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Attachment A: Infectious Waste Autoclave Log

I. PURPOSE

To establish a procedure for safe, effective management of infectious waste that complies with Dane County requirements and follows requirements published by the Department of Natural Resources and the Environmental Protection Agency. This procedure contains the following components:

A. Segregation
B. Packaging
   1. Sharps
   2. Infectious waste other than sharps
C. Handling & Storage
D. Transport
   1. On-site
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   3. Equipment failure
H. **Staff Training**
   1. Generators
   2. Autoclave operators
   3. Custodial staff

I. **Records and Manifests**

II. **SCOPE AND APPLICATION**

The scope of this procedure covers any infectious waste (as defined in Section III) generated, handled, and/or stored in the MATC workplace.

This procedure applies to all MATC workplaces. Specific applicable areas include:

<table>
<thead>
<tr>
<th>Program/Area</th>
<th>Waste Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Hygiene/Assistant</td>
<td>-Sharps</td>
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<tr>
<td></td>
<td>-Gauze/tissues contaminated with blood and saliva</td>
</tr>
<tr>
<td>Medical Lab Technician</td>
<td>-Cultures/stocks of infectious agents</td>
</tr>
<tr>
<td></td>
<td>-Sharps</td>
</tr>
<tr>
<td></td>
<td>-Blood and blood components</td>
</tr>
<tr>
<td>Medical Assistant</td>
<td>-Cultures/stocks of infectious agents</td>
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<td></td>
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<td>-Blood and blood components</td>
</tr>
<tr>
<td>Nursing Program</td>
<td>-Sharps</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>-Cultures/stocks of infectious agents</td>
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<td>-Sharps</td>
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<tr>
<td>Animal Tech Program</td>
<td>-Cultures/stocks of infectious agents</td>
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<td>-Sharps</td>
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<td>Microbiology-Gen. Ed.</td>
<td>-Cultures/stocks of infectious agents</td>
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<td>-Sharps</td>
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<td></td>
<td>-Blood and blood components</td>
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III. **DEFINITIONS**

**Blood and Body Fluids:** Means whole blood and blood components, blood specimens, body fluids, and dialysate from chronic ambulatory peritoneal dialysis (CAPD).

**Human Tissue:** Means recognizable human tissue. Does not include hair or nails, but does include teeth. It must be buried, incinerated, or rendered completely unrecognizable.
**Note:** Non-human tissues are only considered infectious if they are known or suspected to contain pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible human host could result in an infectious disease.\(^{(1)}\) For example, this procedure does not apply to the veterinary animal waste streams.

In addition to the above, MATC treats the following miscellaneous wastes as infectious waste:

1. Soiled dressings, sponges and spill response materials.
2. Specimen containers.
3. Slides and coverslip.

**Infectious Waste:** The EPA-DNR definition of infectious waste under section NR 500.03(67), Wisconsin Administration Code, means solid waste that contains pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in an infectious disease.\(^{(1)}\)

**Medical Wastes:** Means wastes that have had contact with patient blood or body fluids, including but not limited to, wastes from the emergency department, autopsy suite, or operating and delivery rooms.

**Microbiological Lab Wastes:** Means cultures and lab equipment that have come in contact with infectious agents.

**Sharps:** Means medical or laboratory articles including those that are potentially infectious and that may cause punctures or cuts. Examples include, but are not limited to, hypodermic needles, syringes, posture pipettes, and scalpel blades.

### IV. RESPONSIBILITIES

#### A. EH&S Manager

1. Defines procedure for Infectious Waste Management within MATC workplaces.
2. Provides and documents safety training for MATC employees covered under this procedure.
3. Reviews the Infectious Waste Management Program at least annually to identify program deficiencies and updates as necessary.
4. Coordinates/manages on-site infectious waste collection site in accordance with this plan.
5. Completes and provides infectious waste annual reports to DNR.
6. Maintains copies of manifests and annual reports for duration of at least 3 years.

#### B. Deans

1. Implement and maintain the infectious waste management program in their respective areas in accordance with this plan. Work directly with the EH&S Manager to ensure proper procedures are implemented.
C. Managers/Supervisors

1. Coordinates/maintains the requirements set forth in this plan amongst their employees.
2. Refer all employees (including full-time, part-time, temporary and student help) who will be working with or around infectious waste to the EH&S Manager for training prior to permitting them to work with or around these materials.
3. Notify the EH&S Manager of any work which will require contractors to work with or around infectious wastes (completion of attachment A of the Hazard Communication Program may be required).
4. Ensure the department maintains the documentation on autoclave logs and waste disposal for a duration of at least 3 years.
5. Ensures infectious wastes are properly labeled and handled by department staff in accordance with this procedure.
6. Ensures employees maintain autoclave logs and that this information is provided to the EH&S Manager annually, upon request.

