

A Guide to the Handling and Disposal of Medical Waste



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Introduction

In 1990 the Alabama Department of Environmental Management (ADEM) issued regulations concerning the storage, transportation, treatment and disposal of medical waste. In accordance with these regulations and other national guidelines (BMBL 5th Ed., NIH Guidelines) the Department of Risk Management and Safety (RMS) established a medical waste management program for Auburn University. This guide is intended to serve a general summary of the regulations and provide guidance on the proper management of your medical waste. If you have questions or need additional information for situations not addressed in this guide, please contact this office at 844-4805.

Definitions

Medical waste is defined as the disposal of any human infectious agent or equipment that is capable of transmitting that disease to humans. Examples of human disease agents include: Bacterial - *Staphylococcus aureus*; Viral - Hepatitis B Virus; and Fungal - *Histoplasma capsulatum*. Equipment that would be regulated as medical waste includes syringes and scalpel blades. All medical waste must be either treated and disposed of as solid waste or shipped off-site for additional processing to render it non-recognizable.

Biological waste is defined as the disposal of any non-human disease agent or equipment that has come in contact with the non-human disease agent. Examples of biological waste are general zoonotic vectors used in research and cultures used in plant pathology research. The equipment could include petrie dishes and disposal pipettes as long as they do not contain human disease agents. Biological waste is not regulated under the ADEM medical waste requirements. However, national safety guidelines (BMBL 5th Ed and NIH Guidelines) require that all biological waste must be decontaminated prior to disposal. Once biological waste has been decontaminated it can be disposed of with normal trash provided it does not have any wording or symbols indicating that it contains infectious materials. Common decontamination methods include autoclave, bleach, ethanol, and heat sterilization.

Solid Waste includes all other waste and materials which have not been exposed to human infectious agents. Solid wastes are items that may be recycled or disposed in the trash. Chemical and radioactive waste must not be disposed of as solid waste or medical waste.

Types of Medical Waste

Human Blood and Blood Products

Human blood and blood products are classified and managed as medical waste because of the possible presence of infectious agents that cause blood-borne disease. Wastes in this category include bulk blood and blood products as well as smaller quantities of blood samples drawn for testing or research. Waste human blood must be treated by steam sterilization. After sterilization, the liquid portion may be safely poured off into a sanitary sewer drain. Animal blood is not regulated as medical waste unless it has been intentionally exposed to a human infectious agent and is capable of transmitting the disease back to humans.

Cultures and Stocks of Infectious Agents

Cultures and stocks of human infectious agents, regardless of storage method, must be managed as medical waste. Cultures and stocks of animal (zoonotic) disease are not regulated as medical waste if they have neither been intentionally exposed to a human infectious agent nor capable of transmitting that disease to humans. These items are regulated as biological waste and therefore must be decontaminated prior to disposal. (See definition of Biological Waste on the previous page.)

Pathological Waste

Animal pathological wastes are considered to be medical waste only if the animal has been intentionally exposed to a human infectious agent and it is capable of transmitting the disease back to a human. Animals that are accepted at the University that may be carriers of human infectious agents, e.g., rabies, are not regulated as medical waste. **As long as the human disease agent was not deliberately introduced to the animal as part of a treatment or research regimen at the University and the animal is not capable of transferring this disease back to humans it is not regulated as a medical waste, but is biological waste and must be decontaminated prior to disposal..**

Sharps

All hypodermic needles and syringes, intravenous needles and tubing, scalpel blades, lances, and other such devices are regulated as medical waste. Even if these materials are unused they are still regulated. All sharps must be placed in an approved sharps container. **Sharps that have been exposed to human disease agents must be autoclaved prior to pickup by Risk Management and Safety.**

Glassware

Glassware that has not been exposed to a human disease agent is not regulated as a sharp and should be placed into a container designed for such material and either recycled or disposed of as solid waste. This includes pipettes, capillary tubes, test tubes, stir rods, and other laboratory equipment. All glassware that has been exposed to human infectious agents must be autoclaved prior to disposal. After the glassware has been autoclaved it can be thrown in the trash. **Broken glassware should be placed into a container designed for such materials and either recycled or disposed.** Currently, there is no locally available market for

Pyrex glass so it should be disposed of as solid waste. At a minimum, broken glassware should be disposed of in small double lined cardboard boxes and clearly labeled as broken glassware. Small double lined boxes minimize the potential for injury and excessive accumulation in the laboratory.

