

Waste Management for EMS Agencies

Cindy Williams, VP/Chief Pharmacy Officer Riverside Health

Lisa Ellis, Hazardous Waste Compliance Coordinator, DEQ

Who regulates Healthcare waste?

- Federal
 - Environmental Protection Agency (EPA)
 - Drug Enforcement Agency (DEA)
 - Food and Drug Administration (FDA)
- State
 - Virginia Department of Environmental Quality (DEQ)
 - Virginia Board of Pharmacy

EMS waste generation

- Typical waste streams include:
- Solid waste
- Regulated Medical Waste
- Hazardous Waste, including hazardous waste pharmaceuticals
- Non-hazardous pharmaceutical waste
- DEA Controlled Substance Waste

EMS waste generation

- Potential waste streams include:

Solid Waste (SW)	Regulated Medical Waste (RMW)	Hazardous Waste (HW)	Pharmaceutical Waste not otherwise characterized	DEA Controlled Substance Waste
<ul style="list-style-type: none">- Trash- Household waste- Construction waste- Debris- Yard waste	<ul style="list-style-type: none">- Infectious waste- Sharps- Items contaminated with human blood and body fluids	<ul style="list-style-type: none">- Listed waste: Ingredient specifically listed by EPA- Characteristic waste:<ul style="list-style-type: none">- Ignitable- Corrosive- Reactive- Toxic/acutely toxic	<ul style="list-style-type: none">- Non-Hazardous Waste- Pharmaceutical- Non Schedule II-V medications	<ul style="list-style-type: none">- Schedule II-V medications

- Best practice is to implement waste minimization programs

Compliant disposal of pharmaceutical waste

- Medications not considered Hazardous Waste Pharmaceutical (HWP) or DEA Schedule II-V
 - The large majority of medications utilized by EMS agencies
 - Expired or damaged product: Return through reverse distributor
 - Partial doses:
 - Dispose of in appropriate waste container
 - RxDestroyer or similar
 - Non-hazardous pharmaceutical waste container (typically white/blue)
 - Sharps container (verify compliant with current waste management vendor)
 - Treat as “solid waste” with authorization/permission with local jurisdiction

Compliant disposal of pharmaceutical waste

- Medications in aerosol cans
 - Manage as Universal Waste (2019)
(<https://www.deq.virginia.gov/home/showpublisheddocument/19678/638297863515830000>)
 - Options include:
 - Continue to manage aerosol cans as hazardous waste (HW) under 40 CFR Part 262; or
 - Puncture cans using a commercial puncturing device, and recycle the punctured cans as scrap metal while characterizing and managing drained liquids as HW if appropriate; or
 - Manage un-punctured aerosol cans as Universal Waste (UW) under 40 CFR Part 273
- **Please note that puncturing is only allowed for aerosol cans that are going to be recycled as scrap metal.**

Compliant disposal of pharmaceutical waste

- DEA Schedule II-V
 - Un-opened expired or damaged product: return through reverse distributor or per DEA compliant process
 - Partial doses: Waste in a manner that makes product “non-recoverable”
 - Documentation and witness to waste
 - Consider use of RxDestroyer or similar product (<https://www.rxdestroyer.com/>)
 - Requires record keeping – refer to DEA website for more information
- Hazardous Waste Pharmaceutical (HWP) (2019)
 - Un-opened expired or damaged product: return through reverse distributor
 - Partial doses: Dispose through authorized vendor (black waste container, disposal in specially licensed disposal facility)