D. Employees

1. Attend required training and follow all safety precautions when handling infectious materials as described in this procedure and other standard industry practices for self protection and to provide a safe workplace for others.
2. Report any unsafe conditions in the workplace to their supervisor or EH&S Manager.

V. PROCEDURE

A. Segregation of Infectious Waste

Infectious waste must be kept separate from the general non-infectious waste. This is best accomplished at the point of generation or point of discard. Those who generate the waste are the most qualified to assess the hazards associated with the waste. Exposure to pathogenic organisms is also minimized by this method.

Note: Any questions should be directed to the EH&S office.

1. Infectious waste must be discarded directly into containers or plastic bags that clearly differentiate it from the general waste stream. Plastic bags shall be orange or red and clearly marked with the universal biological hazard symbol.

2. Containers other than plastic bags should also be distinctly colored and clearly marked with the above symbol.
3. No person may mix infectious waste with solid waste that is not infectious.
4. No person shall remove solid waste that has been commingled with infectious waste. Once mixed, the solid waste becomes infectious waste and must be treated accordingly.
5. No person shall remove solid or infectious waste that has been placed in a bag or container labeled with the biohazard symbol until it has been treated according to NR526.11.
6. No person may transport solid waste and infectious waste on the same cart unless the wastes are in separate and identifiable bags or waste containers.

B. Packaging of Infectious Waste

1. No person may transport infectious waste from and through the property where the waste was generated unless the waste is placed in a container which protects the waste handlers and other persons from exposure to the infectious waste, and meets the following:
   a. **Sharps** shall be placed directly into rigid, puncture-resistant containers such as metal or plastic. The containers should be sealed and labeled with the universal biological hazard symbol. Clipping and breaking needles is prohibited to avoid production of aerosols. Avoid overfilling the containers; only fill to the "fill to this level" line.
   b. Infectious waste other than sharps (liquids, solids and semi-solids) shall be placed in a single plastic biohazard bag, and securely sealed to prevent leakage of the contents. The bag shall then be placed inside a rigid container, which may include a cardboard container that is labeled with a visible biohazard emblem and the word “biohazard.” Bulk containers shall be small enough to be handled by a single person.
      i. All reusable containers must be disinfected after being emptied.
      ii. No person may open a secured container of infectious waste which is ready for transportation until immediately before treating the waste, unless repackaging is necessary to prevent spills or leakage.

C. Handling & Storage

1. Handling
   a. Only trained personnel may handle, load, unload, process or treat infectious waste.
   b. All containers shall be handled and transported to prevent the loss or spilling of the contents.
   c. To prevent odors, infectious waste may be refrigerated to below 42°F until treated.
   d. All infectious waste must be loaded and unloaded by hand so as not to damage containers or spill their contents.
   e. Untreated infectious waste may not be compacted.

2. Storage
   a. Infectious waste may be temporarily accumulated in individual containers near the place of generation until full, prior to moving the waste to the on-site storage facility.
b. Contact the EH&S office to coordinate moving the waste to the on-site infectious waste storage location prior to transportation off-site. **Note:** The EH&S on-site storage area for infectious waste will comply with the following:
   i. The storage area shall be kept clean and be impermeable to liquids. Carpeted areas or wooden floors may not be used in storage areas.
   ii. The storage area designated for infectious waste may contain only infectious wastes and their containers. (The storage area may be an area designated within a room.)
   iii. The storage area shall be in an enclosed building to prevent exposing the infectious waste to weather.
   iv. Access to the storage area shall be limited to authorized personnel.
   v. Nuisance conditions shall be prevented from developing. Appropriate measures shall be taken to prevent odors.
   vi. Pick-up, transport, treatment and disposal shall be allowed only through an infectious waste transporter licensed by the DNR per NR526.09(4)(f).
   vii. Containers shall be removed and emptied as necessary, but at least every 90 days.
   viii. The EH&S office will maintain records of how much and where the infectious waste has been sent off-site, via activity log and manifest copies.

