

Appendix J

University of Alabama at Birmingham Medical Waste Management Plan

- I. Definitions per the Alabama Department of Environmental Management Land Division 13-Solid Waste Program, Chapter 335-13-1, Medical Waste (ADEM) and UAB policy

Medical waste shall be interpreted to mean:

- A. Animal Waste: Carcasses and body parts, regulated bulk blood and body fluids, and surgical waste from animals exposed to human infectious agents as a result of the animal(s) being in contact with biologicals and pharmaceuticals in testing, production and research.

Note: At UAB all animal carcasses and body parts shall be treated as medical waste and returned to the area designated by the Animal Resources Program (ARP) for disposal by UAB Hazardous and Regulated Materials Facility (HRMF).

- B. Blood and Body Fluids: All human bulk blood, bulk blood components (serum and plasma) and bulk specimens of blood, tissue, semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid from patient treatment areas, clinical and research laboratories.

Note: ADEM has interpreted bulk blood to mean a volume of blood that is fluid to the point of leaking but does not include materials that are stained or tainted with blood. Accordingly, ADEM uses the example of plastic tubing that contains enough blood that can flow out of the tubing would be sufficient quantity to be considered "bulk blood". Tubing that has a residue or stain of blood, but not fluid, would not be considered medical waste.

- C. Microbiological Waste: Discarded cultures and stocks of human infectious agents and associated microbiologicals; human and animal cell cultures from medical and pathological laboratories; waste from production of biologicals; discarded live and attenuated vaccines; culture dishes and devices used to transfer, inoculate, and mix cultures.

- D. Pathological Waste: All discarded human tissues, organs and body parts which are removed during surgery, obstetrical procedures, autopsy, laboratory, embalming, or other medical procedures, or traumatic amputation.

- E. Renal Dialysis Waste: All liquid waste from renal dialysis contaminated with peritoneal fluid or with human blood visible to the human eye. Solid renal waste is considered medical waste if it is saturated, having the potential to drip or splash regulated blood or body fluids.

- F. Sharps: Any used or unused discarded article that may cause punctures or cuts which has been or is intended for use in animal or human medical care, medical research, or in laboratories utilizing microorganisms. (Ex: hypodermic needles, IV tubing with needles attached, scalpel blades and syringes with or without needles attached). Glassware, blood vials, pipettes, and similar items that are contaminated with blood or body fluids are to be handled as sharps.

Note: These items are to be placed directly into designated and approved sharps containers located as close to the work area as possible. They will be transported to the HRMF for treatment and disposal.

Other glass items that are not contaminated with blood or body fluids or other hazardous materials are to be discarded in rigid, puncture-resistant containers which are labeled "glass only" or "broken glass only" as appropriate. These containers will be removed from the facility by environmental services and disposed of in the landfill.

- G. Surgical Waste: All materials discarded from surgical procedures which are contaminated with human bulk blood, blood components, or body fluids, included but not limited to disposable gowns, dressings, sponges, lavage tubes, drainage sets, underpads, and surgical gloves.

II. Collection of Untreated Waste

- A. Medical and surgical waste will be separated from non-medical waste and placed into designated and approved medical waste containers at the point of generation, i.e., patient rooms, surgical suites, patient treatment areas, laboratories, etc. The specific criteria to make the separation of medical vs. non-medical waste will be in accordance with the definition as stated (ADEM 335-13-1-.03).
- B. Medical waste (except sharps) will be placed in red, plastic bags (usually 35 gallon capacity). Red bags containing medical waste will be properly and completely secured into labeled, designated HRMF plastic red barrels with covers or other approved containers to avoid leakage or spillage. Sharps (see definitions) will be placed into leak proof, rigid, puncture resistant containers (approved sharps containers) and sealed to prevent loss of contents (ADEM 335-13-7-.02). The outermost container for medical waste shall have either a red background color or have red lettering with contrasting background color and conspicuously labeled with the words "Medical Waste" or "Bio-Hazardous" or "Infectious" and/or contain the International Biological Hazard Symbol.
- C. In research areas medical waste shall be securely located away from traffic flow.

III. Identification of Medical Waste

Medical waste contained in sealed, red, plastic bags and sharps containers will be placed in HRMF containers with covers in each area of use (usually 32 gallon red plastic), which are rigid, puncture resistant, and leak resistant and then moved directly to the HRMF or for UAB Hospital areas, transported to 2 collection points in and adjacent to the UAB hospital(s) for temporary storage before being moved to the HRMF. The outside container (i.e., red, plastic garbage container) will be identified by bar codes which will contain the name and address of the generator (UAB) and the date the medical waste was moved to the HRMF or if temporary storage is utilized (see definition below), prior to movement to the HRMF for treatment.

