at temperatures between 1,000 and 2,000°F.

After it is incinerated, the ash is checked to make sure that it is safe. If it is no longer considered to be infectious, it is taken to an area landfill.

Unfortunately, the same incinerators that make biomedical waste safe to put into landfills also emit harmful air pollutants—including hydrochloric acid, dioxin, furan, and toxic metals.

You can help reduce the air pollution caused by incinerators by making sure you only use biohazard containers for real biomedical waste and not regular trash.

WHERE DOES IT ALL GO?

SHARPS

Sharps are instruments that can puncture, cut, or scrape body parts. These include syringes, needles, scalpel blades, razor blades, and lancets.

- All sharps must be disposed in puncture-resistant leak-proof containers with self-closing lids. ***Never throw sharps in the regular trash!***

If you are responsible for changing sharps containers, you should:

- Change containers *before* they reach 2/3 full.
- Remove the container, lock the lid, then place a piece of tape over the locked lid (for extra security). Be sure the container has a biohazard symbol and reads "contains sharps."
- Place sealed container in a red biohazard bag.

OTHER POTENTIALLY INFECTIOUS MATERIAL (OPIM)

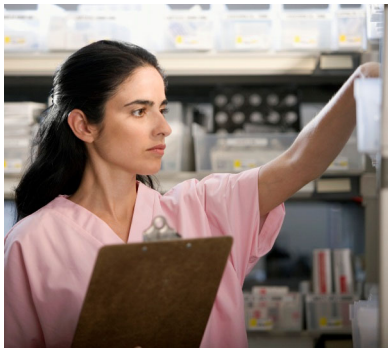
Anything else that is contaminated, including wound care materials, gloves, tubing, specimen collection containers, and materials from isolation rooms, should be thrown into a red plastic biohazard bag.

These bags should be clearly marked with the biohazard symbol.

If you are responsible for removing biohazard bags when they are full, then follow these guidelines:

- When a biohazard bag is full, use gloved hands to twist and then tape the top. To do this, you twist the neck of the bag, then bend and tape in the bend to form an air and liquid tight seal. Never tie it with a "rabbit ear" knot. This does not create an air or liquid tight seal.
- Never push down contents with your hand or foot. Do not shake bag to settle the contents.
- If you must transport a bag or container of biomedical waste from one place in the facility to another, carry the bag in one gloved hand. Remove the glove from the other hand so that you can open doors with a clean, uncontaminated hand.

ALWAYS USE STANDARD PRECAUTIONS!



Standard precautions are the "common sense" infection control guidelines you should follow whenever you come in contact with biomedical waste.

Standard Precautions means you ***assume all blood, body fluids, secretions, and contaminated items are infectious*** and use:

- **Gloves** – As needed, to protect your hands.
- **Gowns** – As needed, to protect your skin and clothing.
- **Masks** – As needed, to protect your mouth and nose.

Standard precautions also include washing your hands. Wash your hands after any contact with biomedical waste, even if you wore gloves.

Wearing gloves is <u>not</u> a substitute for washing your hands.

It's best to use actual soap and water to wash your hands after coming in contact with biomedical waste. A waterless hand sanitizer should be used only if no other option is available.

WHAT'S IN THERE?

Biomedical waste may contain a variety of infectious diseases that can make you sick. The most dangerous diseases are the bloodborne pathogens.

Bloodborne pathogens are infectious microorganisms in blood that can cause disease in humans. These pathogens include:

- Hepatitis B (HBV).
- Hepatitis C (HCV).
- Human Immunodeficiency Virus (HIV).

Biomedical waste can also contain MRSA (antibiotic resistant staph), Cytomegalovirus (CMV), Epstein-Barr virus (mono), and syphilis.

In addition, there can be less harmful germs like the common cold, the flu, pink eye, strep throat, yeast, or infectious diarrhea that can harm you or the public if not properly handled.

TRY IT!

GO ON A TREASURE HUNT!

If you are going to handle biomedical waste properly, you have to know where to find everything you need!

Go on a treasure hunt and locate all the items on this list. If you can't find something, just ask!

- Red biohazard bags
- Sharps boxes
- Spill kit
- Personal Protective Equipment (gloves, gowns, masks, goggles)
- Biomedical waste storage location (where the full bags and boxes are stored for pick-up)

CREATE A TRAVEL KIT

If you work in home health, create a biomedical waste travel kit that you can keep in your car.