Types of Hazardous Waste

- **Listed:** Ingredient or waste specifically listed by EPA
- **Characteristic:** Ignitable, Corrosive, Reactive, Toxic/acutely toxic
- **Universal Waste:** a subset of hazardous waste that includes batteries, lamp (bulbs), mercury-containing devices, certain pesticides and aerosol cans.
 - Streamlined regulations. Quantity generated does not count towards generator status (<https://www.deq.virginia.gov/our-programs/land-waste/solid-hazardous-waste/hazardous-waste/universal-waste-requirements>)
- **Hazardous Waste Pharmaceuticals (HWP):** meet the definition of hazardous waste because they are either listed, or because they exhibit a characteristic of hazardous waste
 - Managed under EPA SubPart P
 - The EPA Pharmaceutical Rule includes a Sewer Prohibition that reduces the amount of Hazardous Pharmaceutical Waste being disposed down the drain by healthcare facilities. Became effective 8/21/19

Hazardous Pharmaceutical Waste Rule applies to:

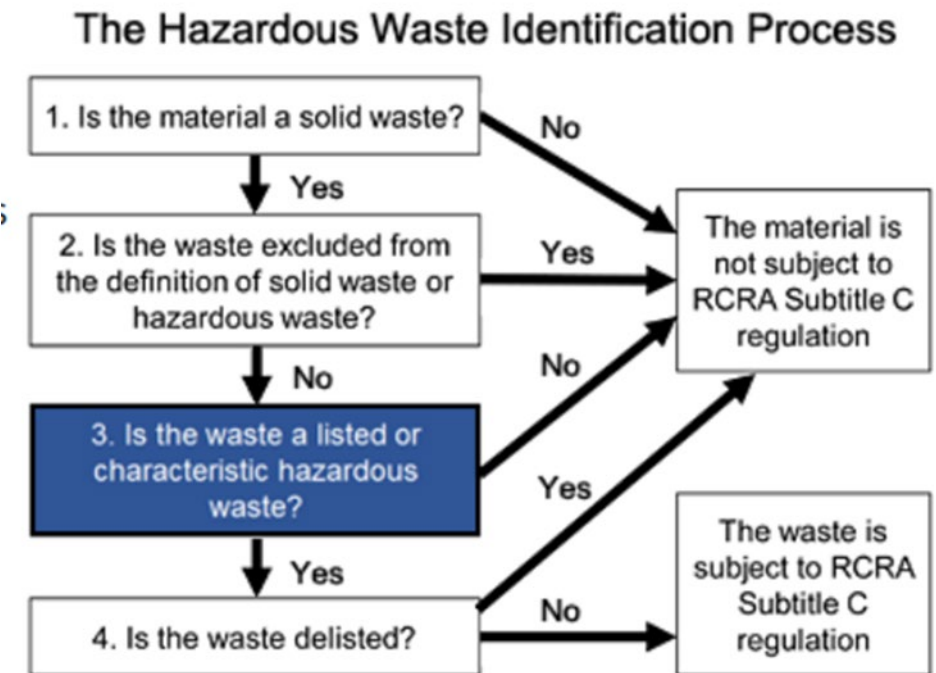
- wholesale distributors
- third-party logistics providers that serve as forward distributors
- military medical logistics facilities
- Hospitals/psychiatric hospitals
- ambulatory surgical centers
- health clinics, physicians' offices
- optical and dental providers
- Chiropractors
- long-term care facilities
- ambulance services
- Pharmacies/long-term care pharmacies/mail-order pharmacies
- veterinary clinics, and veterinary hospitals.

This definition does not include pharmaceutical manufacturers, reverse distributors, or reverse logistics centers.