All secondary containers, carts, or transport vehicles used in the collection or movement of medical waste within the departments or units shall be identified and decontaminated as appropriate.

IV. Temporary Storage of Untreated Medical Waste

"Storage" as used in this sense would mean storage of the packed outside containers prior to shipment to the HRMF Facility.

Temporary storage for UAB Hospital will be accomplished at the solid waste compactor buildings (one is located at the corner of 7th Avenue and 20th Street South and one at 7th Avenue between 18th and 19th Streets South). These buildings will be single-purpose (waste handling) for the purpose of this plan. The Medical Waste Temporary Holding Facilities, will be identified by contrasting color signage specifying "Medical Waste". The "facilities" will be capable of full closure and will be secured and locked when not attended. Floors and wall surfaces which may come in contact with medical waste will be cleaned with a germicidal soap solution on a weekly schedule. The management of this facility will be under the direction of the Director of University Hospital Environmental Services (205) 934-4782.

The Medical Waste Temporary Storage Facility premises will be included in the UAB (Hospital) pest control contract coverage for insects and vertebrate pests.

Because of the apparent health risk involved, any UAB employee whose duties require exposure/contact with medical waste in any form will be furnished with and required to wear gloves and such other protective clothing as required by their department supervisor(s).

Hospital units and departments should avoid holding medical waste in any temporary holding area on UAB Hospital premises longer than six (6) days before transportation to the UAB HRMF where treatment will be rendered by appropriate methodology. When temporary holding areas are used, they are to be clearly identified and secured.

UAB shall maintain records for three (3) years. This information will include the name and location of the generator, i.e., UAB Hospitals, Birmingham, Alabama. The name of a contact person will be provided to ADEM.

V. Transportation of Untreated Waste to Treatment Facility

UAB will transport untreated medical waste from the several collection sites on the properties of UAB to the following storage facility:

University of Alabama at Birmingham
221 14th Street South
Birmingham, Al 35194
(205) 934-3797
Contact: Ted Krayer, Director of Hazardous and Regulated Materials

Transportation of medical waste will comply with the following conditions:

- A. There shall be no mixing of radioactive waste, chemical waste, or any other type of hazardous waste with untreated medical waste prior to transportation to the treatment/disposal facility.
- B. Untreated medical waste shall not be mixed with other solid waste in the same transport vehicle unless all of the waste is treated as medical waste. Leaking, improperly sealed or unlabeled containers shall not be accepted by the medical transporter. Medical waste shall not be compacted in a transported vehicle. Medical waste shall be transported only in an enclosed vehicle and no medical waste shall be released to the environment.

Employees who transport medical waste from those designated collection sites at UAB to the disposal facilities shall be thoroughly familiar with all rules and regulations pertaining to the movement of untreated and treated medical waste. Instructors for transportation training will be one of following:

Incinerator Plant Supervisor
Hazardous and Regulated Materials Facility Manager
Biosafety Officer

Training records for these employees will be available for inspection at the HRMF located at 221 14th Street South Birmingham, AL 35294.

Additionally, the following conditions shall be met and followed during the tenure of the medical waste handling contact with UAB:

1. All vehicles shall be identified with the transporter, business name, telephone number, a "Medical Waste" designation (or appropriate name or symbol), and the ADEM permit number.

VI. Transportation Treated Waste

Treated medical waste will be transported to an approved county landfill in approved containers. Appropriate certification of treatment will be provided on an "as needed basis" from the treatment facility permittee to the permittee of the disposal facility.

VII. Treatment Measures

All medical waste, according to the definitions (ADEM 335-13-1.03), generated by UAB hospitals, clinics and medical research laboratories will be treated according to the treatment schedule as indicated by ADEM 335-13-7.

Complete treatment of medical waste will be accomplished by microwave irradiation, incineration, and/or steam sterilization.

A. Microwave Irradiation

The microwave disinfection unit is a stationary, compact thermal disinfection system designed for treating and rendering infectious medical waste safe for conventional disposal. In the microwave treatment section, shredded material is first subjected to steam, then heated by microwave energy to disinfection temperature. Material continues on to a temperature holding section and is held at disinfection temperature for approximately ten minutes. A discharge screw then transports the disinfected material to a waste receptacle for disposal in an approved landfill.