It should include biohazard bags, sharps box, spill kit, and PPE items so that you will always be prepared!

A CLOSER LOOK AT SHARPS

Despite safety measures and laws governing biomedical waste, needlesticks and other sharps-related injuries which expose workers to bloodborne pathogens continue to be a significant hazard for healthcare workers.

About 385,000 sharps injuries occur annually—that's more than 1000 exposures each day that could potentially give a healthcare worker a bloodborne disease.

HOW WILL YOU PROTECT YOURSELF?

Know your workplace policy for properly handling and disposing of needles and other sharps. ***Some general guidelines for all sharps include:***

- Know the location of sharps containers in your facility.
- Never bend or recap contaminated needles and other sharps.
- Do not break contaminated sharps.
- Discard contaminated sharps immediately at the point of contamination. In other words, if you use a lancet to check a blood glucose level, you should discard that lancet in a sharps box in the same room that the collection took place.
- Never walk to another location with uncapped, contaminated sharps in your hand.

IF YOU ARE STUCK BY A CONTAMINATED SHARP . . .

1. Allow the wound to bleed. You can do this by running it under water.
2. Wash the area with soap and water. Do not scrub or suck on the wound.
3. Cover the wound with a clean dressing.
4. Report the incident to your supervisor. You will be required to fill out an incident report that asks how and when the injury happened, and who had used the needle.
5. Samples of your blood may tested for infections such as hepatitis B and C, or HIV. Your employer may also arrange to test samples of the other person's blood.
6. If you are at low risk for infection, you may not need any treatment.
7. If there is a higher risk of infection, you may need antibiotics and/or vaccination against hepatitis B. If there is a risk of infection with HIV, you may have to undergo treatment called post-exposure prophylaxis (PEP).

THE NEXT STEP!

GET VACCINATED

Every healthcare worker is at risk from accidental exposure to biomedical waste and should be vaccinated for:

- **Hepatitis B (HBV).** HBV is found in blood and other body fluids. And sadly, is the most serious liver infection in the world!
- **Influenza.** You should get your flu shot once a year to prevent the illness. Flu germs can live on contaminated items for up to 8 hours.
- **MMR (Measles, Mumps, Rubella).** It can happen! Recently, 122 healthcare workers in France caught measles on the job.
- **Varicella (Chickenpox).** If you have never had the disease, you should be vaccinated!
- **Tetanus, Diphtheria, and Pertussis (TDaP).** Protect yourself with a booster every 10 years.

OTHER EXPOSURE POSSIBILITIES

Remember Myra from the beginning of this inservice? Her accident is an extreme example of an exposure to biomedical waste! Exposures can happen like that, but it's more likely to happen on a smaller scale.

> **For example,** say it's your job to empty waste baskets in residents' rooms. You go into a room where the bag is overflowing with garbage. You grab the top of the bag and start to tie a knot. The bag rips and the contents spill onto the floor. That's when you notice a syringe (without its needle) fall to the floor where it leaks about 2 tablespoons of blood onto the floor.

Most direct exposures to blood or body fluid spills do not lead to infection. In general, the risk of human infection from a spill like this is *low*. The risk of infection depends on the pathogen (germ) involved, the type of and duration of exposure, and the amount of blood/body fluids involved in the exposure.

CRAZY, BUT TRUE STORIES . . .

Here are some true stories of mishandled biomedical waste that may have caused dangerous infections in healthcare workers and the public:

- On January 27, 2012, an interstate in Colorado was closed down when a truck carrying biomedical waste spilled its load on the highway. The containers in the back of the truck were not properly secured. Two 5-gallon containers fell off the truck—splitting open and spilling needles, used gauze, and other items tainted with blood and other bodily fluids.
- In January of 2011, vials of blood and used syringes washed up on a beach in Hawaii. The improperly disposed of items came from a nearby landfill that flooded after a heavy rain.
- A hospital in Pennsylvania was recently fined $100,000 for failing to separate and properly label its medical waste. Several bags of potentially contaminated biomedical waste were discovered in a landfill and safely removed by sanitation workers.
- To the right is a picture of cows feeding on a pile of biomedical waste that was improperly stored in an alleyway behind a hospital in India. (Picture courtesy of the UK Daily Mail newspaper)

THINK ABOUT IT!