D. **Transportation of Waste**

1. On-site
   a. Waste transported within the facility must be double bagged and closed securely.
   b. Bottles and flasks should be placed in a leak-proof container.
   c. Carts used to transport waste shall be cleaned and disinfected frequently.
   d. Nuisance conditions shall be prevented from developing.

2. Off-site
   a. Waste transport from any MATC Facility shall be completed by a certified infectious waste service contractor. Any exemption will be approved by the EH&S office and in compliance with NR526.10(2). **Note:** No person may transport infectious waste from the property where the waste was generated unless the person puts the waste in a container that protects waste handlers and other persons from exposure to the infectious waste.

E. **Treatment**

All infectious waste produced at MATC will be treated in accordance with the approved methods (NR 526.11)—i.e. using steam disinfection or chemical disinfection; or ultimately transported off-site for proper disposal using a certified infectious waste service contractor.

Steam sterilization subjects all the waste to a combination of operational
temperature, pressure and time proven to render the waste non-infectious at the design capacity of the installed equipment.

Autoclaves are located as follows:

   Truax — MLT Program, Biotechnology, Vet Tech, Microbiology
   Downtown — Dental Hygiene/Assistant

It is the responsibility of each department or area to sterilize their own waste. There will be a cooperative effort among departments that have autoclaves with departments or areas that do not.

Minimum requirements for the treatment of infectious waste:

1. **Operating.** The operator shall follow a written operational manual or documented quality assurance procedures for operating the treatment unit. The operational procedures shall be available to the operator at all times the treatment unit is in operation.
   a. Standard operating procedures shall be developed and posted for each autoclave.

2. **Testing.** At a minimum, a qualified person shall test the treatment unit at the frequency specified by the manufacturer’s instructions, or after every 100 hours of operation, whichever is more frequent. Test methods shall be appropriate for the treatment method and shall be based on medically-accepted procedures and the manufacturer’s instructions. Acceptable test methods may be physical, chemical or microbiological in nature, as appropriate for the treatment method.

3. **Recordkeeping.** An operating log for each treatment unit shall be retained for at least 3 years. For treatment units treating 50 pounds or more of infectious waste per month, the operating log shall be kept for all test cycles and treatment cycles. For treatment units treating less than 50 pounds of infectious waste per month, the operating log shall be kept for test cycles only.
   a. The operating log shall contain the following information for all test cycles/treatment cycles as they apply:
      i. Date
      ii. Clock start and stop time of cycle.
      iii. Operating parameters
         1. Temperature
         2. Pressure
         3. Type of disinfectant
         4. Concentration of disinfectant
         5. Duration of treatment cycle
         6. Contact time
      iv. Approximate amount of waste treated
      v. Generator of waste treated, if other than operator of the autoclave
      vi. Results of tests run to verify disinfection

*Attachment A* provides a sample log, which should be used to
document cycles (or an equivalent log).

b. Each department is required to keep these logs for a duration of 3 years, to conform to DNR requirements.

c. The Wisconsin Department of Natural Resources requests a yearly report on the amount of infectious waste produce and treated. A copy of the autoclave log should be submitted to the EH&S Manager at the end of the calendar year so that facility totals can be calculated and reported.

F. Disposal

1. **Liquids**, which have been rendered non-infectious by steam sterilization, may be poured down the drain providing the solution doesn't contain any other hazardous components (i.e., hazardous chemicals).

2. **Solids and semi-solids** which have been steam sterilized may be placed in the facility's regular waste stream using either of the following methods:
   - Treated waste in autoclave bags may be placed inside a garbage bag of a color other than orange or red. The bag should be tightly secured and placed near a trash receptacle.
   - Treated waste in autoclave bags may be placed in a trash receptacle if the universal biological hazard symbol has been defaced with autoclave tape that displays the words "AUTOCLAVE." Bags must be tightly secured.

The method used must leave it very clear to the Custodial Staff that the waste has been treated.

3. **Sharps** containers, which have been steam sterilized, must not be placed in the trash, as they are still considered infectious. Sharps containers will be collected via the EH&S office and transported to a licensed hazardous waste facility for incineration. It is not required to autoclave sharps containers prior to transport.

   **Note:** Sharps containers should not be given to a custodian for disposal. The EH&S Manager should be contacted for coordination of pick-up, storage and proper disposal.

