Special Medical Waste Procedures

Purpose

The purpose of the procedure is to protect the University and surrounding environment from health hazards associated with special medical waste.

Scope

The scope of the procedure applies to the generation, handling, transport, treatment, storage, and disposal of special medical waste (SMW) by the University community and SMW Disposal Contractors. The procedure applies to any person or company that generates SMW in the normal course of business. Wastes of this type are generated from the TU Health Center; Towson Center; vivaria (living animal laboratories); and laboratories which handle animal and human materials, microbiology, and/or sharps.

Responsibilities

A. Environmental Health & Safety (EHS)

1. EHS will assist in SMW spill cleanup, decontamination, and disposal.
2. EHS monitors for compliance with local, state, and federal laws and regulations related to SMW.
3. EHS provides biohazard waste containers and bags upon request.
4. EHS will provide biological safety training.

B. Other Departments/End User

1. It is the responsibility of personnel to report emergencies/injuries related to special medical waste to 911, TUPD, EHS, TU Health Center, and if applicable, Facilities Management.
2. It is the responsibility of lab personnel to report SMW spills to EHS for spill assistance, decontamination, and disposal, and notify other personnel of the spill area.
3. It is the responsibility of the department or individual laboratories to maintain biological spill kit materials and personal protective equipment in the areas that may require them.
4. Employees must provide requests to EHS for new biohazard containers or SMW disposal.
5. Only biosafety-trained personnel will generate, handle, transport, treat, store, and dispose of SMW in the normal course of business.

Introduction

Medical waste concerns grew in the 1980s after such wastes washed up on several East Coast beaches, presumably from poor disposal practices. Due to the potential health hazards

associated with medical waste, Congress then enacted the Medical Waste Tracking Act (MWTA) of 1988. The MWTA was a two-year federal program in which the EPA was required to promulgate regulations on medical waste management. The regulations went into effect in 1989 in four states and one territory: Connecticut, New Jersey, New York, Puerto Rico, and Rhode Island.

EPA concluded that the disease-causing potential of medical waste is greatest at the point of generation and thereafter diminishes. The risk of disease to the general public from exposure to medical waste was considered to be much lower than risk for the healthcare workers. After the expiration of MWTA in 1991, the initial states and all others largely took jurisdiction over the regulation of medical waste. In Maryland, two agencies regulate medical waste: the Maryland Department of Health (MDH), formerly known as the Maryland Department of Health and Mental Hygiene (DHMH), and the Maryland Department of the Environment (MDE).

Biohazardous waste, biological waste, biomedical waste, hospital/healthcare waste, infectious waste, microbiological waste, pathogenic waste are all terms that may be used to describe regulated medical waste. The term **special medical waste** (SMW) is used in Maryland to refer to regulated medical waste, waste that is likely to have been contaminated by an organism capable of causing disease in healthy humans. The following material is to be classified as special medical waste and dealt with in accordance with the above noted regulations:

- Anatomical materials (animal or human, including body parts, tissues, organs, carcasses, etc.);
- Blood (animal or human), blood components, or blood-soiled articles;
- Biologically-contaminated materials (clinical specimens (urine, feces, etc.); articles in contact with pathogenic/infectious organisms or body fluids and wastes, such as Petri dishes, animal bedding, etc.)
- Microbiological laboratory waste (including unused cultures and stocks of infectious agents, etc.);
- Sharps (needles, syringes, surgical instruments, etc.), etc.

Special medical waste is defined by MDH, which also determines the criteria by which treatment methods are evaluated, whether a treatment creates a regulated or non-regulated waste product. Separately, MDE is responsible for permitting and regulation of all aspects of special medical waste transportation, and it also requires medical waste handlers to notify MDE of medical waste activity. These regulations from the agencies are considered complementary, and they are parallel to existing state hazardous waste (Controlled Hazardous Substance or CHS) regulations requiring that each generator and transporter of SMW apply for an additional state identification number and use SMW permitted transport vehicles. Special medical waste may only be disposed of via state licensed SMW disposal facilities and landfilling of SMW is strictly prohibited.

Any person who generates special medical waste in the normal course of business must follow the MDH regulations for handling, treatment, and disposal of SMW. Handling refers to handling or maintaining the waste immediately after it is generated and before it is treated or hauled away for treatment, while treatment refers to the process of assuring that the waste is not infectious.

Any company or individual who generates more than 110 lb of special medical waste must follow the Maryland Department of Environment (MDE) regulations for its transport and disposal. More precisely, if you generate more than 110 pounds of SMW per month, you must comply with regulations for manifesting, packaging, transporting, recordkeeping, and reporting. If you generate less than 110 pounds of SMW, after treatment, you may dispose of SMW in accordance with local and state laws and regulations. Individual generators of SMW at TU will ensure that all SMW is disposed of in accordance with this procedure. New employees should undergo training on these procedures prior to handling SMW.