TEST YOURSELF

Do you know the answers to the following questions? If not, it's time to find out!

- Are wound dressings that have visible blood but are not saturated, required to be disposed of as biomedical waste?
- Does biomedical waste need to be stored in a locked room?
- Does a sharp contained in a retractable needleless system device (such as a retractable lancet for a finger stick) need to be placed in a sharps container?

Ask your supervisor if you are unsure of any of your answers to these questions.

Answers may vary by state, so it's important to find out the exact answers for your state and the specific policy for your workplace.

TALK ABOUT IT!

HELPING MYRA

Remember Myra from the beginning of this module? We left her standing in a puddle of mucous and stool.

Here's what happened next:

Myra stayed right where she was and called for help. This prevented the contaminated material from being tracked all over by her feet.

Another staff member came to see what was needed. She stood at the doorway as Myra explained the situation.

The staff member went to the desk and phoned environmental services. This was a large spill that needed professional clean-up.

Myra's shoes and clothing were removed and taken to the laundry. (She had another set in her locker.)

What advice would you give Myra to prevent something like this in the future?

Discuss your answer with your supervisor and co-workers.

CLEANING UP SPILLS

The following guidelines are for *small spills* (less than 12 to 18 inches in diameter) on hard surfaces like a table or tiled floor. Spills larger than 18 inches or those that soak into furniture or carpet require professional removal performed by specially trained professionals.

1. **Know your workplace policy on spill clean-up.** If you don't know this policy, ask your supervisor for a copy today.
2. **Retrieve your workplace "Spill Kit."** Your workplace should have a spill kit to clean up small spills. It likely contains a plastic, water-proof container that contains a red plastic bag, ties, a disinfectant, plastic scooper or scraper, gloves, paper towels, and an absorbent material like cat litter or sand.

3. **Put on gloves.** You may also wish to use a gown, mask and/or goggles.
4. **Pour disinfectant on the spill.**
5. **Contain the spill.** Pour the absorbent material (like sand) onto the spill or absorb liquid with paper towels.
6. **Line the plastic container with a red plastic bag.**
7. **Pick up absorbed sand with scoop or scraper.** Or, pick up paper towels with gloved hands. Place material into the red bag.
8. **Disinfect the area.** With additional paper towels and disinfectant, clean the area where the spill was. Throw paper towels into the red bag.
9. **Seal red bag with tie provided.** Transport entire container to your workplace soiled utilities area or other designated room with biohazard waste storage.

Note: Your kit may be disposable or reusable. If your kit is reusable, then:

1. Remove tied red bag from plastic container and place it into a red biohazard bag.
2. Clean and disinfect the plastic container.
3. Remove your gloves/gown/mask and place in biohazard bag. Wash hands.
4. Re-supply the kit and return it to its proper location.

If you work with clients in their homes, see page 9 for information on cleaning up spill in homes.

BIOMEDICAL WASTE IN THE HOME

The biggest biomedical waste concern for home users is usually sharps disposal. Fortunately, there are many options available for safe disposal of sharps for home users.

- **PUBLIC COLLECTION PROGRAMS:** Some medical facilities such as, clinics, physician offices, EMT stations, and hospitals have collection programs for needles, lancets, and syringes for use by clients at home. If your client has access to a collection program, learn about and follow their instructions for sharps storage and disposal.
- **MAIL-BACK PROGRAMS:** Another option may be a mail-back disposal program. These programs allow home sharps users to mail used sharps to licensed disposal facilities as a safe disposal option. There is usually a fee for this service. Check with your client's healthcare provider or pharmacist, or search the yellow pages or Internet using key words "sharps mail-back."
- **SOMETIMES LEGAL, BUT LESS SAFE OPTIONS:** Some states allow residents to put used sharps that are in a laundry detergent bottle with a lid into the garbage. However, this is highly discouraged because of the injury and health risks it places on garbage hauler and processing facility workers. It is best to use one of the options previously listed for safe management and disposal of used sharps.
- If placing sharps in the regular garbage is legal in your state, and it's the only other option for your client, then be sure to use an empty rigid plastic container with a screw-on lid, such as a laundry detergent bottle. Never use glass bottles, soda bottles, milk jugs, aluminum cans, or coffee cans. NEVER PLACE LOOSE NEEDLES OR SYRINGES IN THE TRASH!
- When using a household product container for sharps, always label container "Do Not Recycle." Never put the container in with recycling. Put sharps in point-first. Containers more than half-full should be disposed of. Store sharps in closed container with the cap screwed on.
- ***Always keep storage containers out of the reach of children.***

GET OUT!