4. For any other disposal needs/clarification, contact the EH&S Office.

G. Contingency Planning

1. **Spills** should be treated immediately in the following manner:
   - Always protect yourself with gloves, goggles, and apron before clean up.
   - Secure area; do not allow through traffic.
   - Solids from spill should be placed inside of an autoclave (biohazard) bag. Liquids should be cleaned up with bleach and paper towels. (See paragraph 2 below.) These should also be placed inside of an autoclave (biohazard) bag.
• The waste and clean-up materials should be autoclaved according to standard operating procedures.
• Always wash hands thoroughly following clean up.

2. Cleanup and Disposal of Blood and Body Fluids

The identity of persons who are HIV positive is protected by law. Similarly, the incidence of Hepatitis B virus infections at MATC is not known. Because of the hazard potential from exposure to blood and other body fluids, extreme caution must be exercised during cleanup of these materials. The following description of cleanup and storage policy is intended to address that need.

Note: All spills of blood or other body fluids will be assumed contaminated with infectious disease agents and will be cleaned up and disposed of in accordance with universal precautions.

a. Alert people in the immediate area to keep a safe distance.
b. Get a spill kit and put on appropriate personal protective equipment including splash goggles, chemical resistant gloves, and disposable gown, as needed.
c. Special handling for sharp materials: Sharp materials such as broken glass that may cause cuts should not be picked up directly by hand. Pick up via mechanical means (i.e. forceps) and dispose of properly; if contaminated with blood, discard into a sharps container marked “biohazard waste”.
d. Use of absorbent material and disinfectant:
   • Cover spill with paper towels or other absorbent material.
   • Spills shall be disinfected by covering them with an EPA registered tuberculocidal disinfectant (a solution of household bleach containing one part of bleach in ten parts water [made up daily] is okay for this use). Carefully pour the disinfectant around the edge of the spill. Avoid splashing. Avoid walking in spill.
   • Follow directions of disinfectant for contact time. If using bleach, allow enough time for the solution to contact all contaminated items.
   • Use paper towels to wipe the spill, working from the edges into the center.
   • Wipe the area again with fresh paper towels soaked in disinfectant. Cleanup shall continue until all traces or residues of the spill are removed.
e. Disposal: Waste materials generated by cleanup (soiled towels, gloves, etc.) can be put in the general trash as long as they are no longer considered infectious, otherwise place the items in a biohazard bag marked with the universal biohazard sign and contact the EH&S office (x6291) for pick-up.

Note: If the spill was properly and entirely disinfected with bleach (or an EPA registered tuberculocidal disinfectant or EPA-registered disinfectants that are effective against HIV and HBV) then yes, the cleanup from the blood spill can be put in the general trash because it is NO LONGER CONTAMINATED.
This is easy to apply to small cleanups. However, for a larger spill, and gross contamination, the materials should be placed in a biohazard bag and heat sterilized or sent for incineration (via contacting the MATC EH&S Manager).

3. Equipment failure of an autoclave should be acted upon immediately. Repair/service companies will often respond to requests for service the same day. In the event that the autoclave cannot be repaired immediately, arrangements should be made with another department to share their equipment. Procedures under the transportation section of this document must then be followed.

H. Staff Training
Training of staff will include an explanation of the plan with assignment of roles and responsibilities. The following groups of individuals will require training in the following areas:

1. Generators of infectious waste:
   a. Explanation of plan
   b. Additional information on designating, segregating, and packaging waste
   c. Techniques to minimize exposure

2. Autoclave operators:
   a. Explanation of plan
   b. Additional information on designating, segregating and packaging waste
   c. Techniques to minimize exposure
   d. Autoclave operation
   e. Establishing standard loads
   f. Recordkeeping

3. Custodial staff:
   a. Brief overview of plan
   b. Package differentiation — infectious vs. non-infectious
   c. Recognizing disposal problems

I. Records and Manifests

1. Records and manifests shall be maintained by the EH&S office for at least 3 years after they were created.
REFERENCES:


# Attachment A: Infectious Waste Autoclave Log

(Complete all that apply)

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<th>Time</th>
<th>WASTE</th>
<th>OPERATING PARAMETERS</th>
<th>Final Disposal&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Result of test</th>
<th>Comments</th>
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<td></td>
<td></td>
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<td>Type&lt;sup&gt;a&lt;/sup&gt;</td>
<td># Bag</td>
<td>Weight of bag</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>End Time</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Type (e.g. Liquids, Solids, Bandages, Sharps)

<sup>b</sup>Disposal (e.g. Drain, Trash, Incineration)