Contaminated Equipment

This includes any equipment not mentioned above which may come into contact with human infectious agents. **Equipment that has been contaminated with human disease agents must be treated as a medical waste and either autoclaved or shipped off-site for treatment.**

Sharps

Packaging

The sharps container must be red in color and display the International Biohazard Symbol or one of the following phrases:

- * Medical Waste
- * Infectious

- * Infectious Waste

- * Biohazardous

All sharps must be packaged in an approved sharps container. The Scientific Supply Store in the Science Center Laboratories Building carries a selection of various size sharps containers and they are available from most general scientific supply companies.

The generator must ensure that the container is properly sealed and labeled. If the container is not properly sealed, or there is any doubt about the integrity of the sharps container it will not be accepted for disposal. Sharps containers should not be used for the disposal of aluminum drink cans, paper, gloves, laboratory glass, culture tubes, bodily fluids or any other similar types of materials. Sharps containers shall not be used for the disposal of chemicals or radioactive materials. Sharps containers should only be used for sharps. If the sharps have been exposed to human disease agents they must be autoclaved prior to being picked up by Risk Management and Safety.

Disposal

Since sharps must be rendered non-recognizable prior to disposal all sharps are shipped off-site to an approved medical waste treatment facility on a weekly basis.

The generator or contact person must complete a medical waste internal manifest prior to the collection of any medical waste. Waste pickup personnel normally carry extra copies of the internal manifest for circumstances when the generator may not have one. When you have a sufficient number of sharp containers to warrant a pickup, you should call the Department of Risk Management and Safety at 4-4805 and request a pickup. Please see the

attached "Request for Pickup of Medical Waste Form" so that you can provide the appropriate information to RMS. Medical waste will normally be picked up within 3 days of your request. During semester breaks pickup times may be restricted due to reduced waste volume and limited personnel.

Autoclavable Waste

Packaging

ADEM regulations have specific prohibitions on the disposal of all items bearing either an international biohazard symbol or any wording indicating that the items contain infectious waste, biohazardous waste or medical waste. In order to dispose of treated medical waste as trash the autoclave bag must not be red or orange nor contain any wording or symbols indicating that it contains medical waste. The state prohibits using an orange/red bag for autoclaving and then placing it into a black trash bag for disposal.

This office, in consultation with the Scientific Supply Store, has identified a manufacturer of approved autoclave bags that meet the ASTM dart test standard. These bags are the same as those sold by companies such as Fisher and Baker. These autoclave bags are available at a lower cost than bags from commercial vendors since the Supply Store orders them in bulk.

To provide for proper identification of biohazardous materials in the laboratory it is suggested that you acquire outer secondary containers such as a trash receptacle and affix a biohazard symbol on their exterior surface. The autoclave bag can then be placed inside the secondary container. This allows the material to be clearly identified in the lab and still allows disposal of the bagged material in the solid waste stream. Most general science catalogs contain a listing for small clear autoclave bags which fit into wire frame holders, if your lab uses small tabletop biohazard bags. Again, the holder may be marked with a biohazard symbol, if necessary. These clear bags must be placed into an autoclave bag prior to disposal.

Sharps are prohibited from disposal in autoclave bags. If you generate sharps they must be placed into an approved sharps container. Glassware that contains human disease agents should be autoclaved and placed into double lined cardboard boxes for disposal.

Recordkeeping and Testing

Autoclaves used for the treatment of medical waste must be operated in accordance with ADEM medical waste regulations.

Steam sterilizers should be equipped to continuously monitor and record temperature and pressure during the entire length of each cycle. Sterilizers not so equipped shall have affixed a temperature sensitive tape to each bag or container of medical waste or obtain approval from ADEM of an equivalent test.

Each bag or container shall be exposed to a minimum temperature of 250 degrees Fahrenheit and at least 15 pounds of pressure for 30 minutes. Processing requirements may be altered if proper decontamination is assured by appropriate testing, and approval is received from ADEM.

Each sterilizer shall be evaluated for effectiveness under full loading by an approved method at least once for each 40 hours of combined operation. (Note: The 40 hour testing requirement is for every 40 hours of operation treating medical waste. Treating non-medical waste does not count toward the 40 hours.) *Bacillus stearothermophilus* is the only biological indicator that can be utilized without ADEM approval.