Evaluation of Commonly Stocked EMS Drugs

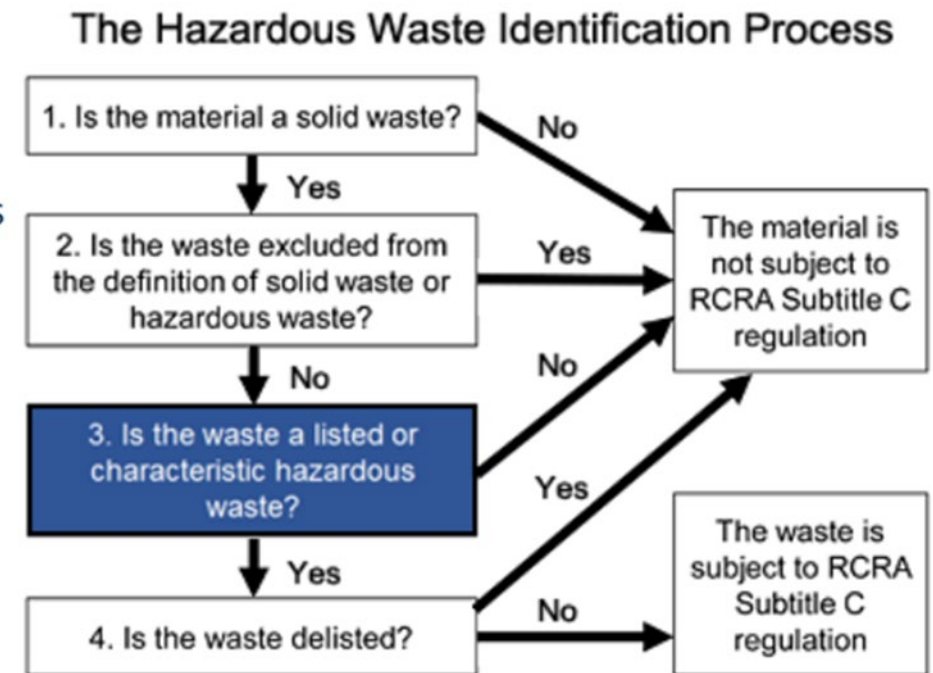
- Evaluation of all drug kit/RSI kit contents against HWP
- Based on review, several drugs are EPA listed:
 - Epinephrine
 - Nitroglycerin
- BUT both Epinephrine and Nitroglycerin have exemptions based on healthcare utilized formulations
 - But have to look at product characteristics

<https://rcrapublic.epa.gov/files/14778.pdf> Epinephrine memo
<https://rcrapublic.epa.gov/files/14654.pdf> Nitroglycerin memo



Evaluation of Commonly Stocked EMS Drugs

- Evaluation example:
 - Nitroglycerin EPA listed
 - 2003 memo that clarifies that medicinal nitroglycerin does not exhibit characteristics of “reactivity”
 - Formulation being used needs to have assessment for any additional characteristics
 - Nitroglycerin paste-OK
 - Nitroglycerin SL tab-OK
 - Nitroglycerin SL spray-aerosol, Universal Hazardous Waste but not RCRA HWP
 - Nitroglycerin injection-considered ignitable



Best practice for addition of drugs to formulary

- Evaluate medication based on
 - Efficacy
 - Safety
 - Cost
 - Other risks
 - Including classification of Hazardous Pharmaceutical Waste and appropriate disposal
- May be a role for EMS Council Medical Advisory Committee (include pharmacist as member) or Pharmacy Advisory Committee

Specific Agency Questions

Lisa Ellis, Hazardous Waste Compliance Coordinator, DEQ

Lisa.ellis@deq.virginia.gov

804-912-7366

Cindy Williams, VP/Chief Pharmacy Officer, Riverside Health

Cynthia.williams2@rivhs.com

References

- <https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes>
- <https://www.deq.virginia.gov/our-programs/land-waste/solid-hazardous-waste/hazardous-waste/hazardous-waste-training>
- <https://www.deq.virginia.gov/our-programs/land-waste/solid-hazardous-waste/hazardous-waste/universal-waste-requirements>

Panel Discussion

Requirements for generators of Hazardous Waste (including Pharmaceutical)

- All facilities that generate solid waste must determine if their solid wastes are hazardous waste
- Identify the types and quantities of hazardous waste potentially generated by their operations
- The amount of hazardous waste generated by a facility on a monthly basis establishes the facility's generator status
- The three categories are Very Small Quantity Generator (VSQG), Small Quantity Generator (SQG), and Large Quantity Generator (LQG).