For penalties due to non-compliance, under MDH regulations, the Secretary may fine any person who violates the regulations up to $500 per day of the violation. In addition, the Secretary may suspend, revoke, or suspend any license, permit, or certificate issued to any person who violates the regulations. The Secretary may enter the property of any person who generates, handles, treats, or disposes of special medical waste to investigate a complaint the Secretary receives regarding the handling, treatment, or disposal of special medical waste.

Applicable Regulations

- 29 CFR 1910.1030 – Bloodborne Pathogens
- COMAR 10.06.06 – Communicable Disease Prevention—Handling, Treatment, and Disposal of Special Medical Waste
- COMAR 26.13.11 – Special Medical Wastes
- COMAR 26.13.12 – Standards Applicable to Generators of Special Medical Wastes

Procedure

A. Handling & Storage

1. Handling refers to handling or maintaining the waste immediately after it is generated and before it is treated or hauled away for treatment.
2. Prior to handling SMW, wear appropriate personal protective equipment (PPE) such as a laboratory coat or medical gown, eye protection, and gloves, at a minimum. Long pants and closed-toe shoes are also recommended to avoid exposure to biohazards. PPE will be provided by the department supervisor, the instructor, the principal investigator, the laboratory manager, or other responsible official.
3. Blood, anatomical, and contaminated materials must be placed into a leakproof container to prevent spillage.
4. Sharps must be placed in a container that is impervious to puncture. This container should remain closed once it is ¾ full.

B. Transport

1. Such waste should rarely need to move outside the area (or laboratory) where it is generated. A SMW container should be nearby to long or cumbersome transporting. In addition, materials used for treatment (e.g. disinfectant) should be kept within reach to apply to contaminated materials in order to reduce potential biohazard exposure before transporting to the SMW container.
2. SMW containers should not be transported from the point of use until they are to be removed by SMW Disposal Contractors.
   i. For sharps containers, this is when they are ¾ full and sealed close.
   ii. For cardboard biohazard boxes (32 gallon size), this is when the box is approximately 40 lb or about 80% full. The liner is then tied and the box is sealed closed by tape. This is to avoid unnecessary contact, accidental injuries, inadvertent aerosolization, or spills.

C. Treatment

1. Treatment refers to the process of assuring that the waste is not infectious. The regulations allow several different methods of treatment for each type of SMW. Anatomical materials may be buried, cremated, mechanically destroyed and deposited into the sanitary sewer (grinding and flushing), or incinerated. Blood (liquid form) may be deposited into the sanitary sewer, while blood, blood-soiled articles, and contaminated materials may be incinerated, autoclaved, or chemically disinfected. Sharps may be autoclaved or chemically disinfected; if treatment is done, sharps must be mechanically destroyed prior to disposal.

D. Disposal

1. <u>Anatomical Materials</u>
   a) Materials must be placed into a leakproof (minimum 3 mil thick) plastic bag, which is properly labeled as containing biohazardous material. This material will be stored in an approved, appropriately labeled cardboard box, which will be picked up for collection by the SMW Disposal Contractor when full. The leakproof bag may be the liner for the cardboard box.
   b) Bags must be placed in rigid containers which are clearly labeled as containing biohazardous material.
   c) If the container is to be reused for any purpose, it must be disinfected prior to reuse. The agent or disinfectant must be used in such a manner as to assure the eradication of any biological agent that may have remained in the container.
   d) Materials may be treated and disposed only by incineration followed by disposal as domestic solid waste.

2. <u>Blood, Blood Components & Blood-Soaked Articles</u>
   a) Materials must be placed into leakproof plastic containers, properly labeled as containing biohazardous material. This material will be collected by the SMW Disposal Contractor.
   b) This material may also be disposed of by the following methods:
      i. Autoclaving;
      ii. Chemical Disinfection;

iii. Incineration; or
iv. If in liquid form, deposited into the sanitary sewer.
If treated by above by noted method in Steps C2bi or C2biii, then it may be disposed of as domestic solid waste.

3. Biologically-Contaminated Materials & Microbiological Laboratory Waste
   a) This section will apply to the following materials:
      i. Feces or other body fluids from an individual diagnosed as having, or suspected of having, a disease capable of being transmitted to another human through the feces or other body fluid; and
      ii. An article soiled with feces or other body fluid from an individual diagnosed as having, or suspected of having, a disease capable of being transmitted to another human through the feces or other body fluids.
   b) Materials must be placed in leakproof bags (minimum 3 mil thick) plastic bag, which is properly labeled as containing biohazardous material. This material will be stored in an approved, appropriately labeled cardboard box, which will be picked up for collection by the SMW Disposal Contractor when full. The leakproof bag may be the liner for the cardboard box.
   c) Bags must be placed in rigid containers which are clearly labeled as containing biohazardous material.
   d) If the container is to be reused for any purpose, it must be disinfected prior to reuse. The agent or disinfectant must be used in such a manner as to assure the eradication of any biological agent that may have remained in the container.
   e) Materials may be treated and disposed by autoclaving, chemical disinfection, or incineration. If material is fecal matter, it may be deposited into the sanitary sewer.