A written log or other means of documentation as approved by ADEM shall be maintained for each steam sterilization unit and shall contain the following:

- The date, time (including duration), and operator for each cycle.
- Approximate weight or volume of medical waste treated during each cycle.
- The temperature and pressure maintained during each cycle.
- Method utilized for confirmation of temperature and pressure; and
- Dates and results of calibration and maintenance.

Owners or operators of steam sterilizers shall not place untreated regulated medical waste in areas or containers designated for pickup and delivery to a solid waste disposal facility.

Sterilizers utilized for waste treatment shall not be utilized for sterilization of equipment, food or other related items. (Note: This only applies to units that are used to sterilize equipment, i.e., syringes, that will be used on humans. Equipment used on animals is not covered under this requirement.)

ADEM requires that units treating medical waste retain the operating log for a minimum of three years.

Please call 4-4805 to place a pickup request for medical waste. In general medical waste is picked up within 3 working days of your pickup request. However, during semester breaks it may take 5 to 7 days to pick up your medical waste.

REQUEST FOR PICKUP OF MEDICAL WASTE

Date: _____ Contact: _____

Dept/Bldg/Rm: _____ Phone: _____

Sharps

Are sharps packaged in an approved, sealed sharps container? Sharps can not be disposed of in autoclave bags, but must be in a sealed impervious, puncture-proof container. **Sharps that have been exposed to human disease agents are required to be autoclaved prior to pickup.** Sharps include hypodermic needles, syringes, scalpel blades, lances, razor blades and other such items exposed to human disease agents.

Yes No

Treated Medical Waste

Has all medical waste been treated in a treatment unit that is operated in accordance with ADEM regulations? This office does not pick up treated medical waste in autoclave bags.

Yes No

Biological Waste

All biological waste, materials that do not contain human disease agents, must be managed so that it does not present a possible threat to the environment. All steam sterilization of biological waste must be in autoclave bags and should be disposed of as solid waste. This office does not pick up biological waste.

MATERIALS FOR PICKUP

Waste Description _____

Total Number of Containers _____ Estimated Total Weight _____

PICKUP SCHEDULED:

Time Date/Day of Week _____

Pickup Request Received By/Date Pickup Made By/Date _____

Additional Comments: _____

You must complete this form and attach it to your sharps container(s) before we can process your request.

Medical Waste Form 701

AUBURN UNIVERSITY MEDICAL WASTE INTERNAL MANIFEST
--FOR MATERIALS NOT CONTAINING RADIOACTIVE OR HAZARDOUS WASTE PRODUCTS--

Generator _____

Department _____ Room and Building _____

Phone _____ Date _____

Total Number of Containers _____

Waste Description _____

Total Number of Containers _____ Estimated Total Weight _____

Check one and sign certification:

Human Disease Agent

All sharps and other waste materials have been properly packaged and treated in an autoclave operated in accordance with applicable ADEM regulations. This material does not contain hazardous or radioactive waste that would require additional treatment.

Non-Human Disease Agent

All sharps and other waste materials have been properly packaged and are not a possible threat to the environment. This material does not contain hazardous or radioactive waste that would require additional treatment.

Additional Information. Please Print. _____

Certification

I certify that the contents of this consignment have been packaged and treated in accordance the applicable management standards for the type of waste generated.

Print Name and Date _____

Signature _____

If you need a new 40 Hour Steam Sterilizer Log form please contact Risk Management and Safety or use this format to create the form on a spreadsheet or word processing program.

AUBURN UNIVERSITY 40 HOUR STEAM STERILIZER LOG

Department _____

Model Number _____

Serial Number _____

Dates of Calibration	Results of Calibration	Method Utilized for Confirmation of Temp and Pressure

SOURCES OF TEMPERATURE SENSITIVE TAPE AND BIOLOGICAL INDICATORS

Thomas Scientific <http://thomassci.com>

Markson Science, Inc. <http://www.markson.com>

VWR <http://vwrsp.com>

Biological Sterilization Monitors (Spore-Strips) Duo -Spore <https://www1.fishersci.com>

Weber Scientific <http://weberscientific.com>

Kilit® Ampule

Autoclave Indicator Tapes

Sterility Indicating Tape

BBL Kilit Sterilization Indicator

Pressure- Sensitive Adhesive Sterilizer Indicator Tapes