



**WASTE MANAGEMENT  
AND DECONTAMINATION**

## Review:

- The difference between Category A and Category B infectious substance waste
- Inactivating Category A infectious substance waste by
  - Autoclaving
  - Incineration
- Packaging requirements for transporting Category A medical waste



# Waste in Numbers Generated by University of Nebraska Medical Biocontainment Unit

Ebola Activation	Containers (3-4 bags in each)	Weight in LBS.
1	101	1011.5
2	88	1806.5
3	34	880.2

- Volume of waste generated related to acuity
- Considerations for processing and storage
- Addition of second autoclave



**Updated  
August  
2019**

**Managing Solid Waste  
Contaminated with a Category A  
Infectious Substance**

August 2019



For questions on the Hazardous Material Requirements (HMR) contact the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Information Center at 1-800-467-4922, 9am-5pm Eastern time or email: [infocntr@dot.gov](mailto:infocntr@dot.gov)

<https://www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-information-center>

<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/transporting-infectious-substances/6821/cat-waste-planning-guidance-final-2019-08.pdf>



## Category A infectious substance definition

Is an untreated substance that if exposure to it occurs during transportation is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals

## Category B infectious substance definition

Is a substance not in a form that is generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs

Waste that meets the definition for Category A  
Infectious Substance must comply with the  
**DOT Hazardous Materials Regulations (HMR; 49 CFR, Parts 171- 180)**

<https://www.phmsa.dot.gov/transporting-infectious-substances/transporting-infectious-substances-overview>



# CATEGORY B WASTE DISPOSAL

- Dry solid waste (e.g., used gloves, dressings), should be collected in biohazard bags for disposal as regulated medical waste
- Waste that is saturated with blood or body fluids should be collected in leak-proof biohazard bags or containers
- Sharp items such as used needles or scalpel blades should be collected in puncture-resistant sharps containers
- Excretions may be poured down the toilet-Toilet lid should be closed before flushing to avoid aerosol generation

<https://www.cdc.gov/coronavirus/mers/hcp/air-transport.html>



## Inactivating Category A waste = rendering it non-infectious

Methods for inactivating Category A Infected Substance Waste:

**Autoclaving**

**Incineration**

**Chemical Treatment**

**NOTE:**

A procedure for **chemical inactivation** has not been standardized.  
If using chemical treatment, consider worker safety issues, as well as  
the potential for triggering other federal safety regulations

**NOTE:**

Inactivation or incineration of category A infectious substance may be subject to  
local and state regulations in addition to Federal regulations

# AUTOCLAVE

Autoclaves used to inactivate Category A infected substance:

- Should be designed and validated for that particular purpose.
- Category A infected substance should not be inactivated in an autoclave that is used for processing reusable medical devices.



[http://www.aami.org/news/2014/102314\\_Press\\_Multisociety\\_Statement\\_on\\_Processing\\_Biohazardous\\_Medical\\_Waste.html](http://www.aami.org/news/2014/102314_Press_Multisociety_Statement_on_Processing_Biohazardous_Medical_Waste.html)



# INCINERATION

- Can be onsite or offsite
- Must have a defined process for transporting the waste to the incinerator
- Products (i.e., the ash) can be transported and disposed of according to state and local regulations.
- Certified Contractor must be certified to transport hazardous waste
  - Specific boxes
  - Document final disposal





# PACKAGING CATEGORY A WASTE FOR OFF-SITE INACTIVATION

## A general rule

All waste generated during the care of patients infected with a disease that leads to the generation of Category A infected substance waste must be triple packed in a:

- Primary leak proof container
- Secondary leak proof container
- Rigid leak proof container

### NOTE:

There should be no infectious material on the outside of the containers and each package must be able to contain the contents without rupture or leakage  
49 CFR 173.24a (b)

### NOTE:

The packaging of category A infectious substance waste may be subject to local and state regulations in addition to Federal regulations



# TIPS FOR WASTE MANAGEMENT

- ▶ Place the container close to where the waste is being generated
- ▶ Don't fill waste containers more than  $\frac{3}{4}$  full
- ▶ Be cautious to avoid sharps being inadvertently placed in the waste container
- ▶ Place waste gently into the container to prevent aerosolization of the contents
- ▶ Never compress waste to make more room



# CATEGORY A WASTE BAG REMOVAL

Remove the bag using a method that will not cause aerosolization of the contents

Lift the overlap by 2 diagonal corners (wearing clean gloves).