4. Sharps
   a) Devices must be placed into a puncture-proof container, which is clearly labeled as containing biohazardous materials.
   b) Full sharps containers (3/4 full) will be collected for proper disposal.

5. Specific Disposal Procedures for TU Health Center & Towson Center
   a) Containers
      i. All treatment rooms, examining rooms, laboratories, restrooms, and medical records areas will have containers for the disposal of SMW.
      ii. Each container will be properly labeled with a biohazard sign, have a properly functioning lid, which will be closed at all times, unless in actual use, and will be made of metal, thick impervious heavy plastic, or thick cardboard.
      iii. Each container will be lined with a red plastic biohazard bag.
      iv. Care must be taken so the proper type of container is used.
         1) Sharps are to be placed in the hard, red plastic containers, which are labeled "Biohazard".
         2) Objects, such as gauze and bandages, are to be placed in the containers lined with red plastic biohazard bags.
         3) Items contaminated with blood and/or body fluids (or other products), which would not be able to puncture the plastic bag, are to be placed in the red, biohazard labeled plastic bag.

4) *These bags are to be placed in hard, covered containers. The lids on these containers must be closed at all times, except when in actual use.*

b) Health Center and Towson Center Training Room staff will monitor biohazard containers and dispose of them when they become 3/4 full. This will assist in the prevention of employee exposure and contamination of the local area where the container is placed. Employees are also to use gloves at all times while working with potentially infectious material, and are to report all exposures to potentially infectious agents immediately to their supervisor.

c) Laboratory coats, towels, cloth aprons, and/or bed liners that have become visibly soiled with blood or body fluids will be treated as being a biohazardous material. These items will be placed in a red biohazard plastic bag for proper disposal.

E. Decontamination

1. Surfaces that have been contaminated with blood or body fluids must be properly decontaminated as soon as possible after the incident occurs.
2. The area must be decontaminated with a disinfectant strong enough to kill HBV and HIV, as well as other pathogens, such as Mycobacterium and streptococcus, to name a few.
3. Decontamination can be performed by applying a 10% chlorine bleach [sodium hypochlorite solution] to the surface or article.
   a) Prepare the diluted disinfectant in a spray bottle.
   b) Create the mixture from 1 part household bleach and 9 parts water and mixing well. The solution may be used immediately. Only fresh disinfectant should be used. If disinfectant is 24 hours of older, discard appropriately. For best efficacy, do not use a bleach solution >1 hour old.
   c) Use the spray bottle to apply the diluted disinfectant in sufficient quantity to the surface/article. Spray at the perimeter of the spill and continue until the center is reached.
   d) Allow it to stand for 20 minutes contact time to kill pathogens.
   e) The surface is then to be cleansed with soap and water, and then allowed to dry.

4. Another type of solution or commercial product may be used in place of the bleach solution, if it is documented to be effective against HBV, HIV, and other bloodborne pathogens.
   a) Always follow the manufacturer's instructions for applying disinfectant to surfaces. Many products have a contact time of 10 minutes for efficacy. If instructions are not available, leave the diluted solution on the surface for 20 minutes before removing or wiping. The surface should remain visibly wet during the contact time.

5. Eye protection and gloves must be worn when an area is being decontaminated. Splash goggles should be worn for the likelihood of a splash. All materials used to clean the area must be disposed of as SMW when appropriate, or decontaminated in the same manner as was the originally contaminated area.

6. Laboratory coats that become soiled with visible blood or body fluids must be placed in a plastic biohazard bag for proper disposal or decontamination. At this time, TU will be disposing the coats as SMW.
7. Contaminated non-disposable safety equipment will be decontaminated in accordance with Steps D3 and D4 above. This would include such items as pocket respirators used in CPR, bag-valve masks, goggles, faceshields, etc.
8. Contaminated disposable items, such as gloves, paper aprons, and surgical masks, will be disposed of in the proper receptacle used for SMW.
9. Additional SMW containers and bags can be obtained upon request by contacting EHS These items may also be supplied by the SMW Disposal Contractor.

Resources

For general inquiries on special medical waste or to report biohazard spills, contact EHS at 410-704-2949 or safety@towson.edu. Additional SMW containers and bags can be obtained upon request. These items may also be supplied by the SMW Disposal Contractor.

For needlestick injuries/cuts from SMW, go the TU Health Center (for students; call 410-704-2466) or go to the nearest Concentra Urgent Care (for employees; (410) 252-4015) at 1830 York Road, Suite F, Timonium, MD 21093.