

UNIVERSITY OF TOLEDO

SUBJECT: INFECTIOUS WASTE DISPOSAL

Procedure No: HM-08-019

PROCEDURE STATEMENT

Departments or laboratories generating infectious waste shall develop procedures for identification, segregation, handling and disposal of these wastes in compliance with Ohio Administrative Code (OAC) Chapters 3745-27 and 3745-37. Copies of the standard may be obtained from the Environmental Health and Radiation Safety Department.

PURPOSE OF PROCEDURE

To ensure safe handling and disposal of infectious wastes and to ensure compliance with applicable CDC, OSHA, EPA and Ohio Department of Health regulations and guidelines.

PROCEDURE

For the purpose of this policy, "infectious agent" means a type of microorganism, helminth, or virus that causes or significantly contributes to the cause of increased morbidity or mortality of human beings.

For our purposes, infectious wastes include the following categories of waste. Questions regarding the designation of wastes as infectious may be directed to the the Environmental Health and Radiation Safety Department.

A. Infectious Wastes Include:

1. Cultures and stocks of infectious agents and associated biologicals, including, without limitation, specimen cultures, cultures and stocks of infectious agents, wastes from production of biologicals, and discarded live and attenuated vaccines;
2. Laboratory wastes that were, or are likely to have been, in contact with infectious agents that may present a substantial threat to public health if improperly managed;
3. Pathological wastes, including, without limitation, human and animal tissues, organs, and body parts, and body fluids and excreta that are contaminated with or are likely to be contaminated with infectious agents, removed or obtained during surgery or autopsy or for diagnostic evaluation, provided that, with regard to pathological wastes from animals, the animals have or are likely to have been exposed to a zoonotic or infectious agent;
4. Waste materials from the rooms of humans, or the enclosures of animals, that have been isolated because of diagnosed communicable disease that are likely to transmit infectious agents. Also included are waste materials from the rooms of patients who have been placed on blood and body fluid precautions under the standard precaution system established by the Centers for Disease Control of the United States Department of Health and Human Services, if specific wastes generated under the standard precautions system have been identified as infectious wastes by rules referred to in paragraphs 1-8 of this section;
5. Human and animal blood specimens and blood products that are being disposed of, provided that, with regard to blood specimens and blood products from animals, the animals were or are likely to have been exposed to a zoonotic or infectious agent.. "Blood products" does not include patient care waste such as bandages or disposable gowns that are lightly soiled with blood or other body fluids, unless such wastes are soiled to the extent that the generator of the wastes determines that they should be managed as infectious wastes. Contaminated carcasses, body parts, and bedding of animals (see Segregation and Packaging) that were intentionally exposed to infectious from zoonotic or human disease agents during research, production of biologicals, or testing of pharmaceuticals, and carcasses and bedding of animals otherwise infected by zoonotic or infectious agents that may present a substantial threat to public health if improperly managed;

6. Sharp wastes used in the diagnosis, treatment or inoculation of human beings or animals or that have, or are likely to have, come in contact with infectious agents in medical, research, or industrial laboratories, including, without limitation, hypodermic needles and syringes that contain needles, scalpel blades, and glass articles that have been broken. Such wastes are hereinafter referred to as "sharp infectious waste" or "sharps";
7. All other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the Public Health Council created in Section 3701.33 of the Revised Code, by rules adopted in accordance with Chapter 119 of the Revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents, and any other waste materials the generator designates as infectious wastes.
8. Infectious waste that is also radioactive shall be managed in accordance with applicable Ohio Department of Health regulations.

B. Segregation

1. All infectious waste will be segregated from other wastes at the point of generation; for example, at the patient bedside or lab bench area.

All sharps shall be placed in a "sharps" container at the point of generation. In the Hospital, only sharps containers approved by Infection Control shall be used. Sharps containers for most applications at the University Medical Center are available from Environmental Health and Radiation Safety and are serviced by a third party vendor, Daniels Sharpsmart (See HM-08-020). Sharps containers for some applications (large sharps disposal) require the individual University Medical Center department to purchase the containers via Central Supply. Any laboratory supply company may supply acceptable sharps containers for University research labs.

a. Syringes that do not contain needles must be disposed of in an infectious waste container

3. All other infectious wastes and animal carcasses will be collected in bags as described in "Packaging." No animal carcasses of any kind, infectious or not, will be disposed of as solid waste in regular building trash.

C. Packaging

Filled non-reusable sharps containers, other infectious wastes, and all animal carcasses will be placed in impervious red plastic bags that are sufficiently strong (2 or 3 ply) to preclude ripping, tearing, or bursting under normal handling conditions. Filled red bags must be securely tied to prevent spillage before being moved from the area of generation, and then placed in a leak-proof infectious waste receptacle. These bags must be red in color and/or conspicuously labeled with the biohazard symbol. See also Policy # HM-08-020 "Disposal of Sharps". It is unacceptable for infectious waste bags and sharps containers to be stored outside of approved containers (for example, on the floor or in cardboard boxes).

