5.1 Introduction

Biohazardous waste, just like chemical waste, can be harmful to the environment and needs to be properly disposed of. Most of the biohazardous waste goes to the on-site autoclave treatment. It is important to follow the proper method and guidelines for the disposal of medical waste.

5.2 Methods

Biologically hazardous material/medical waste can be disposed of in one of three ways:

- Chemical disinfection
- Autoclave (Steam Sterilization)
- Incineration
5.3 Procedures for Disposing of Biohazardous Medical Waste

5.3.1 Chemical Disinfection

Chemical disinfection of liquid waste is accomplished by the addition of a disinfecting agent such as bleach to the liquid in the proper proportions. Solutions must stand a minimum time per protocol/SOP. Once disinfected, the liquid may be poured into the sanitary sewer system followed by a water rinse. Please note that the liquid cannot have been mixed with other hazardous material that is not suitable for drain disposal.

5.3.2 Liquid Infectious Materials

Regulated wastes (liquid or semi-liquid blood or other potentially infectious liquids) must be placed in closeable containers i.e., buckets, bins, jars, in the appropriate color coded biohazard bag. If the bag contains free liquids (bulk blood and/or bodily fluids >20ml) absorbent material (diapers, litter, etc.) must be added to absorb the free liquids. Absorbent material must be capable of absorbing 150% of the liquid volume placed in the bag per Texas medical waste rules. Use of excessive amounts of heavy litter is discouraged as it may cause tearing of bags and leakage.

5.3.3 Autoclave (Red Bags)

Medical waste collected in Red Bags is treated by steam sterilization and maceration with final disposal in the landfill. Waste designated for steam sterilization include medical wastes TCEQ describes as blood and blood products, microbiological wastes (i.e., cultures and vaccines), body fluids, sharps, other soiled disposable medical paraphernalia (i.e., gowns, gloves, bandages, tubes, bags, etc.). These wastes are disposed of in a Red Bag with the exception of sharps which are required to be disposed of in an approved hard plastic “red” sharps container. Sharps containers are red leak proof containers.

5.3.4 Steam Sterilization (Research laboratory)

Biohazardous waste to be steam sterilized in the laboratory must be placed in appropriate autoclave bags. Autoclave bags must not be red. Orange or clear autoclave bags are appropriate. Once sterilized the bag must state non-infectious or treated waste. Bags are placed into the regular trash for disposal.

5.3.5 Incineration (Yellow Bags)

Yellow bags identify medical waste that will be treated by incineration. Waste streams designated for incineration include trace amounts of chemotherapy medications (e.g., empty IV bags, gloves, tubing, no common wipes), pharmaceutical wastes, and pathological wastes consisting of animal and human body parts, tissues, fetuses, organs and human anatomical remains. Medical waste incineration is identified by specific regulations and must have prior EHS approval. Sharps containers are yellow leak proof containers.

Environmental Services (housekeeping staff) are responsible for picking up closed biohazard (medical waste) boxes generated from laboratory areas and on the patient care unit that are ready for disposal. Medical waste includes both red and yellow bag wastes, the waste are segregated at the Medical Waste Processing
Facility. Boxes are transported to designated docks for pick up by personnel who manage medical waste. Patient care has “area specific” standard procedures for the collection and removal of medical waste.

5.4 **Off Site Clinics**

Off Site Clinics personnel are responsible for medical waste disposal arrangements available through the UTMB Medical Waste Service Center. UTMB patient care staff is responsible for ensuring medical wastes are segregated and stored according to UTMB policy. Clinics are to arrange for medical waste transportation and disposal services through the UTMB Office of the Sustainability Manager at (409) 747-2948. Contact EHS for disposal questions or issues with medical waste.

5.5 **DOT Training**

U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) amended the Hazardous Materials Regulations (HMR) (Miscellaneous Amendments, effective May 10, 2013) to require employers who handle hazardous materials to make hazardous material employee training records available upon request to an authorized official of the DOT or an entity explicitly granted authority to enforce the HMR. UTMB Clinic representative is responsible for providing a signature on the medical waste shipping manifest. By signing this documentation, the employee is certifying that the medical waste is packaged properly and is ready for transportation in commerce.

This training will be required for new employees replacing clinic personnel with responsibility for signing medical waste shipping papers. Refresher training is required every three years. Contact EHS for information regarding **Offsite Clinic DOT for Shipping Medical Waste** online training assignment.

5.6 **Contaminated Glass**

All biologically or chemically contaminated broken glass, pasteur pipettes, and capillary tubes shall be placed in a sharps container.

Sharps containers are placed inside a red bag for disposal in a cardboard biohazard box.

5.7 **Non-Contaminated Glass**

All decontaminated (autoclaved, chemically disinfected) broken glass and slides shall be placed into an unbreakable, leak proof, primary container and labeled “BROKEN GLASS” before being placed into the regular trash.

5.8 **Mixed Waste**

Mixed waste requires more attention; all the procedural guidelines for hazardous waste apply following either a deactivation or deregulation criteria. Mixed waste labels must contain all the constituents of the waste:
5.8.1 Biological-Chemical – For a mixed waste that contains both biological and chemical waste, the biological agents must first be deactivated using disinfection processes or autoclaving tissues and removed (nothing to remain). The chemical left will then be treated as chemical waste and disposed of according to the guideline.

5.8.2 Chemical-Radioactive – For a mixed waste that contains both chemical and radioactive waste, the radioactivity must first be determined. If the radionuclides are not completely spent, they need to be deregulated. After the radionuclides have been deregulated, the chemical waste is handled according to the chemical waste disposal procedures.

5.8.3 Biological-Radioactive – For a mixed waste that contains both biological and radioactive waste, it has to be disinfected or autoclaved to destroy the biological waste. The waste then must be deregulated over the time required to fit the radioactive waste criteria and be disposed of accordingly.

5.8.4 Biological-Chemical-Radioactive - This kind of waste is somewhat rare. But to dispose of it, the waste must first be disinfected or autoclaved to destroy the biological agents. It must then be deregulated to take care of the radioactive waste. After the waste has gone through these processes, it will be treated as a chemical waste and disposed of accordingly.