THINK OUTSIDE OF THE BOX!

Working with clients in the home often requires coming up with creative solutions to uncommon problems.

- **THE PROBLEM:** You are caring for Donna, an elderly woman on a fixed budget who just got a new diagnosis of diabetes.
- Donna cannot afford to pay for a mail-back service, and doesn't know if there are any public collection facilities in the area.
- **WHAT YOU KNOW:** Donna has been storing her sharps in a Tupperware container, which you know is not safe. You go online to safeneedledisposal.org and click on your state to find out if you can put sharps in the regular trash.
- **GET CREATIVE:** What will you do next? Think of three creative solutions to this problem and help Donna with her sharps.
- **TALK ABOUT IT:** Share your ideas with your co-workers and supervisor and find out how they would solve this problem.

FIVE KEY POINTS!

REVIEW WHAT YOU LEARNED!

1. Biomedical waste is any solid or liquid waste which may present a threat of infection to health care workers, sanitation workers, and the general public.
2. Biomedical waste can contain a variety of infectious diseases, such as Hepatitis B and C and HIV.
3. You should assume all blood, body fluids, secretions, and contaminated items are infectious and use standard precautions.
4. Wash your hands after any contact with biomedical waste, even if you wore gloves. Wearing gloves is not a substitute for washing your hands.
5. It's your responsibility to know the laws in your state and the specific policies at your workplace for handling, storing, and transporting biomedical waste.

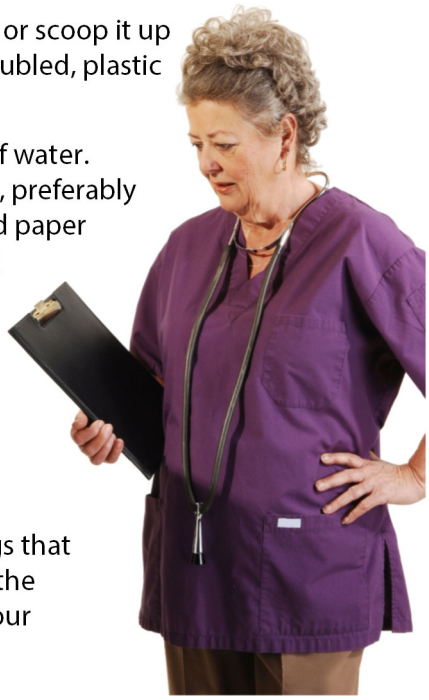
CLEANING-UP SPILLS IN THE HOME

When a biomedical spill happens in the home environment, care must be taken to protect yourself, the client, and the client's family and friends from exposure. **Before the start of cleanup, you will need the following items:**

- Rubber gloves
- Mask or handkerchief
- Kitchen tongs or pliers—to pick up any sharp items
- Cat litter, sand, or paper towels to absorb liquid waste
- Plastic bottle with lid—to contain any sharp items
- Household bleach
- Glasses or goggles
- Large shirt or plastic garbage bag—to cover your clothes
- Plastic bags—to contain soiled items
- Broom and dustpan or household spatula—to pick up the litter or sand after absorption
- Heavy-duty tape

Here is the procedure:

