

# MEDICAL WASTE MANAGEMENT

## INTRODUCTION

### PURPOSE

Regulated medical waste is a designation for wastes that may contain pathogenic microorganisms which was previously termed “infectious waste”. Duke University must manage these types of waste in order to minimize potential personnel exposures and to assure environmentally sound disposal of medical waste.

### RESPONSIBILITIES

Departments shall ensure that all medical waste generators within their department comply with this policy.

**Generators** of medical waste shall:

- Minimize the amount of waste generated.
- Dispose of wastes according to this Duke Medical Waste Policy.

**Packagers** of regulated medical waste for offsite treatment will:

- Complete training to comply with packaging and labeling requirements set by The Department of Transportation (DOT).

**Medical Center Environmental Services** (EVS: 919-681-9700) is responsible for supplying and disposing of the sharps containers in patient areas and medical center.

**Duke Regional Hospital** – DRH uses an eco-friendly reusable sharps management system. Daniels’ reusable Sharpsmart system is serviced by a contractor several times a week. Contact the Supply Chain Material’s Supervisor (919.470.4153) regarding service issues.

**OESO** shall:

- Assist in the identification and classification of medical waste.
- Assist in developing the appropriate procedures to handle and dispose of medical waste in compliance with both North Carolina and other applicable waste management laws or rules, where needed.

## PROCEDURES

Regulated medical waste requires special packaging, labeling, and must be decontaminated prior to disposal. According the North Carolina Medical Waste Rules and Duke Occupational and Environmental Safety Office, categories of regulated waste include:

1. Liquid or semi-liquid human blood, human blood components and products made from human blood > 20 ml in volume.
2. Liquid volumes of human body fluids including semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid >20 ml in volume.
3. Contaminated items that would release blood or body fluids in a liquid state when compressed, such as soaked surgical sponges.
4. "Sharps", including needles, syringes with attached needles, slides, and cover slips, capillary tubes, Pasteur pipets, or scalpel blades.
5. "Pathological Waste" includes human tissues, organs and body parts; and the carcasses and body parts of all animals that were known to have been exposed to pathogens that are potentially dangerous to humans during research, were used in the production of biologicals or in vivo testing of pharmaceuticals, or that died of a known or suspected disease transmissible to humans.
6. "Microbiological Waste" includes cultures and stocks of infectious agents. At Duke, this also includes recombinant DNA/transgenic organisms.

Specific waste handling practices will vary depending on the individual type of medical waste being generated, and consequently, general guidelines for a variety of different work areas are presented.

## **AREA SPECIFIC MANAGEMENT PRACTICES**

### ***Inpatient Areas***

- Bulk blood and body fluids (>20ml) such as those found in suction liners, blood bags, and pleurevacs are placed in the biohazard containers located in the soiled equipment rooms. The biohazard containers are shipped for offsite treatment and disposal. Medical Center Environmental Services (EVS: 919-681-9700) is responsible for the distribution and collection of these containers.
- Urine and feces may be carefully poured down the sanitary sewer (commode).
- "Sharps" including needles, syringes with attached needles, slides and cover slips, or scalpel blades are placed in the puncture-resistant sharps containers (needle boxes) located in every patient room, the medication carts, and the code blue carts. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled.
- EVS is responsible for supplying and disposing of the needle boxes in patient areas. If a box is found to be two-thirds full, it will be picked up and replaced. Needle boxes are packaged in biohazard boxes and shipped for offsite treatment and disposal.
- Solid waste from patient rooms (used gloves, masks, disposable gowns, gauze, etc.) are not regulated medical waste and need not be decontaminated prior to disposal as routine trash; however they must be sufficiently contained in leakproof bags for transport and disposal.

### ***Operating Rooms***

- Bulk blood and body fluids (>20ml) such as those found in suction liners, blood bags, and pleurevacs are placed in the leakproof bags in the operating room. The bags are placed in biohazard containers. Medical Center Environmental Services (EVS: 919-681-9700) is responsible for the distribution, collection, and disposal of these containers.
- Contaminated items that would release blood or body fluids in a liquid state when compressed (soaked surgical sponges) are also placed in the biohazard containers in the operating room.
- As the biohazard containers in each operating room are filled, they are placed in the hallway for pick-up by EVS for offsite treatment and disposal. EVS will routinely inspect these areas and remove waste accordingly.
- “Sharps” are placed in the puncture-resistant containers (needle boxes) in each operating room. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled. EVS responsible for the distribution, collection, and disposal of these containers.
- Solid waste from the operating rooms (disposable gloves, masks, disposable gowns, gauze, etc.) other than that above are not regulated medical waste and need not be decontaminated prior to disposal as routine trash; however, they must be sufficiently contained in leak proof bags for transport and disposal.

### ***On-Site Clinics***

- Bulk blood and body fluids (>20ml) such as those found in suction liners, blood bags, and pleurevacs, as well as trace chemotherapy waste are placed in the biohazard containers located in the utility rooms of the clinics. Medical Center Environmental Services (EVS: 919-681-9700) is responsible for the distribution, collection, and disposal of these containers.
- Urine and feces may be carefully poured down the sanitary sewer (commode).
- “Sharps” are placed in the puncture-resistant containers (needle boxes) in areas of use throughout the clinics. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled. EVS responsible for the distribution, collection, and disposal of these containers.
- Solid waste from patient rooms (disposable gloves, mask, disposable gowns, gauze, etc.) is not regulated medical waste and need not be decontaminated prior to disposal as routine trash; however, they must be sufficiently contained in leakproof bags for transport and disposal.