B. Incineration Methods

Incinerators decontaminate and destroy medical waste using high temperature combustion. Specific conditions and regulations as these may apply to the incineration process conducted at the UAB Hazardous and Regulated Materials Facility are as follows:

1. Storage requirements for untreated medical waste at the HRMF shall comply with those storage regulations stated in this Program.
2. Combustible medical waste shall be rendered non-recognizable during the incineration process and prior to disposal in the sanitary landfill. Due to limitations in the shredding process, all defined "sharps" must be placed in approved sharps containers for incineration.

C. Steam Sterilization Methods

Portions of medical waste generated at UAB will be treated at the point of generation by steam sterilization. This waste will then be transported to the HRMF for final treatment before disposal.

1. Hazardous chemicals and radioactive wastes will not be included in any steam sterilization process.
2. Steam sterilizers shall be equipped with a continuous temperature and pressure monitoring device or an equivalent ADEM approved test. Efficiency of each sterilizer used for medical waste treatment shall be checked using Bacillus stearothermophilus at least once after each forty hours of operation.
3. An operational, written log for each steam sterilizer used for medical waste shall include at least the following information:
 - a. Date, time and operator for each cycle
 - b. Temperature and pressure maintained during cycle
 - c. Method used for confirmation of temperature and pressure
 - d. Dates and results of calibration and maintenance

VIII. Disposal of Treated Waste

All treated medical waste intended for disposal in a sanitary landfill shall be disposed of in an approved facility. Specific conditions and requirements regarding proper disposal of treated medical waste include the following points:

- A. Written certification to the effect that medical waste has been properly treated shall be provided to the transporter permittee or his designee and to the waste disposal facility.
- B. Certification shall be provided at least on an annual basis.
- C. Proper records shall be maintained concerning storage, transportation and final disposal of medical waste generated by UAB hospitals, clinics and medical research laboratories. These records will be maintained for at least three years and will be available for review upon request by ADEM representatives.

IX. Education and Training

- A. An education program designed to provide information about the types of medical waste encountered in the workplace and identify appropriate procedures, personal protective equipment, and precautions used for handling and disposing of medical waste in accordance with UAB and the Alabama Department of Environmental Management requirements is available through the UAB Department of Occupational Health & Safety to all employees who manage or have contact with medical waste.
- B. All employees who manage or have contact with medical waste are required to attend one in depth medical waste training session at the time of their initial assignment. Updates will be conducted thereafter in conjunction with other safety

programs or as separate courses. Hospital employees will receive updates during their annual safety update sessions.

- C. Consultation and response to questions regarding medical waste issues will be provided on request by contacting the Biosafety Division or HRMF.

X. Coordination and Implementation of Medical Waste Management

- A. The UAB Medical Waste Management Plan is designed to be in compliance with local, state, and federal regulations. The UAB Department of Occupational Health & Safety in conjunction with the Institutional Biosafety Committee and other affected parties reviews and revises the plan yearly and as regulations and guidelines mandate.
- B. Any modifications to this plan are to be reviewed by the UAB Department of Occupational Health & Safety. Container approval must be coordinated through the UAB Department of Occupational Health & Safety's HRMF management.

References:

Alabama Department of Environmental Management Land Division-Solid Waste Program, division 13, Code 335-13, November 1993.

Fleming, Diane O. et. al. Laboratory Safety - Principles and Practices, 2nd Edition. Washington, DC: ASM Press, 1995

U.S. Department of Health and Human Services, Centers for Disease Control/National Institutes of Health, Biosafety in Microbiological and Biomedical Laboratories, Atlanta, GA: 1993.

U.S. Environmental Protection Agency, "Managing and Tracking Medical Wastes - A Guide to the Federal Program for Transporters", EPA/530-SW-89-022. Washington, DC: September 1989.

U.S. Environmental Protection Agency, "Managing and Tracking Medical Wastes - A Guide to the Federal Program for Generators", EPA/530-SW-89-021. Washington, DC: September 1989.

Congress of the United States Office of Technology Assessment, "Issues in Medical Waste Management", OTA-BP-O-49. Washington, DC: October 1988.

REVIEW SCHEDULE

Implementation Date: _____

Reviewed (Circle Responses)		Updated		Date	Biosafety Officer
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		
Yes	No	Yes	No		