D. Treatment and Disposal

1. Each department or laboratory generating infectious waste shall:
 - a. On Health Science Campus: Present properly packaged infectious wastes for collection and secondary transportation by Environmental Services. Environmental Services personnel will transport them to the locked storage room at the loading dock in Dowling Hall.
 - b. On Main Campus: Properly package infectious wastes and either store them in a manner to prevent putrefaction (e.g. freezing) or place them in red plastic tubs provided by the infectious waste vendor retained by the Safety and Health Department for pickup, transport, and final disposal. Storage areas are located in Wolfe Hall, the Student Medical Center, and Palmer Hall.

- c. Not grind any infectious wastes nor compact any infectious wastes until after they have been appropriately treated;
 - d. Provide and maintain documentation on the major components of their infectious waste, methods authorized by this policy utilized to treat wastes to render them non-infectious, and the department's method for distinguishing between treated and untreated infectious waste.
2. If necessary, specimen cultures and cultures of viable infectious agents may initially be treated on-site chemically. Chemically treated cultures should not be autoclaved as hazardous decomposition products may be formed. Currently, the University's autoclaves are not validated for treatment of infectious waste and such waste must be packaged for shipment to an outside treatment facility.
 3. Untreated liquid or semiliquid infectious wastes consisting of blood, blood products, body fluids, and excreta may be discharged to the sanitary sewer system and need not be documented as infectious wastes.
 4. Infectious wastes that have been treated to render them non-infectious may be disposed of with other solid wastes provided that sharps containers effectively contain any sharp hazards and that bags are readily identifiable as having been treated.
 5. Those departments requesting authority to treat their infectious wastes must have a plan in place to demonstrate and document compliance with Rule 3745-27-32 of the OAC. That plan must be reviewed by the Environmental Health and Radiation Safety Department and must address compliance with said policy.
 6. Alternate treatment methods may be used as long as they are those specifically mentioned in OAC 3745-27-32, and have been approved by the Environmental Health and Radiation Safety Department.
- E. For Autoclaving (only when area is approved for final treatment of infectious waste by the Safety & Health Department): (Currently, no department meets this criteria.)
1. All autoclaves must be operated at minimum temperature of 250 degrees Fahrenheit at a minimum of 15 pounds per square inch for a minimum of 60 minutes (dependent on quantity and density of the load) sufficient to render waste non-infectious. Other combinations of operational parameters of temperature, pressure, and time below the minimums stated in paragraph OAC 3745-27-32 (K)(3)(e), are also acceptable, if validated, with the supervision of local authorities. Validation testing must be completed prior to the autoclave being used to treat infectious materials by the Environmental Health and Radiation Safety Department and the Ohio EPA..
 2. All departments utilizing autoclaves to treat infectious wastes shall adopt and post in the immediate area of the autoclave; standard written operating procedures to address; time, temperature, pressure, types of infectious wastes (including types of containers and container closures) to be treated, pattern and maximum quantity of loading and liquid content.
 3. Each package of waste in a load shall have heat-sensitive tape or the equivalent to indicate the attainment of adequate temperature conditions.
 4. After autoclaving, all sharps must be managed in a manner to eliminate the potential of those wastes to cause lacerations or puncture wounds during handling, transportation and disposal.
 5. All autoclaves must be evaluated monthly under full load conditions for effectiveness against spores of *Bacillus stearothermophilus* or other FDA approved indicator. Such evaluation shall be conducted by placing spores of *Bacillus stearothermophilus* within the interior of a bag of simulated infectious waste. The bag of simulated waste shall be treated and the spore removed and incubated for a period of one week. Failure to achieve satisfactory spore test results will be immediately reported to Biomedical Engineering for appropriate action. The autoclave will not be used until effective operation is documented.
 6. At each autoclave unit a log shall be maintained that provides (for infectious waste); the date the waste is treated, the start and stop time of each cycle, the operator's name, extension, room number, whether the

waste treated is infectious or not. Each operator is obligated to complete the forms provided at the autoclave, relative to the above information. The operator on a daily basis is required to write on the log the temperature and pressure correlation during a run to determine proper autoclave performance as indicated by a posted steam chart with a ± 2 units in °F or °C or in PSI. Failure to achieve proper temperature and pressure correlation is cause for taking autoclave out of service and contacting Biomedical Engineering (419.383.4899) or the Environmental Health and Radiation Safety Department (419.530.3600).