1. Cover your clothes with an old shirt or plastic bag. Put on gloves.
2. Use glasses or goggles and mask or handkerchief if there is a chance of splashing blood or body fluids.
3. Using tongs or pliers, pick up any sharp objects and place them in a hard plastic or metal container with a screw-on or tightly secured lid. Be sure to reinforce the lid with heavy-duty tape.
4. Apply cat litter, sand, or paper towels directly onto any liquid waste until it becomes absorbed.
5. Sweep the absorbed material into a dustpan or scoop it up with a household spatula and place it in a doubled, plastic garbage bag. Securely tie the bag.
6. Mix one-half cup of bleach with one gallon of water. Wipe the entire soiled area with this solution, preferably with disposable paper towels. Place the used paper towels in a doubled, plastic garbage bag and securely tie the bag.
7. Allow any reusable items, like dustpan, spatula, or household broom to soak in bleach solution for several hours, then rinse with clean water and allow to air dry completely before using again.
8. Be sure all disposable items are in plastic bags that are securely tied. Place the plastic bags and the metal or plastic containers in the center of your garbage can. ***Wash hands thoroughly with soap and water.***

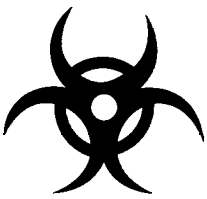


FINAL TIPS ON HANDLING BMW

When biomedical waste is improperly managed, it places healthcare workers, sanitation workers, and the general public at risk for contracting dangerous diseases.

It's your responsibility to know the laws in your state and the specific policies at your workplace for handling, storing, and transporting biomedical waste.

- To learn about the laws in your state, go to your state's Department of Health website and your state's Department of Environmental Protection website.
- If you have not seen your employer's "Biomedical Waste Operating Plan" then ask to see it today. It outlines everything you need to know to keep yourself, your clients, your co-workers, and the general public safe from exposure to biomedical waste.



Keep Your Eye Out for This Symbol. It's the symbol for *biohazardous waste*. All biomedical waste should be clearly marked with this symbol. Bags and boxes should be in a bright color like red or orange. Never put your bare hand into a bag or other container marked with this symbol!

Do your best to PREVENT accidental exposure when handling biomedical waste. Here are some important safety tips:

- Stay focused on what you are doing. Don't let yourself go on "autopilot" because you have done the task so many times before.
- Get enough sleep. Being tired can lead to careless behavior.
- Don't be afraid to ask for help if you need it.
- Don't try to do too many things at once.
- Never take shortcuts when it comes to handling biomedical waste.

Be sure to review information about Standard Precautions and bloodborne pathogens yearly.

- Why? It's the law! All healthcare employees are required to participate in an annual review of bloodborne pathogens and Standard Precautions to protect yourself and your clients. So, take the time to read up on these topics each year.

WHAT I KNOW NOW!

Now that you've read this inservice on biomedical waste, jot down a couple of things you learned that you didn't know before.

_____

_____

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EMPLOYEE NAME
(Please print):

_____

DATE: _____

- ***I understand the information presented in this inservice.***
- ***I have completed this inservice and answered at least eight of the test questions correctly.***

EMPLOYEE SIGNATURE:

_____

SUPERVISOR SIGNATURE:

_____

Inservice Credit:	
☐ Self Study	1 hour
☐ Group Study	1 hour

File completed test in employee's personnel file.

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CAREGIVER TRAINING

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Handling Biomedical Waste

Are you "In the Know" about biomedical waste? <u>Circle the best choice or fill in your answer. Then check your answers with your supervisor!</u>

1. Biomedical waste can cause infection in:
A. Healthcare workers.
B. The general public.
C. Sanitation workers.
D. All of the above.

2. Sharps boxes should be changed when they are:
A. 2/3 full.
B. 60 days old.
C. 1/2 full.
D. 100 days old.

3. When closing a red biohazard bag that is full, you should:
A. Tie a "rabbit ear" knot.
B. Push the contents down with your foot.
C. Twist the neck of the bag, then bend and tape in the bend.
D. Leave the bag open so sanitation workers can see the contents.

4. The most dangerous diseases in biomedical waste are:
A. Bloodborne diseases.
B. Flu viruses.
C. Cancers.
D. None of the above.

5. True or False
If you are accidentally stuck on your finger by a used needle, you should put the wounded area in your mouth and try to suck any germs out.

6. True or False
The first step in cleaning up a small spill of blood or other bodily fluid is to pour bleach on the area.

7. True or False
It's okay for home users to throw sharps directly into the regular trash.

8. True or False
Contaminated items should be discarded immediately at the point of contamination.

9. True or False
Handling biomedical waste requires the use of standard precautions.

10. True or False
You don't have to wash your hands if you used gloves while handling biomedical waste.