### ***Off-Site Clinics***

- Bulk blood and body fluids (>20ml) such as those found in suction liners, blood bags, and pleurevacs, as well as trace chemotherapy, are placed in the biohazard containers located in the utility rooms in the off-site clinics. Use a Duke preferred vendor for distribution and collection of these containers. If you do not yet have your site set up with the vendor, contact Duke Procurement

(919-681-5900) for more information.

- Urine and feces may be carefully poured down the sanitary sewer (commode).
- “Sharps” are placed in the puncture-resistant containers (needle boxes) in areas of use throughout the clinics. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled and collected by a Duke preferred vendor for disposal.
- Solid waste from patient rooms (disposable gloves, mask, disposable gowns, gauze, etc.) are not regulated medical waste and need not be decontaminated prior to disposal as routine trash; however, they must be sufficiently contained in leakproof bags for transport and disposal.

### ***Clinical Laboratories***

- Biological/Microbiological wastes (patient specimens, cultures, or stocks of etiologic agents) are placed in biohazard bags and collected by Medical Center Environmental Services (EVS: 919-681-9700). The waste is then packaged appropriately in biohazard shipping containers that are shipped for offsite treatment and disposal. At BSL3, waste must be steam sterilized (autoclaved 90 minutes at 250°F (121°C), 15 psi) onsite before it is collected for disposal.
- Urine may be carefully poured down the sanitary sewer.
- “Sharps” are placed in the puncture-resistant containers (needle boxes) in areas of use throughout the clinics. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled. EVS responsible for the distribution, collection, and disposal of these containers.
- All anatomical/pathological human waste must be incinerated. Such wastes are placed in a leak resistant biohazard container, submitted to EVS (919-681-9700) and shipped for offsite treatment and disposal.
- Solid wastes from laboratories (disposable gloves, gauze, etc.) are not regulated medical waste and need not be decontaminated prior to disposal as routine trash; however, they must be sufficiently contained in leakproof bags for transport and disposal.

### ***On or Off-Site Research (BSL1 - BSL2) / Teaching Laboratories (BSL1 - BSL2)***

There are **two options** for solid waste treatment.

**Option 1:** Off-site treatment is set up through a preferred vendor and purchased/scheduled through your departmental business office. Some Duke Medical Center buildings are already set up through EVS (919-681-9700) for this service. Contact your department business office to determine. With this option, your department pays the vendor or EVS to deliver supplies of biohazard bags and biohazard sharps containers (needle boxes).

**Option 2:** On-site treatment is performed using steam sterilization via autoclaving for **\*90 minutes at 250°F (121°C), 15 psi. ALL autoclavable bags are contained within a secondary autoclavable bin/pan to contain leaks within the autoclave. Do not pour heated agarose down the drain.** Autoclaved bags are transported within a leak-proof secondary container (trash can, cart, bin, etc.) to the buildings outside trash dumpster. With this option, your department purchases autoclavable biohazard bags and sharps containers as done with other lab supplies.

\*NC Medical Waste Management Rules (15A NCAC 13B Section .1200) allows for steam sterilization for 45 minutes at 250F 15 psi ONLY if the laboratory monitors the operations of the autoclave unit under condition of full loading for effectiveness of treatment. Monitoring shall be performed NO LESS THAN ONCE PER WEEK through the use of biological indicators. A log of each test of effectiveness of treatment performed shall be maintained and shall include the type of indicator used, date, time, and result of test. If the indicator shows failure of the effectiveness of treatment, a change in the way you load the waste may be necessary or the autoclave may need to be taken out of service for maintenance. You must create a standard operating procedure for this method to address failures.

- Biological/Microbiological wastes (human blood products <20 ml, cultures or stocks of etiologic agents) are collected in autoclavable bags and treated using Option 1 or 2. Additionally, chemical disinfection is a treatment option for liquid biological waste. See Laboratory Safety Manual, Waste Management under The Biological Safety Section for more information.
- All anatomical/pathological human waste must be incinerated. Such wastes are placed in a leak resistant biohazard container, submitted to the vendor or to EVS 919-681-9700, and using Option 1, shipped for offsite treatment and disposal.
- All animal carcasses are coordinated for proper treatment through Duke Lab Animal Resources (DLAR: 919-684-5567). If carcasses are in a chemical fixative, contact OESO-Environmental Programs (919-684-2794) for advice on disposal.
- Urine may be carefully poured down the sanitary sewer.
- “Sharps”, including needles, syringes with attached needles, slides, and cover slips, capillary tubes, Pasteur pipets, or scalpel blades are placed in the puncture-resistant sharps containers (needle boxes) located in areas of use throughout the laboratory. To prevent needlestick injuries, needles must not be recapped, purposely bent or broken by hand, removed from disposable syringes by or otherwise manipulated by hand. Sharps containers are closed when two-thirds filled. They are sent off-site for treatment as noted in Option 1 or placed in an autoclavable bag for autoclaving on-site as noted in option 2. If performing Option 2, the autoclaved bags are safely transported within secondary containment to the buildings dumpster for disposal.
- Serological Pipets can puncture bags and therefore are bundled separately in an appropriate puncture resistant biohazard labeled box that is lined with an autoclavable bag. The box is taped closed and treated using Option 1 or Option 2 above.
- Solid waste from laboratories (disposable gloves, gauze, etc.) are not regulated medical waste and need not be decontaminated prior to disposal as regular trash; however, they must be sufficiently contained in leakproof bags for transport and disposal.

### **Pharmacies**

Pharmacy waste (i.e. sharps) is not regulated medical waste. Refer to the Hazardous Drugs Policy and the Pharmaceutical Waste FAQ.

## **REFERENCES**

North Carolina Administrative Code (NCAC) 10G.1201-.1207, General Statute (GS) 130A-309.26, Effective Sept. 1, 1990.