7. The log, temperature graphs, spore test results and maintenance reports shall be collected and provided to the the Environmental Health and Radiation Safety Department weekly by the staff assigned this responsibility and shall be maintained by the Environmental Health and Radiation Safety Department for a minimum of three years.
 8. Autoclaves are not to be used for the final treatment of animal or human pathological waste unless approved by the Ohio EPA and the Environmental Health and Radiation Safety Department.
- F. For chemical treatment of cultures;
1. Approved chemical treatment solutions are sodium or potassium hypochlorite at a 15% volume per volume concentration, for the treatment of surface colonies or colonies in suspensions.
 2. All cultures shall be submerged for a minimum of 20 minutes to assure that waste is rendered non-infectious, or as recommended by the literature. Liquid treated waste may be sent to the sanitary sewer system as long as they do not congeal or clog waste lines.
- G. For infectious wastes to be disposed of through the infectious waste contractor retained by the the Environmental Health and Radiation Safety Department:
1. Wastes shall be packaged as described in Packaging by the department or laboratory generating the waste.
 2. Environmental Services must be notified of infectious waste activity and arrangements made with Environmental Services as to the location of materials identified for infectious waste disposal.
 3. Environmental Services will ensure materials so identified are packaged in accordance with the requirements of the infectious waste disposal firm (i.e., securely tied).
 4. The the Environmental Health and Radiation Safety Department will ensure that transportation and disposal of these infectious wastes are completed in a manner consistent with OAC Rule 3745-27-31, -32, and -33 and that appropriate permits and licenses are maintained.
 5. The the Environmental Health and Radiation Safety Department shall ensure that manifests documenting the treatment or destruction of infectious wastes by the infectious waste disposal vendor is obtained and retained as required by OAC.
 6. HSC-containerized wastes pass through an area radiological monitor maintained by the Environmental Health and Radiation Safety Department. If the area monitor detects any radiation, an alert is sent to Environmental Health and Radiation Safety. Radiation Safety personnel will then survey the containers with a GM Meter to identify the container . The container will be separated from and stored and disposed of according to Radiation Safety procedures.
 7. Waste containers are routinely scanned at the infectious waste vendor's receiving facility. Any container that produces a screening alert is selected for further monitoring. Any container emitting radioactivity in excess of 50 $\mu\text{rem/hr}$ will be immediately rejected for treatment. The treatment facility will then contact the University to retrieve the affected container.

8. The treatment facility will immediately reject any waste received at its infectious waste facilities which measures in excess of 50 urem/hour.

The treatment facility will hold any waste received at its infectious waste facilities which measures less than or equal to 50 urem/hour but more than background for a maximum of 14 days. If stored waste has not decayed to background during this period, the waste will be rejected.

The treatment facility will immediately notify the Ohio EPA verbally, followed by a written notification of any waste received which exhibits a radioactive level above background.

Wastes which are rejected will be returned to the University of Toledo with the next regular service date. The returned container will have a copy of its manifest attached. The driver will provide Environmental Health and Radiation Safety with a "Discrepancy Report" which documents the levels monitored at the treatment facility.

Environmental Health and Radiation Safety will immediately notify the Radiation Safety Office upon the container's arrival and provide support in actions they deem appropriate to investigate the discrepancy.

A Environmental Health and Radiation Safety incident report will be compiled and distributed.

H. Spills of Infectious Waste

1. All areas treating (i.e. autoclaving), packaging, storing, or otherwise handling infectious waste shall implement the procedures attached to the biohazard spill kit located within their department. These areas are responsible for contacting the Environmental Health and Radiation Safety Department to obtain a new spill kit as their current kit becomes depleted.
2. All spills of infectious waste involving greater than one cubic foot of waste must be reported to the Environmental Health and Radiation Safety Department, within 24 hours. This report must include the exact location of the spill/release, the names of all employees involved, the date and time of the spill/release, a short detailed summary of events and the procedure used to clean the spill or release. All other spills less than one cubic foot must be reported in a timely manner to Environmental Health and Radiation Safety including the above information, for documentation on Hazardous Material Incident Report. The Environmental Health and Radiation Safety Department must maintain this document for a minimum of three years.

- I. All infectious material waste activity shall be compiled into a summary report; listing area removed from, quantity, location of disposal and date, and is reported to the Safety & Health Committee on a routine basis.

The Environmental Health and Radiation Safety Manager shall review the above reports and analyze its contents for trends and common occurrences. Decisions will be made as to the appropriateness of further actions in relation to these tendencies.

During this review period, any further follow-ups will be generated immediately and proposed to the appropriate department manager.

J. Premises

Educare Center
1932 Birchwood Ave.
Toledo OH 43614

Lake Erie Center
6200 Bayshore Rd.
Oregon OH 43618

Glendale Medical Center
3355 Glendale Ave.
Toledo OH 43614

UT Main Campus
2801 W. Bancroft St.
Toledo OH 43606

Glendale Medical East
3333 Glendale Ave.
Toledo OH 43614

UTMC Family Physicians Fallen Timbers
2000 Elm St. Ste. 705
Maumee OH 43537

UT Health Science Campus
3000 Arlington Ave.
Toledo OH 43614

North Engineering (Main Campus)
1700 N. Westwood Ave.
Toledo OH 43607

UTMC Family Physicians
4204 Sylvania Ave.
Toledo OH 43623

References: Ohio Administrative Code, Chapters 3745-27 and 3745-37.

Source: Safety & Health Committee
Infection Control

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