- Turn the top of the bag to create a twist
- Firmly grasp the twist before lifting the bag out of the container





# BAG CLOSURE METHODS

The closure method should comply with local or state regulations and be such that if the bag is inverted, it will not leak

**Use a method that will not tear or puncture the bag**

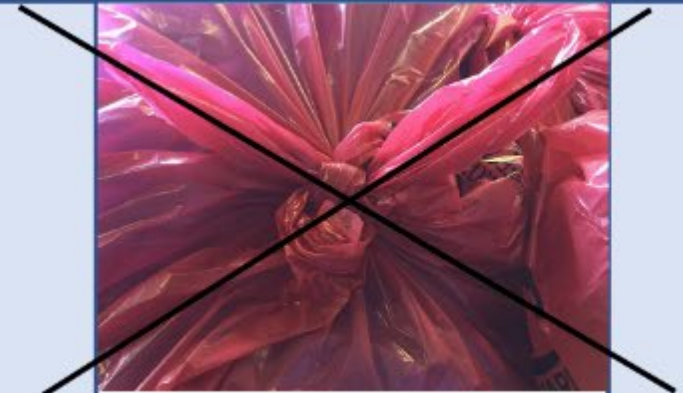
- Balloon knot
- Gooseneck and taped
- **Do not use the Bunny Ears method**



Balloon knot



Gooseneck



Bunny Ears

# CATEGORY A WASTE SECONDARY PACKAGING

## Secondary Packaging

- Prepare a waste container that is larger than the primary waste container by lining it with a biohazard bag, making sure the bag is inserted all the way to the bottom of the container with the excess overlapping the top
- Pass the waste from the hot zone into the second bag in the warm zone
- Secure the bag in the same way as the primary bag





# RIGID PROOF CONTAINERS

- Must be rigid and puncture proof
- Can be made from metal, plastic or fiber such as cardboard
- Lined with a biohazard bag with absorbent material in the bottom
- Must be securable with zip ties, bands, or tape



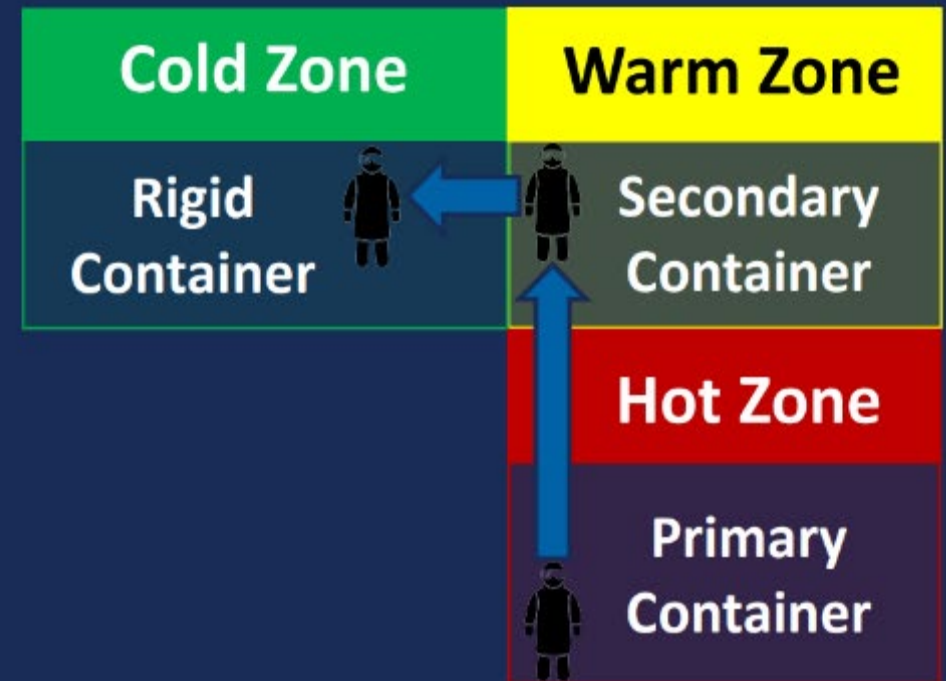
# TRANSFERRING TO A RIGID CONTAINER

Use Engineering and Administrative controls to safely move waste from the hot zone to the cold zone

Placing the waste into the rigid container should be done in an area where there is no potential for the external surfaces of the container to become contaminated.

Or

There needs to be a process to decontaminate the external surfaces (this will be difficult with fiber containers)





# SEQUESTERING WASTE

**If a Category A  
condition is ruled out:**

Waste can be handled according to procedures in compliance with local waste management ordinances

**If a Category A  
condition is confirmed:**

Follow procedures for Category A Infectious Substance Waste management

# LIQUID WASTE MANAGEMENT

- If there is no toilet in the patient room, a covered bedside commode
- Minimize the risk of spills by adding solidifier to the contents and dispose of as solid waste





# TERMINAL DECONTAMINATION

- Wear appropriate PPE
- Prepare equipment for cleaning and disinfection
  - Disconnect circuits and other single use components and dispose appropriately
- Remove all waste including bed linens and privacy curtains if used
- Clean surfaces using a cleaning product
- Disinfect surfaces using an EPA approved disinfectant known to be effective for the particular pathogen
- Create and adhere to facility protocols



# THINGS TO CONSIDER

- Can the area be locked down and sequestered until disease status is known?
- Who will do the terminal cleaning, HCW's or EVS?
- Create cleaning checklists for both routine and terminal cleaning
- Adjunct Options:
  - Time
  - Ultraviolet light
  - Vaporized hydrogen peroxide

